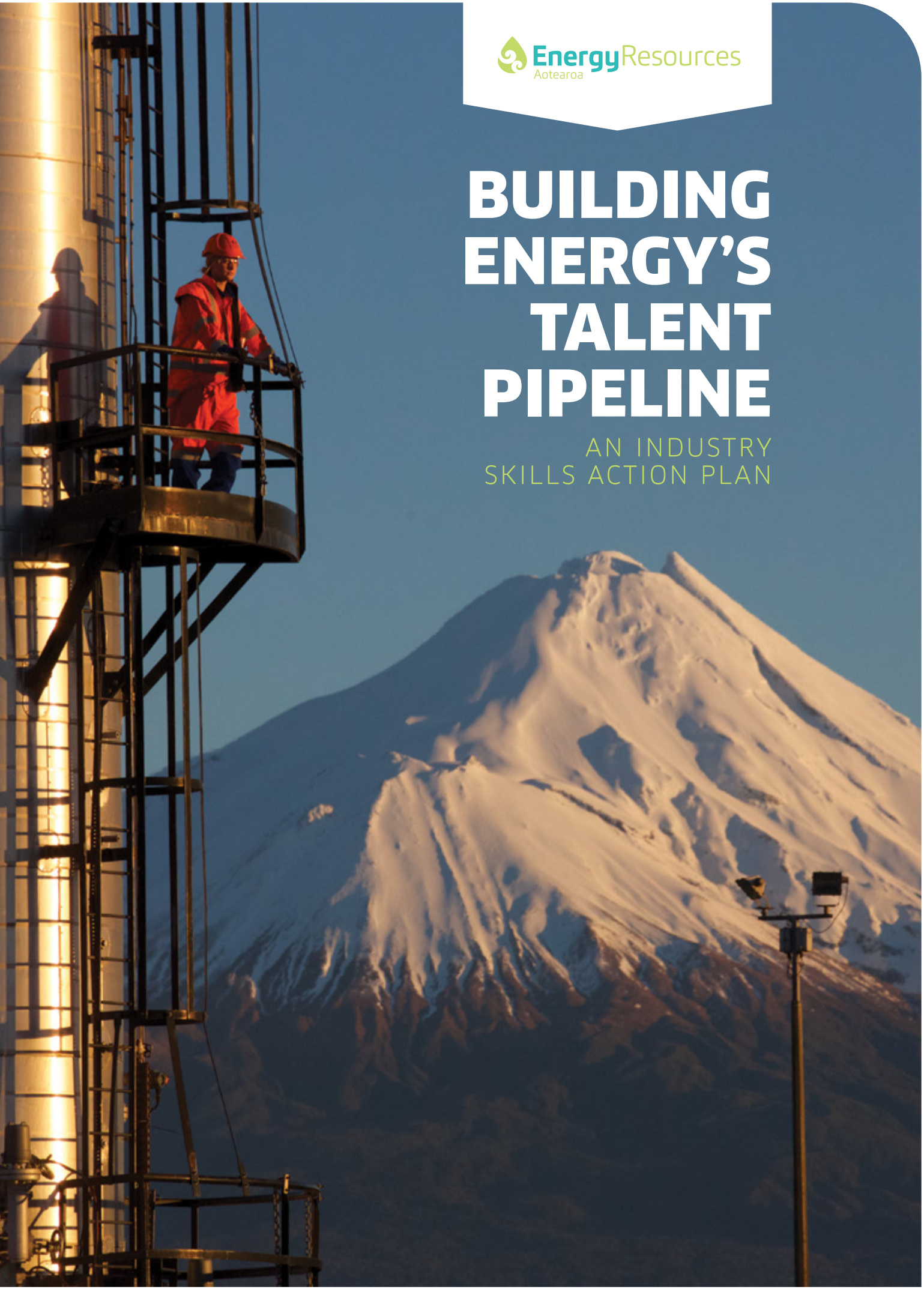

Energy Resources Aotearoa

BUILDING ENERGY'S TALENT PIPELINE

AN INDUSTRY SKILLS ACTION PLAN

CONTENTS


VICKY

1. FOREWORD

New Zealand is transitioning to a net zero carbon economy by 2050 and Energy Resources Aotearoa is committed to supporting this. As we move towards a lower emissions economy, the energy sector will have a large role in this transition to more renewable energy and emerging energy industries. An appropriately skilled workforce will be at the very heart of this.

The challenge is to not only meet the future skill needs of the emerging industry, but to also ensure the current highly skilled energy workforce is not left behind or disenfranchised.

It is important that our energy workforce is supported and challenged to meet the future skill needs of this emerging industry. This shall be done to ensure its current highly skilled workforce is retained, developed, and retrained for this future. This outcome will embody a just transition.

Therefore, Energy Resources Aotearoa and Te Pūkenga have partnered with industry and the Taranaki Regional Skills Leadership Group (RSLG) to conduct a review and develop this report. It presents an integrated and inclusive industrial skills action plan for the future energy workforce, both locally in Taranaki and across New Zealand.

Our goal is to create a successful and sustainable energy resources sector, through and beyond the transition to lower emissions. Energy Skills Aotearoa is now an integral part of our organisation and future story and has been developing skills for New Zealand's energy industry since 2010.

