Re-Energise 26

Building the Workforce for New Zealand's Energy Future: An Industry Skills Action Plan

eea Electricity Engineers' Association

EnergyResources Aotearoa

Image courtesy of Vector (Gas trench)

Contents

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Foreword

Every energy resource that fuels industry, every line, substation, control room, data centre, and emerging technology depends on the skills judgement, and commitment of the workforce behind it. In fact, the security of New Zealand's energy future depends on people.

Yet, for too long, the energy sector as a whole has treated workforce capability as an ad hoc consideration. Some organisations make investment in their workforce a core part of their business, while others see it as something to be managed at the margins. If we want an energy system that can support economic growth, enable emissions reduction and remain resilient in the face of change, we must invest in the workforce with the same seriousness we apply to infrastructure, technology and markets.

The *Re-Energise 26* report is an important step in that direction.

Image courtesy of Electra (Wind farm turbines, Stijo Stephen)

About *Re-Energise 26*

This report brings together evidence, insight, and practical experience from across the electricity and energy sector to highlight a simple truth: New Zealand's energy future will be built by people. If we want an energy system that can support economic growth, enable emissions reduction, and remain resilient in the face of change, we must invest in the workforce with the same seriousness we apply to infrastructure, technology, and markets.

This report does not offer a single silver bullet solution. Instead, it calls for leadership, coordination, and shared responsibility. It challenges government, industry, regulators, and education providers to work together, across organisational and political boundaries, to create clear pathways into the sector, strengthen skills and capability, and ensure the knowledge and experience of today's workforce is carried forward to the next generation.

A coordinated and collaborative approach

Energy Resources Aotearoa and the Electricity Engineers' Association (EEA) are proud to have researched, developed, and published *Re-Energise 26* through close collaboration. It should be noted that, like the report's recommended approach to sustaining the sector's workforce, success was only possible by working with others across the wider energy sector and government.

Contributions of knowledge, time, and resources made possible a whole-of-sector analysis of the current challenges and opportunities faced by the wider energy sector and its workforce. It is only through this cooperation that we now have an evidence-based view of the actionable and coordinated steps necessary to attract, develop, and retain the people essential to the security of New Zealand's energy and, by extension, its economic prosperity.

We acknowledge the contributions of many by name later in this report. Individuals who selflessly gave their time and insights through the support of organisations like the Ministry of Business, Innovation and Employment, vocational training and tertiary institutes, and Energy Resources Aotearoa and EEA steering groups. Thank you, to everyone who made *Re-Energise 26* possible.

A call to action

Energy Resources Aotearoa and EEA see first-hand the pressures facing the energy sector, but we also see the opportunity. With the right focus on people, New Zealand can build an electricity and energy system that is not only technically excellent, but socially and economically enduring.

We encourage all readers, whether you are a workforce planner, policymaker, industry leader, educator, or practitioner, to engage with the recommendations in this report and consider the role you can play in re-energising our workforce and our future.

Our nation, and its future economic prosperity, depends on it.

Nicki Sutherland
Chief Executive
Electricity Engineers' Association

John Carnegie
Chief Executive
Energy Resources Aotearoa

1.

Executive Summary

1. Executive Summary

Energy is the backbone of New Zealand's economy, powering our homes, schools, hospitals, businesses and communities and keeping daily life and economic growth moving. The sector is undergoing significant structural change as electrification accelerates. Electricity supply continues to steadily expand, while the energy resources sector is experiencing mixed trajectories, with oil and gas contracting alongside modest growth seen in geothermal and hydrogen, and rapid growth in solar deployment.

This report provides a deeper dive into each of these subsectors to highlight the specific challenges and opportunities faced because of these different dynamics.

New Zealand's economic prosperity over the coming decades will not be determined by technology alone. Nor will it be secured through efficiency gains in isolation. Success also depends on people, their skills, their adaptability, and their capacity to design, operate, maintain, and evolve the electricity and energy systems that underpin every part of our economy and society.

As this report makes clear, the energy sector sits at the centre of New Zealand's future growth, emissions reduction, and resilience ambitions. Electrification of transport and industry, the integration of distributed energy resources, greater digitalisation, and the deployment of new technologies all rely on a capable, available, and future-ready workforce. Without deliberate and sustained investment in people, the potential benefits of innovation, efficiency, and system integration will not be realised.

The *Re-Energise 26* report therefore reframes the national conversation. It shows that workforce capability is not a supporting issue; it is a core system constraint and opportunity. By strengthening the people who power the energy sector, New Zealand can unlock cross-sector efficiencies, accelerate the uptake of new technologies, and build an integrated energy system that delivers long-term economic and social value.

The goal of *Re-Energise 26* is to take a collaborative, conjoined approach to addressing workforce challenges faced by the wider energy sector in New Zealand. Many roles are highly transferable across the entire energy mix and, as the sector continues to evolve, there is a need for increased workforce mobility across the wider sector.

A shared view of the workforce helps the sector respond more efficiently and effectively while avoiding unnecessary duplication in investment and action.

Workforce capability is not a supporting issue; it is a core system constraint and opportunity.

Summary of findings and recommendations

***Re-Energise 26* analysis identifies a set of interconnected workforce challenges that require a coordinated, system-wide response.**

Finding 1:

Regulatory and policy volatility undermines workforce investment

The lack of a bipartisan approach to energy strategy continues to contribute to investment uncertainty and workforce insecurity, limiting employers' ability to plan and invest in workforce capability; this also makes commitment to careers in the NZ energy sector difficult for workers. Volatility in vocational reform has, and continues to, stifle the development of strong future talent pipelines.

Recommendations:

- Continue advocacy for a bipartisan approach to energy strategy and more stable energy policy settings.
- Strengthen government investment in, and support for, the vocational sector where it supports critical industries, such as the energy sector.
- Ensure workforce considerations are embedded early in major energy policy, regulatory, and infrastructure decisions.

Finding 2:

Fragmentation is creating waste

Multiple initiatives operate in parallel across industry, government, and education providers, often with similar objectives but limited coordination. This fragmentation risks duplication, uneven coverage and reduced impact in a vocational system adjusting to structural change. *Re-Energise 26* emphasises the importance of better alignment, clearer roles, and shared ownership to strengthen workforce delivery, building on existing work rather than introducing new complexity.

Recommendations:

- Establish a national energy sector workforce governance body to minimise national cost and maximise national impact. This can be achieved by aligning activities and initiatives to scale up investment in standardised products and programmes.
- Address the evidenced gaps and new needs identified in this report by supporting proactive workforce planning and development across the wider sector.
- Provide government funding to industry associations to enable them to deliver effective industry workforce coordination and delivery.

Finding 3:

The central challenge is speed to competence

The time required to convert graduates, mid-career entrants, and migrants into fully competent workers is the key constraint to entry into the workforce. This places pressure on supervision, mentoring, and training capacity and heightens employer sensitivity to the loss of experienced staff.

Recommendations:

- Invest in workforce Learning and Development as a core business priority.
- Identify and develop future supervisors, mentors and assessors early through a coordinated sector-wide capability programme, supported by a shared network to build capability, share practice and sustain participation in these critical roles.

Finding 4:

Constraints in essential functions are increasing

Persistent pipeline constraints are emerging in several critical functions within the energy workforce, even if overall vacancy levels remain broadly manageable. These include demand exceeding supply for electrical engineers, electrical maintenance workers, and cable jointers alongside differing supply challenges for safety, specialist technical staff, and experienced supervisors. Across these workforce groups distinct pressures are emerging. In many cases, the supply of new entrants is not keeping pace with forecast demand and participation in some education and training pathways has declined over time.

Recommendations:

- Invest and act now to attract and engage future energy sector workers at school and tertiary institutions, as well as those in their mid-careers in aligned industries.
- Work with tertiary providers to reduce barriers that threaten capacity increases by identifying and advocating for potential solutions.

Finding 5:

More mentors and supervisors are needed

Limited capacity in supervision, mentoring, and assessment is a major constraint on workforce growth. Experienced staff play a critical role across both trade and professional pathways in enabling apprentices, trainees, and graduates to enter and progress through the sector. Where supervisory capacity is stretched, the ability to grow a quality workforce is constrained. This increased pressure on existing supervisors raises the risk of burnout and loss of capacity among some of the most critical roles in the system.

Recommendations:

- Develop options for leadership capability training by leveraging programmes in other sectors to increase employers' ability to take on and retain new staff.
- Pilot and test agile training models that can increase supervisory capacity, including multi-company or regional collaborations.

Finding 6:

Diversity and inclusion need more focused action

Māori and Pasifika are under-represented at all levels of the workforce and gender imbalances persist, although data shows some progress. Attraction and retention of a workforce reflective of society, capable of efficiently and effectively delivering New Zealand's secure energy future, will require coordinated, sector-wide intervention.

Recommendations:

- Systematically identify, scale and implement proven diversity and inclusion initiatives in a coordinated, sector-wide intervention.

Finding 7:

We aren't doing enough to keep our best people

Retention of experienced workers is an increasing concern, particularly in roles that are highly transferable across industries. Many employers invest in retention at an organisational level but there are limited sector-wide mechanisms to support continuity of work and mobility between employers, regions, or subsectors. This creates a risk that experienced engineers, technical specialists, and supervisors may leave the energy sector altogether, particularly during periods of project delay or investment uncertainty.

Recommendations:

- Develop and invest in sector-wide mechanisms to support continuity of work and mobility between employers, regions, and subsectors.

Finding 8:

Older workers are staying longer

Improved data shows that while the workforce has aged this reflects systemic population dynamics, rather than a tsunami of impending retirements in the sector. Vacancy rates remain broadly manageable. Persistent pipeline constraints, declining participation in some training pathways, and limited supervisory capacity remain more pressing challenges.

Recommendations:

- Adapt workplace practices to ensure our industry retains older workers and their skills and experience.
- Acknowledge and support the needs and aspirations of older workers' unique availability, capacity, and training capabilities.

Finding 9:

New skill requirements are emerging

The energy workforce increasingly requires workers with not only technical, but also commercial, and data-driven skillsets. Employers increasingly expect soft skills including communication, adaptability, and resilience to thrive in a rapidly changing environment. Today's workers need to be prepared and supported for these heightened expectations.

Recommendations:

- Support workers to adapt and perform in a rapidly changing energy environment by strengthening energy workforce pathways that integrate technical, commercial, digital, and soft skills.

Finding 10:

AI is expected to initially augment, not replace, roles

AI adoption across Aotearoa remains at early stages, but international research shows its impact on energy sector workforce is more likely to require all workers to adopt new skills, rather than being replaced outright.

Recommendations:

- Embed AI and digital skills into all energy-related curriculum and training.
- Develop options for government investment in AI and digital capacity training that is nationally accessible to employers and workers.

Finding 11:

Immigration is essential but under-leveraged

Immigration is a growing source of workforce supply. While immigration is already supporting workforce needs, there is scope for the sector to make more effective use of existing pathways. Improved coordination, clearer demand signals, and targeted adjustments to settings where appropriate could further strengthen the contribution of migration as part of a broader workforce solution.

Recommendations:

- Maintain government consultation with industry on required migration setting adjustments.
- Support employers to make effective use of existing migration pathways.

Finding 12:

We need a coordinated national, and regional, approach to retain skills

Changes within the energy resource sector at a regional level further reinforce the need for coordinated action. Contraction of parts of the energy resources sector in Taranaki coincided with increased timeframes for new energy project consents and approvals. Although the region retains a highly skilled and experienced workforce, the absence of mechanisms to hold capability between roles increases the risk of long-term skills loss before new opportunities emerge.

Recommendations:

- Increase government funding for a programme of action for skills transition and interim employment support in Taranaki.

Finding 13:

Energy careers aren't clearly visible to new entrants

Although awareness of energy careers is improving, many students, graduates, and career changers still lack a clear understanding of the range of roles and pathways across the energy sector. Fragmented engagement and inconsistent messaging continue to limit attraction, indicating the need for more coordinated and visible industry-led outreach.

Recommendations:

- Centralise and invest in accessible and standardised resources that provide new entrants with information about energy pathways and careers.

Finding 14:

The consequences of worker exits are high even when the likelihood is low

New retirement and emigration data has shown that the risk of losing valuable employees is lower than previously thought, but the consequences remain high (due to low overall volumes of specialist workers and the time required to gain these skills and experience). Risk mitigation should therefore focus on actions that reduce the consequence of specialist workers exiting the industry.

Recommendations:

- Develop a national programme of standardised and accessible training, mentoring, connection, and support channels to nationally increase the quantity of highly skilled and experienced energy sector experts.

Together, these findings highlight that the workforce challenges facing the energy sector are not driven by a single shortage, or immediate crisis, but rather by structural constraints across:

The need for collaboration

Delivering this vision will require collaboration well beyond electoral cycles or organisational boundaries. The report reinforces the need for:

- **Strong cross-party political commitment** to workforce development as a critical enabler of energy security, affordability, and emissions reduction.
- **Deep collaboration across the electricity and wider energy sector**, including generators, networks, retailers, energy producers, large energy users, service providers, emerging players, and peak bodies.
- **Clear coordination between government agencies, regulators, industry, and education providers**, so policy settings, funding, standards, and training pathways work in concert rather than at cross-purposes.

New Zealand's energy transition is already underway. The question is not whether change will occur, but whether the country will be prepared to manage it well.

The *Re-Energise 26* report makes clear that there is no current, or emerging, crisis in workforce capacity but, rather, demonstrates that maintaining a secure energy future, and the country's economic prosperity, requires better, more conscious investment in the sector's workforce and the systems that support it.

From evidence to action - an Industry Skills Action Plan

A deliberate, coordinated approach that builds on existing initiatives, strengthens system capability, and focuses effort will create the greatest impact in addressing the wider energy sector's workforce challenges.

Re-Energise 26 sets out an Industry Skills Action Plan (ISAP) under **Section 6**, to guide collective action across industry, government, education providers and stakeholders. The ISAP outlines a coordinated and evidence-based programme of work to address the most critical workforce challenges facing New Zealand's energy sector.

The ISAP aims to:

- build on work already underway across industry, government and the education system; and
- create alignment, clear priorities, and a shared understanding of what will be delivered and when.

The ISAP is structured around four strategic goals that together address attraction to the sector, capability development, national collaboration, and long-term retention of the energy workforce. The ISAP will be finalised at a national workforce summit held following this report.

Image courtesy of OMV New Zealand

ISAP Strategic Goals

Attract

Grow a future workforce to power the nation's economic prosperity through sustainable values, clear pathways, inclusivity, and diversity.

OBJECTIVES

Inspire tamariki, rangatahi, and career changers to consider careers in the energy sector.

Improve visibility of energy careers and pathways for students and those changing careers.

Increase participation of women, Māori, and under-represented groups.

Strengthen early career entry points across university, vocational, and trade pathways.

Develop

Grow the capability of our current workforce and create clear training and development pathways for new entrants.

OBJECTIVES

Lift training, supervision, and assessment capacity across the sector.

Address critical and hard to fill roles and workforce pipeline constraints.

Create an industry-wide culture that embraces continual professional development to adapt to technological change and new expected capabilities.

Pursue national adoption of common competency frameworks.

Support workforce transition and reskilling across energy subsectors and regions.

Define and embed core work-ready capabilities including digital, AI, and critical thinking skills.

Collaborate

Build effective partnerships across industry, government, and stakeholders to jointly develop workforce initiatives in a coordinated and cooperative way.

OBJECTIVES

- Strengthen coordination and alignment of workforce initiatives.
- Reduce duplication and improve use of existing investment and effort.
- Clarify shared leadership, governance and accountability for workforce outcomes.
- Improve workforce data, evidence and intelligence to support decision-making.
- Create channels for industry collaboration and alignment.

Retain

Keep our best people through clear career progression, in desired work environments, so they want to stay and grow as workforce leaders.

OBJECTIVES

- Retain highly experienced and specialist workers critical to system reliability.
- Promote practices for knowledge transfer from our highly experienced and specialist workers to avoid the loss of crucial knowledge and practice.
- Retain and sustain leadership, supervision, mentoring, and training capability.
- Improve career visibility, progression, and mobility.
- Promote inclusive and supportive workplace cultures that reflect our changing population demographics.
- Retain skilled energy workers in the Taranaki region between roles while new energy projects progress through government consenting and approval processes.

2.

About the *Re-Energise 26* Report

2. About the *Re-Energise 26* Report

This is the first report to provide a fully-integrated view of New Zealand's energy workforce, bringing the electricity supply and energy resources sector together into one coordinated evidence base to better understand workforce challenges, opportunities, and develop an aligned plan of action.

Purpose and scope

The Electricity Engineers' Association and Energy Resources Aotearoa have worked collaboratively to present a single narrative representative of the entire energy sector. This collaboration spans industry, government, and stakeholders to create a comprehensive view of the workforce enabling the energy and electricity industries and, by extension, New Zealand's economic prosperity.

We have taken an approach that helps define the workforce foundations needed to support a thriving, resilient, and future-focused energy system: one powered by skilled people, strong capability, and fit-for-purpose training pathways.

Guide to reading this report

The report is structured to support readers who want both a high-level overview and detailed insight.

You can find the major trends shaping the sector in the Context section of the report.

This is followed by a cross-sector workforce overview before moving into more specific analysis for each subsector.

We have provided strategic recommendations to illustrate steps that can be taken, now, to build a resilient and future focused energy workforce.

Each section can be read on its own or as part of the full narrative, depending on the level of detail you seek.

We have also set out an Industry Skills Action Plan (ISAP) in **Section 7** of the report. These are coordinated actions to guide how the energy sector can grow and support its workforce over the coming years. These are aligned to four strategic pillars: **attract, develop, collaborate,** and **retain.**

The ISAP aims to provide a suggested framework, agreed by the report's steering groups, outlining proposed actions, responsibilities and indicative timeframes. Actions outside of industry are recommendations only and do not imply commitment. The actions and a pathway to implementation will be finalised at a national workforce capacity summit following publication of the report.

The ISAP is also presented as an A3 matrix pull-out within this report. It is designed so industry, government, and other stakeholders may use it as a shared planning and reference tool.

Origins and sector baseline – 2022 reports

Two industry workforce reports released in 2022 have shaped the direction of energy workforce planning in New Zealand: Building Energy's Talent Pipeline[1], a report produced by Energy Resources Aotearoa in partnership with Te Pūkenga and the former Taranaki regional skills leadership group, and Re-Energise 2022[2], a joint report from Waihanga Ara Rau and the Electricity Engineers' Association. These separate reports created two distinct views of the energy workforce; the first focused on the energy resources sector and the second on electricity supply. Both reports highlighted similar challenges, including ageing workforces, critical skill shortages, limited visibility of career pathways and a need for stronger collaboration across all stakeholders including education, industry, Iwi, and government.

Both reports prioritised a strong focus on attracting more people to the sector, strengthening training pathways, improving diversity, and growing technical capability, particularly in the engineering disciplines.

Since the release of both reports, the environment has shifted considerably, with:

- significant economic headwinds;
- acute security of supply concerns and tightened gas supplies;
- slower than anticipated pace of electrification;
- multiple changes to policy settings across emissions reduction, the wider energy sector and the vocational training system;
- the development of new emerging energy technologies, including the rapid expansion of solar and distributed energy; and
- the adoption of new operating models.

While some of the early priorities identified in the reports remain, others have shifted.

In both sectors, recommended actions from the 2022 reports were allocated, implemented, and monitored by cross-industry steering groups.

Progress was made, including stronger sector relationships, development of specific new qualifications, more engagement with students, and a clearer sense of the skills needed in the coming decade.

This report builds on the foundations of the 2022 work and reflects the very different environment now being navigated by those within the sector.

Further detail is provided in Appendix A, Re-Energise 2022 findings and progress and Appendix B, Building Energy's talent pipeline 2022 findings and progress.

Energy sector composition

This report presents a single, coordinated view of the workforce across both the electricity supply and energy resources sectors. Although these sectors are individually unique, their workforces share many of the same skills and pressures. Both sectors are essential components of the country's energy future and its future economic prosperity.

We define the electricity supply sector to include:

- distribution;
- transmission;
- generators;
- retailers;
- large electricity users; and
- their contractors and consultants.

The energy resources sector is defined as those organisations supplying sources of energy that underpin the system, including:

- oil and gas;
- geothermal;
- wind;
- hydro;
- hydrogen;
- solar;
- other emerging forms of supply;
- large energy resource users; and
- their contractors and consultants.

[1] Building Energy's Talent Pipeline 2022 – An industry skills action plan
[2] Re-Energise ESI Report 2022

Occupational groupings

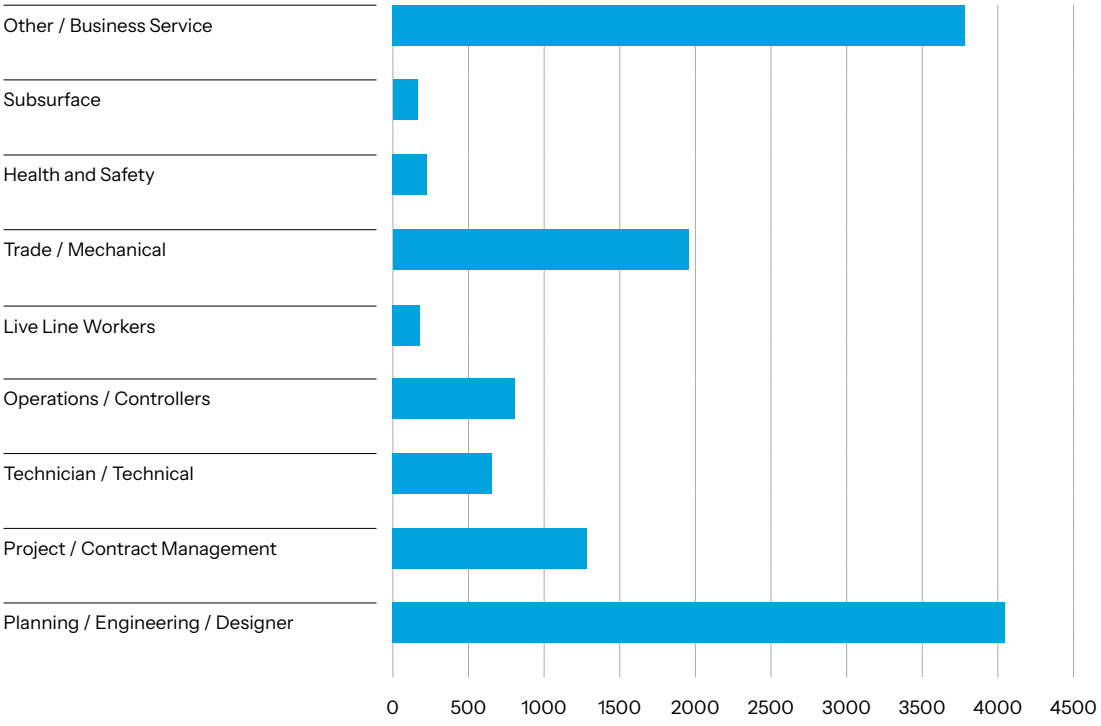
Occupational groupings were carefully chosen to align with the 2022 energy workforce reports to enable consistent messaging and robust comparison.

Occupational groupings used in this report and the industry survey include:

- Planning, Engineering and Design
- Project and Contract Management
- Technician and Technical
- Operations and Controllers
- Live Line Workers
- Trade and Mechanical
- Health and Safety
- Subsurface
- Other and Business Services

For further detailed information on occupational groupings and the roles represented within each grouping please refer to Appendix D Occupational Groupings.

Figure 1: Total number of workers within each occupational grouping.



Source: Re-Energise 2025 Industry Survey

The occupational profile of the energy workforce reflects the wide range of capabilities required to plan, build, operate and maintain complex energy systems. The largest concentrations of workers sit within business services, and planning, engineering, and design roles underscoring the importance of professional, technical, commercial, and project-based capability across the sector. Trade and mechanical also represent a substantial share of the workforce, highlighting the essential hands-on skills required to operate, maintain, and renew energy assets on a day-to-day basis.

Beyond these core groupings there are several mid-sized occupational cohorts which play a critical role in coordinating works, managing assets and ensuring reliable system performance, including:

- Operations and Controllers,
- Project and Contract Management, and
- Technician and Technical roles.

Smaller specialist groups, such as Health and Safety, Subsurface, and Live Line Workers hold highly-specialised expertise that is fundamental to maintaining safety, system integrity, and reliability across energy operations.

Information sources

Alongside New Zealand government statistical data and international research, this report is informed by company survey responses representing over **13,800 full-time equivalent energy sector employees and more than 4,000 contractors and consultants.** Participating organisations span 54 companies across Electricity Supply, Energy Resources, large energy users, and the consultants and contractors operating across both subsectors.

In addition to the survey data collected and analysed, as mentioned above, we conducted direct interviews with 20 companies and spoke with industry leaders. This report reflects both the lived experience of the workforce and the broader economic and policy settings shaping energy in New Zealand through the combination of quantitative data with qualitative insights.

The resulting data and analysis that sits behind this report provides one of the most comprehensive workforce snapshots available across New Zealand's energy mix. The scale and breadth of this dataset mean the insights presented here reflect a significant portion of New Zealand's operational and technical energy workforce, offering a robust foundation for system-wide workforce planning and future skills development.

Other sources of data for this report include:

- Scarlatti developed Workforce Information Platform data for the Energy and Infrastructure ISB
- Electricity Demand and Generation Scenarios (EDGS) maintained by Ministry of Business, Innovation, and Employment (MBIE)
- StatsNZ immigration and emigration data
- NZ labour market data maintained by MBIE
- Enrolment, Completion and Graduate data maintained by the NZ Tertiary Education Commission
- tertiary surveys completed by over 300 NZ students
- secondary school surveys – 15 schools participated throughout energy regions
- graduation data provided by all NZ Universities
- domestic and international studies including PSO Australia, NZ Tech, BCG's report *Energy to Grow*[3]
- insights from the 2022 industry reports.

Building on a strong foundation

This report recognises the progress made since 2022, including:

- strengthened collaboration across industry,
- increased engagement with students and early career entrants,
- expanded internship and graduate initiatives,
- growing momentum around diversity and inclusion,
- ongoing employer investment in training, development, and retention, and
- industry-led initiatives are already delivering value.

[3] BCG, Energy to Grow Report https://www.bcg.com/publications/2025/energy-to-grow-securing-new-zealands-future

Image courtesy of Connexis

3.

Context on New Zealand's Wider Energy Sector

3. Context on New Zealand's Wider Energy Sector

The economic importance of the energy resources and electricity supply sectors is substantial. The value lies in how they enable the productivity, resilience, and growth of the entire New Zealand economy; that value is ultimately delivered by people for people.

The workforce that plans, builds, operates, maintains, regulates, and continually improves how energy is produced, moved, and utilised works to benefit an entire nation. When that workforce is strong, energy tends to be more reliable, safer, and cheaper over time; these conditions support productivity, investment, and living standards.

When workforce capacity is weak, even well-designed infrastructure can become fragile, slow to expand, and expensive to run.

Energy is an "enabling system" and the workforce is its operating system.

Almost every value chain is underpinned by energy: food processing, manufacturing, health care, data centres, transport, and modern services. The World Bank frames affordable and accessible energy as central to development and shared prosperity. But "energy access" and "affordability" are not just about generation. They are the cumulative outcome of thousands of workforce decisions.

In practice, reliability is a labour outcome as much as an asset outcome. Energy assets are long-lived, but their performance depends on routine maintenance, system operations, and rapid response. A skilled operations and field workforce, especially under today's conditions of tighter capacity margins and more variable generation, reduces risks, prevents equipment failures, and keeps networks within safe operating limits.

The quickening pace of change

New Zealand sits at a point in time where tightening gas supply, hydro generation uncertainty due to changing rainfall and wind patterns have converged with efforts to electrify more of our homes, industries, and transport. Maintaining energy security while simultaneously keeping it affordable and sustainable is increasing pressure on the system and how it operates.

The way we work in the sector is also shifting, digital tools, automation, and new ways of working are becoming the norm requiring every part of the energy value chain to adapt. People throughout the wider sector are learning new skills, taking on new roles, and finding new ways to respond to the quickening pace of change.

The entire energy sector, in New Zealand and around the world, is being transformed. The pathway towards lowering emissions, new technology and increasing expectations for reliable and affordable energy are reshaping the sector and the people within it. *Re-Energise 26* aims to make sense of that change, identify next steps, and help us think about how we can collectively grow, support, and prepare the workforce that will power New Zealand's energy future.

New Zealand is fortunate to have an electricity system that is already more than 85%[4] renewable in an average year. This remains a real advantage for our climate goals and our global competitiveness.

[4] MBIE Energy in New Zealand data 2025

Energy resource challenges

The steady rise in electrification and the nation's move toward lower emission energy sources have fuelled the expansion of the electricity supply sector, while the energy resources sector faces a different set of pressures.

Depletion of oil and gas reserves have resulted in shrinking investment as slow growth takes place in geothermal and hydrogen. Large energy users, many of which rely on natural gas for process heat, have been heavily affected by declining gas availability and rising uncertainty. While offshore renewable energy and LNG infrastructure are attracting increasing interest, both remain in the early stages of investment and are yet to translate into near-term workforce demand.

The recent 2025 BCG report highlighted these challenges clearly, pointing to issues such as declining gas supply, growing capacity needs in electricity networks, investment uncertainty and the need for faster build and connection of renewable generation.

The last three years have shown that natural gas still plays a critical role in keeping the system stable, especially when hydro and wind conditions are unpredictable. Having enough flexible energy remains essential for keeping the lights on and supporting industry through periods of tight supply.

The workforce impacts of a changing energy ecosystem

The workforce has taken much of the strain of the rapidly changing energy ecosystem. The workforce is being downsized in some parts of the sector which is disproportionately affecting regional New Zealand; yet other segments of the workforce continue to grow at a steady pace.

Many skills are transferable across sectors, particularly in areas like engineering, operations, asset management, digital systems and consent and planning roles. Engineering capability remains one of the most important and sought after skill sets across the whole industry, and it will continue to be central to how New Zealand meets its future energy needs. Across the entire energy mix, the workforce needs to be more connected than ever.

Government alignment

Since 2022, New Zealand government policy settings for the energy sector have shifted materially, with direct implications for workforce development, skills planning, and regional employment outcomes. At the time of earlier workforce reports, government direction was strongly focused on a transition to renewable energy, supported by the Just Transition programme led by MBIE and informed by Regional Skills Leadership Groups. Policies such as the GIDI and clean car discount had rapidly increased the pace of electrification and concerns about workforce scale. This approach emphasised emissions reduction and managed transition but provided limited certainty for workforces in existing energy resources industries, particularly oil and gas, during a period of rapid change.

The government has signalled a broader, pragmatic approach to energy policy, centred on energy security, affordability, and economic growth, alongside emissions reduction. This includes an explicit focus on a diversified energy portfolio, with parallel ambitions to double renewable electricity generation, enable LNG import infrastructure, unlock geothermal potential, expand hydrogen opportunities, and significantly grow the minerals sector. This shift has reintroduced a wider range of potential investment pathways, each with distinct workforce and skills implications, and has increased the importance of cross-sector workforce flexibility and transferability.

Across both policy periods, government has played an important enabling role in the workforce development system rather than acting as a direct workforce planner. Current support spans careers information platforms (including the transition from Careers NZ to Tahatū Career Navigator), employer wage, and training subsidies such as Apprenticeship Boost, Mana in Mahi and Flexi-wage, and targeted work-related training and placement programmes administered through MSD and TEC. These initiatives have demonstrably supported entry into energy-related roles, including engineering, electrical, and process operations occupations, but are largely demand-led and short-term in nature.

Government investment in infrastructure, through mechanisms such as the Regional Infrastructure Fund and the National Infrastructure Pipeline, is also a significant indirect driver of energy workforce demand, shaping the timing, location,

and scale of job creation across regions. However, while these investments create employment opportunities, they do not, on their own, ensure the availability of skilled workers at the right time or place.

As energy policy broadens beyond a single-pathway transition, workforce development efforts must similarly expand to support multiple scenarios, ensure skills portability, and provide clearer pathways for both new entrants and displaced workers across the full energy system.

Overall, the evolving policy environment reinforces the need for strong industry-led workforce coordination, supported by government funding, data, and system settings.

The impact of governmental policy change on the workforce

Government's 2025 "re-reform" of New Zealand's Vocational Education and Training System introduces substantial change and opens the door for industry to lead collaborative work with the vocational education sector. However, the reforms bookend a five-year period of ongoing reform since the 2020 Reform of Vocational Education (ROVE), with the ongoing upheaval limiting momentum and progress.

The transition to Industry Skills Boards

This new direction focuses on shifting decision-making closer to industry, simplifying the training landscape, and addressing the financial instability that has continued to affect providers.

Workforce Development Councils (WDCs) have been dissolved and transitioned into new, industry-led Industry Skills Boards (ISBs).

The responsibility for energy workforce development historically sat across three separate Workforce Development Councils (WDCs), resulting in fragmented coverage of energy roles, skills and pathways. A new Energy and Infrastructure Industry Skills Board (ISB) was established following strong and sustained industry engagement with government.

The formation of the ISB was intended to provide clear leadership that could align the entire energy system more effectively through a coordinated, industry-led approach to workforce planning, qualifications, and skills development; however, concerns remain.

ISBs inherit many of the responsibilities previously held by WDCs, such as setting standards, advising on qualifications, and supporting vocational system strategy, but they will operate with significantly less resourcing; yet, expectations of ISBs have increased substantially.

ISBs are expected to:

- provide industry leadership across multiple, diverse sectors;
- contribute to workforce planning and labour-market insights;
- support qualification development and programme endorsement;
- partner with education providers on quality and relevance; and
- work directly with MBIE, TEC and Ministers on future workforce development settings.

A notable addition is the expectation that ISBs may support career pathway visibility through greater involvement in secondary education, including the development of industry-aligned content for NCEA and vocational pathways at school. This represents a material expansion of scope at a time when overall resources and funding are contracting; it will be important that ISBs are adequately resourced to provide meaningful, consistent, and high-quality support.

Many of the vocational system functions, previously undertaken by WDCs and expected of ISBs, are likely to fall back onto industry associations because ISBs will operate with significantly reduced resourcing. With limited funding, staffing, and analytical capability, it is unlikely that ISBs will be able to produce the originally envisioned industry engagement, or the depth of workforce planning, labour market insights, and qualification development support.

As a result, **industry associations will increasingly become the de facto coordinators of vocational activity across their sectors;** supporting providers, advising on training needs, collating workforce data, advocating for fit for purpose qualifications, and ensuring industry voice is maintained in system settings.

This shift risks widening disparities between well-resourced sectors and smaller or emerging industries, and places additional pressure on associations already carrying substantial policy, workforce, and stakeholder responsibilities.

In practice, these changes mean industry associations will need to play a more active role in shaping training content, supporting providers, and coordinating workforce activity. Without additional support, there is a risk that system fragmentation increases while expectations on industry grow.

Private Training Establishments and the new system settings

Private Training Establishments (PTEs) will transition into the new system through ISB endorsement and oversight processes. This reflects a return to a more decentralised model where industry influence is paramount. Many PTEs have called for clear, consistent guidance from ISBs, as reduced ISB resourcing will limit their ability to provide deep workforce analysis or frequent qualification updates.

The reshaping of Institutes of Technology and Polytechnics (ITPs)

Institutes of Technology and Polytechnics (ITPs) face some of the most pronounced changes:

Some have returned to stand-alone status, regaining local governance and operational autonomy.

Some are operating under a "federated model," sharing back-office, curriculum, or operational functions.

A small number remain at financial risk, with potential collapses carrying significant implications for regional communities, employers, apprentices, and school-to-training pathways.

If regional providers fail, the impacts will be immediate and severe, forcing reduced access to trades training, loss of local laboratories and workshops, fewer short courses for employers, and greater pressure on remaining providers already stretched by staffing shortages and ageing infrastructure. **Regions such as Taranaki are at greatest risk with the ITP being the only tertiary provider in the region.**

Western Institute of Technology at Taranaki (WITT) has indicated that it is ready and willing to transition to a standalone entity. However, there is a risk that this progress could be delayed if implementation is paused to align with the readiness of other Institutes of Technology and Polytechnics that are not yet positioned to operate independently. Industry stakeholders noted that any extended period of uncertainty or delay could have unintended consequences for regional training delivery, particularly in Taranaki, where WITT plays a critical role in supporting trade, technical and energy-related workforce pathways at a time of heightened transition need.

A significant number of learners are currently undertaking training through ITP providers. Given the ongoing system transition and associated disruption, there is a risk of learner disengagement.

This reinforces the need for targeted actions to support retention and ensure learners do not drop out, particularly given recent trends showing lower enrolments and steady, but sub-optimal, completion rates. Understanding why learners are leaving and identifying practical interventions to keep them engaged could form a specific area for action.

Closure of Centres of Vocational Excellence (CoVEs)

CoVEs, originally established to lift capability, innovation, and collaboration across priority sectors are being fully wound down. Their closure removes a national mechanism for:

- cross-sector best-practice sharing;
- industry-provider co-design;
- applied research and curriculum innovation; and
- sector-wide problem solving.

This places even greater pressure on ISBs to coordinate system-wide solutions without the infrastructure or funding previously available through CoVEs.

System Implications: A Leaner, More Industry-Driven Model

Taken together, these reforms represent a decisive shift toward an industry-led, highly decentralised vocational ecosystem. However, the gap between expectation and capacity is emerging as a key risk such as:

- ISBs will have much less funding than WDCs, limiting their ability to develop detailed workforce plans, labour-market data modelling, or large-scale industry research.
- Providers (PTEs and ITPs) will look to ISBs for guidance, standard setting, and future forecasting just as ISBs face diminished analytical and planning capability.
- Regional dependence on financially fragile providers could exacerbate skill shortages if ITPs collapse or withdraw programmes.
- Closing CoVEs removes the national shared-learning infrastructure that previously supported innovation and cross-provider consistency.

The success of this re-reform will ultimately depend on the strength of partnerships between industry, ISBs, providers, and government. With fewer structures and less resourcing in place, collaboration, clarity of role, and prioritisation will be critical to ensuring the system continues to meet the needs of learners, employers, and New Zealand's future workforce.

Image courtesy of Todd Energy (Kapuni solar plant)

Workforce scenario modelling and future state projections

MBIE's Energy Demand and Generation Scenarios (EDGS) 2024 were utilised as part of the quantitative data gathering exercise to model the application of future growth scenarios (EDGS being national best practice) based on current energy sector occupational data. This provided an objective comparison to the aggregation of surveyed companies' responses on their anticipated workforce growth and need.

The EDGS provides a nationally recognised set of scenarios that model how electricity demand and generation in New Zealand could evolve over time, based on factors such as electrification, population growth, technology change and policy settings.

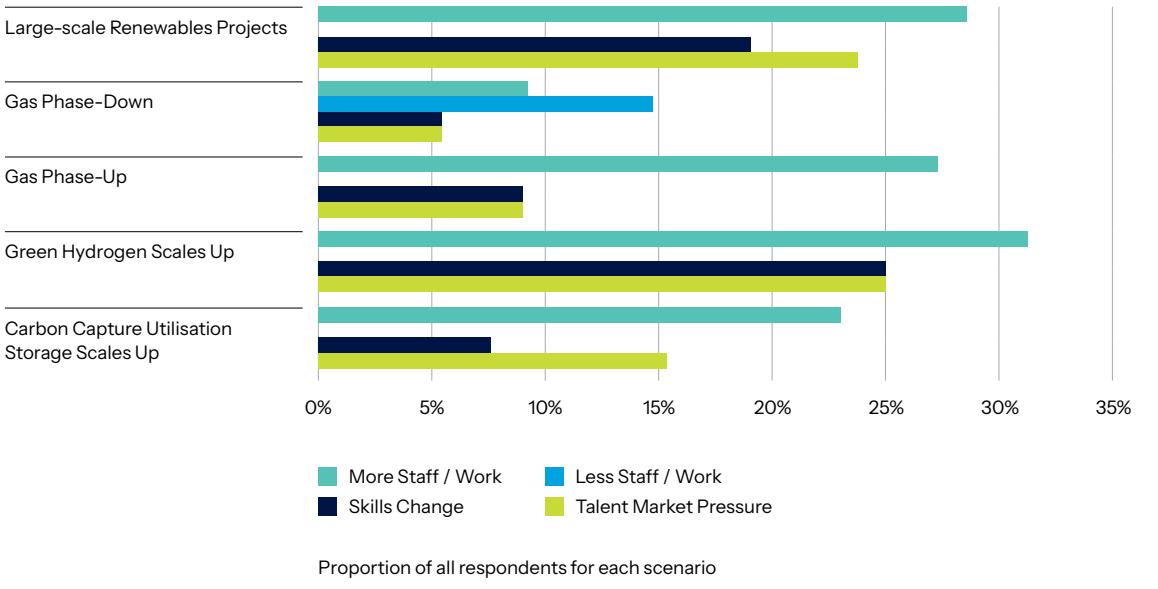
These scenarios were explored using aggregated data provided by surveyed electricity supply companies. The modelling concluded that applying any of the EDGS scenarios resulted in only small variation in annual workforce demand within the electricity sector. These results did not rise above the survey's margin of error.

Importantly, the data showed a marginal difference in electricity sector workforce demand between scenarios, confirming the aggregated data from surveyed companies was statistically reliable.

As outlined in **Figure 2**, surveyed energy resource companies were asked how they expect five energy transition scenarios to influence workforce demand and capability over time. Their responses showed the expected growth scenarios, particularly large-scale renewable, green hydrogen, and the utilisation of carbon-capture solutions to drive increased workload and resourcing needs. This shift is expected to result in significant and sustained shift in needed skills and a heightened competition for talent.

Gas related scenarios presented a more nuanced picture. Surveyed energy resources companies had a polarised view of increased workforce demand linked to a gas phase up and reduced workforce demand associated with a gas phase down. Regardless of future of gas consumption trends, respondents anticipated a gradual, not sudden, workforce transition with changes occurring progressively as projects develop and assets mature or wind down.

Figure 2: Expected workforce impacts of energy transition scenarios.



Source: Re-Energise 2025 Industry Survey

AI's impact on our workforce

Shifts in skill demand: Digital, data, and hybrid capabilities

Changes in skill demand within the energy sector can be considered in the context of the government's *Going for Growth*[5] programme economic drivers. These include developing talent; competitive business settings; promoting global trade and investment; innovation, technology and science, and infrastructure.

While technological change in the energy sector, particularly the adoption of digital tools and artificial intelligence, is a key focus in this section, its influence depends on workforce availability, investment cycles, regulatory settings, and the capacity of education and training systems to adapt.

Employers emphasised rising demand for digital literacy, data capability, and cross disciplinary technical knowledge, combining engineering, IT, regulatory awareness, and customer insight.

Softer skills such as critical thinking, collaboration, communication and the ability to interpret AI outputs are also becoming essential as roles evolve. Some employers expressed concern that young people may lose opportunities to develop analytical and problem-solving skills if AI is used without thoughtful guidance.

Early adopting AI economies stress that AI's impact on the energy workforce may be the biggest culture shift since the industrial revolution. This requires a change management programme of similar magnitude, to affect a culture shift where all employees embrace the power of data. Data and technology are no longer just the domain of the IT department and business analysts, as AI puts the power of data in the hands of all employees.

Roles new technologies place at risk and roles emerging

At most risk of decline are roles whose tasks are easier to automate such as manual, repetitive, and administrative roles, alongside some simple design and analysis functions. At the same time, AI is expected to create or transform roles in automation, coding, data engineering, remote operations, and digital systems. Companies framed this as augmentation, not job replacement, with roles evolving toward more technology-enabled, analytical, and oversight-focused work.

AI is expected to displace some workplace tasks while increasing overall labour demand through productivity gains and the creation of new roles. Historically, new technologies have resulted in net job growth as new types of roles are created. There is currently no indication of economy-wide job losses attributable to the adoption of Artificial Intelligence (AI) technologies.

International evidence supports this view. The OECD's report, *OECD Employment Outlook 2023: Artificial Intelligence and the Labour Market in the United States*[6] found no clear link between employment numbers and AI implementation. At present, the pace of change appears manageable within existing labour market dynamics, including in New Zealand, though ongoing monitoring will be important as AI adoption accelerates.

Exposure studies undertaken in countries such as Australia provide insight into how AI may affect occupations. Exposure refers to the extent to which existing technologies can be applied to current work tasks, either through augmentation (changing how tasks are performed) or automation (replacing tasks). For the energy sector, most roles are expected to be augmented rather than replaced. Engineers, technicians and trades are likely to see changes in task composition alongside growing demand for skills that complement digital and AI-enabled systems.

The most immediate workforce impacts are being observed in electricity retail, where roles are shifting away from manual, transaction-based work toward more digital and analytical functions. Routine activities such as billing enquiries and basic account support are increasingly automated, reducing demand for traditional back-office roles. In response, retailers are seeking stronger capability in data, digital platforms, customer insights, and AI oversight.

Most roles in the energy sector will be augmented and not replaced.[7] These roles will require skills to complement technological advancements. Jobs and Skills Australia's exposure study showed a trend of electrical occupations having medium-

[5] New Zealand Government Going for Growth Agenda
[6] OECD. (2023). OECD Employment Outlook 2023: Artificial Intelligence and the Labour Market. https://doi.org/10.1787/08785bba-en
[7] World Economic Forum (2025) The Future of Jobs Report https://www.weforum.org/publications/the-future-of-jobs-report-2025/in-full/2-jobs-outlook/

to-high levels of augmentation exposure and very low-to-low levels of automation exposure.[8]

For example, a lines mechanic role may change through the automation of routine tasks like fault detection, increased demand for digital and data interpretation skills, and robotics and predictive systems which will enable safer working conditions.

It is important to note that the energy sector will be competing domestically and internationally for specialists with advanced digital and AI-related technical skills. This could impact the productivity of the sector.

This means there will be increasing demand for:

- broader digital, social and higher-level cognitive skills to use AI tools productively; and
- high end technical skills to develop and maintain AI systems.

Use of AI to improve safety and reduce risk

Across the sector, employers are increasingly turning to AI and digital tools to improve safety outcomes and reduce the need for physical site visits. Companies reported using AI enabled diagnostics, sensors, and automation to keep workers off the roads and away from high-risk environments. A common example raised was the shift from helicopter-based inspections to drone-based asset assessments, supported by AI-driven imaging and image processing. This move reduces travel time, lowers costs, and significantly minimises worker exposure to hazardous conditions.

AI for optimisation, efficiency, and operational performance

Across the sector, organisations are increasingly using AI to improve optimisation, efficiency and operational performance rather than to reduce workforce size. AI is being applied to areas such as network analysis, fault identification, maintenance planning, forecasting, scenario modelling and customer interaction, supporting more informed decision-making and improved system performance.

Many organisations report that they either have AI policies in place or are actively developing them, reflecting growing maturity in how digital tools are governed. AI is increasingly being incorporated into long-term business cases, recognising the scale of investment required for effective and responsible adoption.

AI also presents an opportunity to ease pressure in areas of workforce constraint. For example, shortages of planning engineers can be partially addressed through AI driven planning and assessment tools that support forecasting, optimisation and consistency across projects. Used well, AI can act as a lever to better balance labour demand and supply, improving resilience in a tight labour market.

AI data centre demand and energy use

Data centres have long supported cloud computing, digital services, telecommunications, financial systems, and government information technology solutions. However, AI is fundamentally changing the scale, speed, and intensity of data centre development.

The processing power required by AI to complete complex tasks is currently orders of magnitude greater than that of traditional computer processes. AI services require continuously operating data centres and rely on high-density servers and advanced cooling systems. This has direct workforce implications, increasing demand for specialised electrical, digital, cooling, automation, and cyber-security skills, as well as system planners and engineers capable of integrating large, complex loads into the electricity network.

Individual AI-enabled server facilities can scale demand for electricity rapidly, from several megawatts to tens of megawatts, often within short timeframes. This places pressure on the energy workforce to deliver network planning, design, consenting, construction, and commissioning activities at pace. Distribution and transmission companies require electrical engineer, protection and control specialist, network planner, technician and project manager capacity to respond to these connection requests while also maintaining existing system performance.

[8] Jobs and Skills Australia (2025) Our Gen AI Transition: Implications for Work and Skills Analysis Papers Our Gen AI Transition

International experience highlights how data centre growth can quickly translate into workforce constraints. In countries such as Ireland, Singapore, and parts of the United States, rapid expansion of AI-driven data centres has required accelerated investment in grid infrastructure and regulatory oversight, exposing shortages in engineering, construction and specialist technical roles. These examples demonstrate that workforce availability and capacity can become a binding constraint on energy system development, not just capital or policy settings.

For New Zealand, the workforce impact is likely to be felt most strongly at a regional level, particularly in Auckland and the upper North Island where data centre development is concentrated. Large, location-specific connections increase demand for locally available skills in network engineering, high-voltage construction, commissioning, operations, and ongoing asset management. Without sufficient workforce capacity, there is a risk that project timelines extend, costs increase, and critical skills are stretched across competing priorities such as electrification, renewable generation, and resilience upgrades.

Global perspectives

The International Energy Agency World Energy Employment 2025 report[9] shows that global energy employment reached approximately 76 million jobs in 2024 with growth nearly twice the pace of the wider economy. The report identifies electricity supply including generation transmission distribution and storage as the largest energy employer globally, driven globally by solar grid and storage investment (though solar is not yet as prevalent in New Zealand). It also highlights that skills shortages are increasingly acute particularly in technical and applied roles that are critical across both energy resources sector and electricity supply systems.

Australia

Australia is, perhaps, the best point of comparison. There, the energy workforce narrative is markedly different. Australia's energy transition is accelerating rapidly, with large-scale renewable generation, transmission expansion, grid upgrades, storage, hydrogen, and industrial emissions reduction projects progressing concurrently across both the electricity supply and energy resources sectors. Australia continues to invest across its full energy mix, including hydrocarbon exploration and development, maintaining workforce capability and investment confidence while progressing its transition objectives.

Australia's Powering Skills Organisation Workforce Plan High Load Short Supply[10] forecasts that the country will require an additional **42,000 energy trades workers by 2030.** This increased demand sits alongside the need for engineers, technicians, system operators, and safety critical roles across electricity networks and energy infrastructure. This scale of demand creates strong and sustained competition across the Tasman.

United Kingdom

Energy resources sector and electricity supply are undergoing simultaneous and complex transitions in the United Kingdom. Domestic oil and gas production from the North Sea is declining as mature fields deplete, while policy settings and investor sentiment continue to shift away from long-term hydrocarbon development. This has resulted in reduced capital investment and workforce contraction in parts of the oil and gas supply chain, particularly across offshore operations, drilling services, and associated contractors.

The United Kingdom is adopting renewable energy rapidly, with offshore renewable energy forming the backbone of future electricity generation alongside onshore wind, solar and emerging hydrogen activity. This expansion is placing significant pressure on electricity supply workforces, including generation, transmission, distribution and system operations, as the country simultaneously upgrades ageing network infrastructure, connects large volumes of new renewable capacity and manages increasing system complexity.

A key feature of the United Kingdom's transition has been the development of the Energy Transition Zone in Aberdeen,[11] which is repositioning a long-established oil and gas hub as a centre for renewable energy, hydrogen,

[9] International Energy Agency World Energy Employment 2025 Report
[10] Powering Skills Organisation High Load Short Supply Workforce Plan 2025
[11] Energy Transition Zone (ETZ) Aberdeen

carbon capture, and clean energy services. Built on existing offshore engineering, project delivery and subsea capabilities, the zone is enabling workforce redeployment, skills transfer, and new investment while maintaining a strong regional employment base. The Aberdeen experience demonstrates how deliberate place-based planning can support workforce transition by leveraging legacy energy expertise rather than displacing it.

The United Kingdom experience highlights a dual workforce challenge that is directly relevant to New Zealand: sustaining critical skills in legacy energy resources sector while rapidly building new capability across renewable generation, grid infrastructure, and system management with workforce availability increasingly shaping the pace, cost, and feasibility of delivery.

United States

Energy employment reporting shows strong growth across clean electricity generation, transmission, and distribution. Oil and gas, LNG refining, and fuel supply continue to require substantial skilled workforces. Energy resources sector and electricity supply are evolving in parallel rather than sequentially, with direct implications for workforce demand. Domestic oil and gas production remains a central pillar of the United States energy system, supported by shale basins, refining, and LNG export infrastructure.

The United States analysis highlights intensifying competition for electricians, engineers, technicians, construction trades, control room operators, and safety professionals. Workforce availability is increasingly recognised as an enabling infrastructure rather than a downstream issue.

Canada

Canadian experience reinforces that workforce constraints can delay projects, even where capital and policy support exist; it also highlights that coordinated regional workforce planning, retraining, and retention strategies are essential to managing transitions across both energy resources sector and electricity supply. Current federal and provincial strategies reflect this learning and have placed workforce capability at the centre of delivering the clean electricity transition. There, the mobilisation of skilled labour across electricity generation, transmission, distribution, gas infrastructure, hydrogen, and industrial energy systems is emphasised.

China and India

These two countries account for a significant share of global energy jobs, increasing competition for specialist skills equipment and expertise.[12] China remains central to renewable manufacturing and deployment while India is rapidly expanding electricity generation transmission and industrial energy capacity.

These global dynamics reinforce the vulnerability of smaller labour markets such as New Zealand to international competition unless they focus on actively retaining and growing domestic capability.

[12] International Renewable Energy Report – Renewable Energy and Jobs Review

4.

Energy Sector Insights

4. Energy Sector Insights

A consistent challenge for the energy sector has been the lack of a clear, unified picture of workforce demand and supply across the entire energy mix. While individual subsectors have tracked their own needs, we have not had a cross-sector view that shows where skill gaps are emerging, where supply is growing or declining, and how talent can transition between areas as the sector evolves.

It is natural that as parts of the sector contract and others expand, skilled workers will shift toward areas of higher demand. What has been missing is the evidence base to understand these movements and identify where pressure points truly sit.

The following section will outline the qualitative and quantitative evidence gathered, highlight the areas where skill needs are most acute, and provide a foundation for understanding where attention and action are required as the sector continues to evolve.

This section of *Re-Energise 26* brings together the key factors shaping workforce supply and demand. It outlines:

- the current profile of the workforce, including demographics and occupational groupings;
- the role of vacancies, immigration and workforce mobility;
- how transferable skills support cross-sector movement and integration; and
- scenario modelling and future workforce projections.

Together, these insights provide the evidence base needed to guide coordinated sector-wide actions and ensure a future-ready workforce.

Labour flows

The number of people entering and leaving jobs in the energy sector has been steadily increasing over time. **Figure 3**, shows more people have been entering the sector than leaving it according to 2024 census data. This data measured the combined energy mix, showing a steady net inflow of workers. The oil and gas sector, within the energy resources sector, is an exception outlined in detail in the subsector snapshot found later in this report. The largest net inflow was in 2017 with 1668 new workers entering the sector.

The energy sector appears to be less volatile than other industries when looking at worker flow, indicating a steady labour market in most areas.

Figure 3: Net inflows of workers by industry in New Zealand.

Source: StatsNZ, LEED Data

The following **Figure 4** shows inflow and outflow from outside sectors and indicates the energy sector being deeply interconnected with professional, scientific, construction, and administrative industries, supporting labour mobility across sectors.

Emigration

MBIE data shows that more people working in the energy sector have been leaving New Zealand since 2021. From January 2021, departures increased by an average of around 3% per month, reflecting the broader reopening of borders and changing labour market conditions. However, when this is viewed in the context of the overall energy workforce, the numbers remain relatively small. As of February 2025, around 2.4% of energy sector workers (approximately 354 people out of nearly 15,000) had left New Zealand, compared with 0.9% in January 2021.

It is important to note that this pattern is not unique to the energy sector. Most industries across New Zealand have experienced higher levels of overseas movement since 2021. This reflects a combination of post COVID mobility, global demand for skills, and the recent domestic economic slowdown.

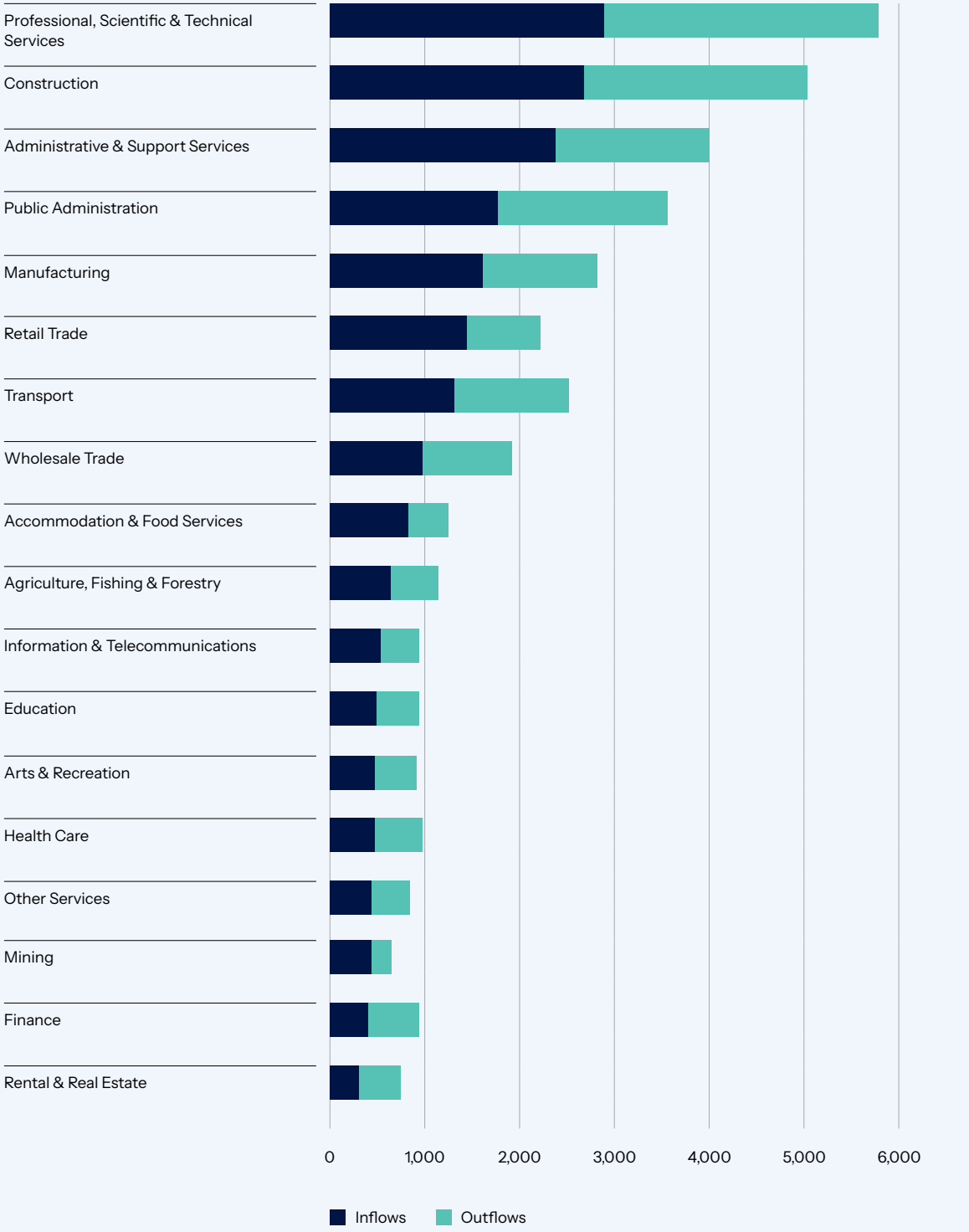
It is also likely that a disproportionate share of those leaving the energy sector is coming from the energy resources, oil and gas workforce, rather than from electricity supply. Ongoing contraction in parts of the energy resources sector, particularly in regions such as Taranaki, has resulted in experienced and highly skilled workers facing fewer domestic opportunities and greater uncertainty about future projects. By contrast, the electricity supply workforce has remained relatively stable, supported by sustained infrastructure investment and long-term asset renewal programmes, which continue to provide ongoing employment and retention opportunities within New Zealand.

MBIE Jobs online data trends

Vacancy trends across the energy sector have shifted noticeably over the past decade according to MBIE Jobs online data. There was a sharp rise in demand for manual and trade-based roles between 2016 and 2017, particularly electricians, electrical distribution trades workers, technicians, and other trade positions. This growth has flattened or declined since 2023, suggesting a change in labour demand for these occupations.

A strong rebound in vacancies followed the COVID-19 disruption, with 2021 showing a marked increase in high skill roles. Engineering and ICT management roles experienced significant growth during this period, reflecting the wider national uptake of digital technologies and increased investment in infrastructure.

Figure 4: Energy sector inflows and outflows from industries in 2023.



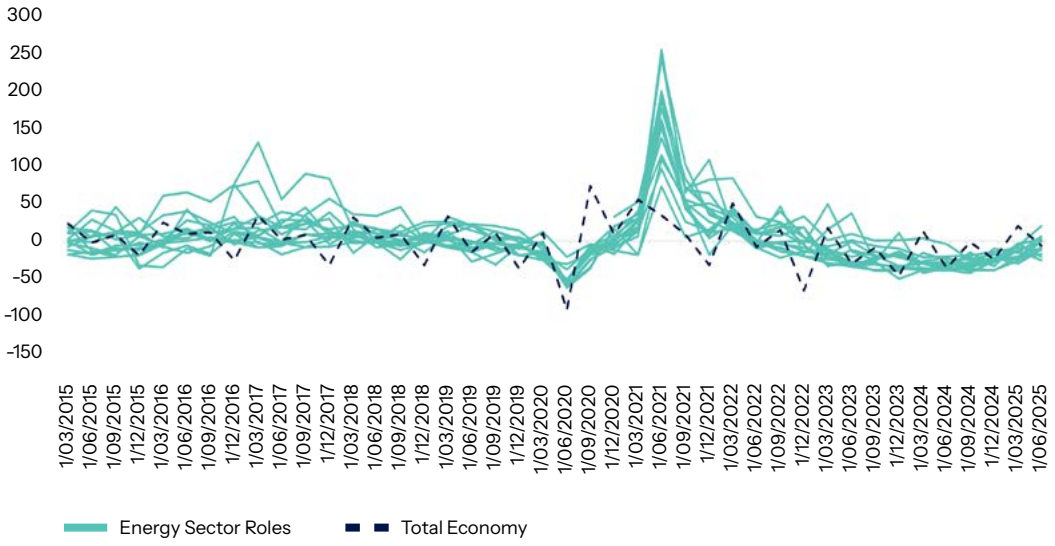
Source: StatsNZ, LEED data

Since 2021 the fastest growing vacancy categories have included engineering managers, ICT managers, construction managers, and software specialists. The rise in IT related roles aligns with the growing influence of AI, automation, and cloud-based systems across New Zealand industries, while continued demand for engineers is linked to major infrastructure programmes underway nationwide.

Figure 5 shows data from MBIE's job online data trends. This paints a consistent picture of a workforce that, while always navigating some level of technical skills pressure, is not showing any major areas of concern at present.

This divergence in vacancy patterns highlights the evolving skill needs of the sector and the increasing competition for high skill roles that are in demand across multiple industries.

Figure 5: Job vacancies, occupations in energy sector vs total economy.



Source: StatsNZ, LEED Data

Industry survey vacancy data and trends

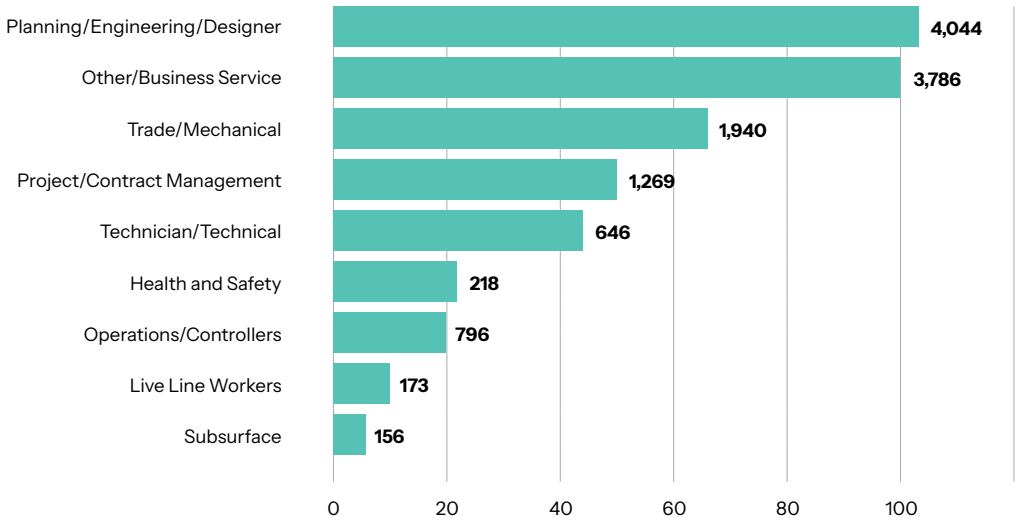
Surveyed Companies reported vacancy rates sitting between 2 and 4%. (**Figure 6**). This points to a labour market that is tight in some specialist highly skilled areas but generally tracking the same as other sectors operating in a soft labour market.

A small number of roles show higher vacancy rates, particularly technicians, live line workers, and health and safety positions. This is partly influenced by the relatively small size of these roles in the workforce where even a small number of unfilled positions can result in a higher vacancy percentage.

For wider context, vacancy rates in comparable sectors such as manufacturing and engineering typically sit between 3-6% during normal-to-tight labour market conditions. Against this benchmark, the energy sector's reported vacancy rates appear broadly consistent with expectations for specialised technical roles.

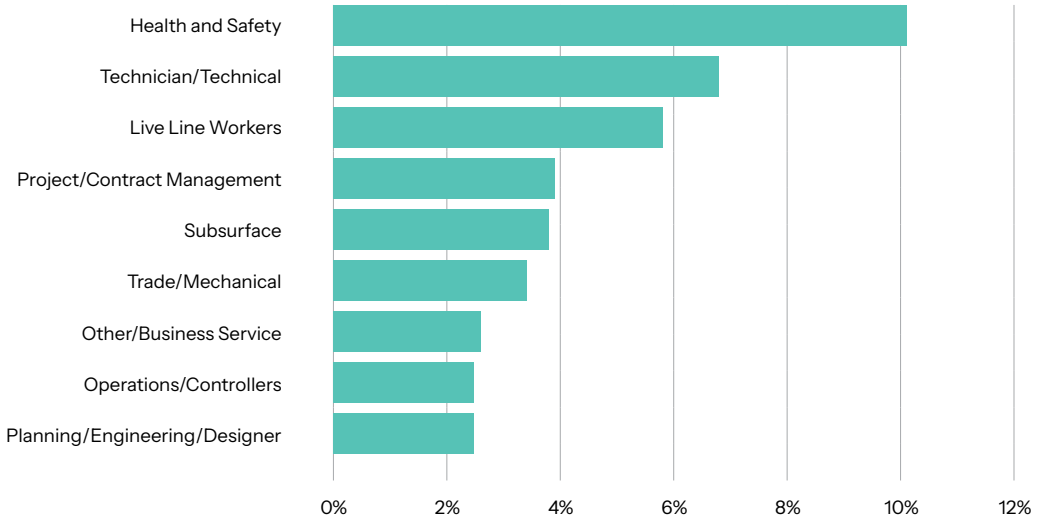
Overall, the survey results indicate steady and ongoing demand for skilled workers across the energy system, rather than acute or widespread shortages.

Figure 6: Current job vacancies at responding firms, workforce size in brackets.



Source: Re-Energise 2025 Industry Survey

Figure 7: Current job vacancies as a proportion of total workforce size by role (i.e. vacancy rate).



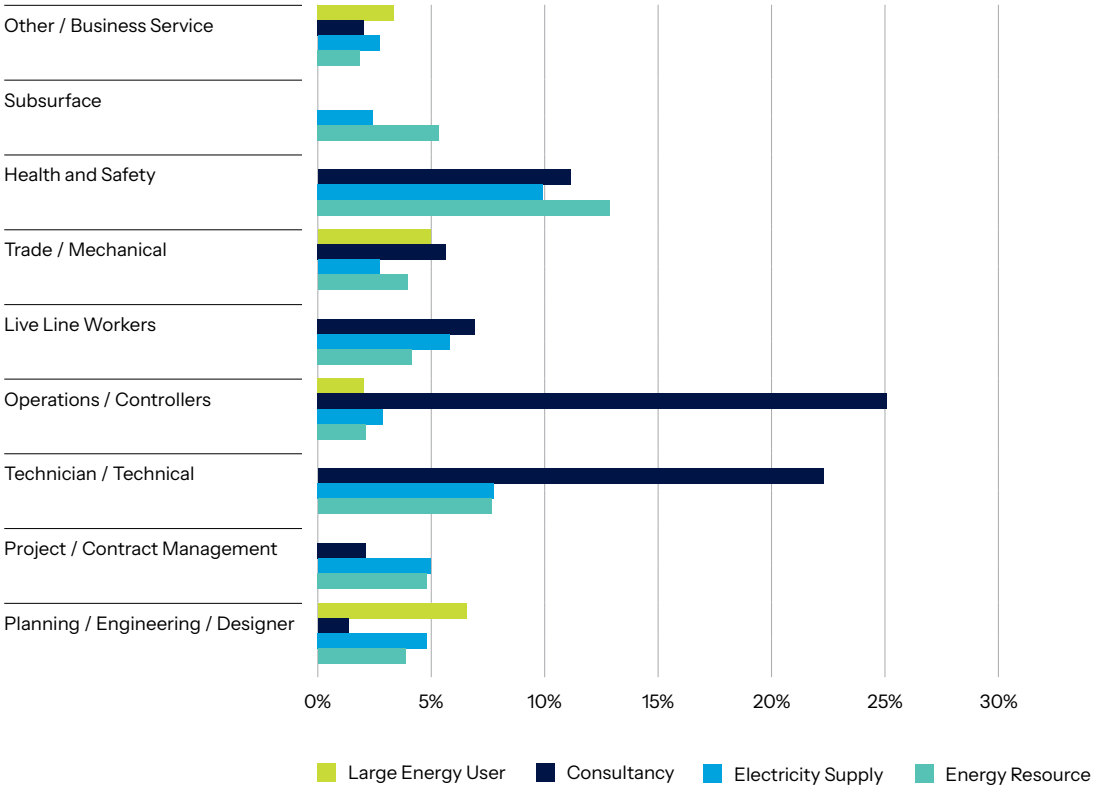
Source: Re-Energise 2025 Industry Survey

Figure 8 presents vacancy rates by subsector. While some companies operate across multiple parts of the energy system, this breakdown provides a useful indication of how vacancy levels compare across each area.

Vacancy rates follow a similar profile across these subsectors, reflecting shared skills requirements and common workforce dynamics. Across most roles, the overall pattern is broadly consistent between energy resources sector, large energy users, electricity supply with consultancy firms reporting larger rates for operations and technical roles. Consulting firms also attributed retention challenges primarily to salary pressure and competition, with staff frequently leaving to take up roles within the larger subsectors that consultants typically support.

Overall, the data indicates that all parts of the sector are facing comparable workforce pressures, with steady but manageable vacancy levels and a collective reliance on specialised technical capability.