Energy Resources members have proudly delivered secure and affordable energy for New Zealand for over 50 years and will continue to do so through innovation, new technologies and investing in and developing emerging energy. In recent years we have collectively managed some big changes and challenges in New Zealand's labour market, particularly for our sector but the best is yet to come.

More is ahead of us. We are in a very different world. While we face some of the same challenges we have always had, such as resourcing for specialised roles in a small market and creating STEM talent pathways, we also face new challenges in this upcoming energy. Many of these are common around the world, for example:

- labour force volatility;
- the "Great Resignation";
- skills shortages;
- a highly competitive international labour market, particularly now that borders around the world have re-opened; and
- the need to transition into a lower emissions economy and build the workforce to enable this journey.

The multi-faceted, inter-related, and complex nature of the issues we now face as a sector, calls for collective action across and between everyone with an interest in the workforce. This report is a call to action for those with such an interest. Come and join us in shaping tomorrow's workforce, today.

And while an important steppingstone, along with the recent work of the RSLG, the work is just beginning. We will continue to work with industry, the RSLG and other stakeholders to implement the plan and monitor its outcomes.

Finally, we wish to acknowledge the engagement of everyone we have consulted and spoken to and the work of everyone involved with the development of the report, especially the Project Manager, Sheree Long.

John Carnegie
CEO Energy Resources Aotearoa

Warwick Quinn
DCE Employer Journey and Experience
Te Pūkenga

Energy Resources Aotearoa

Te Pūkenga

September 2022

2. PURPOSE AND SCOPE OF THIS REPORT

This report sets out an industry skills action plan for our energy sector. It recognises the transformational change the global energy sector is undertaking in response to climate change. It also identifies the key barriers, gaps, and opportunities that arise for the energy workforce and lays out an ambitious plan to address them.

It is an integrated and inclusive plan that covers both the renewable and non-renewable energy sectors.

This reflects Taranaki's enviable position as a province rich in energy resources and recognises the transferability of skills from one energy resource to another. Taranaki enjoys a deep pool of capability and capacity in the energy sector. With effective planning and implementation, it should place well in continuing delivering the energy we need today while preparing to deliver the energy mix that we use in the future.

The report and the research that underpins it focused on the implications of the energy transition for Taranaki's energy workforce. However, we believe our insights are more broadly applicable across New Zealand as we pursue a just transition for the industry's talent.

We welcome the chance to share our experience with other regional bodies, and to explore opportunities for greater inter-regional and national collaboration. This will help us address the barriers, gaps, and opportunities we see in this space.

The report proceeds as follows:

- **Section 3** provides an overview and executive summary.
- **Section 4** reports our findings at a high level. This provides a snapshot before the more detailed information that follows; laying out the energy sector context, the need for integrated and inclusive planning to help the sector attract and develop the skilled workforce it needs.
- **Section 5** provides an overview and stocktake of existing education and training activity in the energy sector.
- **Section 6** details our approach to the research project, the barriers, gaps, and opportunities we identified in this exercise.
- **Section 7** presents our key findings and basis for proposed recommendations.
- **Section 8** outlines the Energy Industry Skills Action Plan, which seeks to address the barriers, gaps, and opportunities outlined in section 6.

3. EXECUTIVE SUMMARY

1. New Zealand's energy workforce is high-quality, and highly transferable

The current workforce and its skills are high quality and transferable. 90% of existing skills/roles can be transferred into new emerging energy projects.

The transferability of skills together with difficulties attracting new people to oil and gas, will mean challenges for current operators to retain people to operate through transition and safe decommissioning.

There is an opportunity to provide a stronger value proposition for this transferability. High quality resilience education is needed to support personal value assessment and retention through transition.

2. The global energy sector is changing, which brings new challenges and opportunities for the energy workforce

We must maintain, support, grow and develop a highly skilled niche workforce in the face of unprecedented labour shortages and changing workforce expectations. This is just a challenge in our workforce that we can combat into an opportunity.

There remains a high reliance on importing resources from outside New Zealand along with a large low employee / high contractor or outsourced model. Anecdotal evidence of this does not support investment in developing new talent within either the operators or the supporting contractor market.

3. Work is already underway to address these challenges and opportunities

There are a variety of initiatives underway across the energy sector to help build the future workforce. The tertiary sector is adapting to the energy transition and developing a new energy curriculum.

4. This Energy Industry Skills Action Plan builds on existing activity to ensure we attract and develop talent with effective collaboration being critical to its success

Based on our research we have identified three strategic goals and thirteen key objectives. Within each objective are several actionable item recommendations to be implemented by various lead organisations and partners *(see section 8 for the detailed action plan and recommendations).*

Strategic Goal 1

ATTRACTION

Attract our future workforce through sustainable values, messaging and diversity.

1. Inspire tamariki and rangatahi future talent into energy by engaging with schools, kura and wānanga.
2. Create gainful employment pathways for Māori into the Energy Sector.
3. Create desirable pathways to encourage more women into the sector.
4. Accelerate future energy opportunities to attract talent from New Zealand universities.
5. Facilitate the development of career pathway information materials for wider communities that are interested in a career in the energy sector.