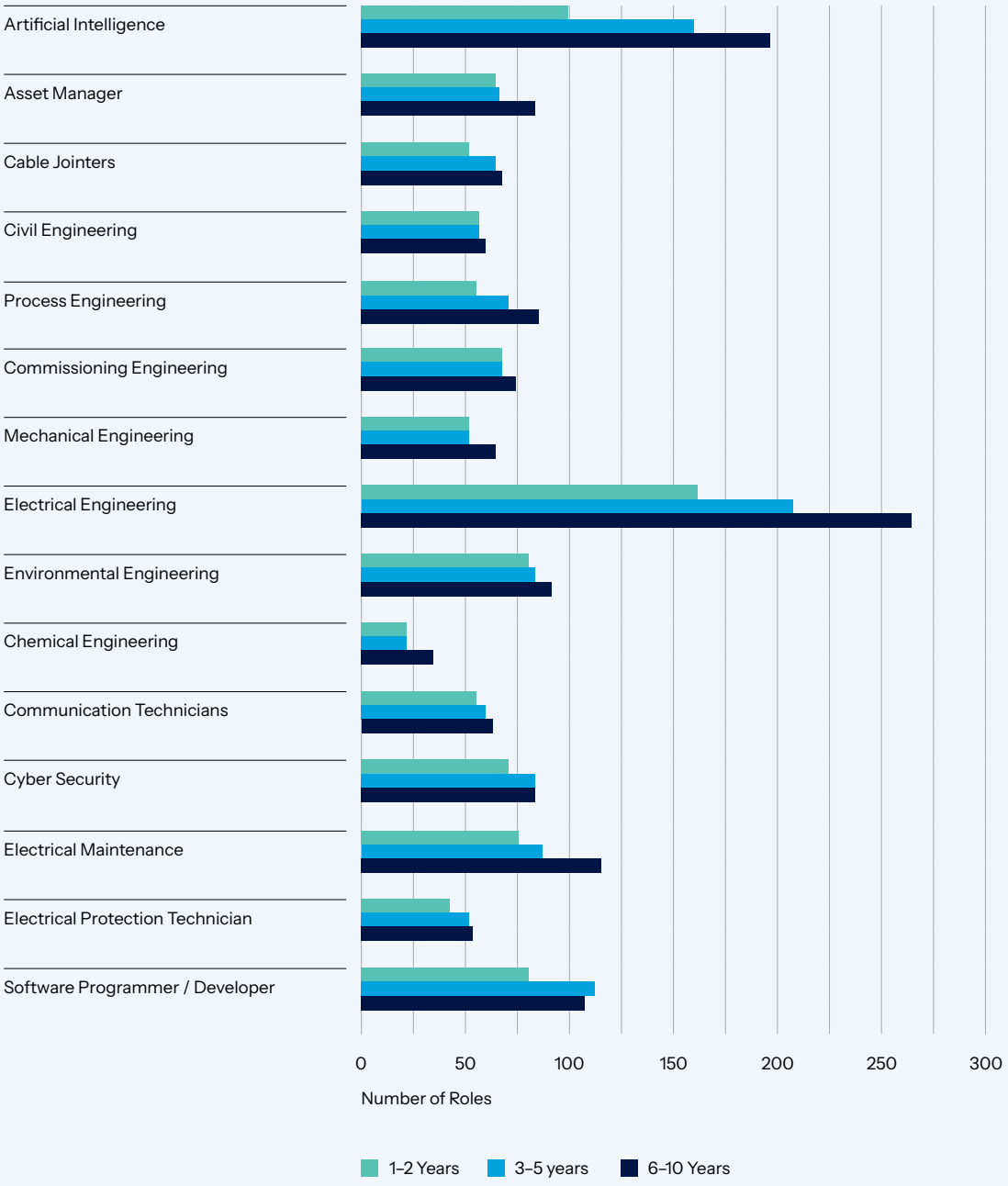
Figure 8: Current job vacancies as a proportion of total workforce size by role, by subsector.



Source: Re-Energise 2025 Industry Survey

Image courtesy of University of Canterbury (Electrical Engineering Student, Carina Toscano)

Figure 9: Projected Demand for Roles Across the Energy Sector over the next ten years.



Source: Re-Energise 2025 Industry Survey

Workforce forecasting

Figure 9 shows the additional workforce surveyed companies expect to require across three time horizons: the next two years, three to five years, and six to ten years. Across most roles, demand increases steadily over time, indicating sustained growth rather than short term spikes.

Electrical engineering stands out consistently as the single largest area of demand, accounting for around 15% of all new roles and approximately 40-45% of total engineering demand in each timeframe. This equates to 161 roles in the next two years to 207 roles over 3-5 years and reaching 265 roles over 6-10 years.

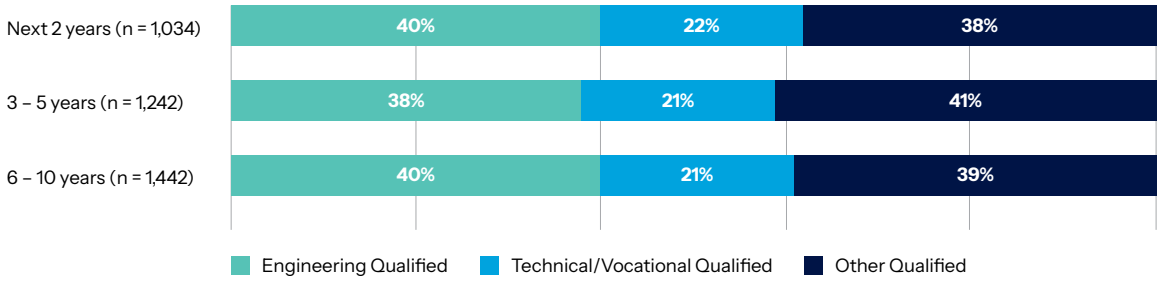
AI is the next most prominent growth area, rising from 99 roles in the near term, to 159 roles in the medium term, and 196 roles over the longer term. Together, these trends highlight the scale and longevity of demand for engineering and digital capability as the energy system continues to evolve.

Across all time horizons, respondents expect additional hiring to be spread across engineering, technical and vocational roles, alongside other specialist qualifications.

The key question is how well New Zealand is positioned to meet this demand. Current domestic training pipelines, particularly for electrical engineering and advanced technical roles, are already under pressure, and competition for these skills is strong both nationally and internationally. Without sustained investment in education pathways, targeted upskilling, and retention of existing workers, there is a risk that skill shortages could constrain project delivery and slow sector growth.

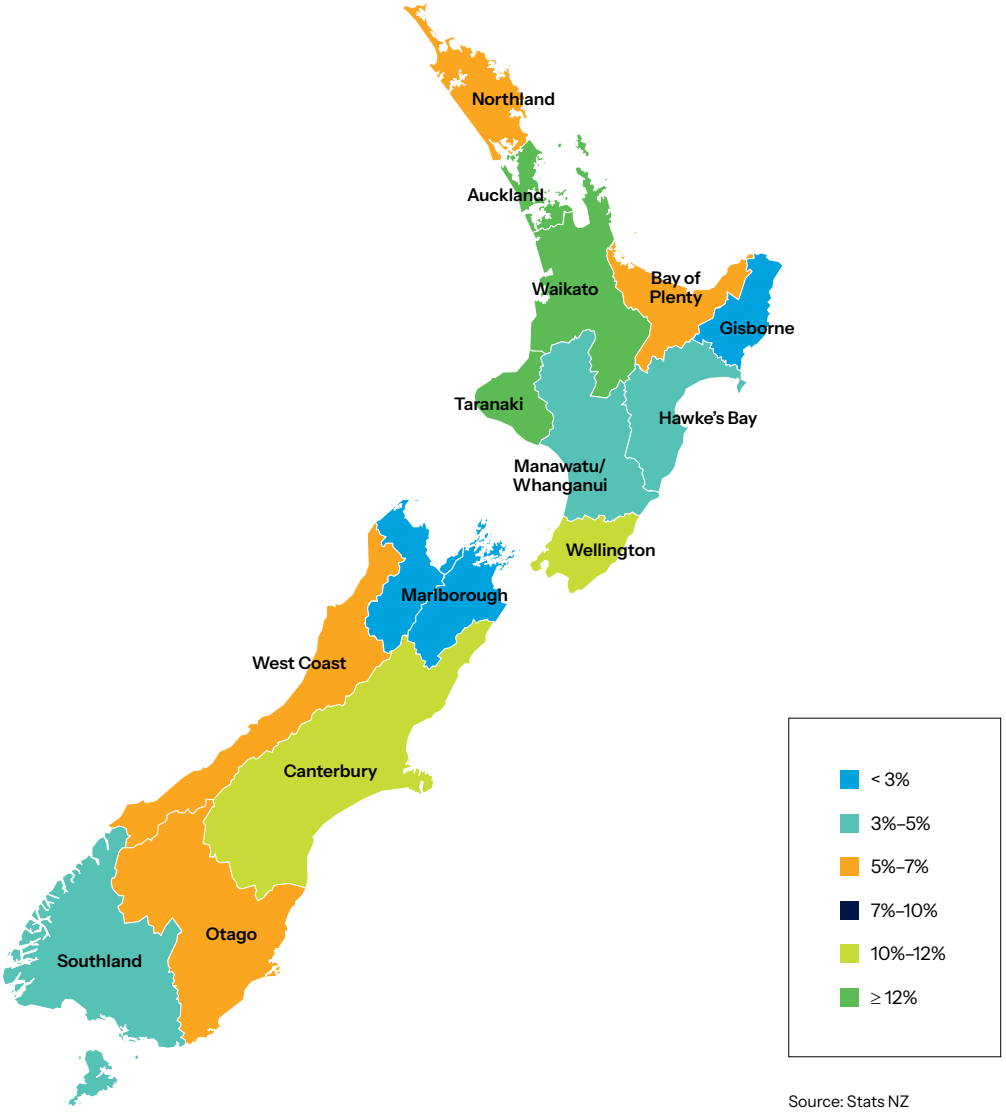
This sustained level of demand highlights the importance of maintaining a strong and continuous pipeline of electrical engineering capability, from education and training through to early career development and retention.

Figure 10: Proportion of additional people required by surveyed companies in each time frame by the type of qualification / training required.



Source: Re-Energise 2025 Industry Survey

Figure 11: Percentage of energy sector employment distribution by region.



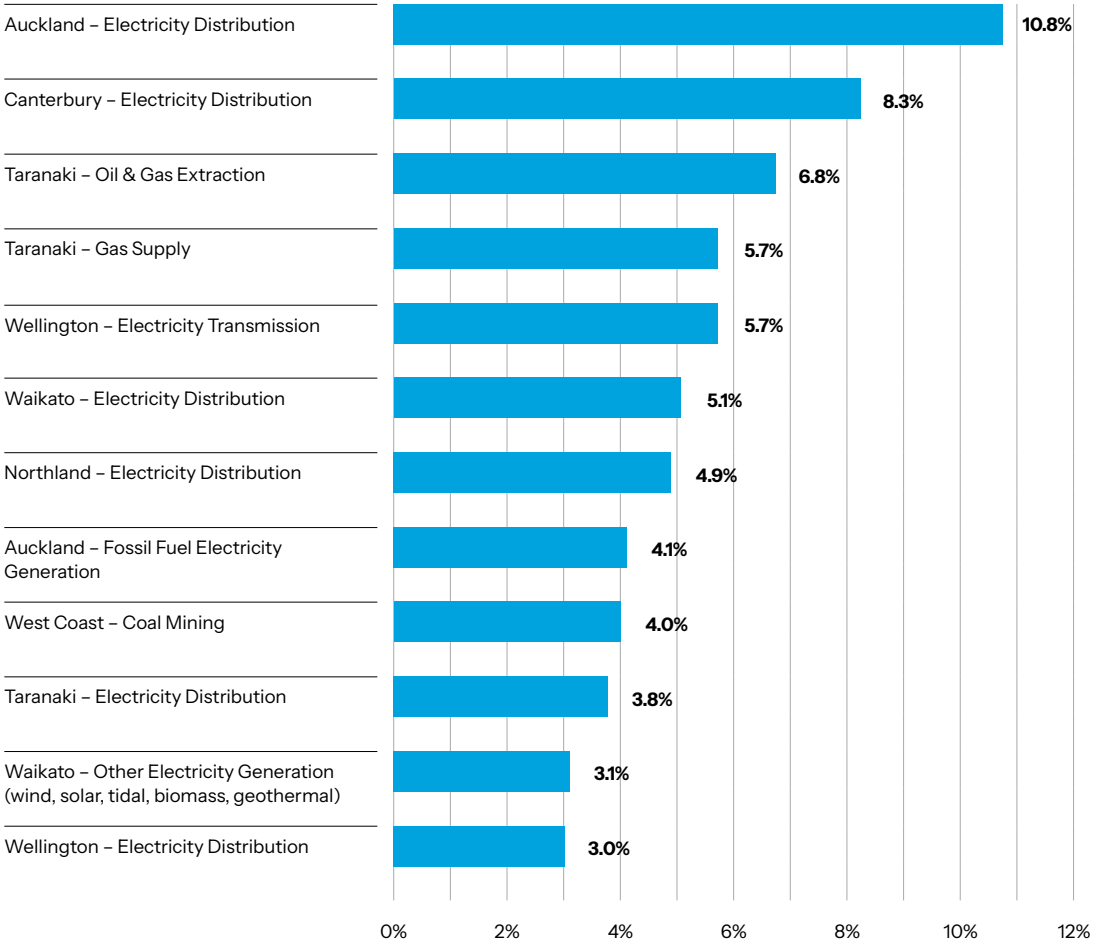
Source: Stats NZ

Geographic distribution of the workforce

The geographic distribution of New Zealand's energy resources sector directly shapes the location, scale, and composition of the energy workforce, as demonstrated in **Figures 11 and 12.**

Highlighted in the figures are the regional concentration of oil and gas activity, geothermal systems, and associated infrastructure in specific parts of the country. This contrasts with the more dispersed footprint of electricity generation and transmission assets. This spatial pattern translates into highly regionalised workforce demand, with distinct skill mixes, occupational profiles, and

Figure 12: Percentage distribution of subsectors employment across regions.



Source: Stats NZ

employment cycles emerging across regions.

Demand side - Vacancies (current and future forecast)

Historically, vacancy levels spiked around 2016, and again in 2021, reflecting broader economic and labour market disruptions at those times. In contrast, the trend heading into 2025 and 2026 is far more stable, and this pattern is broadly what we would expect to see in a loose labour market where roles remain in steady demand, but vacancies are generally manageable. Most organisations report vacancies within the expected range for specialised technical and engineering roles. While there are still pockets of pressure in specific hard to fill areas, the overall vacancy landscape suggests a sector that is currently balancing

Image courtesy of Vector

workforce supply and demand more effectively than in previous years.

Gender diversity in the workforce

Gender diversity is critical to building a resilient and sustainable workforce and enables organisations to draw from a full labour pool in constrained labour markets. Evidence shows that more diverse teams perform better, with improved productivity, stronger decision-making and better problem-solving outcomes. Research from McKinsey & Company Diversity Matters Report[13] consistently finds that organisations with higher gender diversity are more likely to outperform peers, highlighting diversity as both a workforce and performance imperative.

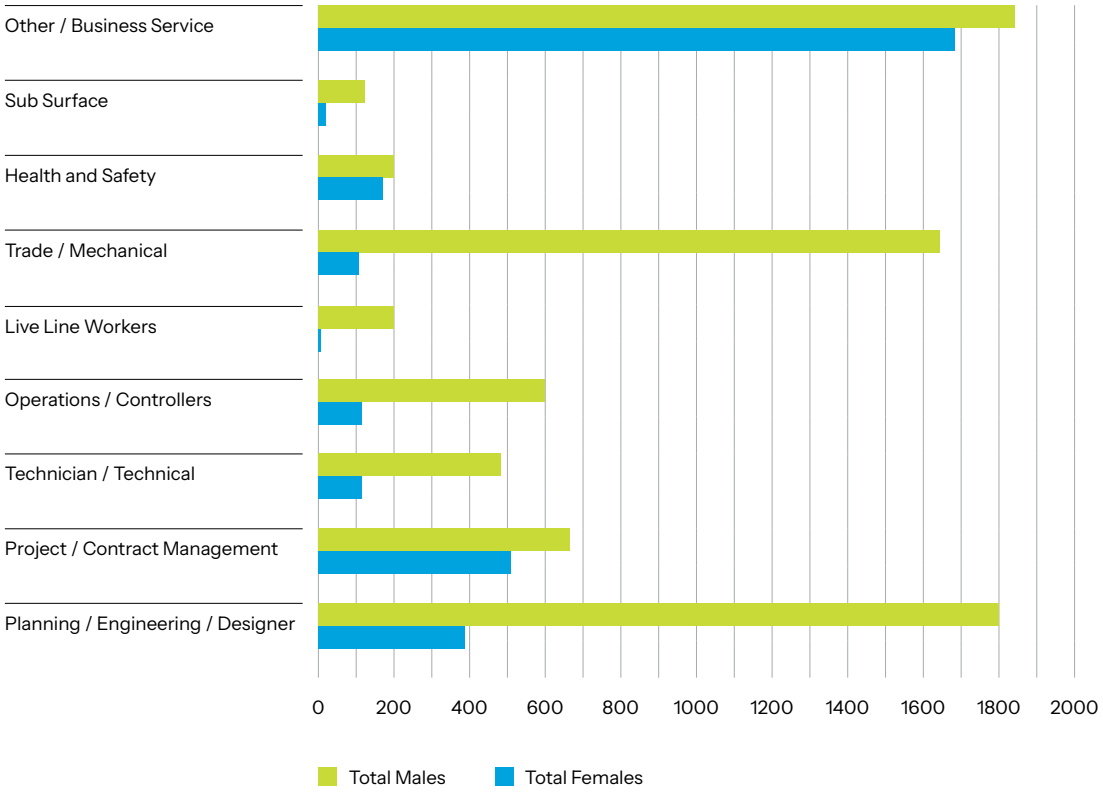
For the energy sector gender diversity remains one of the most pressing challenges.

With women making up 52% of New Zealand's population, mobilising this demographic is vital to achieving the workforce scale needed to deliver our energy transition. Women also bring many of the new skills identified as future needs, including holistic thinking, teamwork, communication, adaptability and resilience.

However, data from the Re-Energise 2025 Industry Survey and recent work by Champions for Change, and the Ministry for Women on the Gender Pay Gap toolkit, highlights a persistent imbalance in female participation across almost every occupational group, with particularly low representation in technical, trade, operational, and engineering roles.

Male employees significantly outweigh female employees across all major occupational categories including engineering, technical, trades, operations, and project management. This mirrors long-standing industry patterns and

Figure 13: Gender representation across occupational groupings.



Source: Re-Energise 2025 Industry Survey

[13] McKinsey & Co Diversity Matters Report – A diverse workforce performs better financially

reinforces the need for comprehensive industry wide interventions.

Engineering was identified as an area of particular concern for gender balance in the 2022 report; however, survey results indicate some improvement since that time. **Women now account for approximately 40% of employed engineering graduates**, suggesting that targeted efforts to attract, support, and retain female engineering students are beginning to have a positive impact.

Female graduate numbers drop sharply in technician (~17%) and trade roles (~17%). These findings reinforce that while progress has been made in professional pathways, significant structural and cultural barriers remain in technical and trade pipelines.

Data sourced from the Tertiary Education Commission identified women were significantly under-represented across energy training pipelines. In 2025, 80% of learners were men and 20% women, with women particularly under-represented in work-based training (under 15% compared to 26% in provider-based programmes).

This suggests that employers are biased toward males for trade roles that require work-based learning or, more likely, that females view these roles as undesirable.

A gradual increase in representation

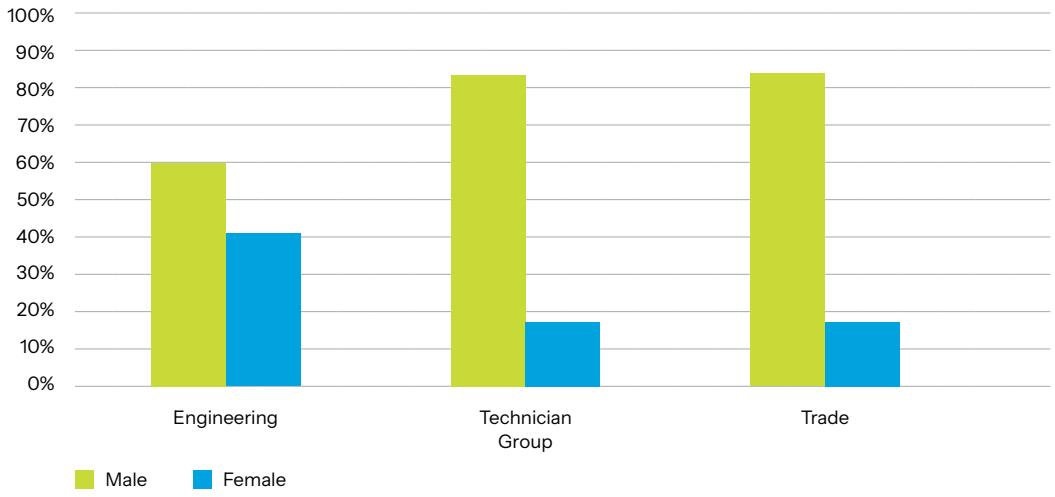
We analysed gender representation data for this report from three points in time: **2012, 2022, and 2025**. A view extending over a decade helped us understand how the energy sector has (and has not) diversified over time. What we saw was a story of slow, but noticeable, growth in female representation in some areas, particularly in technician, operations, and project management roles.

Female representation has grown in engineering roles, rising from 18% in 2012, to 20% in 2022, and reaching 22% by 2025.

While this growth is modest compared with stronger gains seen in areas such as project and contract management or health and safety, it signals steady progress in a discipline that has traditionally been male dominated.

This trend aligns with the graduate entry information obtained through the Re-Energise 2025 workforce survey, which showed a slowly increasing number of female engineering graduates entering the energy workforce. Steady,

Figure 14: Gender Distribution of graduates employed by occupational group.



Source: Re-Energise 2025 Industry Survey

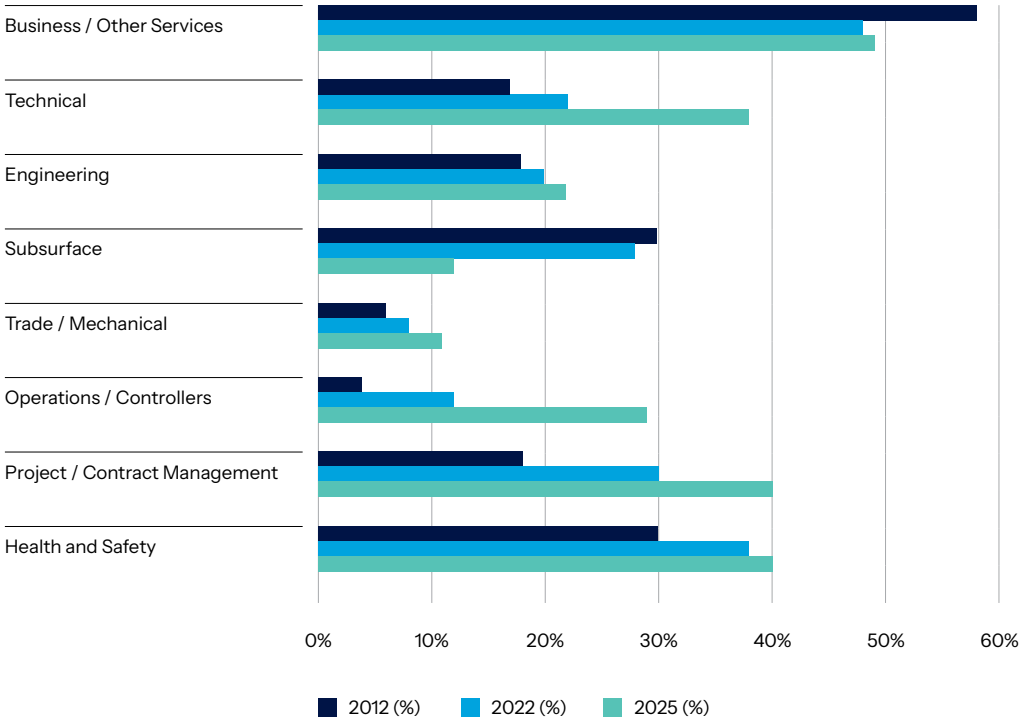
incremental change provides a solid foundation for initiatives that can build on this momentum.

Although women now make up a more visible share of engineering graduates than in previous years, this has not yet translated into rapid shifts in overall workforce composition, reflecting long career tenures and relatively low turnover in engineering roles.

The alignment in these findings suggest that the incremental change in engineering gender balance is being driven by improved graduate intake rather than large-scale mid-career movement. This suggests that sustained focus on early attraction, graduate support, and progression pathways will be critical to maintaining momentum, but opportunities to attract career changers warrant further investigation.

Broader national workforce analyses show similar trends across STEM, infrastructure, and technically

Figure 15: Female representation by occupational group between 2012 and 2025.



Source: Energy Resources Surveys, 2012, 2022 and Re-Energise 2025 Industry Survey

focused industries. However, the challenge appears more pronounced in the energy sector.

Women in leadership roles

There are few female leaders in the industry to represent clear leadership pathways for women.

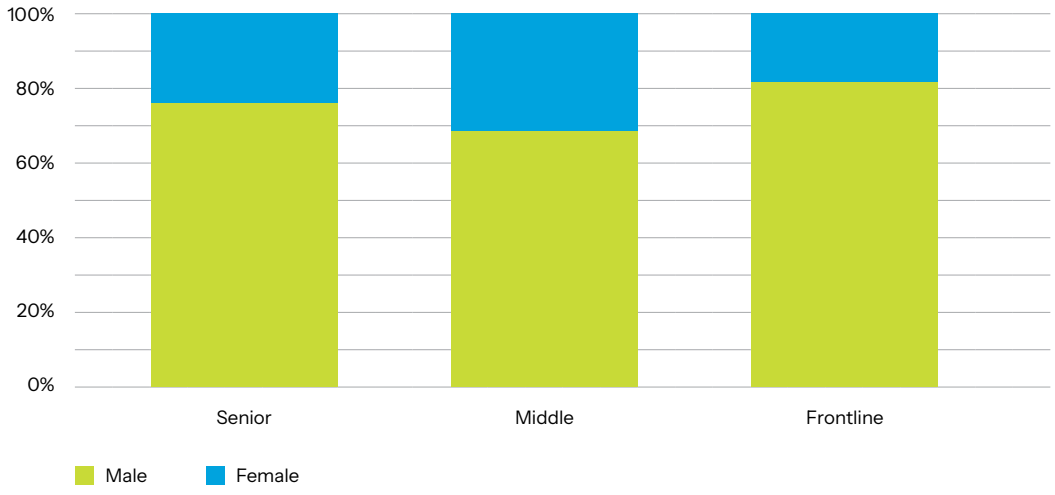
Women remain substantially under-represented at the management level. Re-Energise 2025 workforce survey data showed representation of women in just 24% of senior roles, 31% of middle management, and 19% of front-line management (**Figure 16**). While middle management shows a slight improvement, the overall pattern remains consistent. Although, men represent under half of the nation's population, they hold the vast majority of leadership and supervisory positions across the sector.

Many companies reported having fewer than five women in senior decision-making roles.

This uneven distribution signals both the lack of attrition of women as they move through career stages and the absence of structured corporate or industry pathways that support progression into senior roles.

Overall, the data shows a clear opportunity for coordinated, sector-wide strategies to improve gender representation at all levels, particularly in senior leadership.

Figure 16: Percentage gender representation in management roles.



Source: Re-Energise 2025 Industry Survey

The gender pay gap

A gender pay gap persists when taking a like-for-like view of women and men in similar roles within New Zealand's energy sector. According to a 2025 Ministry for Women report[14] New Zealand women earn 5.2% less than their male counterparts; in the electricity, gas, water and waste services industries this gap is 7.4%.

Encouraging signs from across the sector for women

The current lack of diversity in the sector may seem reason to be discouraged; however, it's important to acknowledge that respondents reinforced the intent and commitment found across the sector to make progress.

We should acknowledge and celebrate achievements including:

- the Global Women initiative,
- the Champions for Change programme, and
- the creation of networks such as Ngākau Hihiko – Women in Energy.[15]

These initiatives create momentum to diversify leadership and foster inclusive work cultures throughout New Zealand's energy sector. They are undertakings visibly supported by senior leaders and CEOs, helping to elevate the importance of gender equity, representation, and pay transparency.

Ethnic diversity in the workforce

Māori and Pasifika comprise a significant portion of Aotearoa's population, with untapped potential to meet our future workforce needs. Māori rangatahi | youth, in particular, represent a rapidly growing proportion of the under 25s who make up our future workforce. Māori workforce participation enhances our industry's ability to better reflect the communities we serve and understand and meet their needs. Māori and Pasifika remain under-represented across the entire energy workforce, despite growing interest and capability building within iwi and Māori businesses, particularly in the renewable energy space. Many iwi and Māori businesses are actively investing in and developing expertise across generation, infrastructure, and energy-enabled industries, signalling strong alignment with the sector's future direction.

Māori and Pasifika remain under-represented across the energy workforce

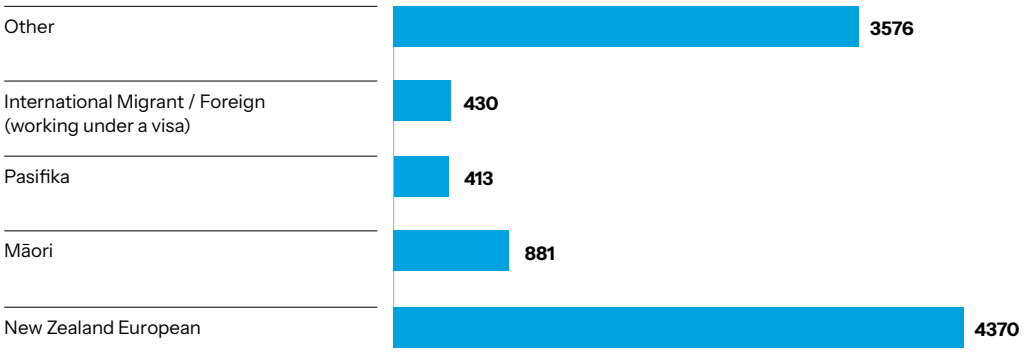
Re-Energise 2025 Industry Survey data indicated that Māori make up roughly 6% of the surveyed workforce and Pasifika just 3% despite both groups forming a much larger share of the national population.

This underrepresentation becomes even more pronounced in leadership positions. Māori and Pasifika are almost entirely absent from senior, middle, and frontline management roles, with very few companies reporting any Māori or Pasifika leaders at all. This low visibility within decision-making roles compounds the existing equity gap and highlights systemic barriers to advancement. The absence of role models is likely to act as a barrier to Māori seeing promise in energy sector careers.

Findings reinforce the need for more, culturally grounded pathways, earlier engagement with schools and communities, and targeted attraction, development, and leadership programmes. Without intentional action, Māori and Pasifika talent will remain excluded from the leadership opportunities.

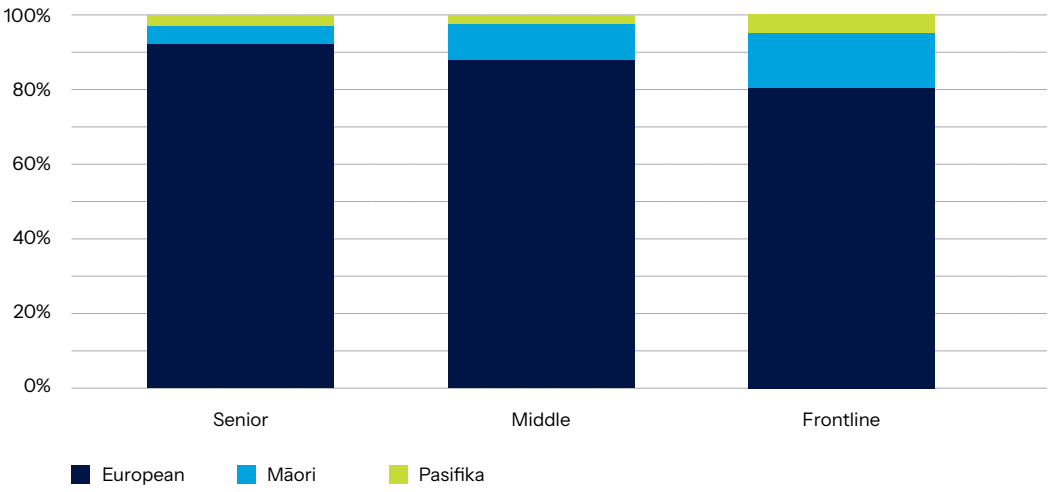
[14] New Zealand's gender pay gap | Ministry for Women
[15] https://ngakau-hihiko.org/

Figure 17: Ethnicity representation across the sector.



Source: Re-Energise 2025 Industry Survey

Figure 18: Percentage of ethnicity representation across management roles.



Source: Re-Energise 2025 Industry Survey

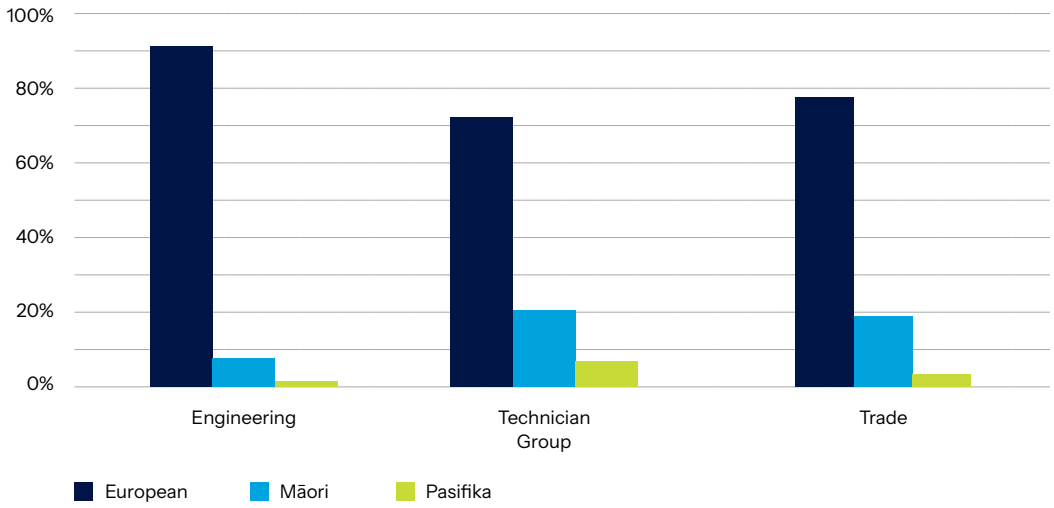
Note: Some surveyed companies do not record employee ethnicity, so these figures may contain a small margin of error; however, the overall pattern of underrepresentation remains clear.

Re-Energise 2025 industry survey graduate entrant data also show that the current cohort of graduates employed across the energy workforce remains predominantly European across all occupational groups. Representation is most pronounced in engineering roles, where European graduates account for just over 90% of those employed, with Māori graduates representing around 8% and Pasifika graduates just over 1%.

Representation is slightly more diverse in technician and trade roles, though European graduates still form the majority. In technician roles, European graduates make up approximately 72%, Māori graduates 21%, and Pasifika graduates 7%. Trade roles show a similar pattern, with 78% European, 19% Māori, and 4% Pasifika representation.

The absence of sufficient targeted interventions to support Māori and Pasifika participation appears to be limiting progression into engineering and higher-skilled technical roles across the energy sector.

Figure 19: Percentage of Ethnicity of graduates across trade, technical and engineering roles currently employed in sector.



Source: Re-Energise 2025 Industry Survey

These findings reinforce the need for more intentional, culturally grounded pathways into the energy sector, including earlier engagement with schools, whānau, and communities, alongside targeted attraction, development, and leadership programmes. There is a clear opportunity for industry to work more closely with iwi, Māori and Pasifika organisations and education providers to co-design approaches that support entry, progression, and retention.

While many companies have established strong, direct relationships with their respective Iwi in the regions where they operate, there remains significant scope for a more coordinated, sector-wide approach.

It is important to note there is already positive progress being made through initiatives such as the work of the Pūhoro STEMM Academy,[16] which demonstrates how culturally grounded, industry-connected pathways can successfully support Māori learners into energy-related STEM education and careers. The Te Ara Pūngao report, Rangatahi Māori Leading Aotearoa's Clean Energy Future[17] further highlights the strong foundations already in place, along with the opportunity to build on this momentum to grow Māori participation across electricity, geothermal, renewables, and wider energy infrastructure.

Māori workforce attraction is most effective when iwi and hapū are genuine co-owners of pathway design and delivery, rather than participants in programmes developed elsewhere. Evidence across the sector shows that enduring engagement occurs when Māori aspirations, values and local priorities are embedded from the outset, with Māori exercising leadership over how pathways are shaped, communicated, and sustained. Working alongside Māori to normalise energy careers for rangatahi and whānau is critical, particularly through whānau-inclusive engagement models and the intentional use of Kura Kaupapa Māori and Māori-medium education pathways. These settings provide culturally grounded environments where energy careers can be understood as viable, future-focused options that align with Māori identity, place, and intergenerational wellbeing.

There is also a wide range of non-corporate activity underway to promote and support Māori engagement in STEM subjects and careers, with many well-established programmes operating at local, regional, and sector levels. While this activity reflects strong commitment and innovation, it often lacks national-level visibility, coordination and sustained support, and is not yet aligned through a consistent, system-wide strategy.

A collective effort across the energy sector, working alongside iwi or local organisations that have the capacity and interest to contribute, would enable the co-design and delivery of workforce programmes at scale. Such an approach would move beyond fragmented, organisation-by-organisation engagement and support more consistent, sustainable pathways for Māori participation, development, and leadership across the energy workforce.

Māori and Pasifika talent is likely to continue to be under-represented in both the workforce and leadership of the energy sector without deliberate, genuine, and sustained action that is co-led by the sector and Iwi.

[16] the Pūhoro STEMM Academy
[17] Te Ara Pūngao Report, Rangatahi Māori Leading Aotearoa's Clean Energy Future

Image courtesy of Northpower

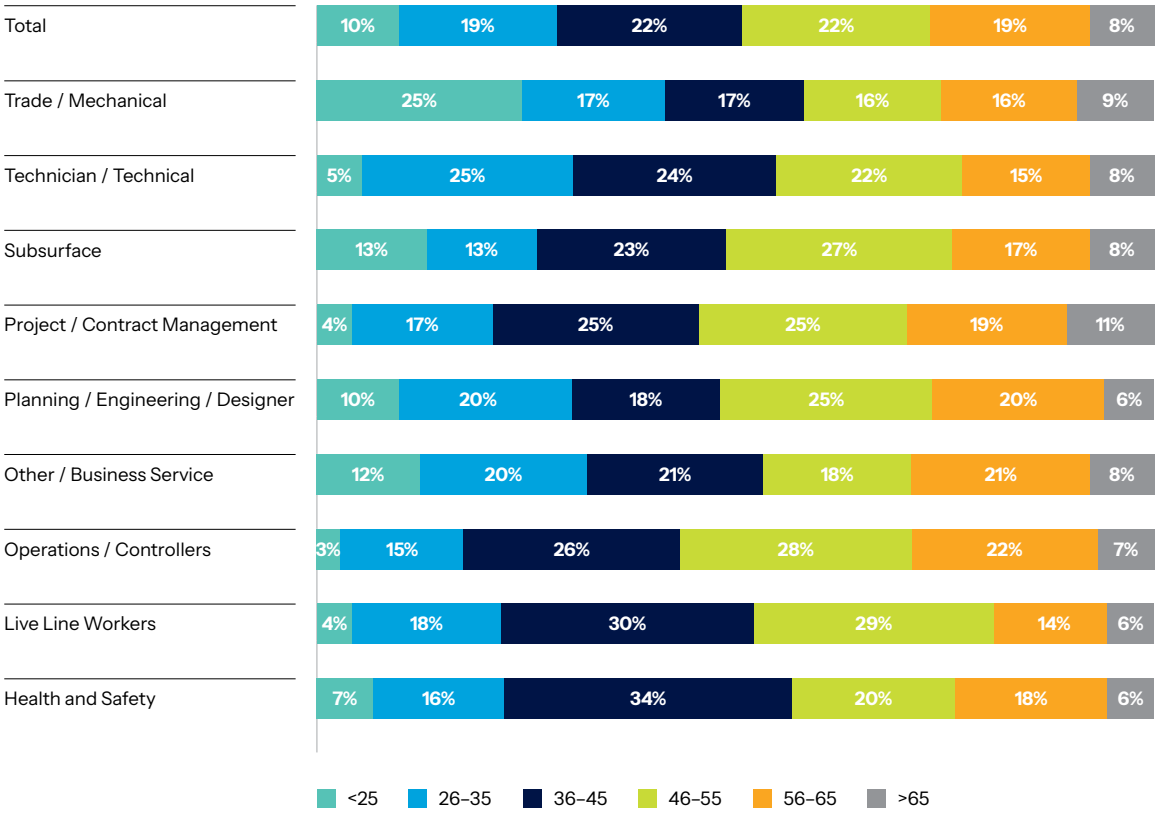
Workforce age distribution

The energy sector workforce age profile is concentrated in the 26-55 age bands. Comparison with census data over the last decade shows a stable pattern of a slightly older-than-average workforce that is consistently aged, rather than increasingly ageing. This is not unexpected given the industry's complexity and need for specialised skill. Other data shows the sector tends to attract experienced workers later in their careers. This presents both risks and opportunities.

Some occupational groupings that skew younger include trade, mechanical, technician, and technical roles. These roles provide an important entry point into the sector and have a higher proportion of workers under 35. Other roles, including operations and control, project and contract management, and planning and engineering, are more heavily weighted towards the 36-55 and 56-65 age bands, reflecting the more experienced workforce in these roles, noting also their lower physical demands.

When you reflect on the median age data across the total economy average (**Figure 21**), data shows the energy workforce is experienced but stable. Median ages sit slightly above the total economy average, reflecting the specialist nature of energy roles. This reinforces the energy workforce is established rather than one that is rapidly ageing, with a clear opportunity to strengthen succession planning and workforce renewal.

Figure 20: Age profile across occupational groupings.



Source: Re-Energise 2025 Industry Survey

Figure 21: Median Age of Energy Workforce.

MEDIAN AGE	ENERGY SUBSECTOR
52 Years	Coal Mining
44 Years	Oil & Gas Extraction
40 Years	Fossil Fuel Electricity Generation
43 Years	Hydro-Electricity Generation
45 Years	Other Electricity Generation
46 Years	Electricity Transmission
44 Years	Electricity Distribution
42 Years	Gas Supply
41 Years	Total Economy

Source: StatsNZ, Census 2023 Data

Entering the workforce

The energy sector is supported by a well-established tertiary education system and a large network of vocational education and training providers. Universities, polytechnics, private training establishments, and industry-based programmes collectively deliver a wide range of engineering, technical, trades, and professional qualifications that underpin the sector's workforce.

Across the NZQA framework, there are approximately 67 energy sector-related qualifications spanning Levels 2-8, delivered through a mix of provider-based and work-based training.

Tertiary / vocational training landscape overview

Enrolments across engineering, technical, trades, and professional qualifications have declined over the past five years, even as industry surveys indicated growing interest from students in entering the energy sector. In 2025, approximately 25,000 learners were enrolled in energy-related programmes, compared with around 7,800 completions, pointing to significant attrition between entry and completion. This indicates that while demand for energy careers remains strong, it is not consistently translating into sustained participation or completed qualifications.

The decline has been most pronounced in work-based training, where learner numbers have fallen by more than 4,300. Industry respondents consistently attribute this to limited workplace capacity rather than a lack of interest. Key constraints include shortages of experienced supervisors, the loss of senior staff who would typically mentor apprentices and trainees, and limited assessor availability. Supervisors play a critical role in learner progression and safe delivery of on-the-job training, yet many organisations report that operational pressures leave little capacity to take on additional learners.

Together, these factors are constraining the sector's ability to absorb and support new entrants, despite long-term workforce demand. Addressing supervisory capacity, alongside broader training and assessment capability, will be essential to improving retention and completion rates and converting strong interest in energy careers into a sustainable workforce pipeline.

There is scope for targeted intervention, either to better support learners through to completion or to improve understanding of the factors contributing to learner attrition.

Likewise, efforts could be made to strengthen supervision and assessor capacity within workplaces, reducing administrative burden, and providing greater flexibility in how training is delivered to better align with operational realities. Targeted support to help employers continue training during periods of high workload, alongside shared and regional training models, would help spread risk and build resilience.

Despite overall enrolment pressures, there are several positive signals emerging across the energy training landscape. Electrical engineering and related technologies continue to underpin the system, accounting for nearly 80% of enrolments and representing the largest share of provider-based learning. At the higher levels of the framework, engineering and related technology disciplines are beginning to show moderate growth, indicating strengthening capability in advanced technical areas. Micro credentials in solar PV and battery storage are also gaining momentum, with steady growth in learner interest, albeit from a smaller base.

There is a need for closer alignment between skills supply and the evolving requirements of the energy sector.

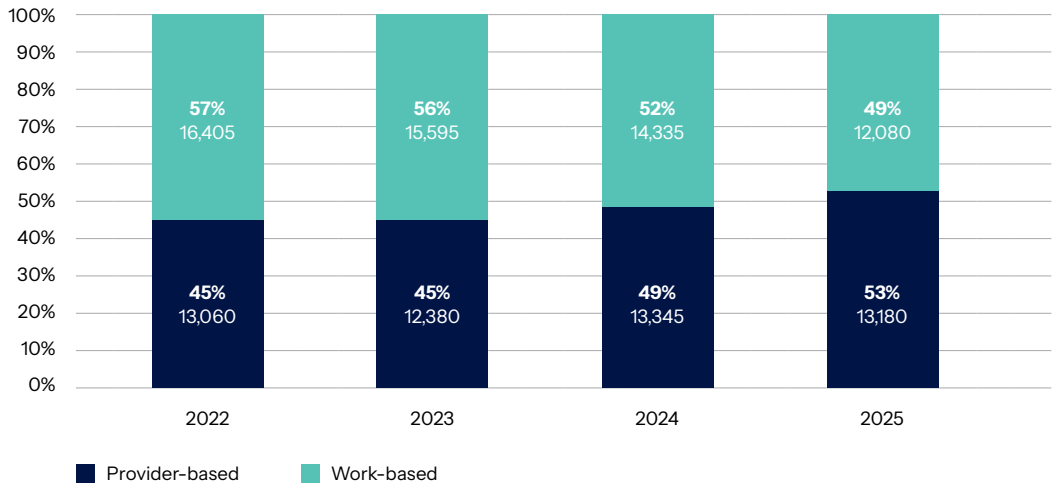
Demographic trends also point to encouraging signs in the future pipeline. Learners under the age of 25 remain the dominant group within energy training and have increased slightly relative to mid-career cohorts, supporting longer term workforce renewal, while participation among the 25-39 and 40+ age groups has declined.

There is an opportunity to actively support re-entry and upskilling pathways for experienced workers.

A targeted, coordinated campaign could help attract and transition the mid-aged career group into the energy workforce. Statistics New Zealand data shows strong workforce mobility between the energy sector and the professional, scientific and construction sectors, suggesting a clear opportunity to leverage these existing pathways. Exploring this further could form a specific piece of work to be commissioned.

International learners currently make up a small share of enrolments in energy-related training. While this presents a potential opportunity to grow talent into New Zealand's energy workforce through domestic qualification pathways, it would only be appropriate where clear and sustained workforce gaps are identified. If explored further, a coordinated industry approach is likely to be more effective than individual employer action, including sharing proven practices and pooling risk where needed.

Figure 22: Energy sector enrolments across providers and work-based learning.



Source: Tertiary Education Commission and NZQA data

Industry insights on engineering graduates' workforce readiness

Re-Energise 2025 Industry Survey data showed that most employers viewed engineering graduates generally work-ready but 28% viewed them as less or poorly prepared. There are several areas where engineering pathways could be strengthened. Many stressed the value of introducing energy system concepts much earlier in schooling, so learners build a basic understanding long before they reach university. Stronger integration with industry was also highlighted, and internship programmes were viewed as essential for helping students apply theory, build confidence, and understand how workplaces operate.

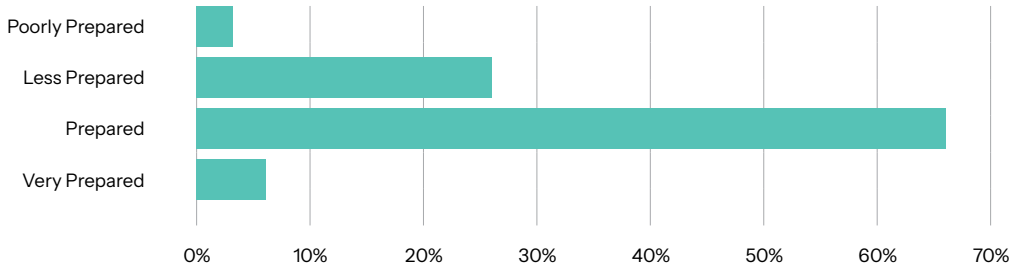
Companies also emphasised the importance of social skills, resilience, and critical thinking. These attributes are increasingly vital as engineers work in multidisciplinary teams and deal with complex operational environments. Respondents also noted the need for clearer and more robust pathways from university into the workforce, supported by training that focuses on real-world industry challenges rather than narrow research interests.

Practical experience continues to be a major theme.

Employers stressed that learning on the job is just as important for engineering graduates as it is for trades, and that field exposure remains one of the most effective ways to bridge the gap between classroom learning and working in the energy sector.

Image courtesy of Vector

Figure 23: Number of respondents by view of engineering graduate work-ready preparedness.



Source: Re-Energise 2025 Industry Survey

There is a growing mismatch between the number of early-career opportunities available and the level of interest from students seeking entry into the sector.

Internships remain critical to New Zealand's talent pipeline and future energy workforce, particularly as parts of the energy system enter periods of decline or transition. Universities surveyed indicated an overall decline in internship opportunities across all sectors, a trend that is also being observed by industry. Internships play a vital role in attracting and retaining emerging talent by providing practical experience, industry exposure, and clearer pathways into long-term careers in energy. Note that universities observed that tightened internship opportunities were delaying, rather than preventing, students from beginning energy sector careers.

Maintaining these opportunities is especially important during periods of transition, helping to keep skilled graduates connected to the sector and within New Zealand. As the country moves toward rebuilding industrial capability and new energy-enabled industries emerge, a strong and sustained internship pipeline will be essential to ensure workforce capability is ready when demand accelerates.

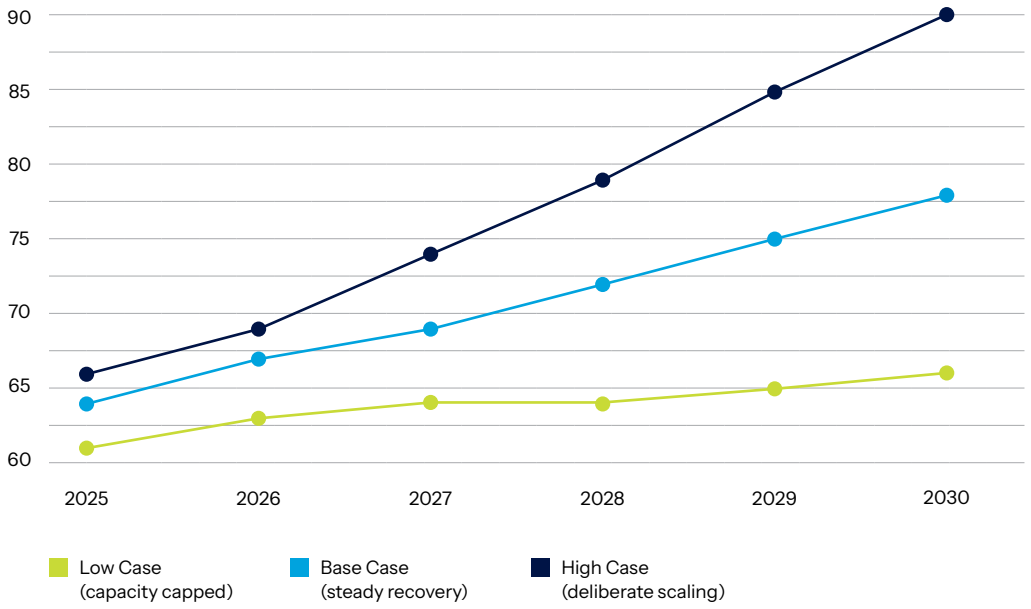
The Re-Energise 2025 Industry Survey asked companies how many internship positions they had offered over the past three years. The findings show a notable decline in opportunities within the energy resources sector, while internship numbers across electricity supply have remained relatively stable. In contrast, companies reported that student demand for internships has increased sharply, with total applications quadrupling since 2023.

The survey also asked how many graduates companies had employed over the past three years and whether they expected these numbers to increase, decrease, or remain the same. When scaled across industry respondents, the results show that graduate intake is highly concentrated among a small number of larger employers. Most companies annually take only one or two graduates at most, and many take none. Overall, this equates to approximately 60-70 graduate roles across the surveyed companies each year, with intake in 2025 slightly lower before stabilising in 2026.

Importantly, this level of graduate intake remains well below student demand. Survey feedback and wider engagement indicate strong interest from students in pursuing careers in the energy sector, with application numbers far exceeding the graduate roles available. While many companies indicated an intention to maintain or increase graduate recruitment over time, actual intake continues to be constrained by supervisory and mentoring capacity, as well as the resources required to support early-career staff.

As a result, graduate opportunities remain highly competitive, and student demand continues to outstrip current supply.

Figure 24: Numbers of indicative graduate intake projection (survey scaled and skew adjusted).



Source: University survey data

Overall, the findings suggest that improving engineering preparedness requires a full pipeline approach. This includes early STEM engagement, stronger university and industry partnerships, more internship coordination across the sector and ensuring graduates arrive with both the technical and interpersonal capabilities needed to be successful in this sector.

Industry insights on trade graduate's workforce readiness

Surveyed companies consistently relayed that **the current trade training and apprenticeship pathways are not long enough to build full competency**, particularly for roles that require complex technical skills and a deep understanding of safety critical work.

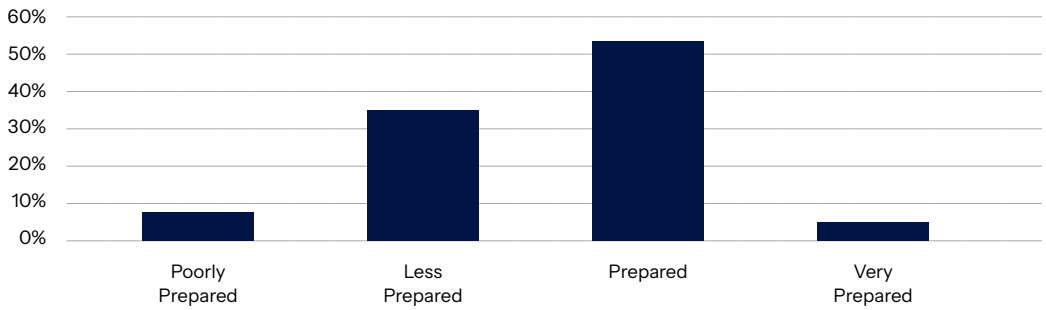
Companies also highlighted notable gaps in industry knowledge and essential soft skills, suggesting that these foundations should be introduced much earlier, ideally at school level, to better prepare young people entering vocational pathways. Many felt that **training still reflects a more traditional model of line work and underground operations and does not yet reflect the future skillsets** the sector will need as technology, digitalisation and new energy systems evolve.

A recurring theme was the need for training that better prepares learners for the realities of workplace environments. **Surveyed companies emphasised the value of more on site learning, practical application, and hybrid models** that combine classroom teaching with structured on the job experience. These approaches were seen as essential to building confidence, safety awareness, and problem-solving skills.

A proven example of innovative delivery is the hybrid pre-employment training model for process operators, developed and governed by industry and previously run by Western Institute of Technology at Taranaki (WITT), which combined approximately 30% classroom-based learning with 70% structured workplace placement. This approach enabled learners to develop practical skills in real work environments while completing formal training, strengthening job readiness, and employer confidence. While the programme is no longer being delivered due to the recent industry downturn, it remains an exemplar model that demonstrates the value of training in the field and close industry-provider alignment. This model could be adapted and applied across other parts of the energy and infrastructure sector where workforce demand and employer capacity support hybrid pre-employment learning.

Overall, there is a clear sense that vocational training remains under resourced, and that the system needs to shift toward more industry-wide, future-focused skill development. The feedback signals a strong appetite for reform that strengthens pathways, modernises training content and provides learners with the depth of experience required to thrive in the energy sector.

Figure 25: Number of respondents by view of trade students work-ready preparedness.



Source: Re-Energise 2025 Industry Survey

Image courtesy of Energy Resources Aotearoa (Taranaki energy intern activator)

University and schools' perspectives

Two additional surveys were undertaken with 15 secondary schools in key energy regions and over 300 tertiary students studying engineering and related disciplines across universities and polytechnics to understand the future workforce pipeline into the energy sector. The surveys explored awareness of the energy sector, perceptions of future energy technologies, and factors influencing career interest. Together, they highlight where understanding is strong, where gaps remain, and what is needed to strengthen attraction and preparedness for energy careers.

Tertiary perspectives

Overall, students demonstrated strong interest in the energy sector, particularly in future focused and low emissions technologies. Renewable energy, electricity, energy storage, and emerging technologies such as hydrogen featured prominently in students' views of the future energy system. Energy security was also seen as a critical national issue, with the vast majority of students rating it as very important or critically important for New Zealand.

While awareness of the sector was generally reasonable, understanding was often broad rather than deep. Many students were only somewhat familiar with how the energy system operates or how different roles fit within it, and a notable proportion had not studied energy as part of their degree. This points to an opportunity to strengthen energy literacy across engineering and technical education pathways.

Interest in working in the energy sector was high, with close to 70% of students open to an energy career. However, uncertainty remains for many. Students consistently prioritised clear career progression, job security, and access to internships and work experience over salary alone. Purpose also matters strongly, with students motivated by the opportunity to contribute to sustainability, climate outcomes, and national resilience.

Access to internships emerged as one of the strongest themes across the survey. While only a small proportion of students had completed an energy-related internship, the majority expressed a strong desire to do so. Students see practical experience as essential to understanding real-world roles, building confidence, and transitioning successfully from study into employment.

Students also raised concerns about long-term career pathways, safety, and whether the sector is moving fast enough to meet future demand and climate goals. These concerns were often coupled with curiosity and optimism, highlighting that clearer communication, stronger engagement, and visible pathways could significantly lift confidence and participation.

Students are motivated by purpose and impact but need clearer pathways and much earlier exposure to the energy sector.

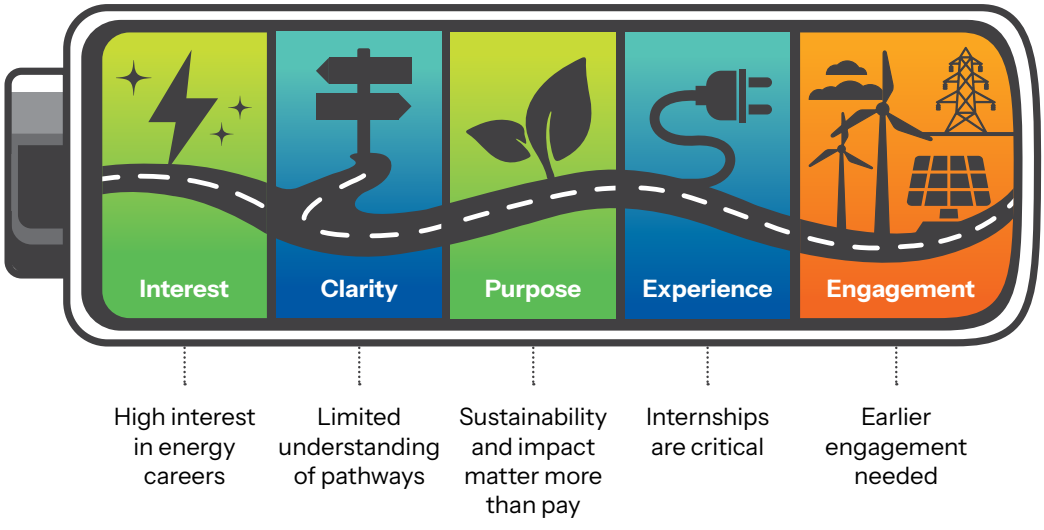


Image courtesy of Energy Resources Aotearoa (STEMFest Taranaki)

School perceptions

Overall, schools show strong willingness to engage with industry and support students into future careers, but energy literacy and awareness of the sector remain variable. Most educators described themselves as only somewhat familiar with the energy sector, with limited understanding of how New Zealand's energy mix operates or how electricity supply, energy resources sector, and emerging technologies fit together.

Teachers broadly anticipate a renewables-led future, identifying wind, solar, and hydro power as dominant energy sources over the next 20 years. Interestingly, natural gas is still seen as relevant by many educators, particularly where it is domestically available, while geothermal and hydrogen are viewed as emerging technologies. Electricity is often perceived separately from energy resources sector, highlighting a gap in system level understanding.

Energy topics are not consistently embedded in the curriculum. While some schools touch on renewable energy or climate change, this is often done occasionally or on an ad hoc basis, rather than through structured learning pathways. Student interest in energy and STEM careers is reported as intermittent, with stronger engagement where clear vocational, trades, or engineering pathways exist.

Schools expressed strong demand for practical support, including curriculum aligned teaching resources, guest speakers, industry visits, and work experience opportunities. There is a clear appetite for closer industry connection, particularly in regions undergoing energy transition, to help students understand real-world career opportunities and build confidence in pursuing energy-related pathways.

It has been proven that engagement must even begin at primary school level through focused STEMM education to meaningfully influence future career pathways in the energy sector. Early exposure to science, technology, engineering, mathematics and mātauranga Māori builds curiosity, confidence and awareness before subject choices begin to narrow in later schooling years. Introducing students to how energy powers homes, schools, hospitals and communities helps make learning tangible and relevant, while challenging misconceptions about the sector. By embedding engagement at the primary level, the industry can strengthen long-term workforce pipelines, support more diverse participation, and ensure young people understand the breadth of technical, trade and professional opportunities available. Early engagement is therefore a deliberate workforce strategy, not simply an education initiative.

The mid-career workforce

The electricity and energy sectors, both in New Zealand and globally, are undergoing rapid structural change driven by efforts to reduce emissions, digitalisation, and system integration. Research consistently shows those in mid-career, with 10–25 years of experience, are pivotal to system resilience, knowledge transfer, and delivery of the energy transition. However, these workers face a distinct and often under-acknowledged set of challenges.

Skills mismatch and role evolution

Across international studies evidence of a growing gap between existing skills and emerging role requirements has emerged. Most electricity sector roles are not disappearing but are changing in scope and complexity, often requiring additional digital, systems, or interdisciplinary capabilities[18]. These changes can create uncertainty: roles remain, but expectations expand, often without clear guidance, training pathways, or recognition.

Limited access to structured reskilling

Early-career training and graduate pipelines are often well defined, but mid-career reskilling is more fragmented. Workforce transition research highlights that training systems frequently assume either initial education or full retraining, leaving experienced workers navigating ad-hoc upskilling on their own.[19] This challenge may be compounded in the wider energy sector by compliance obligations, time constraints, and reluctance to release senior staff for extended learning.

[18] Hanna, R., Xu, Y., Victor, D. G., & Orvis, R. (2024). Job creation in a low-carbon transition to renewables and energy efficiency: A review of international evidence. Sustainability, 16(2), 1–22. https://doi.org/10.1007/s11625-023-01440-y

[19] Weishaupt, T. (2025). Workforce development in low-carbon energy transitions. Energy Research & Social Science, 101, 103121. https://doi.org/10.1016/j.erss.2025.103121

Aged workforce and progression bottlenecks

New Zealand and comparable jurisdictions have an aged electricity workforce, particularly in technical and operational roles. Sector workforce reports note that mid-career professionals can experience stalled progression as senior roles remain occupied longer, while technical expertise deepens without corresponding leadership or system-level roles emerging.[20] This can result in disengagement or premature exit from the sector at a time when experience is central to the nation's ability to realise its energy future.

Change anxiety

The changing energy mix can introduce uneven impacts across subsectors, creating anxiety about long-term relevance. International modelling of power-sector transitions shows that workers often experience uncertainty not only about job security, but about professional identity, particularly where legacy technologies are being re-positioned rather than eliminated.[21] This risk is heightened for those who are not as mobile as those in their early careers due to family, or other financial, commitments.

Emerging opportunities

Systematic reviews demonstrate that technical, engineering, and operational roles increasingly combine traditional expertise with digital tools, automation oversight, and cross-system coordination.[22] For mid-career workers, this creates opportunities to leverage deep domain knowledge while extending capability into adjacent areas such as data interpretation, asset optimisation, and system planning.

Leadership in system integration and complexity

Demand is growing for professionals who can operate across organisational, technical, and regulatory boundaries as the energy mix changes and electricity systems become more distributed and interconnected. Career development analyses highlight that mid-career workers are well positioned to step into integration, assurance, and leadership roles that rely on judgement, experience, and stakeholder understanding, rather than narrow technical specialisation.[23] These roles are critical but often under-formalised, suggesting scope for clearer pathways.

Recognition of experience as a transition asset

Equity-focused labour research increasingly frames experienced workers as assets for a just and orderly transition, rather than as risks to be managed.[24] Mid-career professionals play a central role in functions that are essential during periods of rapid change: mentoring, safety culture, and institutional memory. Organisations that explicitly value and resource these contributions are better positioned to retain talent and maintain system reliability.

Retaining the workforce

Retention is critical to workforce stability, productivity and the continuity of specialist and safety-critical knowledge. Replacing experienced workers is costly and time-consuming and often results in the loss of institutional knowledge, supervisory capability, and on-the-job expertise. These challenges are not unique to the energy sector and are also evident in competing industries such as construction, both in New Zealand and internationally. Strong retention reduces recruitment pressure, strengthens workforce resilience, and enables organisations to focus more effectively on capability development rather than constant replacement.

Figure 26 shows retention challenges in vocational or trade-based technical roles, while present, appear to be less prevalent. These positions often rely more on deep organisational knowledge and on-the-job learning, which can create stronger workplace ties once people are embedded.

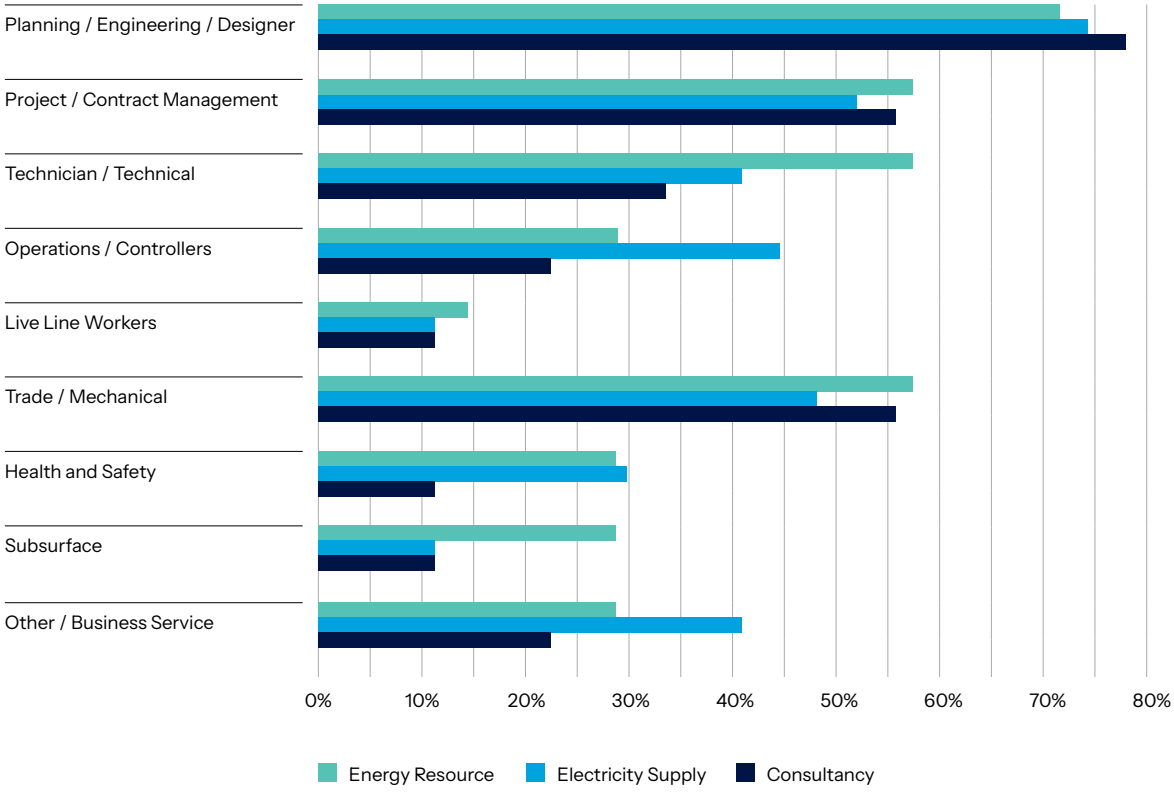
[20] Robert Walters. (2025). Energy & utilities sector report: New Zealand. https://www.robertwalters.co.nz
[21] Xie, J. J., Jenkins, J. D., & Sepulveda, N. A. (2023). Distributional labour challenges and opportunities for decarbonizing the US power system. Nature Climate Change, 13(11), 1082–1091. https://doi.org/10.1038/s41558-023-01802-5
[22] Hanna, R., Xu, Y., Victor, D. G., & Orvis, R. (2024). Job creation in a low-carbon transition to renewables and energy efficiency: A review of international evidence. Sustainability, 16(2), 1–22. https://doi.org/10.1007/s11625-023-01440-y
[23] Energies Media. (2024). Career development in the energy sector: Navigating the path to leadership. https://energiesmedia.com
[24] Xie, J. J., Jenkins, J. D., & Sepulveda, N. A. (2023). Distributional labour challenges and opportunities for decarbonizing the US power system. Nature Climate Change, 13(11), 1082–1091. https://doi.org/10.1038/s41558-023-01802-5

Surveyed companies reported having a range of development and training opportunities in place that are designed to support progression into more senior roles and retain staff. These initiatives commonly combine professional growth programmes, skill enhancement approaches, and technical training, alongside mentorship and leadership development pathways. Many organisations also emphasised the importance of career awareness, practical experience, and educational support in preparing staff for advancement.

Collectively, these themes indicate a strong intent across the sector to build internal capability and provide structured pathways that enable employees to grow, develop, and step into higher-responsibility positions over time.

Together, the data suggests that employers are navigating a competitive landscape for specialised professional talent, while managing comparatively steadier retention in vocational roles.

Figure 26: Percentages of retention patterns of occupational groupings across subsectors.



Source: Re-Energise 2025 Industry Survey

Reasons for retention challenges

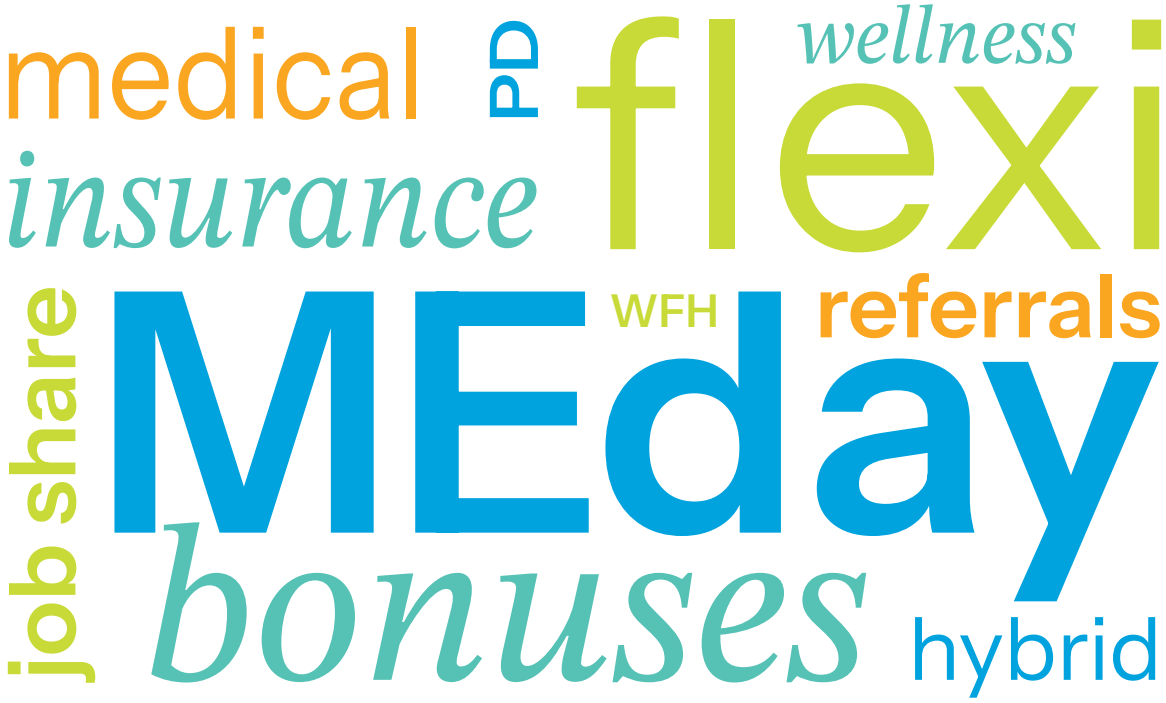
The survey results in **Figure 27** show that salary remains the most frequently cited reason for retention challenges across all parts of the sector, with consultancy firms reporting the strongest pressure in this area. This reflects the wider competition for highly skilled technical and professional talent, where wages have been rising and employees have many options across related industries.

A notable trend in the data is the level of industry uncertainty reported by the energy resources sector, consultants and large energy users. Respondents in this group were more likely to identify concerns about job security and long-term stability as a key factor contributing to turnover. This is consistent with the current environment, where shifting policy settings, declining gas supply, and questions about future investment have created a degree of ambiguity for workers considering their future in the sector.

Aside from this, most other subsectors point to a mix of factors that influence retention. These include competition from other industries, challenges with career progression, location constraints, and the lack of clear training pathways for some roles. Retirement also features as a steady contributing factor, particularly in electricity supply where an aged workforce continues to shape turnover patterns. Overall, the data suggests that while each sector has its own pressures, retention challenges stem from a combination of financial, structural and career related drivers, rather than a single dominant issue.

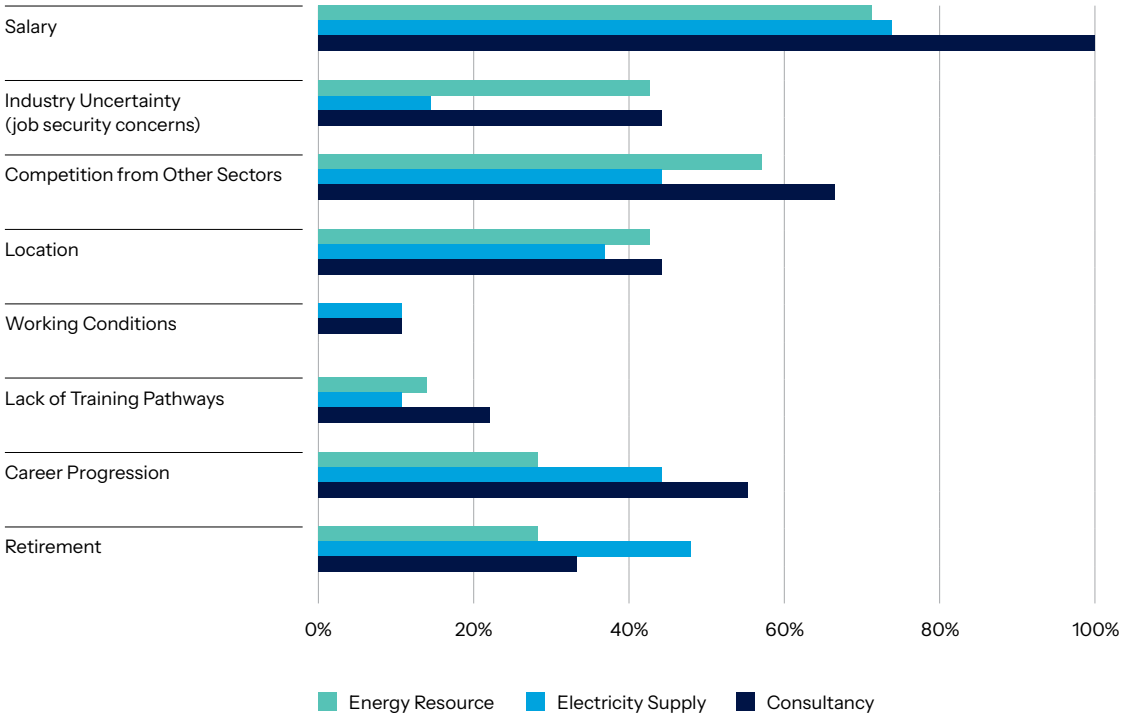
63% of survey respondents indicated they use retention initiatives.

Retention initiatives – 63% of companies are using them



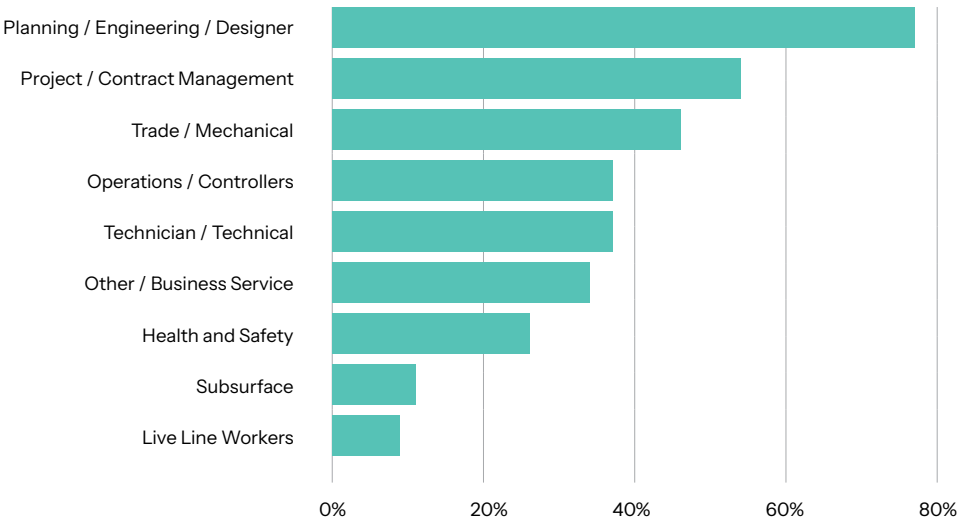
Source: Re-Energise 2025 Industry Survey

Figure 27: Proportion of respondents identifying specific reasons for staff being hard to retain, by subsector.



Source: Re-Energise 2025 Industry Survey

Figure 28: Retention pressure by occupational groupings.



Source: Re-Energise 2025 Industry Survey

Figure 28 shows where retention pressure is most concentrated across occupational groupings. Planning, engineering and design roles feature most strongly, reflecting ongoing network development, project planning and system change across the energy sector. Retaining capability across project and contract management roles is also critical given the increasing complexity of delivery activity and the reliance on experienced practitioners.

Trade, technician, and operational roles remain essential to the safe and reliable operation of the energy system, making retention in these areas particularly important for continuity and performance. While subsurface and live line worker roles represent a smaller proportion of the workforce, they remain critical and highly specialised functions within the energy system.

Other workforce considerations

Immigration

Migrants make up a small but material part of New Zealand's energy sector workforce. As of November 2024, MBIE migrant employment data shows migrants on work visas represented less than 3% of workers, with a further 11% holding resident visas.[25] Survey analysis shows that while overall migrant participation in the sector is low, immigration remains an important tool for accessing specialised skills that support safe and reliable operations.

New Zealand's immigration system is currently well structured to balance the entry of medium and lower skilled workers, who help fill specific shortages, with more open pathways for highly skilled workers who bring valuable expertise to the economy, which is very relevant for the energy sector.

For the sector, which is highly skilled and well paid, several visa pathways are relevant, including the Accredited Employer Work Visa, open work visas, and residence routes such as the Skilled Migrant Category and the Green List. These settings generally align well with the sector's occupational profile and provide workable options for roles such as engineers, electricians, power generation operators, and line workers.

The industry survey reinforces this picture. Most companies reported minimal issues with immigration. However, challenges persist in sourcing a small number of specialist roles and further investigation is warranted to understand the underlying causes.

Employers noted that processes are now smoother and more predictable than in previous years. Policy updates with the current government have also provided additional support such as the skilled trade and technician pathways, which is based on experience as well as qualifications. However, there are still a few anomalies. Highly qualified and globally sought talent, especially in specialised engineering disciplines, can take longer to secure due to international competition, complex qualification recognition, and the higher costs associated with recruitment.

Overall, immigration settings do not appear to be a major barrier or enabler for the sector. There remains an opportunity to better leverage migration as part of a more coordinated workforce solution.

Transferable skills and capability

Transferable skills remain a core strength of the energy workforce and a key theme from the previous 2022 reports. Many capabilities such as electrical and mechanical skills, health and safety, systems thinking and asset management are shared across the subsectors. In practice, skills transfer does occur, particularly between closely related roles, allowing workers to move with targeted upskilling rather than full retraining. However, this is often uneven and limited by inconsistent recognition of prior experience and differing site or employer requirements.

The survey asked companies about the skill sets they value across the critical roles within the

[25] MBIE Migrant employment data

sector, such as specialist technicians, project managers, and engineers. **The results highlight the growing importance of hybrid skill sets that combine technical expertise with broader project, risk, and operational capability.**

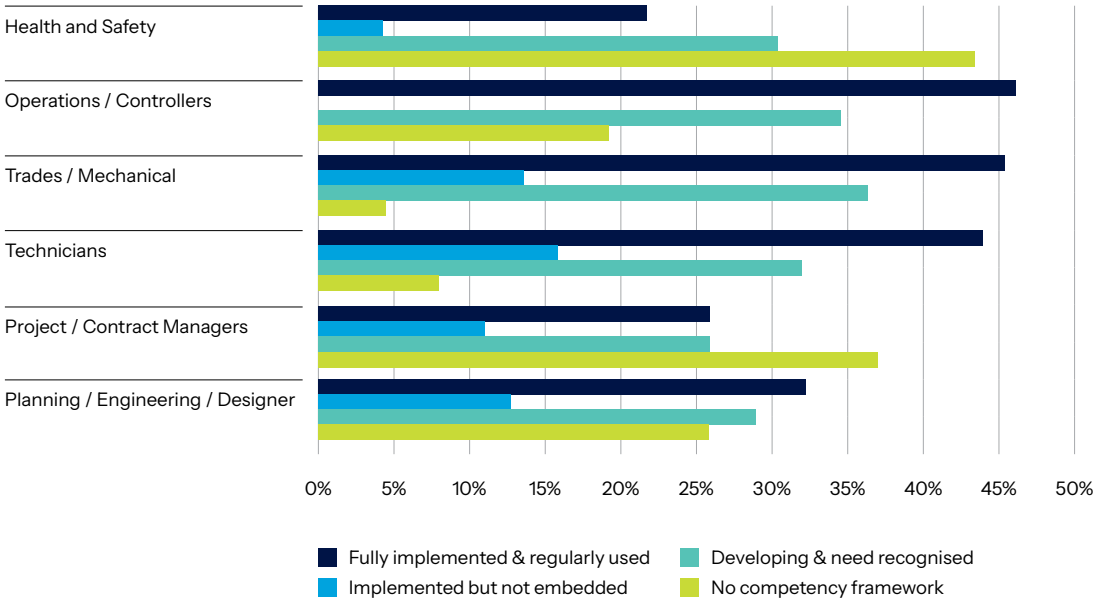
Contrary to expectations, the skills most highly rated by the companies surveyed were project management and risk assessment, then health and safety, followed by contract management.

Ideally, the skillsets most highly valued have effective qualification pathways and competency frameworks. However, surveyed companies identified HSE roles as the most likely to lack a formal in house competency framework. This gap is illustrated in **Figure 29**.

Limited or no government funding for HSE content within trade and vocational training programmes may be influencing the inconsistent development and application of competency frameworks across the sector.

Survey responses indicate a change in the needed skillset. There was also an increasing desire for commercial, holistic, and technical skills reflective of the changing nature of work and workforce expectations. The skills prioritised by these survey respondents provide a relevant common foundation that supports workforce mobility, redeployment and progression across the whole energy sector.

Figure 29: Implementation of competency frameworks across occupational groups.



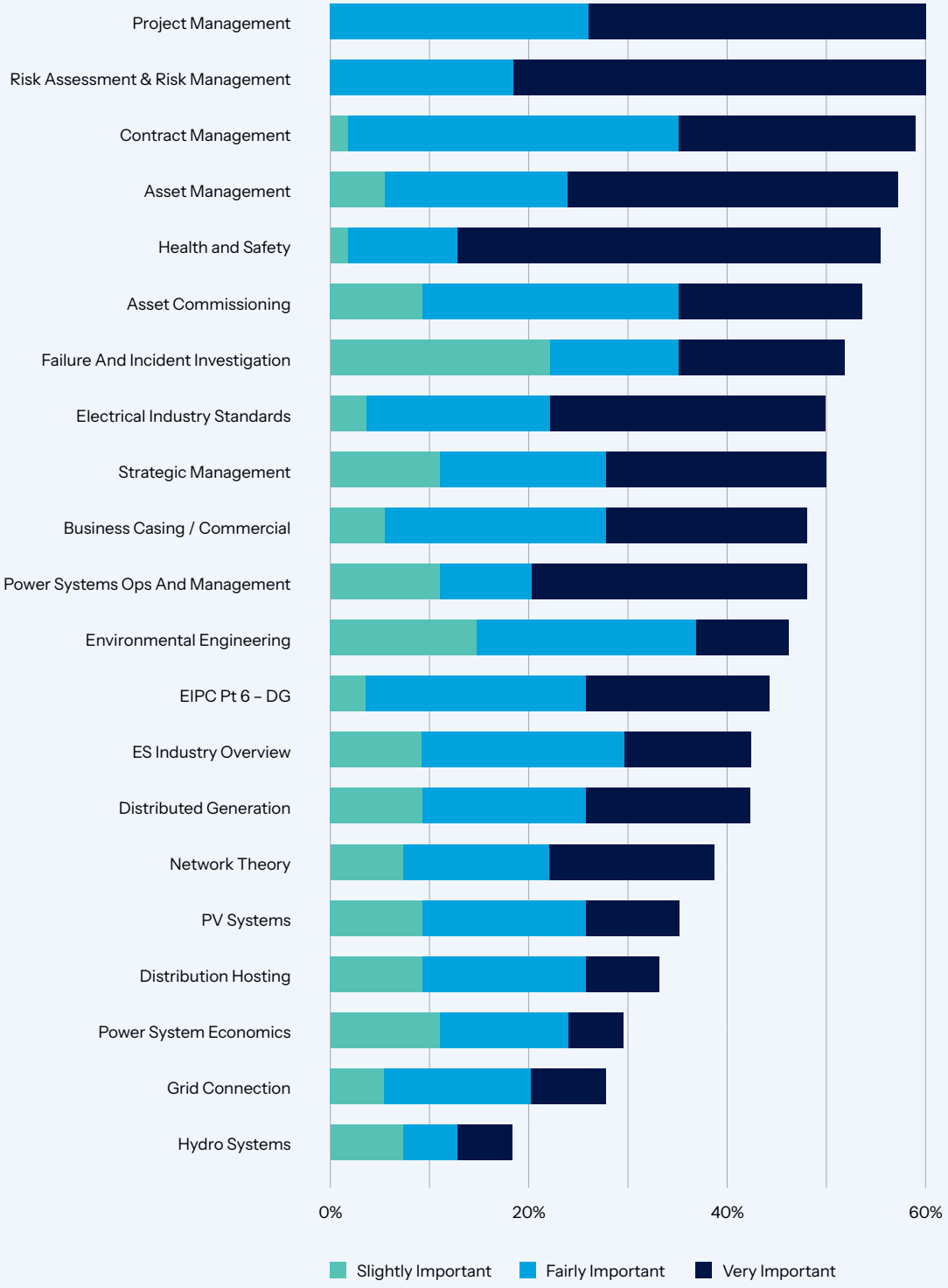
Source: Re-Energise 2025 Industry Survey

Strengthening clear, portable, and cross sector HSE competency frameworks and training support mechanisms within trade programmes, alongside broader hybrid skill sets that span technical, operational and safety domains, will be critical to supporting effective workforce development and mobility as the energy system evolves.

Recipients were asked to identify the importance of training topics relevant to general engineers and project managers. **Figure 30** data reinforces the importance of project management, risk assessment and health and safety as critical training topics. While core technical disciplines such as electrical standards and power system operations remain important, the results again suggest the growing demand for multidisciplinary capability.

Image courtesy of Omexom (Reactor 75MVAr Cap Bank at Ohinewai substation, Karan Singh)

Figure 30: Respondents perceived importance of training topics relevant to the general engineers and project managers.



Source: Re-Energise 2025 Industry Survey

Image courtesy of Vector (Transmission pole in forest)

Electricity supply subsector snapshot

New Zealand's electricity system is heading into a period of sustained growth as electrification spreads deeper across the economy. Transport, industrial process heat, population growth, digital infrastructure, and emerging electricity-intensive activities are all expected to contribute to higher electricity demand over time, albeit with recent economic headwinds and policy shifts slowing the pace of electrification. Boston Consulting Group's Energy to Grow report identifies electricity demand growth as a long-term structural shift, driven by increasing electrification across transport, industry, and the wider economy, rather than a short-term or cyclical change.

This outlook aligns closely with the Electricity Demand and Generation Scenarios (EDGS) developed by Ministry of Business, Innovation and Employment. Although the EDGS scenarios vary depending on the pace of electrification, technology adoption, and policy settings, all scenarios point to rising electricity demand.

Meeting this growing demand requires significant new generation capacity, including renewable energy technologies, along with firming and flexibility resources to keep the system reliable as the generation mix evolves.

The energy sector plays an essential role in the New Zealand economy. **Statistics New Zealand data shows that the electricity sector, reported alongside gas, water, and waste services, contributes around 2.6 per cent of GDP, or roughly $10–$11 billion each year.**

The scale of this contribution, combined with forecast growth in electricity demand, has direct implications for Electricity Supply (ES) sector workforce and skills. Delivering new generation, expanding and maintaining networks, and operating a more complex electricity system will require a sustained increase in skilled labour across engineering, technical, operational, digital, and project delivery roles.

Importantly, the workforce challenge is not only about growth, but about timing. Electricity infrastructure must be planned and delivered ahead of realised demand, meaning skills need to be developed and available well in advance of project delivery. Long lead times for training, qualification development, and experience accumulation increase the risk of workforce shortages becoming a constraint on infrastructure delivery, cost, and system reliability if not addressed early.

As electrification accelerates under higher-demand scenarios, workforce requirements are expected to broaden further. Alongside traditional electricity roles, there will be increasing demand for skills in digital systems, automation, data analytics, power electronics, and system integration. At the same time, experienced workers will remain critical for safety, reliability, and knowledge transfer.

Together, these factors highlight the need for coordinated, long-term workforce planning across the electricity supply sector to ensure skills supply keeps pace with system growth and supports the sector's expanding contribution to the economy.

Key findings from testing 2022 takeouts

Compared with the 2022 report, our data indicates that the number of new workers required to meet sector demand is higher than previously forecast and continues to increase year on year. This view is supported by improved survey coverage, representing approximately 90% of the industry, and better visibility of new entrant pipelines. A mostly steady uplift in graduate and trainee numbers, improved understanding of future workforce capacity, relatively low attrition rates, and changes in retirement patterns together provide confidence that the gap between workforce supply and demand can be bridged with sustained and coordinated action.

While there remains a gap between supply and demand it can be bridged through coordinated action.

The understanding of retirement risk has also evolved. The Re-Energise 2022 report highlighted a rapidly ageing workforce, however the 2025 data suggest the sector is aged in line with systemic demographic changes. This reflects the technical complexity of the electricity system and the need for a high proportion of deeply experienced workers. Retirement remains a risk, but it is now better characterised as a challenge of managing capability depth, succession, and knowledge transfer, rather than an imminent wave of exits.

There is no crisis of retirement, but risk mitigation action is still needed.

Across most occupational groups, demand and supply remain relatively stable, with persistent shortfalls rather than crisis level gaps. In some roles, graduate supply is sufficient to meet current and projected demand, however electrical engineering is the outlier.

Electrical engineering roles are not replenishing at the required rate, with demand increasing by around 25% per year compared with graduate growth of approximately 15%. Immigration continues to fill part of this gap, though often not quickly and not without challenges.

While employers express strong concern about retention, the data shows relatively low turnover and indicates that overseas exits are significantly lower than often perceived. Instead, the core constraint is the time required to convert new entrants, whether graduates or migrants, into fully skilled workers.

Given the high level of competence and system knowledge required in key roles, employers are particularly sensitive to the loss of experienced staff.

Evidence shows action should focus on building on recent gains, removing pipeline blockages so graduates and migrants become skilled workers faster, and reducing leakage from the system.

Workforce forecasting

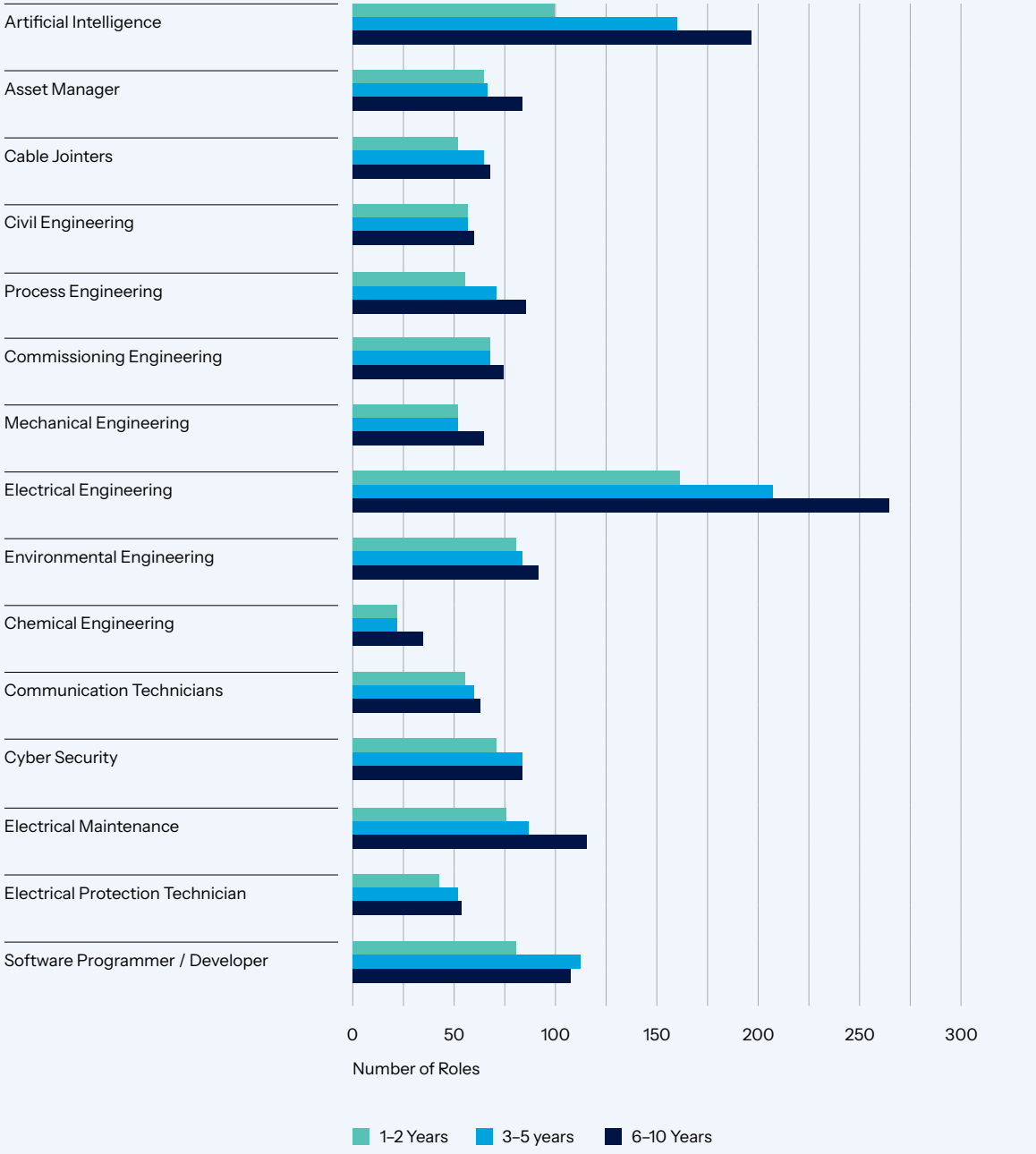
Two sources were used to analyse workforce forecasting:

1. Surveyed companies were asked how many additional staff will be required over the next 1 - 10 years in specific occupational areas.
2. Electricity supply sector data from research undertaken by Scarlatti in partnership with Waihanga Ara Rau was used for a top-down comparison with bottom-up data provided by surveyed companies.

The two approaches reached similar conclusions.

Figure 32 illustrates how many additional people the responding firms expect to require over three time horizons (next 2 years, 3-5 years, and 6-10 years). Overall, most roles show a clear upward trend over time. Electrical engineering stands out as the largest area of future demand by a wide margin, rising sharply from the near-term to the long-term (e.g. 161 > 207 > 265). Artificial intelligence is the next most prominent and also grows strongly over the three-time horizons (e.g. 99 > 159 > 196).

Figure 32: Forecast demand for key energy roles over the next 1-10 years.



Source: Re-Energise 2025 Industry Survey

Scarlatti analysis

Scarlatti worked with Waihanga Ara Rau to develop a model of the current and future electricity supply workforce, with findings available through the Workforce Information Platform. The analysis began with a comprehensive overview of the sector's current occupational composition and then forecast future workforce demand aligned to electricity growth scenarios from the Ministry of Business, Innovation and Employment's (MBIE) EDGS 2024.[26]

Using these scenarios as the basis for workforce modelling enables a consistent and credible link between projected electricity system growth and future workforce requirements. Current data indicates the electricity supply workforce comprises approximately 18,500 roles, with around 40% employed in core technical roles and 60% in non-core and back-office roles.

A robust workforce projection methodology was applied based on historic growth rates, smoothed demand projections for each electricity supply subsector, and then smoothed generation growth specific to the type of generation and industry segment. This produced a workforce forecast for the industry as a whole and for specific occupational codes within the industry.

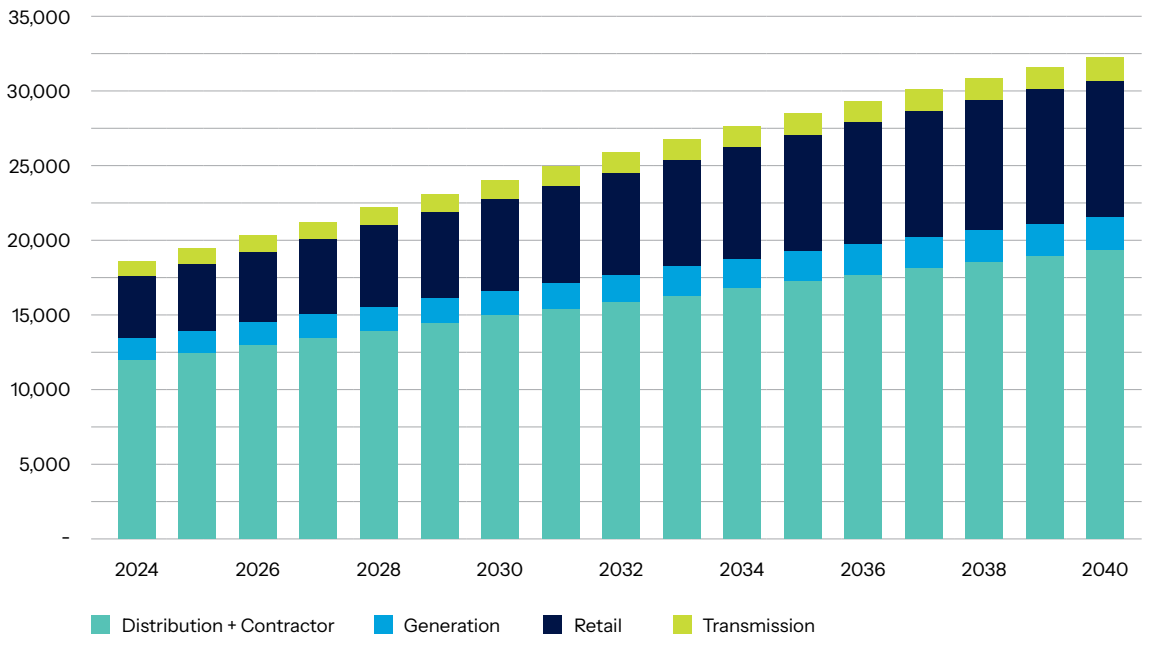
Scarlatti's work showed that, in all cases, long-run workforce growth should converge with the projected long-run demand growth rate of about 2-4% per year. But in the short term, workforce growth will match projected generation by type (for workforce projections relating to type of generation) and historic demand (for workforce projections relating to industry segment). These projections were applied to each occupational role, with projections roughly aligning to forecasts provided by surveyed companies.

The electricity supply sector workforce was estimated by Scarlatti to require 4,200 - 5,400 new workers annually. Most of this demand is driven by natural attrition as staff retire or move to other roles. A smaller, but still material, share will arise from workforce growth of around 2-3% per year (regardless of which EDGS scenario was applied). The electricity supply sector workforce attrition rate of 15-20% compares favourably against other industries.

Put another way, the sector needs to refresh roughly 1 in 6 roles with new entrants every year just to meet current operational and support needs.

[26] MBIE Electricity Demand and Generation Scenarios

Figure 33: Electricity supply workforce growth forecast.



Source: Scarlatti produced Workforce Information Platform data for Energy and Infrastructure ISB

Figure 33 shows the 2024 – 2040 projected expansion of the electricity supply sector workforce by subsector. Workforce numbers are expected to increase overall from 18,500 in 2024, to 32,200 in 2040. This represents ~66% growth over 15 years, equivalent to an annualised growth rate of between 2-4% (~850 roles) on average. The catch all category of "retail" is growing at a faster rate of up to 8% per year and forms a significant portion of the growth, which is marked by back office "non-core" and new technology roles. These projections highlight that, even before accounting for the replacement demand, there is a steady and material rise in demand for additional workers across the electricity supply industry. These projections also show the growth of other "non-core" and less traditional skillsets and roles within the industry.

Skills, vacancies and retention

The skills required in the electricity supply workforce is shifting as the system becomes more complex, digital, and interconnected. While strong technical capability remains essential, future roles increasingly require a broader mix of digital, operational, and analytical skills across generation, transmission, and distribution.

Digital capability is becoming a baseline requirement rather than a specialist skill. Increased use of automation, control systems, data analytics, and digital asset management means both engineering and trade roles must be confident working with digital tools and data. At the same time, health, safety and environment capability is growing in importance as risk profiles evolve and regulatory expectations increase, reinforcing the need for clearer competency frameworks and structured development in HSE.

Hybrid skill sets are also becoming more common, with roles increasingly sitting at the intersection of engineering, operations, and digital systems. Alongside this, employers consistently highlight the growing importance of critical thinking and problem solving, particularly in safety critical environments where workers must interpret information, exercise judgement, and respond to unexpected events.

Overall, the electricity supply sector will require a workforce that is technically strong, digitally confident, and adaptable. Meeting future skills needs will depend on ongoing upskilling, stronger integration of digital and critical thinking capability into training pathways, and closer alignment between industry and education providers.

Interestingly, despite data showing a relatively slow and steady increase in workforce demand, low attrition rates (and lower vacancy rates for electrical engineers than other occupations), employer concern about retention remains high, particularly for electrical engineers.

Around 80% of employers report concern about retaining electrical engineering staff, with concern levels for other occupations also remaining elevated.

Salary pressures are a key factor, reflecting employer experience of losing staff to other industries and ongoing awareness of opportunities in overseas markets such as Australia. However, the survey data suggests this concern is driven less by actual high turnover rates and more by the perceived consequences of losing highly skilled and experienced workers.

Vacancy rates were higher for field and electrical maintenance roles than for electrical engineers yet concern about retention was lower for these roles.

There is no retirement crisis. New Zealand has an aged, but not ageing, workforce.

Improved data shows the industry is not facing a retirement crisis. While some highly specialised parts of the workforce have an older age profile, the pattern is stable rather than worsening, meaning the sector is categorised in demographic parlance as aged rather than ageing. This demographic profile often reflects the experience and tenure typically required in technically complex roles and does not necessarily present abnormal or accelerating exit risk particularly when stable and in line with national and international patterns.

No occupational group within the electricity supply workforce has greater than 30% of workers aged 55 or over, and those occupations with proportions approaching the high twenties are predominantly less physically demanding roles such as system controllers, project and contract management, and business services, presenting a lower exit risk than would be presented by physically demanding occupations.

This pattern aligns with broader societal trends. Stats NZ data shows that the age distribution of the electricity workforce closely mirrors New Zealand's wider ageing population. Around 24% of New Zealanders aged 65 and over (nearly 200,000 people) remain in the workforce, with almost two thirds indicating they want to continue working. This shift toward longer working lives, including in sectors traditionally viewed as physically demanding, helps explain why retention concerns are more closely linked to capability depth and replacement difficulty than to large-scale retirement-driven exits.

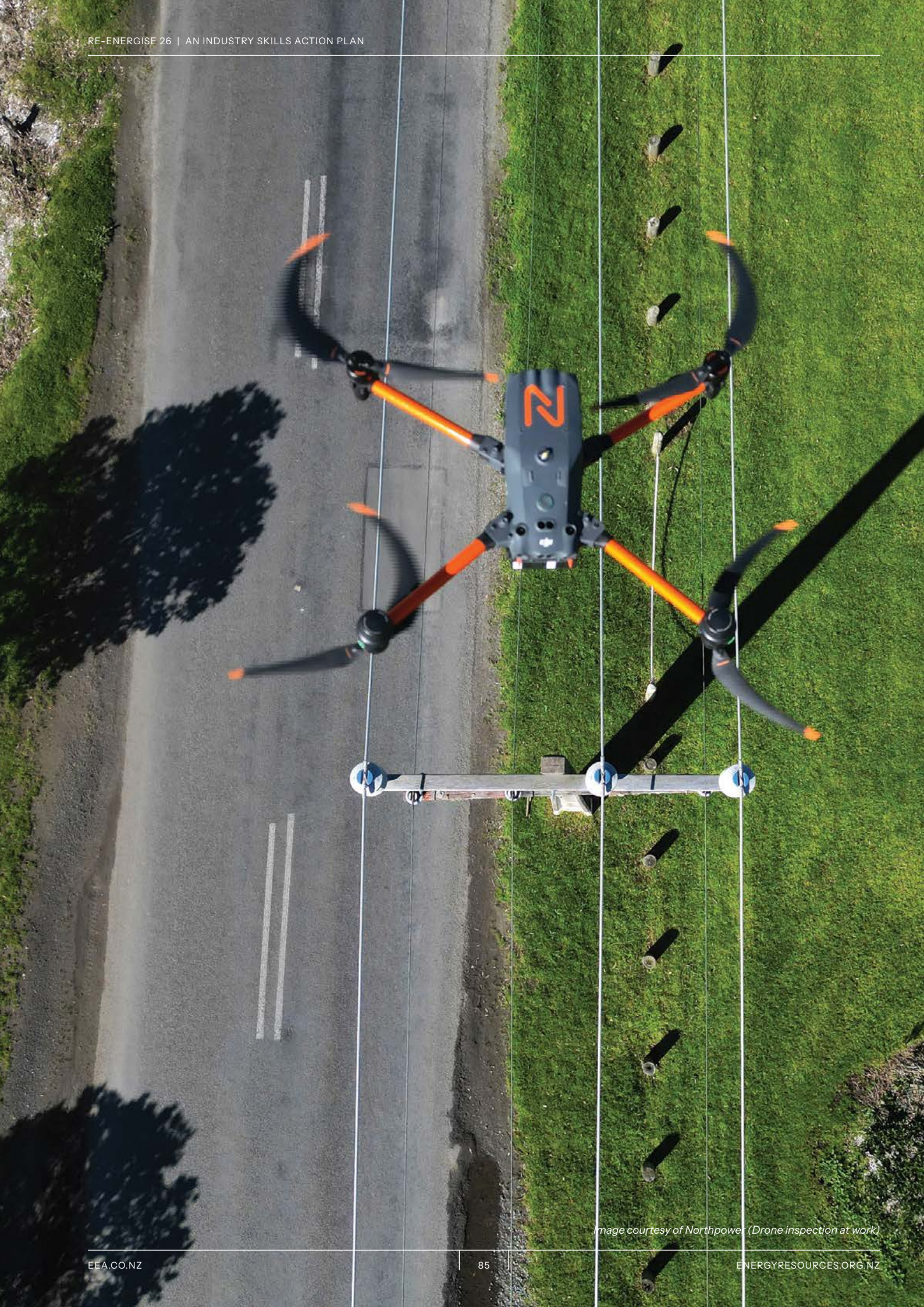


Image courtesy of Northpower (Drone inspection at work)

While retirement risk is lower than previously assumed, the age and experience profile of the electricity supply workforce has important implications for succession planning and knowledge transfer. Many critical roles rely on deep system knowledge, operational judgement, and long tenure rather than easily transferable technical skills alone. As a result, even modest levels of attrition can create capability gaps if experienced workers are not replaced or supported through structured handover and development processes. This places greater emphasis on proactive succession planning, mentoring, and on the ability to convert new entrants into fully competent workers more quickly, rather than focusing solely on workforce replacement volumes.

Health, safety, and environment roles emerged as a critical pressure point in the 2025 survey.

HSE also recorded the highest vacancy rate relative to the size of the workforce in these roles despite being ranked by employers as the most important capability across the industry. Companies reported that HSE positions are also the least likely to be supported by a formal competency framework and, and as outlined earlier in this report, receive little dedicated funding for capability development. This combination of high importance, weak structural support, and limited investment is likely contributing to persistent vacancies and difficulty building sustainable HSE capability. Given the central role HSE plays in system safety, operational integrity, and regulatory compliance, this represents a material workforce risk that will require targeted action to strengthen competency frameworks, career pathways, and investment in HSE capability.

There is broad agreement that addressing specialist capability will require long-term commitment, more consistent standards, and immigration settings that recognise the global competition for these skills.

Training and qualification alignment

University pathways predominantly feed into engineering roles, while vocational pathways support trade-based roles with applied, hands-on capability. Graduate numbers across both pathways are generally stable and, in some areas, increasing however there are outliers that need to be addressed and as outlined in the Tertiary and vocational landscape overview section.

Enrolments in work-based learning have declined, highlighting an opportunity to strengthen these pathways and better support the transition from training into skilled employment.

Vocational and trade pipelines

Current vocational graduate numbers are meeting demand for most trade roles, however there are some anomalies that need attention such as cable jointers, which show the number of graduates decreasing by 40% in 2025. **Figure 32** on page 81 shows the demand that remains for these roles, creating a risk of shortfalls for cable jointers without intervention.

Vocational training pipelines for electrical maintenance workers are another priority area, with surveyed companies identifying these roles as having higher vacancy rates and retention challenges. The qualifications that support entry into these roles (such as NZ Certificate of Electricity supply Level 4 and NZ certificate in electrical engineering Level 4) showing fluctuating numbers across the years and present a risk that should be further assessed.

Sustaining a more balanced number of enrolments and completions will be important to ensure a secure pipeline is coming through in these roles.

Cable jointers and electrical maintenance roles have emerged as priority areas where workforce pipelines require targeted support and strengthening. Recent provider disestablishments are likely to reduce vocational training capacity, increasing the risk of future skills shortages in these critical roles.

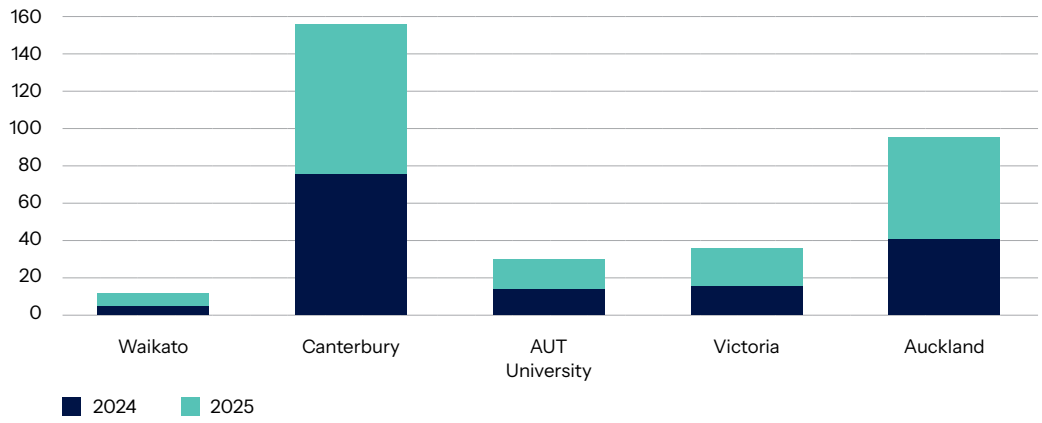
University and professional pipelines

As outlined in the section above, Workforce forecasting, surveyed companies were asked to identify the number of new workers required across specific roles over the next 1–2, 3–5, and 6–10 year horizons. **Electrical engineering emerged as the role with the highest projected demand, alongside strong anticipated growth in AI and digital roles.**

For electrical engineering in particular, employers indicated a sustained annual need over the next decade, with an estimated requirement for around 200 additional electrical engineers in the next 2 years, increasing to approximately 250 over the 3–5 year period, and around 320 over the 6–10 year horizon. While the longer-term estimates provide an important directional signal, employers noted greater uncertainty in forecasting beyond 5 years, reflecting hesitancy to commit to precise workforce numbers further into the future.

When considered alongside graduate supply data, industry demand for electrical engineering roles appears structurally tight rather than cyclical. **Across all New Zealand universities, there were approximately 200 electrical, electronic, or mechatronic engineering graduates in 2024, increasing to around 230 in 2025**, with only modest growth expected in coming years. Although this number roughly matches employers' projections about demand, these national figures significantly overstate the pool of graduates available to the electricity sector. A material proportion of graduates are absorbed by other

Figure 34: Numbers of Electrical/Electronic engineering graduates by university (2024 – 2025).



Source: University survey data

industries (such as aerospace, construction, infrastructure, manufacturing, technology, and telecommunications) while some others leave New Zealand, shift into non engineering roles, or change career direction after graduation.

Against this backdrop, industry **workforce forecasting consequently indicates a sustained requirement for additional electrical engineers over the next decade**, with demand strongest in the near term. Even when employer forecasts are interpreted conservatively as total additional hires across each time horizon, the implied annual demand suggests **the electricity sector will need to attract a substantial share of the national graduate cohort each year**, in addition to sourcing experienced engineers from other sectors and offshore. This helps explain why recruitment pressure persists despite stable graduate output.

Importantly, not all projected electrical engineering roles are entry level. **Many vacancies require mid-to-senior level capability**, including power systems expertise, regulatory and safety sign off, commissioning experience, and the ability to supervise and mentor others. As a result, graduate supply alone will not resolve workforce pressure in the short to medium term. **The challenge for the sector is therefore not simply one of graduate numbers, but of competition for talent, retention, and the time required to develop power specific competence**, reinforcing the need for coordinated action across education, industry training, and workforce planning.

There is room to expand training in this space across New Zealand universities. One university is operating close to capacity, whereas several others have growing engineering programmes with scope to expand electrical engineering intakes and this should be investigated further.

Electrical engineering graduate numbers alone will not meet projected industry demand; without coordinated action across attraction, training, retention, and mid-career capability development, workforce pressure will persist across this area.

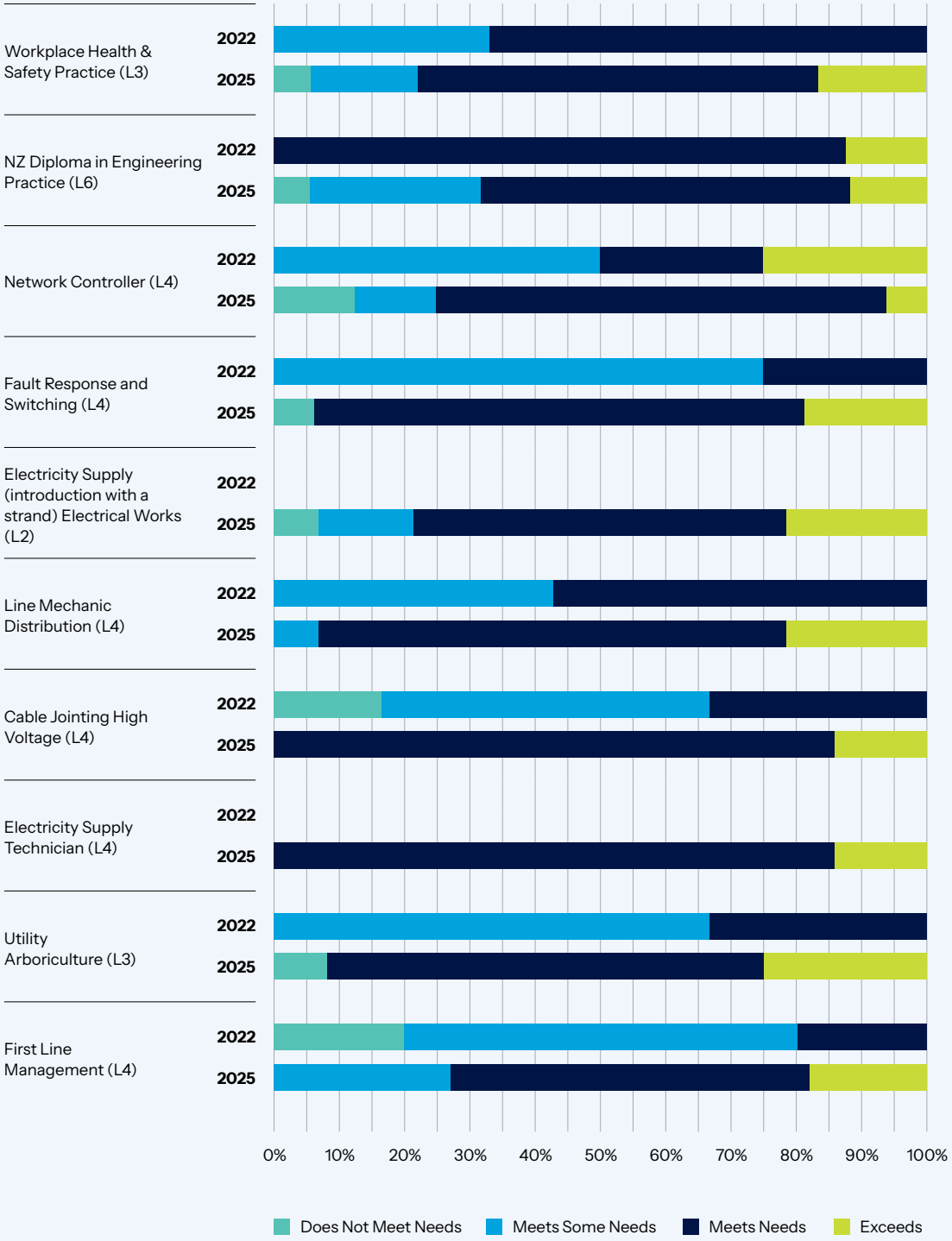
Consistent across the wider energy sector, the electricity supply sectors data also highlighted a common concern of graduates work-ready capability. Employers rated the work readiness of vocational and trade-based workers lower than that of engineering graduates, reflecting on the time required to build practical competence.

Overall, though, industry feedback indicates a positive shift in how well qualifications align with workforce needs (compared with 2022), with more respondents reporting that training now meets or exceeds requirements across key roles (**Figure 35**).

The importance of formal qualifications has increased, particularly for roles requiring digital capability and for critical operational and safety focused positions. These roles also demand strong critical thinking skills, which has been identified as a key area of focus to ensure universities continue to develop students' analytical and problem-solving capabilities.

There is still work to be done in strengthening real life, on the job learning and critical problem-solving skills across both engineering and trade training pathways to ensure graduates are fully prepared for the demands of the sector.

Figure 35: Proportion of respondents for who each qualification is relevant to by view of qualification's suitability (2022 v 2025).



Source: Re-Energise 2025 Industry Survey

Workforce mobility and migration

Immigration continues to play an increasingly important role in supporting the electricity supply industry workforce. Over the decade to 2023, immigration pathways supported the sector through the issuance of approximately 582 visas for electrical engineers, 952 for line workers, and 379 for power generation operators. While these figures reflect the number of visas rather than individual workers, they nonetheless illustrate the scale of reliance on international talent. Projections indicate this contribution is expected to grow further between 2023 and 2028, with an estimated increase of 155 line workers, 67 electrical engineers, and 317 power generation operators. Even with this growth, internationally sourced workers are expected to represent less than 5% of the total electricity supply workforce, reinforcing that migration is a complementary support rather than a primary solution to workforce demand.

In practical terms, this means that more qualified electrical engineers are arriving through immigration each year than are being produced domestically by New Zealand's largest electrical engineering university, suggesting the national contribution of migrant workers may be underestimated.

Despite this reliance, the opportunity to better leverage migration as part of a coordinated workforce solution remains underdeveloped.

While most immigration settings are working as they should, some settings present challenges for the sector. Guidance from Ministry of Business, Innovation and Employment states that longer and more attractive visa settings are typically associated with migrants that have qualifications of at least 120 credits, which does not always align with the electricity supply industry's workforce reality. Many specialist and safety critical roles rely on experience, bespoke training pathways, or shorter qualifications, including micro credentials, rather than clearly defined long form qualifications. This creates a mismatch for roles where domestic replacement pipelines are limited and where experienced international workers could provide immediate capability. In addition, the absence of a clear immigration category for electrical technicians further constrains the sector's ability to address workforce gaps.

Taken together, these findings highlight the importance of viewing migration not as a stop gap measure, but as a strategic and complementary component of long-term workforce planning.

Industry interviews underscored the long-term challenge of developing and sustaining specialist skills in a highly competitive global labour market. Roles such as protection engineers, system planners, control-room operators, and specialist generation roles were consistently identified as slow to develop and globally scarce. Many organisations rely on a mix of domestic training, internal development, external consultancies, and immigration to meet these needs.

The data points to the need for a national, industry led immigration strategy that is targeted to specific workforce gaps and aligned with the electricity supply industry's unique skills profile. In particular, there is an opportunity to attract experienced and highly specialised workers, many of whom are older and bring deep system knowledge critical to operating and maintaining complex infrastructure.

Energy resources subsector snapshot

For the energy resources subsector we have included survey responses from oil and gas production, geothermal, wind, hydro, hydrogen, solar and other emerging energy technologies, alongside large energy users and the contractors and consultancy firms that support these activities. This catchment represents approximately 8000 FTE employees from the industry survey. The subsector has undergone significant change since the 2022 survey.

Analysis from the 2022 and 2025 surveys indicates that more than 1,700 FTE jobs have been lost in the Taranaki region alone across large energy users, oil and gas and the contractors and consultancy workforce that services both areas.

As this data is limited to organisations that participated in the industry surveys across both the 2022 and 2025 years, the actual number of job losses across the sector is likely to be higher.

These jobs were high paid and highly skilled, and losses have occurred across all occupational groupings used in this report, including engineering, technical and operations, trades, professional, corporate and support roles. This reflects a broad-based contraction across the sector rather than impacts confined to a single occupation or skill set.

Several factors are influencing these outcomes including declining gas field production and the Government's 2018 decision to prohibit new offshore oil and gas exploration permits. While existing permits were allowed to continue, the removal of future exploration opportunities significantly reduced investment confidence and long-term planning across the sector. Exploration activity plays a critical role in identifying and developing new gas fields to replace the natural decline of existing reserves. In the absence of new discoveries, production declines over time, resulting in reduced operational activity, fewer development projects and a diminishing demand for labour across the full value chain.

The effects of this decision have compounded over successive years, contributing to declining exploration activity, reduced capital investment and increased uncertainty for both operators and the specialist contractors and consultants that support the sector. By 2025 these impacts are clearly evident in sustained workforce reductions, particularly in regions such as Taranaki and other areas where gas is needed to operate large industrial plants such as pulp and paper, and fertiliser production.

There still remains the possibility of a future gas field discovery, should a new exploration play emerge. However, even in a best-case scenario, the pathway from discovery to production is lengthy. **From initial exploration and appraisal through to development and production, it can take 10-15 years before material and sustained workforce demand is realised.** Early-stage activity would primarily require a small number of highly specialised technical and engineering roles, with broader employment impacts not occurring until much later phases.

While there have been pockets of growth within the energy resources sector and in emerging energy technologies such as hydrogen, workforce increases in those areas have been relatively small. These increases have primarily occurred within the engineering and professional occupations, with limited growth observed across trades, technical and operations, corporate and support roles.

Solar energy in New Zealand is still relatively young but is scaling rapidly across residential, commercial, industrial and utility-scale developments. The Sustainable Energy Association of New Zealand (SEANZ) Solar Industry Workforce Development Opportunities report[27] highlights the significant workforce required to support this growth, estimating the need for several hundred additional workers per year in the near term, rising substantially over the medium to long-term as capacity accelerates. Notably, the SEANZ analysis focuses primarily

[27] SEANZ Solar Industry Workforce Report 2023

on unskilled and semi-skilled installation labour, reflecting the construction-intensive nature of solar deployment, and differs from the more technical, engineering- and operations-led workforce demands seen across the energy resources and electricity supply sectors.

LNG is confirmed by Government to proceed and is expected to create near-term workforce opportunities in Taranaki. While offshore renewable energy will require longer lead times before material workforce demand is realised, LNG development provides a more immediate pathway to retain and re-engage skilled workers. Timely investment and clear project sequencing will be critical to stabilise the regional workforce and reduce the risk of further skill loss during the transition period.

Growth in emerging energy opportunities has not kept pace with job losses, leaving the Taranaki region particularly exposed without any clear transition pathways, however LNG now presents an opportunity.

The workforce

The energy resources sector workforce is still heavily weighted towards technical capability. Planning and engineering roles make up the largest share of the workforce, followed by trades and mechanical roles that support day to day operations and maintenance. Technical and operations roles also remain important, reflecting the operational nature of the sector. This closely mirrors the earlier workforce composition across the entire energy mix as outlined earlier in **Section 3.**

Project and commercial roles sit at lower levels but continue to play a key role in delivering and managing work programmes. More specialised roles such as subsurface and health and safety are smaller in number but are critical to safe and reliable operations. Corporate and business support roles make up a modest but essential part of the workforce across the subsector.

Future scenario planning

Future scenario planning is critical in the context of recent job losses across the oil and gas, large energy users and consulting sectors. While the future scenarios considered in this report, including liquefied natural gas (LNG) import, offshore renewable energy development and decommissioning activity, each create opportunities for employment and skills transfer, it is important to acknowledge that none of these options, either individually or collectively in the short term, will absorb anywhere near the full scale of these job losses.

Taken together long-term, port related infrastructure to enable offshore renewable energy development and LNG terminal construction in Taranaki could support approximately 550-900 workers at peak construction, with 200-350 permanent roles once operational.

Note: The above workforce estimates are indicative only and have been informed by comparable international and regional port development case studies.

Another scenario for the energy resources sector and specifically the Taranaki region is if either or both Methanex New Zealand or Ballance Agri Nutrients Kapuni were to close, due to ongoing gas supply constraints. If this happens, the energy resources sector and Taranaki regional workforce would face another significant step-change reduction in roles.

Analysis by NZIER and Venture Taranaki indicates that the closure of Methanex alone would result in the loss of approximately **1,357 jobs**, including direct, indirect, and induced roles, while the closure of Ballance Kapuni would result in a further **638 job losses**. If both facilities were to close, this would equate to around **2,000 fewer roles** across the regional economy, with impacts extending well beyond the plants themselves into engineering services, maintenance, logistics, and specialist technical roles. These losses would occur rapidly compared with the more gradual decline associated with upstream gas production, increasing the risk that highly skilled workers leave the region or New Zealand altogether, further eroding critical energy and industrial capability.

Note: The NZIER report was completed late 2024, and numbers assumed no change in policy, industry response or trajectory going forward.

If port development for offshore renewable energy were to coincide with other major infrastructure such as an LNG terminal, overall workforce demand would increase further, and careful sequencing would be required to ensure skilled workers remain in the region.

Scenario 1:

LNG import terminal in Taranaki

In February 2026 Government announced they will proceed investment into an LNG infrastructure to support the energy systems resilience.

At the time of writing, the LNG solution is expected to be contracted in the coming months, signalling a shift from policy intent to implementation and providing greater certainty for industry and large energy users.

LNG presents a material opportunity for workforce growth within the energy resources sector, particularly in Taranaki where the infrastructure will be based, and where significant capability already exists. The region's skills base across gas operations, engineering, maintenance, health and safety, and project delivery positions it well to support LNG-related activities, whether through import infrastructure, distribution, or associated services. LNG's potential development highlights an opportunity to retain and re-engage skilled workers, support regional employment, and leverage existing energy expertise during a period of transition.

Using the Port Kembla LNG import terminal in New South Wales as a comparator, this scenario estimates the likely workforce demand in the Taranaki region if Port Taranaki were developed as a small-scale LNG import facility. Public reporting on the Port Kembla project indicates that during construction the terminal could support approximately **130–150 jobs**, and once operational it could require **40–50 ongoing roles** across a range of occupational categories.[28]

Construction at Port Kembla has taken around three years from early major works to nearing completion, with completion of the onshore receiving facility and commissioning noted in late 2024 and operation now expected around 2026–2027 due to market timing and equipment deployment considerations.[29] This timeline provides a useful reference point for understanding the likely sequencing, duration, and workforce implications of similar construction and operational activity that could occur in Taranaki.

Coordinated workforce planning with employers, training providers and workforce intermediaries is recommended to establish clear pathways into LNG-related roles, including bridging courses for oil and gas workers, formal recognition of existing competencies, and alignment of vocational training with anticipated start dates of construction and operations phases.

[28] Projects - Annual Review 2019 GHD: First proposed LNG import terminal in Port Kembla
[29] Australia's first LNG import terminal nears completion amid deadlock with energy companies - ABC News

Figure 36: Translates LNG workforce numbers into the occupational groupings used in this report.

	During the port expansion and enabling works phase (Phase 1) 130–150 new roles	In the operational phase (Phase 2) 40–50 ongoing roles
Planning, Engineering and Design	**15-20** civil, structural, marine/coastal, geotechnical, environmental and design engineers	**4-6** asset integrity, reliability, maintenance and technical assurance
Project and Contract Management	**10-15** project managers, construction managers, planners, schedulers, quantity surveyors	**3-4** asset management, maintenance planning, operations leadership
Technician and Technical	**6-10** electrical and instrumentation technicians supporting construction and testing	**10-14** electrical, mechanical, instrumentation and controls technicians
Operations and Controllers	**8-10** site supervisors, construction forepersons, field coordination roles	**12-15** terminal operators, control room staff, jetty and berth operations
Trade and Mechanical	**45-60** welders, fitters, riggers, crane and plant operators, concreters, fabricators	**6-8** mechanical trades supporting ongoing maintenance
Health and Safety	**6-10** construction HSE advisors, environmental monitoring and compliance	**4-6** HSSE management, emergency response coordination, compliance
Subsurface	**1-2** limited scope, mainly geotechnical investigation and sediment assessment	**0-1** limited, mainly interface with gas transmission infrastructure
Marine	**12-18** dredging crews, marine construction workers, divers, hydrographic survey	**3-5** marine operations coordination, specialist marine contractors
Other / Business Services	**5-8** procurement, contracts, administration and project support	**3-4** commercial, scheduling, administration and stakeholder support

Scenario 2:

Decommissioning oil and gas assets

The eventual decommissioning of the Maui field, located offshore Taranaki represents a significant but time-bound workforce transition not a long-term employment pathway. The skill sets required for decommissioning activity are largely already present within the sector, particularly across engineering, subsurface, health and safety, technical and specialist contractor roles. As a result, decommissioning is likely to draw heavily on the existing oil and gas workforce, with staff shifting laterally into project planning, engineering, offshore operations, environmental management, and regulatory compliance roles as activity progresses.

Decommissioning is expected to occur in distinct phases, each with different workforce requirements. Early phases are likely to be planning and engineering intensive, followed by offshore operations and execution phases once appropriate rig and decommissioning equipment becomes available. Based on comparable projects, such as the Tui field decommissioning, workforce demand is expected to peak during offshore execution and well abandonment stages, with a relatively smaller core team required during planning and close-out phases. Timing will be strongly influenced by the availability of specialist rigs and vessels, meaning that decommissioning activity may not commence immediately once production ceases.

While decommissioning activity may provide short-to-medium-term redeployment opportunities for existing workers, it does not represent a sustained employment outcome. Once decommissioning is completed, many roles associated with offshore operations and asset management will become obsolete, and a significant proportion of the workforce currently engaged in these activities is likely to exit the sector unless alternative pathways are available.

At the time of writing this report, operator OMV had not commenced detailed workforce or people planning for Maui decommissioning. Given the uncertainty around timing, sequencing and equipment availability, this scenario should be **revisited within the next 2 years** as greater clarity emerges. Further analysis will be important to understand how decommissioning can be best sequenced with other transition opportunities to minimise skills loss and avoid abrupt workforce displacement.

Scenario 3:

Ballance Agri Nutrients and/or Methanex New Zealand closures

The potential closure of Methanex New Zealand and Ballance Agri Nutrients Kapuni represents one of the most significant near-term risks to the energy resources sector workforce in Taranaki. Unlike the gradual decline associated with upstream gas production, the closure of either facility would result in a rapid step-change reduction in employment, with impacts extending well beyond the plants themselves into engineering services, maintenance, logistics, and specialist technical roles.

NZIER analysis for Venture Taranaki indicates that Methanex faces the highest medium-term closure risk, with gas supply contracts extending to 2029 but limited confidence in sufficient affordable gas beyond that point. Interim risks include production curtailment where contracted gas volumes cannot be delivered. Ballance Kapuni arguably faces a related but less immediate risk, driven by gas price exposure and international market pressures, with continued operation contingent on the affordability of gas despite efforts to electrify and diversify production.

As mentioned earlier, workforce impacts would be substantial.

Note: the NZIER report was completed late 2024, and numbers assumed no change in policy, industry response or trajectory going forward.

Scenario 4:

Offshore renewable energy

The Government is progressing work to establish a regulatory regime for offshore renewable energy. While feasibility permits were initially expected to be issued from 2026, timelines have since been extended. Progress has been influenced by broader policy considerations, particularly where proposed offshore renewable energy developments overlap with areas of interest for seabed mining. This has introduced additional complexity into the consenting environment and increased uncertainty for developers. In some cases, this has contributed to offshore renewable energy proponents reassessing or withdrawing from the New Zealand market as they evaluate project risk and regulatory clarity.

In 2023, Concept Consulting undertook a comprehensive offshore renewable energy capability mapping study for the Taranaki Offshore Partnership. The study[30] estimated that a 1,000 megawatt offshore renewable energy project, consistent with the scale likely to be pursued in New Zealand, would support approximately 125 full time equivalent roles. This estimate focused primarily on core project roles and did not include port-based employment or outsourced engineering and specialist services required during the development and construction phases. These additional roles are expected to be material, particularly if offshore renewable energy development were to coincide with other major infrastructure activity, such as the potential development of an LNG terminal at the same port.

In addition, offshore renewable energy development in Taranaki would likely require the establishment of a new, smaller marine port in South Taranaki. The construction and ongoing operation of such a facility would generate a significant number of roles across marine services, logistics, construction, and ongoing operations. It is estimated that several hundred additional jobs could be created over a 3-to-5-year period should this activity proceed.

The challenges and opportunities

Skills loss and timing implications

While the overall workforce requirements associated with the LNG and offshore renewable energy scenarios are modest relative to large-scale oil and gas developments, the roles span a broad range of technical, marine, project delivery and safety critical capabilities. Many of these skills align strongly with existing strengths in the Taranaki region, particularly across trades, marine services, engineering, project management and health and safety.

The region's established oil and gas sector, port services capability and heavy industrial base mean there is a pool of displaced highly skilled workers already in Taranaki with relevant experience who could transition into LNG import infrastructure and offshore renewable energy enabling roles, particularly during construction, commissioning and early operations phases.

However, **timing will be critical.** Both LNG import facilities and offshore renewable energy developments require sustained workforce availability aligned precisely with construction and commissioning schedules. Experience from comparable LNG developments shows that construction can span multiple years, and delays to key components such as floating storage and regasification units can shift periods of peak workforce demand. Similarly, offshore renewable energy projects involve long lead times, staged development phases and intermittent demand peaks across consenting, port upgrades, construction and installation activities.

Ensuring that skilled tradespeople, technicians, marine specialists and health and safety professionals remain in the region during these timing gaps will be essential. Without targeted retention, training and transition mechanisms, there is a high risk that workers will move to other regions, sectors or overseas, resulting in skills leakage and reducing Taranaki's ability to capture the full workforce benefits of either LNG or offshore renewable energy.

[30] Offshore wind industry capability mapping study

Adaptation, repositioning and deployment of oil and gas skill sets into large-scale industrially aligned market opportunities is another opportunity for New Zealand. A Taranaki Alliance[31] is an industry-led collaboration supported by organisations such as Venture Taranaki and the New Plymouth District Council. It brings together regional engineering, fabrication, manufacturing and industrial services capability to compete collectively for large-scale, complex work beyond traditional oil and gas activity. For the energy resources sector, this presents a potential mechanism to help retain highly skilled workers whose capabilities are directly transferable to energy-adjacent, infrastructure and industrial projects while new energy investments progress. Public commentary suggests the Alliance is aligning to compete for up to **$100–$200 million in contract value over its initial years**, which, if realised, could help maintain employment continuity and skills utilisation in the region. While not a substitute for long-term energy resources sector investment, the Taranaki Alliance could play a complementary role in reducing skills leakage from the region, supporting workforce retention between projects, and maintaining industrial capability that will be critical for future energy developments.

International experience highlights the value of digital skills passports in supporting workforce transition, with particular relevance to regions undergoing structural change such as Taranaki. In the United Kingdom, the industry association (Offshore Energies Uk and Renewable UK) managed Energy Skills Passport[32] provides a trusted digital platform to record, verify and transfer worker skills and competencies, enabling oil and gas workers to move more easily into renewable energy and related roles. The initiative has been widely adopted and is regarded as an effective mechanism for improving skills visibility, reducing duplication and supporting labour mobility during transition.

A comparable commercial model operates in Australia and New Zealand through MyPass Global[33], which allows workers to own and manage their training, competency and credential data across employers, sectors and geographies. Its use across energy, resources and industrial sectors demonstrates how digital workforce infrastructure can support both retention and attraction by enabling skills to move with workers as roles and projects change.

Given the scale of workforce displacement and transition risk in Taranaki, the region presents a strong opportunity to pilot a New Zealand energy skills passport. A Taranaki-based pilot could help retain critical capability, support redeployment into emerging energy activity, and provide a scalable model for managing future workforce transitions across other regions.

Short and long-term planning both critical

To investigate what is needed to support workforce planning, interviews were conducted across the energy resources sector and a scenario-based assessment was undertaken for the Taranaki region. The scenarios outlined below reflect current market, policy and investment settings, and highlight the significant time lags between potential project decisions and meaningful workforce demand. This analysis reinforces the immediate need for retention and transition interventions, given that none of the plausible future scenarios are expected to absorb displaced workers in the near term.

The table below outlines potential energy transition scenarios for Taranaki and their associated workforce impacts. It is intended to support scenario planning and highlight areas where early intervention may be required.

[31] The Taranaki Alliance
[32] UK Energy Skills Passport
[33] MyPass Global

Figure 37: Taranaki energy scenarios and workforce impacts.

Scenario	Likelihood (as at 2025)	Timeframe to workforce impact	Primary workforce affected	Scale of employment impact	Key workforce risks
Status quo – declining gas production	**Moderate**	Immediate and ongoing	Operations, maintenance, technical, engineering, professional and corporate roles	Continued net job losses	Loss of skilled workers, overseas migration, erosion of regional capability
Methanex closure (gas supply constrained)	**Moderate**	Immediate to 1–3 years	Operations, maintenance, engineering, logistics, contractors and professional services	Approx. 1,357 job losses	Sudden workforce displacement, loss of specialised skills, regional economic shock
Balance Kapuni closure	**Moderate**	Immediate to 1–3 years	Operations, maintenance, engineering, technical and contractor roles	Approx. 638 job losses	Supply chain contraction, contractor exit, reduced industrial diversity
Combined Methanex and Balance Kapuni closure	**Low to moderate**	Immediate to 1–3 years	Operations, maintenance, engineering, logistics and specialist technical services	Approx. 2,000 job losses	Severe workforce shock, accelerated skills loss, limited absorption capacity
New gas field discovery (new play enabled)	**Low to moderate**	2–5 years exploration; 10–15 years peak operation	Geoscience, subsurface, drilling, project engineering, later operations and trades	Limited short term, moderate to high long-term	Workforce not retained long enough, loss of institutional knowledge
Offshore renewable energy development	**Uncertain**	2–4 years early phase; 6–10 years construction; 10+ years operations	Consenting, engineering, marine, construction, electrical and operations	Moderate long-term employment	Timing mismatch with displaced workforce
LNG import or infrastructure development	**Proceeding**	1–2 years planning; 2–5 years construction; 5+ years operations	Engineering, project management, construction and operations	Moderate construction peak, smaller steady state	Short duration employment, loss of skilled people prior to development
Emerging energy technologies (hydrogen, solar)	**Moderate**	2–7 years	Engineering, professional, digital and technical roles	Small to moderate growth	Insufficient scale to offset major losses
Managed transition and retention interventions	**Policy dependent**	1–3 years	Retraining, redeployment and workforce planning roles	Employment stabilisation	Requires coordination, funding and early intervention such as the Taranaki alliance initiative

Image courtesy of Todd Energy (Kapuni production station)

5.

Identified Barriers, Opportunities, and Gaps

5. Identified Barriers, Opportunities, and Gaps

The section explores the workforce challenges, paths forward, and unaddressed needs of the energy and electricity supply sectors.

Shortage/gap areas

Looking to the medium term, power systems and protection becomes one of the most prominent anticipated growth areas, alongside continued pressure in digital and AI and general engineering. This aligns with increasing system complexity across the electricity supply sector, including the growth of renewables, distributed generation, electric vehicles and more active network management. These dynamics point to a likely medium-term demand for specialist skills, particularly as experienced practitioners retire faster than new capability can be developed. This reflects a skills and capability challenge rather than an immediate issue of workforce size.

Figure 38 highlights the top ten skill growth areas anticipated by surveyed companies across the short, medium and long-term. In the short term, the highest growth is expected in electrical trades, digital and AI, and general engineering. Notably, digital and AI capability has emerged rapidly as a key pressure point, reflecting the pace at which technology is being adopted across the energy system.

Beyond five years, the chart shows an apparent easing of anticipated growth across most roles, with relatively low responses in the six-to-ten-year horizon. This should not be interpreted as an expectation that demand will settle. Rather, it likely reflects the increasing uncertainty associated with forecasting further into the future in a rapidly changing sector. The emergence of digital and AI skills as a current growth area provides a clear illustration of this challenge.

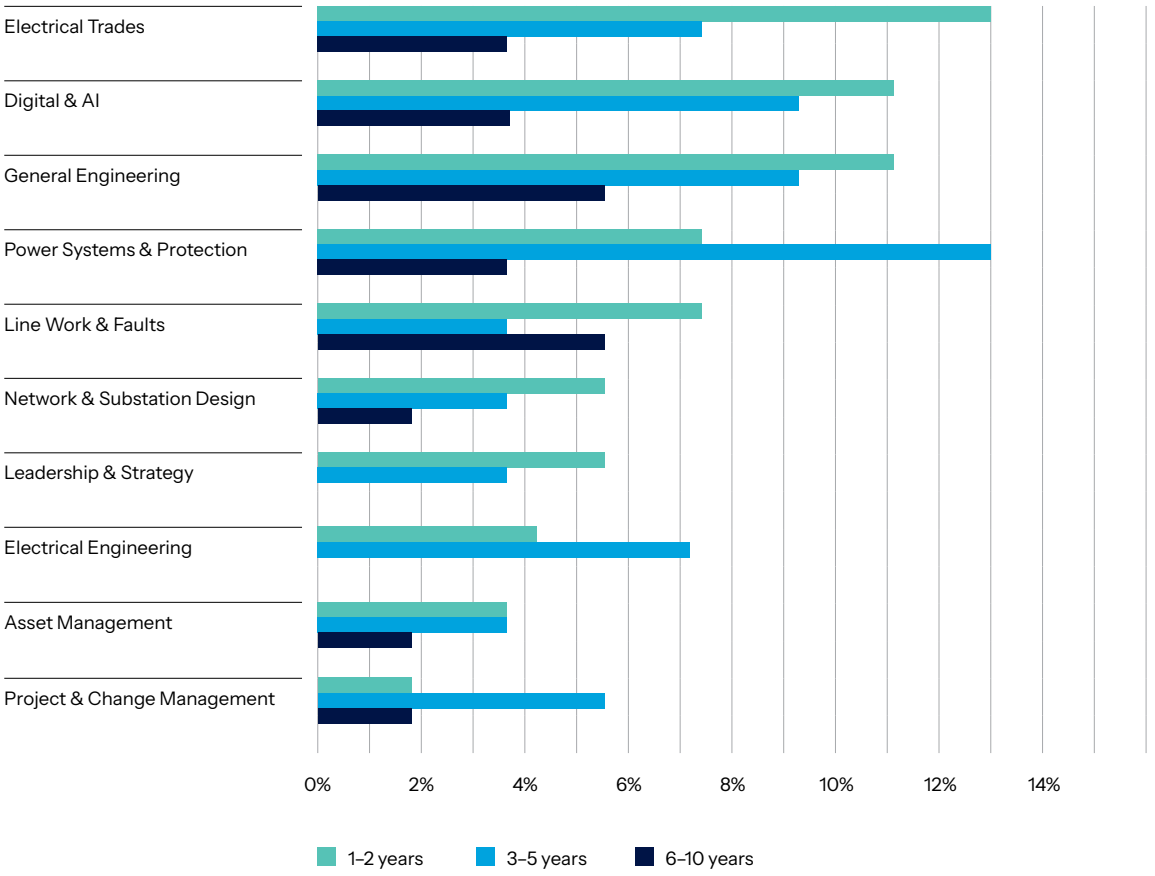
Few organisations would have predicted five years ago that these capabilities would now be among the most critical for the energy workforce. As a result, respondents appear appropriately cautious about making long-term predictions, reinforcing the importance of flexible and adaptive workforce planning.

Another area of interest is Health, Safety and Environment (HSE) which hasn't been picked up as a skill shortage per se due to the smaller numbers of roles available, however HSE was clearly identified as being a high vacancy role comparative to the number of roles within the workforce. This area needs further investigation as outlined earlier under the vacancies section of this report.

There is a risk also that AI is treated as a skill reserved for the next generation alone. As AI becomes embedded across the energy system, experienced and senior workers will play a critical role in its effective and safe adoption. Their deep operational knowledge, judgement and understanding of risk are essential to applying AI tools in ways that genuinely add value.

Supporting mid and late career workers to upskill and build confidence with AI will be just as important as training new entrants, ensuring the sector benefits from both technological capability and hard-won experience as it evolves.

Figure 38: Top 10 growth areas over the next ten years.



Source: Re-Energise 2025 Industry Survey

Pathways and attraction

As identified in Re-Energise 2022, pathways and attraction are key areas where the sector wants to spend time and resources to develop capacity.

In response to this work the EEA is commissioning work for development of an energy pathways platform to be designed as a core national output. This platform reflects several years of sector-wide work, including interviews and engagement across schools, employers, employees, training providers and industry bodies. It represents the practical translation of that work into a single, visible, and usable tool for the sector.

The energy pathways platform is proposed as a national digital careers and skills platform that clearly maps the full range of careers across New Zealand's energy sector and shows how these roles connect, evolve, and transfer over time. Its core purpose is to make energy careers visible, understandable, and navigable for learners, workers, employers, educators, and government.

Rather than presenting energy careers as isolated roles or linear pathways, the platform will reflect the reality of the sector as identified through Re-Energise interviews and analysis. The energy workforce is highly interconnected, with multiple entry points, shared skill sets, and diverse progression opportunities across electricity, energy resources sector, services, and emerging technologies.

The platform responds directly to long standing workforce challenges consistently raised through Re-Energise engagement, including fragmented and inconsistent careers information, limited understanding of how energy roles interconnect, poor visibility of transferable skills, confusion between trades, technicians, engineers, and operators, and weak signalling to schools, learners, and career advisers.

By providing a single coherent view of the energy workforce, the platform will support attraction, retention, and transition across the sector. It will also provide a practical mechanism for implementing the workforce actions identified through the Re-Energise programme.

At its simplest, the platform answers a fundamental workforce question: **"if I am here now, what are my realistic next steps into or across the energy sector?"**

Who the platform is for

The energy pathways platform is being developed to support multiple audiences, recognising that people engage with career information from very different starting points and at different stages of their working lives. Its primary users are intended to include secondary school students and their whānau, tertiary students across trades, polytechnics and universities, early career workers seeking clarity on progression, mid-career workers transitioning between roles or subsectors, and workers displaced by sector contraction or project cycles.

Secondary users are expected to include teachers and career advisers, training providers and educators, employers and industry bodies, as well as regional workforce planners and government agencies.

By supporting all of these groups, the platform is intended to act as a shared national reference point for energy workforce development, improving consistency, alignment and understanding across the system.

Platform structure and navigation

The platform is to be structured around multiple entry points to reflect different user needs and levels of career readiness. The homepage is intended to introduce the breadth of the energy sector and reinforce that there is no single pathway into energy careers. Users will be invited to explore the platform through four clear starting points: those who are at school, those who are studying or training, those who are already working, and those who are considering a career change.

From these starting points, users will be able to explore careers in three primary ways: by specific career or job role, by skills and interests, or by their current starting point. This structure is designed to ensure the platform is accessible both to users who already have a particular role in mind and to those who are still exploring options.

Career explorer and role profiles

At the core of the platform will be a comprehensive career explorer allowing users to browse and search energy roles grouped into consistent occupational families. These are expected to include planning, engineering and design; technician and technical roles; trade and mechanical roles; live line and field services; operations and controllers; health, safety and environment; project and contract management; data, digital and AI roles; and roles within the energy resources sector and emerging technologies.

Each role will open to a standardised career profile page, enabling easy comparison across roles and reducing confusion. Each profile is planned to include a plain language description of the role, typical tasks and responsibilities, core technical and non-technical skills, recommended school subjects, training pathways across university, polytechnic and on the job options, indicative earnings ranges by career stage, typical progression pathways, transferable skills and adjacent roles, and a short real-world career story or case study. This consistent structure is intended to improve career understanding and support informed decision-making.

Skills based pathways

A defining feature of the platform is planned to be its skills first design, reflecting Re Energise findings that skills visibility is often more important than job titles alone. Rather than treating job titles as fixed endpoints, the platform is intended to highlight the skills that underpin roles across the energy sector.

Users will be able to explore technical skills such as electrical, mechanical, digital and operational capability, core capabilities including problem solving, safety leadership, communication and systems thinking, and emerging skills such as data analytics, automation, AI and asset intelligence. The platform will then show which roles draw on these skills and how shared skill sets enable movement between roles. This approach is intended to support career mobility, reskilling and upskilling, and transition planning during periods of industry change, while also helping employers and training providers better align training provision with workforce needs.

Pathways and career movement

One of the most consistent gaps identified through Re-Energise engagement is the lack of visibility around how people move between roles over time. The energy pathways platform is being designed to address this directly through a dedicated pathways view.

For each role, users are expected to be able to see common entry routes, typical next roles, lateral moves into related occupations, and leadership or specialist progression options. By making these pathways explicit, the platform is intended to support retention, confidence and long-term career planning across the energy workforce.

Integration with training and education

The platform is being designed to curate and connect existing education and training information rather than duplicate it. For each role, the platform is expected to signpost relevant university programmes, polytechnic and work-based training options, employer led and on the job training, and short courses or micro credentials where appropriate.

By acting as a navigation layer rather than a replacement for existing providers, the platform is intended to help users understand how education and training options fit together and how they connect to real roles and career pathways within the energy sector.

The platform is future ready and designed to support dynamic updates as qualifications programmes and system settings evolve. This ensures information remains current trusted and aligned with ongoing workforce reform and sector change.

Long-term workforce planning in the energy sector requires a stable and enduring policy environment. Bipartisan alignment on energy and workforce objectives is critical to provide confidence for investment, training and capability development given the long lead in times. At the same time the sector must build resilience to future shifts in government priorities by strengthening industry-led coordination and flexible skills pathways and adaptability for workforce planning that can respond to changing policy settings without destabilising workforce supply.

Duplication of activities

As the scale and complexity of workforce activity across the energy sector continues to grow, there is a clear need for organisations, programmes, and initiatives to work more closely together and to reduce duplication across regions, cohorts and career stages. A wide range of high-quality workforce activities is already being delivered across attraction, development, collaboration and retention by individual companies, industry bodies, training providers and community organisations. While this breadth reflects strong commitment and investment, it also increases the risk of overlap, particularly in areas such as school outreach, early-career engagement, diversity initiatives, and graduate and internship programmes, which often operate in parallel rather than as a coordinated system.

To address this, a formal industry-led mechanism should be developed to support greater coordination and alignment of workforce initiatives across the energy sector. This would enable subsectors and delivery partners to sense-check proposed new activity, identify opportunities to align or consolidate efforts, and reduce unnecessary duplication, while strengthening consistency and impact across regions and career stages.

Regional specific issues and opportunities

For the purpose of this report, three regions have been selected to illustrate the scale and nature of regional change currently underway across the energy sector. **Taranaki, Waikato, and Canterbury** have experienced some of the most significant shifts in recent years, driven by changes in energy supply, industrial demand, investment signals and policy settings. Stats NZ Inland revenue data shows regional employment for energy was concentrated in Waikato (14%), Taranaki (14%), Canterbury (11%).

Each region represents a hub of energy resources sector and operations, supported by established workforce capability and critical infrastructure, while also facing distinct transition pressures and growth opportunities. Together, they provide a useful lens through which to examine how national workforce challenges and opportunities are playing out at a regional level.

The following information has been derived from both the survey outputs and direct interviews conducted with over 20 large energy companies based across the three regions.

Taranaki is facing major challenges but has new opportunities ahead

Taranaki is navigating a period of significant and sustained change in its energy workforce, with major flow-on effects for the wider regional economy and other sectors. Unlike cyclical downturns experienced in the past, the current contraction reflects a more structural shift, driven by declining activity in parts of the traditional energy sector, prolonged investment uncertainty, and the absence of confirmed pipeline projects capable of absorbing displaced workers in the near term. The result has been large-scale job losses, organisational downsizing and heightened uncertainty for both employers and workers.

Analysis for this report indicates that between 2022 and 2025, survey respondents alone accounted for approximately 1,700 job losses in Taranaki, with the true impact likely to be considerably higher across the broader energy supply chain and regional economy. This scale and pace of workforce contraction have placed increasing pressure on workforce stability, planning confidence and the retention of highly skilled people in the region. There is a material risk that these skills will be permanently lost, either through workers leaving the region or exiting New Zealand altogether, compounding existing international outflows of experienced energy professionals.

In contrast to regions such as Waikato and Canterbury, which benefit from multiple tertiary providers, larger and more diverse labour markets, and more clearly signalled infrastructure and energy investment pipelines, Taranaki faces a narrower set of transition options. The region lacks adjacent large labour markets to 'catch' displaced workers and does not currently have a volume of confirmed projects capable of smoothing workforce transitions. Importantly, job losses in Taranaki are not prospective; they are already occurring and have occurred, with limited immediate redeployment pathways available.

Workforce development challenges in Taranaki are further compounded by structural constraints within the education and training system. The region currently has a single tertiary provider, Western Institute of Technology at Taranaki (WITT), which is itself subject to an extended period of government review. This has contributed to fragile and limited regional training pathways into trade and technical roles at precisely the point when retraining, redeployment and skills conversion are most needed. Employers consistently highlighted that constrained training provision, combined with limited supervisory and mentoring capacity, is restricting the region's ability to absorb displaced workers or transition them into emerging roles.

Taken together, these factors position Taranaki as both a high-risk region for national skills loss and a critical test case for workforce transition solutions. The scale and immediacy of change mean that traditional, slow-moving training and redeployment systems are unlikely to be sufficient. However, this also presents an opportunity: approaches developed, trialled and refined in Taranaki could inform replicable models for managing future industry transitions elsewhere in New Zealand, particularly in regions facing similar structural change over time.

Voluntary Education Leadership Group

Regional leaders in Taranaki have formed **a voluntary education leadership group, The Taranaki Skills Group** to help shape WITT's future model and advocate for a fit-for-purpose tertiary system for the region. This group includes representatives from:

- local government (e.g., Taranaki Mayoral Forum);
- iwi;
- the regional economic development agency **Venture Taranaki**;
- business sector leaders; and
- education providers and social services.

The group is actively building a local plan and engaging with central government agencies like the Tertiary Education Commission and Minister for Vocational Education to align WITT with regional skills and industry needs.

A central theme emerging from industry interviews is the misalignment between the timing of workforce displacement and the emergence of new opportunities. While future pathways such as LNG value-add activity, offshore renewable energy development and other emerging energy sectors are frequently discussed, these opportunities remain uncertain in both scale and timing. This

uncertainty makes it difficult for employers to plan workforce investment and creates a real risk that highly skilled workers leave the region or the energy sector altogether before new projects reach investment or construction phases.

At the same time, interviews reinforced that Taranaki retains a deeply experienced energy workforce, with strong technical capability, systems knowledge and a mature safety culture. Many of these skills are highly transferable across both traditional and emerging energy activities. However, industry was clear that if this workforce is lost, the capability is slow and costly to rebuild. The erosion of supervisory depth, local mentoring capacity and institutional knowledge would have long-term consequences, increasing project risk, extending delivery timeframes and placing additional pressure on national energy security. Once experienced practitioners exit the region or leave New Zealand, replacing this capability requires years of training, significant investment and sustained employer capacity.

There is clear potential for Taranaki to reposition itself as a more diversified energy hub, building on its existing strengths to support LNG-related infrastructure, offshore renewable energy, bioenergy and other transition-aligned industries. However, industry emphasised that realising this opportunity will require clearer investment signals, coordinated regional planning, and targeted workforce transition support to bridge the gap between decline and future growth, and to retain critical skills needed for future project delivery.

Taranaki Iwi and hapu are increasingly positioning themselves to participate in the regions evolving energy landscape, recognising both the economic opportunity and the importance of managing energy futures in ways the reflect Iwi aspirations and kaitiakitanga. Iwi have been active stakeholders in offshore renewable energy development discussions, consenting processes and regional energy strategies ensuring iwi kaitiakitanga and intergenerational outcomes are embedded early in project design and decision-making.

The Taranaki Alliance does present a potential opportunity to support workforce retention and capability continuity in the region during a period of transition. Established as an industry-led collaboration and supported by organisations such as Venture Taranaki and New Plymouth District Council, the Alliance brings together local engineering, fabrication, manufacturing and industrial services capability to compete collectively for large-scale, complex work beyond the region's traditional oil and gas base.

Public commentary on the initiative indicates the Alliance is positioning to compete for **up to $100–$200 million in contract value over its initial years**, across infrastructure, defence and energy-adjacent opportunities. While still at an early stage, this scale of potential work could play a meaningful role in retaining skilled workers in the region by providing diversified employment opportunities between major energy projects. If aligned with workforce planning and skills initiatives, the Taranaki Alliance could complement regional transition efforts by helping maintain employment continuity, supporting skills utilisation, and reducing the risk of experienced workers leaving Taranaki before new energy developments progress.

Timing is critical for Taranaki. Job losses are occurring now, while future projects remain in planning or awaiting investment decisions. Without clear investment signals and project certainty in the near term, skilled workers will continue to leave the region, reducing the capability needed to deliver future opportunities.

Note: A more detailed analysis of specific scenarios across the Taranaki region is covered under the energy resources sector subsector snapshot as it has a clear focus impact the region.

Image courtesy of Shutterstock (Mt. Taranaki, New Zealand)

Waikato has an embedded energy sector and strategic potential

Waikato supports a range of well-established energy and industrial sectors and holds significant strategic potential within New Zealand's energy system. The region is a national centre for geothermal energy, underpinned by major generation assets operated by Contact Energy and Genesis Energy, and supported by recently announced sustained government investment. This geothermal activity provides reliable baseload generation and plays a critical role in national energy security.

The region also has a strong wind energy presence, including assets operated by Meridian Energy, further strengthening Waikato's contribution to renewable generation. In addition, Waikato hosts the Huntly Power Station, which remains central to system firming and flexibility. Huntly has been the subject of early discussions around potential development into a multi fuel facility, reflecting broader efforts to improve system resilience as the energy system transitions.

Like Taranaki, Waikato has experienced the impacts of industrial contraction driven by constrained gas supply and rising energy costs. Notable examples include the closure of Oji Fibre Solutions' Kinleith paper production line and broader manufacturing impacts affecting Winstone Pulp International's mills, together accounting for more than 400 job losses. These closures highlight the exposure of energy intensive manufacturing to fuel availability and price volatility.

Waikato's Tainui Iwi is one of New Zealand's most economically influential iwis with a strong commercial arm, Tainui Group Holdings (TGH) and is actively growing. TGH has diversified investments across energy-related activities including the establishment of Ruakura Energy, a dedicated energy business providing and managing electricity distribution to the Ruakura super hub precinct. They also announced a major partnership with global investment firm Brookfield to develop the 610-hectare superhub, reflecting the Iwi's strategic focus on renewable energy. This level of investment and capability shows the Iwi's commitment to creating opportunities across workforce development, rangatahi pathways and energy-related careers.

Unlike Taranaki, Waikato's geographic scale, infrastructure connectivity and diversity of industry provide greater labour market mobility. Many workers displaced by recent closures have been able to secure alternative employment within the region, reducing the risk of permanent skills loss. Looking ahead, Waikato has strong opportunities for renewable generation growth, the repurposing of existing energy intensive sites, and targeted workforce reskilling linked to geothermal expansion, multi fuel electricity generation, solar development and emerging storage technologies. With coordinated regional workforce planning aligned to geothermal and flexible generation, Waikato is well placed to strengthen its position as a diversified and resilient energy hub.

New Zealand Government has recently progressed a national geothermal strategy, signalling a step change in its commitment to unlocking New Zealand's geothermal potential. The draft strategy sets a long-term vision to significantly expand geothermal electricity generation and direct heat use, supported by targeted funding including up to $60 million from the Regional Infrastructure Fund for advanced geothermal technologies such as supercritical geothermal. This national focus reinforces the strategic importance of geothermal regions like Waikato and highlights the need for regional workforce strategies aligned to geothermal development.

However, while the strategy acknowledges the importance of regional development and industry capability, it contains limited mention on workforce development, skills pathways or training system alignment. Given the highly specialised nature of geothermal roles and the concentration of activity in regions such as Waikato, stronger integration between geothermal policy, workforce planning and education pathways will be critical.

Greater alignment across government, industry, and training providers would help ensure that workforce capability keeps pace with investment and avoids skills constraints becoming a barrier to geothermal expansion.

It is important to note the New Zealand Geothermal Association plays an important facilitation and leadership role for geothermal in Aotearoa. As a non-profit, non-governmental industry body connecting a diverse network of skilled professionals, operators, service providers and researchers, the NZGA contributes to industry cohesion and sector development. While its core activities include advocacy, knowledge sharing and industry events, its submissions on national policy frameworks such as the Draft Geothermal Strategy emphasise the need for a strong, coordinated workforce ecosystem that builds capability across vocational training, academic pathways and hands-on technical expertise.

Canterbury is growing with a diverse energy landscape

Canterbury is actively thriving, underpinned by strong infrastructure growth and varied energy activity. Canterbury is experiencing strong and sustained momentum across its energy and infrastructure landscape, positioning the region as a key centre of workforce growth. Ongoing investment in electricity generation, network infrastructure and broader regional development is driving consistent demand for skilled workers across engineering, technical, trade and professional roles. Unlike regions experiencing contraction, Canterbury's challenge is less about workforce displacement and more about scaling capability to meet demand.

The region benefits from a diverse and mature electricity system, supported by long standing renewable generation, which continues to underpin system reliability and provide operational and engineering roles across generation, maintenance and asset management. New investment is also emerging, including large-scale solar developments creating demand for construction, electrical, commissioning and project delivery skills, alongside longer-term operational roles. Together, these assets illustrate the breadth of workforce needs across both established and emerging generation technologies.

The South Island Iwi Ngāi Tahu is also a growing presence in the sector which presents new opportunities for workforce development and rangatahi engagement. In August 2025 Ngāi Tahu Holdings partnered with Mint Renewables to establish a $100 million fund to develop large-scale renewable energy projects, demonstrating significant iwi commitment to energy transition and long-term investment in sustainable infrastructure.

Canterbury's expanding infrastructure and energy pipeline is placing upward pressure on workforce availability, particularly for experienced electrical engineers, network planners, technicians, project managers and field supervisors. As electrification accelerates across transport, industrial heat and the built environment, the region will require not only more workers, but also deeper capability in system integration, digital technologies, demand management and network optimisation.

The ability for Canterbury to grow and retain supervisory and mentoring capacity will be critical to ensuring apprentices, graduates and career changers can be effectively absorbed into the workforce.

The region's strengths include strong talent attraction and retention, supported by lifestyle factors, a diverse project pipeline and opportunities to work across multiple stages of the energy system. However, continued growth increases competition for skilled labour both within Canterbury and nationally. This reinforces the importance of proactive workforce planning, expanded training and apprenticeship pathways, and close alignment between industry, education providers and regional stakeholders.

If coordinated effectively, Canterbury is well positioned to remain a leading hub for energy workforce capability, supporting delivery of the energy transition while providing stable, high quality employment opportunities. Ensuring workforce development keeps pace with infrastructure and generation investment will be essential to maintaining momentum and avoiding skills constraints becoming a barrier to growth.

6.

Re-Energise 26
Findings

6. *Re-Energise 26* Findings

Training system and pipeline issues

- Declining enrolments across energy-related qualifications despite stable completion numbers with significant learner drop off between enrolment and completion.
- Large decline in work-based training due to supervisor and assessor capacity constraints.
- Regional fragility of training provision, particularly in regions with just a single tertiary provider.
- Risk of learner disengagement during ongoing vocational system reform.
- Trade and apprenticeship pathways are widely viewed as too short to build full competency.
- Vocational training is perceived as under resourced and insufficiently future focused.
- Engineering graduates are better work prepared than trades, but according to the survey results 28% are still rated as poorly or less prepared and therefore need more academic training and real-world industry alignment.
- There is a growing risk that critical thinking and analytical skills may diminish among students if increasing reliance on digital tools and automation is not accompanied by deliberate development of problem solving and judgement capabilities.
- Internships are critical but declining while applications for internships have quadrupled.
- Limited energy topics and system knowledge and literacy among tertiary students and school educators and curriculum.
- Strong student interest in energy careers but limited understanding of pathways and earlier engagement with schools needed to build awareness and confidence.

Diversity and inclusion lacking

- Persistent gender imbalance across almost all occupational groups.
- Very low female participation in engineering, technical, trade and operational roles.
- Women significantly under-represented in leadership at all levels and clear evidence of mid-career attrition for women.
- Māori and Pasifika are under-represented across the workforce and almost absent from leadership.
- Limited use of culturally grounded pathways and leadership development.
- Risk of entrenching inequity without coordinated sector-wide intervention.

AI and digital capability needs to grow

- AI adoption is accelerating but remains early stage.
- Risk that AI capability is treated as a next generation skill. Need to support mid and late career workers to adopt and apply AI safely.
- Electricity retail roles are already changing shape due to automation.
- Competition for advanced digital and complementary skilled talent is intensifying domestically and internationally.

Energy Resources subsector specific findings

1. **Long-term workforce planning is critical and cannot be deferred**

   The energy resources sector workforce operates on long investment and development cycles. Decisions made today, or delayed, will shape workforce availability a decade from now. Without deliberate long-term planning, skills pipelines will continue to erode, leaving New Zealand exposed to future supply and capability risks.

2. **Policy certainty and speed of decision-making are now as important as the decisions themselves**

   Prolonged uncertainty across exploration, gas supply, LNG, offshore renewable energy and enabling infrastructure has materially undermined investment confidence and workforce retention. Even where projects are ultimately viable, delayed or contested policy signals increase the likelihood that skilled workers leave regions such as Taranaki before opportunities materialise.

Durable bipartisan agreement across political parties on New Zealand's energy mix, including the role of all natural resources, is increasingly important to provide long-term stability.

3. **Workforce impacts occur well before final investment decisions**

   Workforce demand does not begin at construction. Skills are required in early phases including feasibility, consenting, engineering and port planning. Current policy and project timelines fail to account for this, resulting in a mismatch between when skills are lost and when they are later required.

4. **Coordinated project and workforce planning across government is critical**

   Energy resources sector projects cut across multiple agencies, including energy, climate, infrastructure, immigration, education and regional development. Fragmented decision-making increases risk and delays. A coordinated, cross-government approach to project sequencing and workforce planning is required to ensure skills are available when needed.

5. **Taranaki remains a strategic workforce asset but is at risk of permanent skills loss**

   The region holds deep expertise across oil and gas, marine, heavy industry, engineering and safety critical roles that are directly transferable to LNG, offshore renewable energy and other energy infrastructure. Without immediate action to retain and transition this workforce, these skills are likely to be lost to other sectors or offshore.

6. **Emerging energy technologies alone will not absorb displaced workers in the near term**

   While hydrogen, solar and other emerging technologies present opportunities, current workforce demand is relatively small and concentrated in higher-skilled professional roles. These pathways are not yet sufficient to offset large-scale job losses across trades, technical and operational occupations.

7. **Timing misalignment is the single greatest workforce risk**

   Across all plausible scenarios, the greatest risk is not lack of opportunity, but poor timing. If workforce interventions lag project development, skills leakage becomes inevitable. Acting now to bridge timing gaps is essential.

8. **Failure to act will increase reliance on offshore labour and raise delivery risks**

   If domestic capability continues to decline, future energy projects will face increased costs, delays and reliance on imported labour. This undermines energy security and reduces the economic benefits of major infrastructure investments.

9. The window to act is narrowing

The energy resources sector is at a tipping point. Decisions made in the next one to three years will determine whether New Zealand retains a skilled, adaptable workforce capable of supporting future energy infrastructure, or whether capability must be rebuilt at significantly higher cost and risk.

System level and structural issues

- Regulatory and policy uncertainty is undermining investment confidence, particularly in the energy resources sector.
- The absence of a bipartisan approach to energy strategy across political parties continues to contribute to investment uncertainty and workforce insecurity.
- Regional impacts are uneven, with Taranaki experiencing significant contraction, while regions with sustained infrastructure investment and strong electricity supply activity, such as Canterbury, continue to grow.
- Timing mismatch between job losses today and uncertain future energy developments.
- Offshore renewable energy and LNG are strong possibilities and workforce planning should be built into each as early as possible.
- Lack of a single, integrated workforce view historically has limited coordinated planning across the full energy system.
- Ongoing changes to vocational education settings have created instability for providers, learners and employers.
- Transition from WDCs to ISBs has increased expectations while significantly reducing resourcing and analytical capacity.
- Risk that workforce planning and system coordination falls back onto industry associations without sufficient funding or support.
- Global competition for skills, particularly from Australia, is accelerating workforce leakage.

Workforce contraction and transition pressures

- Since 2022 more than 1,700 FTE roles lost in the Taranaki region across oil and gas, large energy users, contractors and consultants.
- Job losses span all occupational groupings, not just a single skill set.
- Growth in emerging energy areas has not been sufficient to offset losses.
- No single future scenario, including LNG, offshore renewable energy or decommissioning, absorbs the scale of recent job losses in the short term.
- High risk of skilled workers leaving regions and New Zealand due to prolonged uncertainty.
- Loss of institutional knowledge threatens future system resilience.
- Timing gaps between projects risk skills leakage before redeployment opportunities arise.

Electricity Supply subsector specific findings

Overall, the electricity supply workforce is in a relatively stable position, with demand that is steady, predictable, and supported by strong retention once people enter the sector.

The challenge facing the subsector is not an immediate workforce crisis, but a set of persistent and compounding pressures that, if left unaddressed, could constrain future growth and system resilience. These pressures are most acute in electrical engineering and a small number of critical trade and operational disciplines, and are amplified by declining work-based learning, misaligned immigration settings and the time required to build full competence in safety critical roles.

The central workforce risk is therefore not the ability to attract people into the sector, but the capacity to train, supervise and transition them quickly enough to meet rising demand while protecting deep system knowledge. Addressing these issues will require coordinated action across training, immigration and workforce development settings, with a particular focus on strengthening supervision, succession and speed to competence across the electricity supply workforce.

1. **Workforce demand is steady, predictable, and rising**

   The electricity supply workforce requires between 4,200 and 5,400 new entrants each year across all occupations (with the majority being in non-core support roles), driven primarily by replacement demand and steady expansion of around 2–4% annually.

2. **Workforce pressures persist but are more manageable than previously assumed**

   Testing the 2022 findings shows workforce demand is higher than previously forecast and increasing year on year. However, improved data coverage and visibility of pipelines, attrition, and retirement behaviour indicate the gap between supply and demand is challenging but achievable to bridge with coordinated action.

3. **There is no retirement crisis, but succession risk remains**

   The electricity supply workforce is aged in profile rather than ageing. Retirement risk is lower than previously assumed, but the reliance on deep system knowledge means succession planning and knowledge transfer remain critical risks.

4. **Electrical engineering is the key outlier**

   Electrical engineering roles are not replacing themselves at the required rate. Demand for electrical engineers is growing by around 25% per year, while domestic graduate supply is increasing by closer to 15%. Immigration is filling part of this gap, but not quickly enough, making electrical engineering a persistent pressure point.

Emerging workforce risk in critical trade and operational roles

Digging deeper and comparing graduate numbers, vacancy rates and forecast demand from the survey shows that **HSE capability, cable jointers** and **electricity maintenance** roles are among the most exposed areas of workforce risk. While all three disciplines face workforce pressure, the underlying challenges differ across each and require tailored responses.

1. **Vacancies are difficult to fill, but attrition is low**

   Vacancy rates remain high and time to hire is longer than in many other industries, particularly for field and electrical maintenance roles. However, once workers enter the electricity supply sector, they are less likely to leave than workers in other industries.

2. **Perceptions of high overseas exits are not supported by labour market data**

   This means retention concerns are driven more by the impact of losing experienced staff than by actual turnover rates.

3. **Skills requirements are shifting**

   The electricity supply workforce increasingly requires digital capability, systems thinking, and hybrid skill sets that combine technical, commercial, and data driven skills. Critical thinking and judgement are becoming more important as automation increases and systems become more complex.

4. **Training alignment has improved, but work-based learning is a weak point**

   Industry feedback indicates improved alignment between qualifications and workforce needs since 2022, particularly for safety critical and digital roles. However, enrolments in work-based learning have declined, and potential vocational provider disestablishments risk constraining future capacity. Electrical engineering remains under supplied, while some trade roles are currently meeting demand but face future risk without stronger work-based learning settings.

5. **Immigration is essential but under leveraged**

   Immigration is a growing source of workforce supply, with more electrical engineers arriving each year through immigration than are produced by the largest domestic engineering programme. While immigration is already supporting workforce needs, there is scope for the sector to make more effective use of existing pathways. Improved coordination, clearer demand signals, and targeted adjustments to settings where appropriate could further strengthen the contribution of migration as part of a broader workforce solution.

6. **The central challenge is speed to competence**

   Across the sector, the key constraint is not entry into the workforce, but the time required to convert graduates and migrants into fully competent workers. This places pressure on supervision, mentoring, and training capacity and heightens employer sensitivity to the loss of experienced staff.

Workforce supply, demand and retention

- Electrical engineering is the most critical pressure point across the electricity supply sector.
- Digital and AI capability is emerging as a key skills shortage.
- HSE roles have emerged as a key area for further investigation, with survey results identifying HSE as one of the most frequently cited roles with high vacancy rates relative to number of roles size, and very limited use of formal competency frameworks across the sector and lack of government funding for HSE standards within trade-based training programmes.
- Electrical maintenance and cable jointing roles need their pipeline investigated further.
- Retention challenges are strongest in professional roles such as planning, engineering and design with salary pressure the most common driver of turnover, particularly in consultancy.
- Energy resources sector workers report heightened job security concerns.
- Immigration is not a major constraint overall but there are areas for improvement with qualification and recognised prior learning incentives across the subsectors and with electrical technician accessibility.
- Vacancy rates are relatively stable overall across the entire workforce.

7.

Industry Skills Action Plan

7. Industry Skills Action Plan

A deliberate, coordinated approach that builds on existing initiatives, strengthens system capability, and focuses effort will create the greatest impact in addressing the wider energy sector's workforce challenges.

Re-Energise 26 sets out an Industry Skills Action Plan (ISAP) to guide collective action across industry, government, and education providers. The ISAP outlines a coordinated and evidence-based programme of work to address the most critical workforce challenges facing New Zealand's energy sector.

The ISAP aims to:

- build on work already underway across industry, government and the education system; and
- create alignment, clear priorities, and a shared understanding of what will be delivered and when.

The ISAP is structured around four strategic goals that together address **attraction** to the sector, capability **development**, national **collaboration**, and long-term **retention** of the energy workforce.

The ISAP will be finalised through a national workforce summit convened following the release of this report. The summit will confirm priority actions, identify and confirm lead organisations and delivery partners, and agree project scopes, governance arrangements and resourcing. Implementation teams will be established for each action, with timelines and milestones endorsed, enabling coordinated delivery to commence following the summit.

The *Re-Energise 26* framework

The strategic response to the issues identified in this report is structured around four interconnected pillars: **Attract, Develop, Collaborate, and Retain.** This framework recognises that workforce challenges across the energy sector are system-wide and require coordinated, long-term action across education, industry, government and stakeholder communities.

Across the framework, we have considered actions spanning the following areas, including specific skill pressure points identified through the analysis:

- STEMM, training, school and community outreach
- Early career and tertiary programmes
- Vocational education and training
- Immigration
- Professional development
- Skill pressure points in critical and hard-to-fill roles
- Workforce diversity, inclusion and equity
- Leadership, governance and capability
- Employer-led programmes
- Partnerships and workforce resilience

Together, this framework provides a structured and practical foundation for translating the report's findings into a coordinated industry skills action plan which supports a resilient, future-ready energy workforce.

Strategic Goal 1: Attract

Attract our future workforce through sustainable values, clear pathways, inclusivity and diversity

Attract focuses on building early awareness and interest in energy careers, strengthening the future talent pipeline and broadening participation. This includes STEM engagement, school and community outreach and immigration alongside initiatives that promote inclusive and diverse pathways into the sector.

Objective 1: Inspire tamariki and rangatahi to see energy as a meaningful, future-focused career option.		
PROJECTS	SUGGESTED LEAD AND PARTNERS	TIMESCALE
Coordinate and stocktake existing energy-related learning content across industry, education providers and government, and build on this to develop fundamental energy system content for audiences across New Zealand.	ISB's with Industry Associations and Industry	**1-2 years**
Align, develop and expand existing STEMM outreach programmes to reduce duplication and improve reach.	Industry Associations, Education Bodies and STEMM Stakeholders	**2-4 years**
Develop secondary-school curriculum content (Years 9–13) related to energy, including: - how we use energy in our daily lives - how energy systems operate - the role of electricity, gas and renewable resources - energy security, affordability and sustainability - the skills, training pathways and careers that support the energy system	ISB's with Industry Associations and Industry	**2-4 years**

Objective 2: Improve visibility and understanding of energy careers, pathways and progression for students, jobseekers and mid-career industry changers.		
PROJECTS	SUGGESTED LEAD AND PARTNERS	TIMESCALE
Continue development of a national **energy careers and pathways platform** that clearly shows how roles, skills, training and career progression and connect across energy resources sector, electricity supply and large energy users.	Industry Associations and Government	**1-2 years**

Design a targeted attraction approach for mid-career career changers, focused on people transitioning from adjacent sectors such as construction, engineering, manufacturing, science, IT and professional services.	Industry Associations and Government	**2-4 years**

Objective 3: Increase participation of Māori, women and other under-represented groups in energy careers.

PROJECTS	SUGGESTED LEAD AND PARTNERS	TIMESCALE
Develop partnerships or collaborations that coordinate, align and scale investment in existing initiatives to reduce duplication and strengthen the impact of programmes to increase participation of women in leadership, technical, operational and engineering roles.	Industry	**1-2 years**
Increase visibility of diverse role models across the sector through coordinated communications, case studies and industry engagement activity.	Industry	**1-2 years**
Partner with iwi, Māori organisations, Kura and community groups to design culturally grounded pathways into energy careers, prioritising the investigation of existing initiatives that can be scaled up or replicated.	Industry/ Iwi/ Community Stakeholders	**1-2 years**

Objective 4: Strengthen early-career entry points through internships, graduate programmes and early exposure to industry.

PROJECTS	SUGGESTED LEAD AND PARTNERS	TIMESCALE
Build on and expand intern development programmes across the energy sector into additional regions through a coordinated, sector-wide approach that complements employer-led initiatives, supports cross-sector exposure, builds foundational capability, and strengthens pathways into sustainable, long-term energy careers.	Industry Associations and Industry	**1-2 years**
Create a channel for better national visibility of internship and graduate opportunities.	Industry Associations and Industry	**1-2 years**
Develop a Gateway to Energy Programme across regions by leveraging the existing Schools Gateway programme to coordinate Year 11–13 students into structured workplace learning across multiple energy companies, rather than single placements.	Industry Associations/ Government/ Education Providers	**1-2 years**

Strategic Goal 2: Develop

Develop the capability of our current workforce and create clear training and development pathways for new entrants

Develop is centred on building skills and capability across the workforce and pipeline. This includes early career and tertiary programmes, vocational education and training, structured professional development, and clear progression pathways that support skills growth and adaptability as the sector evolves.

Objective 1: Lift the capacity of industry and the vocational system to train, supervise and assess apprentices, trainees and graduates.		
PROJECTS	SUGGESTED LEAD AND PARTNERS	TIMESCALE
Increase the availability and capacity of supervisors, mentors and assessors by supporting shared, regional or cross-company models.	Industry Associations/ Industry	**1-2 years**
Improve funding, incentives and system settings that better recognise the true cost of work-based training, supervision and assessment for employers, particularly those supporting electrical trades, maintenance and specialist technical roles critical to energy system reliability.	Government/Industry	**2-4 years**
Explore regional apprenticeship sharing schemes that allow energy apprentices to rotate across multiple employers, building deeper system-wide capability while easing supervision and training capacity constraints.	Industry Associations/ Work-based Learning Providers/Industry	**1-2 years**
Objective 2: Strengthen development and entry pathways for critical and hard-to-fill roles.		
PROJECTS	SUGGESTED LEAD AND PARTNERS	TIMESCALE
Increase electrical engineering workforce supply by expanding university training capacity, strengthening work-integrated learning and graduate work readiness.	Universities	**2-4 years**
Educate industry and align immigration settings to better support specialist and hard-to-fill energy roles where domestic supply is constrained, or training pipelines are long.	Government/Industry	**1-2 years**

Increase visibility of industry specific competency frameworks and structured development pathways for HSE roles, addressing gaps identified across the sector.	Industry Associations/ Education Providers	**2-4 years**
Investigate the reduction in cable jointer and electrical maintenance graduate numbers and implement targeted actions to address these potential future bottlenecks.	Work-based Providers/ISB's/ Industry Associations	**2-4 years**

Objective 3: Support workforce transition and reskilling across the energy system.

PROJECTS	SUGGESTED LEAD AND PARTNERS	TIMESCALE
Develop and implement a New Zealand recognised Energy Skills Passport for the energy resources sector to recognise transferable skills and competencies across the energy system, reduce duplication of training and assessment, and support movement between roles, subsectors and regions.	Industry Associations/ Economic Development Agencies/ Industry	**1-2 years**
Work with government to create a regional work transition system that tracks upcoming projects, stays connected with displaced workers, and links them to bridging pathways so capability is retained until new opportunities emerge.	Industry/ Government/Regional Stakeholders/ Economic Development	**2-4 years**
Champion and monitor national adoption of common competency frameworks	Industry Associations/ Industry	**2-4 years**

Objective 4: Ensure vocational, tertiary and on-the-job training delivers work-ready graduates and workers with the core competencies required for the current and future energy system.

PROJECTS	SUGGESTED LEAD AND PARTNERS	TIMESCALE
Work with the Energy and Infrastructure Industry Skills Board (ISB) to define and embed core, work-ready competencies across energy-related vocational qualifications and programmes, ensuring training reflects contemporary energy roles, system integration and emerging technologies.	ISB's/Industry/ Industry Associations	**2-4 years**
Further invest in partner programmes between universities and industry to develop work-ready training module to strengthen work-integrated learning and real-world application.	Universities/Industry/ Industry Associations	**2-4 years**
Embed AI, digital and critical-thinking core competencies across all energy-related curriculum and training, from schools through to workplaces, to support safe, effective and informed use of digital tools and AI in the energy sector.	ISB's/Training Providers/Universities	**2-4 years**

Strategic Goal 3: Collaborate

Collaborate to build effective partnerships across industry, government and stakeholders to jointly develop workforce initiatives

Collaborate recognises that no single organisation can address workforce challenges alone. This pillar emphasises partnerships between employers, education providers, iwi, government and regional stakeholders. Employer-led programmes, shared training approaches and regional coordination are central to improving scale, consistency and impact. Collaboration and standardisation improve efficiency nationally, driving down energy costs.

Objective 1: Improve coordination and alignment across industry, government and system partners involved in workforce development.		
PROJECTS	SUGGESTED LEAD AND PARTNERS	TIMESCALE
Establish a formal energy workforce coordination mechanism bringing together industry, government agencies, the Industry Skills Body (ISB), education providers and workforce organisations to align priorities, sequencing and delivery of workforce initiatives.	ISB's and Industry Associations	**1-2 years**
Continue development and use the Energy Careers and Pathways Platform as a shared coordination tool to connect schools, providers, employers and government activity, improve visibility of pathways, and support consistent messaging across the system.	Industry Associations/ Government	**1-2 years**
Implement an annual workforce capability summit.	Industry Associations	**1-2 years**
Create a funding mechanism for shared, standardised resources.	Industry Associations	**2-4 years**

Objective 2: Reduce duplication of industry workforce initiatives and better leverage existing programmes, funding and capability.		
PROJECTS	SUGGESTED LEAD AND PARTNERS	TIMESCALE
Identify where initiatives can be better aligned, merged or coordinated, reducing duplication and improving impact across the energy workforce system.	Industry Associations/ Industry	**2-4 years**

Agree priority areas for consolidation and alignment, focusing on initiatives with overlapping objectives, audiences or delivery models, and clarifying where a single coordinated approach would deliver better outcomes.	Industry Associations/ Industry	**2-4 years**
Develop an industry-led mechanism to collectively review workforce initiatives and provide a shared, accessible view of existing programmes across the energy sector, enabling subsectors or groups to sense-check proposed new initiatives, identify opportunities to merge or align activity, and reduce duplication across regions and career stages.	Industry Associations/ Industry	**1-2 years**

Objective 3: Strengthen shared leadership and accountability for energy workforce outcomes.

PROJECTS	SUGGESTED LEAD AND PARTNERS	TIMESCALE
Formally recognise and support the role of industry associations as convenors and delivery partners, acknowledging their increasing responsibility for coordinating employers, providers and regional activity across the energy workforce.	Government	**1-2 years**
Government to develop a funding mechanism to provide targeted workforce project funding to industry associations to enable effective workforce coordination and delivery, particularly where Industry Skills Bodies (ISBs) have much reduced capacity or resourcing to lead sector-specific workforce initiatives.	Government/Industry Associations	**1-2 years**
Ensure workforce considerations are embedded early in major energy policy, regulatory and infrastructure investment decisions, so workforce impacts, timing and capability requirements are addressed alongside technical, commercial and consenting considerations.	Government/Industry Associations/Industry	**1-2 years**

Objective 4: Continue to improve workforce data, evidence and intelligence to support better decision-making.

PROJECTS	SUGGESTED LEAD AND PARTNERS	TIMESCALE
Establish mechanisms for sharing workforce insights with industry and government, including updates on critical skills shortages, pipeline risks and transition impacts, to support proactive rather than reactive workforce responses.	Government/Industry Associations/Industry	**2-4 years**

Strategic Goal 4: Retain

Retain our people with strong leadership, career progression plans and environments where they want to stay and grow

Retain focuses on sustaining capability and resilience within the workforce over time. This includes workforce diversity, inclusion and equity, leadership and governance capability, mentoring and knowledge transfer, succession planning, and initiatives that support workforce wellbeing and adaptability through periods of change.

Objective 1: Retain experienced and specialist workers critical to system reliability and performance.		
PROJECTS	SUGGESTED LEAD AND PARTNERS	TIMESCALE
Work with highly experienced critical system workers to enable their input into establishment of desirable sector-wide initiatives and programmes to retain these workers throughout their careers, enabling continuity of work, mobility across employers and regions, and flexible attachment to the energy workforce.	Industry/Industry Associations/ Government	**1-2 years**
Develop an industry-wide approach for knowledge transfer from highly experienced senior workers, to reduce loss of valuable institutional knowledge.	Industry Associations/ Industry/Government	**1-2 years**
Objective 2: Retain and sustain leadership, supervision and mentoring capability across the sector.		
PROJECTS	SUGGESTED LEAD AND PARTNERS	TIMESCALE
Identify and develop future supervisors, mentors and assessors early, supported by a coordinated sector-wide capability programme.	Industry Associations/ Industry/Training Providers	**1-2 years**
Explore a sector-wide network for supervisory, mentoring and assessor staff to share practice, build capability and encourage sustained participation in these critical roles.	Industry Associations/ Industry/ISB's	**1-2 years**

Objective 3: Improve career visibility, progression and mobility, and create workplace environments where people want to stay, develop and contribute long-term.		
PROJECTS	SUGGESTED LEAD AND PARTNERS	TIMESCALE
Align career visibility and progression information with the Energy Careers and Pathways Platform, ensuring workers can see long-term opportunities as the sector evolves.	Industry Associations/ Government/ISB's/ Training Providers	**2-4 years**
Share information on successful retention strategies and create channels for people and culture teams to connect and learn across the industry.	EDA's/Industry Associations/Industry	**1-2 years**
Objective 4: Retain skilled energy workers in the Taranaki region between roles while new industries and projects progress.		
PROJECTS	SUGGESTED LEAD AND PARTNERS	TIMESCALE
Coordinate regional workforce planning and signalling across industry, government and local stakeholders, improving visibility of project timing and workforce needs to reduce uncertainty and support informed retention decisions by workers.	EDA's/Government/ Industry	**2-4 years**
Provide government-supported interim employment, reskilling and upskilling opportunities that allow workers affected by change to remain work-ready and positioned for new and emerging energy developments, including offshore renewable energy, LNG and other cross-sector projects.	Government/Industry	**1-2 years**
Enable short-term regional, national and international placements, project work, secondments and cross-sector opportunities to keep skills active and maintain workforce attachment while longer-term projects progress through planning, consenting and investment stages.	Government/Industry Associations/Industry	**1-2 years**
Use collective industry and regional influence to advocate for settings, decisions and support that enable Institutes of Technology and Polytechnics to successfully transition to stand-alone entities as they are individually ready.	ITP's/Industry/ Government/Industry Associations/Regional Stakeholders	**1-2 years**

8.

Implementation, Monitoring and Reporting

8. Implementation, Monitoring and Reporting

The ISAP is intended to be a living programme of work rather than a static set of recommendations. Effective implementation will require clear ownership, sequencing, and ongoing monitoring to ensure momentum is maintained and actions remain relevant as the energy system evolves.

To support this, EEA and Energy Resouces Aotearoa will convene a workforce summit focused on implementation. The summit will operate as a practical working forum, with dedicated round tables aligned to each ISAP action area. It is recognised that not all actions will be able to progress simultaneously, therefore, the summit will also be used to prioritise actions, taking into account urgency, sector impact, resourcing requirements, and align with wider system reforms and investment cycles.

For each action an implementation plan will be developed and supported with:

- a nominated project lead and delivery group;
- clearly defined roles and responsibilities;
- key milestones and indicative timelines; and
- identification of dependencies, risks and enabling factors.

Progress against the ISAP will be monitored through annual reporting by the project leads, providing transparency on delivery status, achievements and emerging challenges.

An update on this report will be produced every two years to track trends, assess the effectiveness of actions, and provide continuity across planning cycles.

Importantly, the implementation process acknowledges that policy settings, regulatory environments, and government priorities may change over time. The ISAP is therefore designed to be an adaptive, living programme of work that can be adjusted and flexible as required.

9.

Key Performance Indicators

9. Key Performance Indicators

To support effective delivery of the ISAP, a small set of clear and measurable key performance indicators (KPIs) will be used to monitor progress over time. These are outlined below and will be agreed by the ISAP's project leads at the workforce summit and reviewed bi-annually to reflect changing workforce conditions, sector priorities and government policy settings to ensure the ISAP remains credible and outcome focused.

KPI 1

Energy curriculum for schools and communities

Development and uptake of coordinated energy-related curriculum and learning resources across schools.

KPI 2

Learner pathways clarity and uptake

Pathways platform developed and used with connected learner pathways into energy careers by students, job seekers and mid-career changers.

KPI 3

Diversity of new entrants

Increased participation of Māori, women, Pasifika across energy training and across all career roles.

KPI 4

Growth in early career entry opportunities

Growth in internships, early entry programmes, graduate roles, apprenticeships and gateway to energy style programmes.

KPI 5

Training and supervision capacity

Improved availability of supervisors, mentors and assessors to support workforce growth.

KPI 6

Work-ready skills alignment

Employer reported improvement in the work-readiness of graduates and trainees.

KPI 7

Coordination and system alignment

Improved coordination of workforce initiatives across industry, education and government with reduced duplication.

KPI 8

Retention of critical workers and regional capabilities

Retention of highly experienced and specialist workers, including maintaining workforce attachment in transitioning regions.

10.

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Labour Market Performance and Policy
Sector Workforce Engagement Programme, which sits within the Employment, Skills and Immigration Policy branch in the Labour, Science and Enterprise group.

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Other Stakeholder Partners

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Image courtesy of Meridian Energy (Ohau A under the Milky Way, Tim Preston-Marshall)

11.

Appendices

11. Appendices

APPENDIX A
Re-Energise 2022 progress report

The 2022 Re-Energise Ngā Mahi a Māui Report was the first research project and workforce development strategy for the Electricity Supply Industry – a partnership between industry and the workforce development council Waihanga Ara Rau. The report was born from concerns about whether the industry could service rapid electricity infrastructure growth anticipated due to economic and political factors at that time, and how to project and plan for the future.

Key takeouts included:

- The industry was estimated to comprise 5600 core employees or 9000 including contracting and consultancies
- 25% of the ESI workforce was over 55, meaning an estimated 2200 people retiring before 2035, with current pipeline projections not covering this amount.
- Over $10bill of electricity infrastructure projects planned for the next decade
- To grow the sector and replace workers who could leave, the sector was estimated to need 150 more engineers, technicians and tradespeople a year
- Taking a broader definition of sector workers (including contractors and consultancies servicing it) led to an estimate of needing 700 more engineers, technicians and tradespeople being required each year
- With attraction being a key objective, key barriers included lack of information to attract new entrants to the industry and allow them to see career opportunities or pathways, lack of role models for Māori and women, and enduring perceptions that it wasn't for them.

The report identified four strategic goals:

1. Increase visibility of the industry to attract the right people
2. Design for intuitive career pathways
3. Build a resilient (and diverse) workforce
4. Partner with Māori

13 actionable recommendations sat under the strategic goals. The ESI's Strategic Reference Group assigned these recommendations to ESI entities and drove and monitored activity, meeting quarterly from 2022 – 2025, with the IETC Trust funding much of the work undertaken. Several well-known industry initiatives had their genesis in this work.

The report's recommendations predominantly focused on attraction and diversity. Much has changed since 2022 and today's strategic goals are quite different, with more focus needed today on retention of skilled staff and development of valued skills, with attraction an ongoing but lower priority.

Strategic Goal 1: Increase visibility to attract the right people.			
ACTIONS	DESCRIPTION	WHO AND HOW	PROGRESS TRACKING
1.1 – 1.4 Raise industry profile and build a platform for industry growth	**1.1.1** Create a platform for a singular cohesive industry voice and story, and make it easy for people interested in joining the industry to take the first step.	Electricity Networks Aotearoa to explore potential for a joint-industry National Recruitment campaign and recruitment portal including funding costs.	Proof of concept delivered and stakeholder consultation complete by May / June 2025 but required funding for next step, paused so data from Re-Energise 2025 could validate the continued need given changing economic circumstances.
	1.2.2 Evolve Gateway programmes to be better placed to match aptitude with industry opportunities.	Connexis/ Waihanga Ara Rau.	Yet to commence due to vocational reforms beginning in 2024 disestablishing both entities.
	1.3.3 Create industry role models by profiling actual employees from within the industry and clearly portraying their career pathways.	Waihanga Ara Rau develop and publish series of videos on life in the ESI.	Completed, good access rates on youtube and various platforms.
Strategic Goal 2: Design for intuitive career pathways.			
ACTIONS	DESCRIPTION	WHO AND HOW	PROGRESS TRACKING
2.1 Highlight careers and pathways	**2.1.1** Allow new entrants to plan for, and navigate, their careers by creating a platform for a singular visual representation of all the careers and pathways available in the industry.	Waihanga Ara Rau to lead ESI replication of pathway information done this for the Water Sector.	Transferred to EEA in 2025. EEA has obtained funding from IETC Trust, met with Australian counterpart to develop trans Tasman consistency. Stage 1 complete, Stage 2 will follow Re-Energise 2025 report.
2.2 Build interoperable standards and competencies	**2.2.1** Create ease for employees to move into different roles within the industry, without having to take a step backwards career wise.	Waihanga Ara Rau to develop skills standards, dependant on the next review of the qualifications and the introduction of skill standards.	Next review of qualifications has been paused due to 2024 - 2025 vocational reforms.

Strategic Goal 3: Build a resilient workforce.			
ACTIONS	DESCRIPTION	WHO AND HOW	PROGRESS TRACKING
3.1 Find a united vision and shared approach	**3.1.1** Undertake coordinated and sustained efforts to measure vital statistics such as workforce numbers, skills and ethnicity.	Champions of Change DEI group – starting with Gender Pay gap – led by Transpower and Powerco.	Gender data complete and published on Ministry of Womens Affairs database. Project agreed to develop reporting for wider diversity measures – has been moved to Energy Sector Framework.
3.2 Commit to growth	**3.1.2** Encourage workforce modelling by developing methods of clearly visualising data and forecasting skills needs into the future.	Waihanga Ara Rau to commission occupational modelling.	Complete, published on WIP platform.
3.3 Build a platform for rapid training and upskilling	**3.1.3** Cooperate on industry training standards that allow greater flexibility and speed to fill identified shortages, as well as meeting current industry skill requirements.	EEA & Waihanga Ara Rau to develop micro credentials for the specific skill shortage areas.	EEA and TEC developed in 2022 and launched to market in stages, with 10 learning units in the market to date.
3.4 Design for workplace diversity	**3.2.1** Match industry desire to embrace diversity with the necessary operational realities, for example providing facilities and support structures suitable for both men and women; and encourage workplace practices that can adapt to different cultures and rituals.	Champions of Change DEI group, including Mana Wāhine (now Ngākau Hihiko).	Ongoing industry connection and knowledge sharing.
Strategic Goal 4: Partner with Māori.			
ACTIONS	DESCRIPTION	WHO AND HOW	PROGRESS TRACKING
4.1 Inspire Māori to enter the industry and thrive within it			
4.2 Develop cultural leadership			
4.3 Build partnerships			

APPENDIX B

Building energys talent pipeline - Progress report

In 2022 three strategic pillars were identified to guide workforce development across the energy sector. These pillars focus on attracting the future workforce, developing and supporting those already working in the sector, and collaborating with partners to ensure strong and aligned outcomes for Aotearoa.

The following work outlines a snapshot of the progress across each of these strategic areas of focus. There have been several significant political and other factors that have influenced priorities and activity, including government vocational reforms, workforce changes within oil and gas and large energy users, and wider pressures on the energy system due to declining gas supply.

Attraction

Significant progress has been made in strengthening the appeal of energy-related learning pathways and increasing engagement across communities. Key achievements include:

- A refreshed brand and dedicated website for STEMFest Taranaki was launched in 2024. Since 2022, more than 860 students have participated in the programme and gained first hand experience with STEM and energy concepts.
- A partnership established in 2025 with Pūhoro Trust STEMM for Mātauranga Māori. This led to the creation and delivery of a new Mātauranga Purau category at STEMFest Taranaki, strengthening cultural inclusion and elevating Māori knowledge systems.
- Commissioning of a new science provider through Venture Taranaki for STEMFest 2025, enhancing the quality of science learning experiences.
- Attendance at nine university careers days across New Zealand to promote the energy sector in its entirety, highlighting opportunities across electricity supply, energy resources, and emerging technologies.
- Establishment and management of the Women in Engineering Scholarship for Methanex New Zealand, supporting greater participation of women in engineering pathways and the wider energy sector.

Development

Progress has been made in building training pathways, resources, and workforce capability across the sector. Key areas of delivery include:

- Development of a Level 2 ENCHEM energy unit standard with Hanga Ara Rau as a resource for secondary schools, providing an early entry learning pathway with potential for future expansion under the proposed Energy and Infrastructure ISB.
- Revitalisation and delivery of the process operations training programme throughout 2023 to 2024, including sourcing a tutor and securing funding. Due to operator redundancies across the sector, delivery has been placed on hold for 2025.
- Redesign of the Fundamentals of Petroleum course into a broader Fundamentals of Energy programme covering the entire energy portfolio, delivered to university students and used for energy companies in house for onboarding new staff.
- Design and delivery of the Energy Summer Intern Programme in both Taranaki and Canterbury, providing interns with:
    - keynote leadership sessions
    - political and environmental insights
    - behind the scenes site tours
    - structured networking with industry and peers
    - and the very popular energy hackathon. This programme showcases the full energy value chain and supports both attraction and early career development.
- Initial development work on an electrical & Instrumentation training programme and an asset integrity competency framework. This work has been paused due to changing workforce needs across the energy resources sector.

Collaboration

Collaboration remains central to progressing sector wide workforce actions and ensuring alignment across industry, government, and regional organisations. Key outcomes include:

- Formation of a strategic partnership with the Electricity Engineers Association and MBIE to jointly progress workforce development research, planning, and implementation across the entire energy portfolio with particular reference to 2025 re-energise report and action plan.
- Development of a Women in Energy portfolio and strategy with contributions from Taranaki based companies. This work and the strategy alongside the initiative has been shared with Mana Wahine and Power Women to ensure alignment across diversity initiatives and prevent duplication, with plans underway to establish a Taranaki Women in Energy chapter.
- Delivery of more than ten submissions to government across 2024 and 2025, providing industry advice and influencing the design of the new vocational education system. This advocacy has successfully supported:
    - the name change to Energy and Infrastructure ISB
    - confirmation that the entire energy mix will sit within one industry skills board
    - strong support for WITT remaining a standalone regional provider to meet the training needs of Taranaki and the energy sector
- Ongoing collaboration with stakeholder partners including Venture Taranaki and Ara Ake to ensure sector needs are well represented as the education and training reforms progress.

APPENDIX C

Current government workforce development activities related to the energy sector

Provider	Activity
Tertiary Education Commission	Careers NZ website – resources for vocational advice, information and planning. This includes information on energy sector roles and qualifications. This will be replaced by Tahatū Career Navigator in December 2025.
	Tahatū Career Navigator – aims to provide information and tools about career possibilities, including energy careers. This will replace Careers NZ in December 2025.
Ministry for Social Development	Connected website - provides for information from the New Zealand Government about employment, education, training and business support.
	Financial support
	Apprenticeship Boost Initiative – a payment made to employers to help them keep and take on new apprentices. Targeted occupations include process and resources engineering, and electrical and electronic engineering and technology. TEC dictate the settings and funding. It includes some electrical and engineering approved qualifications.
	Flexi-wage – temporary wage subsidy to support employers to take on employees who do not meet entry level requirements. This can include assistance for short-term training, and in-work support. Around twenty Flexi-wage subsidised placements supported clients into the energy sector in FY 24/25. This received the Employment Assistance Evidence Catalogue (EAC)[1] rating of Effective.
	Mana in Mahi – matches employers with people who are interested in starting a career and need extra wrap-around on the job support. I provides wage subsidy and training pathway, including industry training qualifications and apprenticeships, as well as wrap-around services. Around ten Mana in Mahi subsidised placements supported clients into the energy sector in FY 24/25. This received the EAC rating of Effective.

[1] The measurement of effectiveness in the EAC is based on the impact of the intervention on one or more outcome domains (income, employment, justice, qualifications, study, welfare). A rating of Effective means that the intervention has a statistically significant positive impact on one or more outcome domain and no evidence of a negative impact on any outcome domain. Not all programmes are able to be rated using the EAC effectiveness measurement for various reasons such as being recently established, accessed by a large number of people, or too unique in nature and outcomes sought to be compared consistently.

Provider	Activity
	Work-related training
	Skills for Industry – entry-level training programmes to help people to get and keep jobs. The programmes usually include entry-level training, industry specific training, help to get a job, on-the-job training and help to get qualifications to advance in the industry. This can be targeted to emerging opportunities, and at local to national scale. Partnerships can be with energy sector employers. This received the EAC rating of Effective.
	Job brokerage and placement
	Employment Related Case Management – Case management to support participants directly into employment or towards interventions.
	Employment Placement or Assistance Initiative – Contracted interventions and career support to help participants into employment. Around twenty unsubsidised placements supported clients into the energy sector in FY 24/25. This received the EAC rating of Effective.
	Jobs and Skills Hubs – regional-based hubs focused on the construction and infrastructure industries. They support people to find training, apprenticeships and jobs, and supports employers to find skilled candidates/an extended hiring pool. These projects can have a minor or major focus on energy.
	Mayor's Taskforce for Jobs – MSD and Local Government NZ partnership. This is locally funded and is intended to be regionally responsive solutions for local people. It operates a range of initiatives including supporting pathways into trades training. It can be targeted where district councils identify energy as a growing sector.
Ministry of Business, Innovation and Employment	Tāwhia te Mana Research Fellowships – supports researchers at different career stages to produce impactful research and to develop into leaders in their fields, which can be related to energy.
	Regional Infrastructure Fund – The $1.2 billion Regional Infrastructure Fund (RIF) invests in regional infrastructure projects that boost regional growth, resilience and productivity. This includes building new infrastructure and improving existing structures to benefit regional businesses, organisations and communities.
Ministry of Education (funded)	Trades and Services Academies – partnerships with industry training and tertiary providers to provide blended learning opportunities for senior secondary students that align with a vocational pathway. Courses offered include engineering and construction.
	Māori and Pasifika Trades Training – fees-free pre-trades training for Māori and Pasifika people which can lead into electrical roles.
Waihanga Ara Rau	Ran a range of actions under the Re-Energise report and action plan.

Government strategies related to the energy sector

The current Government is aiming to both double New Zealand's renewable energy by 2050 and double the value of mineral exports to $3 billion by 2035. Recent government strategies (outlined below) aim to achieve these.

Activity	Release date	Summary
Hydrogen action plan[2]	November 2024	Outlines actions to unlock private investment in hydrogen. These aim to create an enabling regulatory environment, reduce barriers for consenting hydrogen projects, promote a cost-effective and market led transition to a low-emissions economy, and support access to international investment and markets.
A Minerals Strategy for New Zealand to 2040[3]	January 2025	Sets out the Government's vision, outcomes and objectives to double the value of mineral exports to $3 million by 2035.
Going for Growth[4]	February 2025	Sets out the Government's approach to make New Zealand's economy to grow faster. The combination of reforms aim to support: - increased capital investment by firms, supported by higher domestic savings and inbound overseas investment; - secure, affordable and abundant electricity supply; and - tax and regulatory settings that support greater competition in key sectors (including energy). Relevant actions include passing the Fast-track Approvals Act to speed up consenting for projects with significant regional or national benefits, introducing legislation to enable offshore renewable energy generation, reforming the Resource Management Act to simplify planning and consenting for infrastructure and energy projects, reforming the Public Works Act to make it easier to deliver infrastructure with public benefit, and facilitate City and Regional Deals that establish long-term agreements between central and local government to unlock funding and resource opportunities.

[2] Hydrogen Action Plan: November 2024
[3] 202501 A Minerals Strategy for New Zealand to 2040.pdf
[4] Going For Growth | Ministry of Business, Innovation & Employment

From the Ground Up: Draft strategy to unlock New Zealand's geothermal potential[5]	July 2025	This responds to the May 2025 Frontier Economics' Review of Electricity Market Performance and sets out the Government's vision, outcomes and action plan goals to double geothermal energy use by 2040. It proposes to improve access to geothermal data and insights, ensure regulatory and systems settings are fit for purpose, advance knowledge and uptake of geothermal technologies, enable place-based geothermal clusters, and drive science, research and innovation.
At a glance: New Zealand's Energy Package[6]	October 2025	Outlines the Government's plan to modernise New Zealand's energy and electricity system by investing in energy security and building stronger markets. Key relevant actions include delivering a Liquefied Natural Gas (LNG) import facility, and changes to the resource management system, the Fast Track approvals process and offshore wind legislation.
Wood Energy Strategy[7]	October 2025	Aiming to set out the vision, outcomes and objectives for enabling private investment in wood energy.

[5] From the Ground Up — A draft strategy to unlock New Zealand's geothermal potential
[6] At a Glance - New Zealand's Energy Package.pdf
[7] Wood Energy Strategy

The Regional Infrastructure Fund

The 2023 National and New Zealand First Coalition Agreement committed to establishing the $1.2 billion Regional Infrastructure Fund (RIF). The RIF is administered by the Regional Economic Development & Investment Unit (Kānoa) within the Ministry of Business, Innovation & Employment. The RIF is a capital fund, with investments being prioritised for a mix of loan and equity investments.

The RIF invests in regional infrastructure projects that boost regional growth, resilience and productivity. This includes building new infrastructure and improving existing structures to benefit regional businesses, organisations and communities. Below outlines the approved energy-related RIF projects.

Project	Region	RIF Funding	Funding Type	Planned Total FTE	Description
Northland Energy Bridge	Northland	$2.0m	Grant	3 (highly skilled)	To upgrade the transmission and distribution electricity network in Northland to improve energy resilience for Northland, Auckland and beyond.
Supercritical Geothermal	Waikato	$5.0m	Grant	30 (majority medium to highly skilled)	To construct the first of three deep supercritical geothermal exploration wells and prove the supercritical geothermal resource.
Rakiura Stewart Island Renewable Energy	Southland	$15.4m	Loan	16.5 (majority low to medium skilled)	To install renewable energy generation infrastructure to compliment current electricity supplied through diesel generators, to an alternative electricity source likely to include solar/wind generation and battery storage.
Onga Road Solar Farm	Hawkes Bay	$8.0m	Loan	116 (majority low to medium skilled)	A 35-hectare solar farm development, to generate up to 29.8MW primarily for the local Central Hawke's Bay electricity network.

Project	Region	RIF Funding	Funding Type	Planned Total FTE	Description
Te Kaha Microgrid Battery	Bay of Plenty	$4.75m	Loan	15 (majority medium to highly skilled)	To install a battery solution in Te Kaha to maximise the generation potential of the solar array under construction.
Te Kao Community Microgrid	Northland	$3.0m	Grant	40 (majority low to medium skilled)	To build a solar and wind powered microgrid connected to a community battery.
Waimamaku Community Solar	Northland	$1.35m	Grant	25 (majority low to medium skilled)	To construct and install solar power and batteries to Waimamaku.

APPENDIX D
Occupational grouping

The following section outlines the occupational groupings used for workforce data collection. These categories were developed to ensure consistency in how roles are classified across the sector and were endorsed by the Steering Groups. They align closely with the groupings used in both the Re-Energise 2022 report and the Building Energy's Talent Pipeline report, providing a coherent and comparable framework for analysing workforce data.

Occupational Group	Definition	Examples of Types of Roles
Planning / Engineering / Designer	Employees undertaking field and office-based engineering, planning, design, estimation, asset management, or strategic engineering functions. Activities could be network planning and design; Asset management; Strategic engineering projects; Estimation and feasibility assessments; Field and office engineering support.	Electrical Engineers Mechanical Engineers Environmental Engineers Chemical Engineers Chemical and Materials Engineers Process Engineers Reliability Engineers Civil Engineers (for tower and foundation design) Power Systems Engineers (for grid planning and stability analysis) Hosting Capacity and DER Integration Engineers Data Driven Distribution Planners Digital Twin Engineers / Modelers. Systems Engineers Network Design Engineers Protection Engineers Asset Integrity Engineers
Project / Contract Management	Employees responsible for managing contractor relationships, capital projects for electricity supply infrastructure, energy resources infrastructure and maintenance management including maintenance and upgrade programmes.	Any Project/Contract Manager Role Across Energy/Electricity Capital Projects Manager Engineering, Procurement, Construction Project Manager Drilling Project Manager Turnaround / Shutdown Project Manager Energy Storage Project Manager Grid Modernisation Manager Technology Deployment Manager

Occupational Group	Definition	Examples of Types of Roles
Technician / Technical	Undertake physical work on site, control systems, technicians, quality, integrity, programming, configuration, testing and commissioning of plant, communication or metering systems.	Instrumentation Technicians E&I Technicians Automation Technicians Lab Technicians PLC Techs Network Technicians SCADA Technicians Automation Engineers Protection Technician Metering Technician Wind Turbine Techs Solar Installers Electrolyser Techs Biomass Lab Techs
Operations / Controllers	Control room and, field operations, in production operations and control operate the network / plant assets. System monitoring and control of production plants. Fault response, load and network balancing.	Process Operator Field Operator Systems Operator / Controller Network Controller Panel Operator Boiler Operator Steam Operator Power Station Operator Plant Operator
Live Line Workers	Employees holding EWRB registration and organisational competency to undertake live low and high-voltage work.	Live Line Maintenance; Safety Procedures; Fault Restoration under live conditions
Trade / Mechanical	Employees performing physical work usually in electrical or mechanical trades. Work involves the install, repair, service of plant / machinery and undertaking physical work.	Electrician Electrical Fitter Mechanical Fitter Line Mechanic Cable Jointer Fabricator / Welder Boiler Maker Crane Operators
Health and Safety	Employees dedicated to health, safety, and wellbeing functions within the organisation undertaking Health and safety management; Compliance monitoring; Training and safety culture initiatives.	HSE Manager / Advisory Emergency Response Permit to Work Coordinator Occupational Nurse Compliance / Audit Specialist

Occupational Group	Definition	Examples of Types of Roles
Subsurface	Energy resources roles, that cover geo science, exploration, drilling, well maintenance, reservoir management, usually in oil and gas and geothermal companies.	Geologist Geophysicist Reservoir Engineer Geothermal Engineer Seismologist Drilling and Well Engineer
Other / Business Service	Roles that do not fit into the above groupings that provide business support to the company operations, including specialist or support positions.	Human Resources Energy Data Analysts ICT Cyber Security Communications Consumer Engagement Specialists Regulatory and Market Design Analysts Administration Accounting Stakeholder Engagement Legal

Image courtesy of OMV New Zealand

Electricity Engineers' Association

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