Strategic Goal 2

DEVELOPMENT

Develop a future workforce whilst supporting the existing workforce to transition to a low emissions economy via investment and support through training and development.

1. To keep and excite our existing workforce to stay and be part of New Zealand's energy transition.
2. Identify supply and demand for training programmes for the sector and develop and support new training initiatives alongside training providers.
3. Support new apprenticeship and entry level pathways into industry.
4. Maximise opportunities for local employment in future energy projects (lifecycle from build new to decommission).

Strategic Goal 3

COLLABORATION

Collaborate to form strong and purposeful partnerships between industry, stakeholders and government to develop diverse skill and workforce opportunities.

1. Support the Western Institute of Technology at Taranaki and its quest towards becoming a training centre of excellence for Energy.
2. Build partnerships with appropriate organisations to better understand the current workforce (Iwi, local government, stakeholders, economic development agencies, training providers etc.).
3. Provide opportunities to grow diversity within the sector through industry/government/stakeholder collaboration.
4. Continue to collaboratively build a better understanding and evidence of future skill needs to support New Zealand’s transition to a low emissions economy.

4. CONTEXT

4.1 Introduction

The energy sector will play a key role as New Zealand moves towards a lower emissions economy. The industry will be key to developing and delivering this change while continuing to safely deliver affordable and reliable energy through the transition. Doing so requires a skilled workforce with the capability to meet current requirements while also developing in anticipation of future needs. This includes the emerging 'new energy' industries, such as hydrogen and offshore wind. The sector will need to ensure its workforce is resilient to the volatility and change that may be ahead to secure a just transition for the workers and the communities they support.

While we expect the labour market will primarily resolve these issues as the future workforce develops, we also believe that industry and government coordination will be required. An integrated, inclusive plan (reflecting both incumbent and 'new' energy resources) will help to build, maintain, and develop a workforce and labour market that underpins a thriving energy sector.

The Taranaki region is perfectly positioned to lead in this effort. In 2021 a large group of industry stakeholders unanimously agreed that an 'Industry Skills Action Plan' be developed for the broader energy sector.

This report, delivered by Energy Resources Aotearoa, seeks to seize that opportunity. Our work has been supported by Te Pūkenga and a wider Skills Governance Board and Working Group, representing a wide range of key stakeholders. This work has been conducted in close collaboration with the Taranaki Regional Skills Leadership Group, industry, and local stakeholders.

4.2 New Zealand's energy sector is in transition

New Zealand is committed to reaching net zero emissions by 2050

New Zealand's policy environment reflects the government's objective of transitioning to net zero carbon emissions by 2050.

Whilst also building a more productive, sustainable, and inclusive economy.

A national energy strategy is being developed to support the transition and is planned to be published by end 2024. While considerable policy uncertainty remains, (at least until this work is concluded) the low-emissions transition is happening now, and the sector needs to respond.

Taranaki's energy sector will change as we transition to a low-emissions economy, but the pace and timing is uncertain

The Ministry of Business, Innovation and Employment (MBIE's) Energy in New Zealand 2021 summary reported that:[1]

- natural gas production is expected to increase to a peak in 2024 and to decline thereafter (albeit with a long tail over decades);
- oil production is expected to decline from 2021;
- exploration activities continued to decline in 2021, with the total number of petroleum exploration and mining permits total approximately 45 in 2020, down from a high of >80 in 2014;
- this consolidation/reduction in exploration and mining permits is reflected in a smaller number of employees in the sector compared to 2010 and 2012 (as the number of market participants has declined); and
- renewable energies (solar panels, hydrogen, geo-thermal, wind etc) are expected to continue growing in response to rising electricity demand.

While a decline in volumes over time is expected for the natural gas and oil sectors, the speed and timing of this decline remains uncertain. This is subject to many factors, including policy and market settings, as well as the speed of the low-emissions transition in New Zealand. It is important to note that almost all stakeholders (including the Climate Change Commission) see a role for natural gas through to 2050.

The BusinessNZ Energy Council's (BEC) 2060 report developed two scenarios for New Zealand's energy future.[2] Both scenarios show a transition away from fossil fuels, but the timing of the change varies through 2030-2040.

Likewise, Energy Resources Aotearoa's recent report 'Fuelling the Energy Transition', showed a range of credible scenarios – all consistent with net zero emissions by 2050, with different trajectories for natural gas supply and demand.

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1 New Zealand Government. (2022, August 18). *Energy in New Zealand*. Ministry of Business, Innovation & Employment. https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-statistics-and-modelling/energy-publications-and-technical-papers/energy-in-new-zealand/

2 Business NZ Energy Council. (2019). *New Zealand energy scenarios - Navigating our flight path to 2060*. BEC2060. https://www.bec2060.org.nz/

4.3 The energy transition will significantly affect workforces

Global perspective

The International Energy Agency (IEA) encourages people-centric transitions (referred to in New Zealand as the just transition). It finds that clean energy will improve livelihoods for workers in the sector as well as for society: "Clean energy will generate new jobs, sometimes in different places, many will suit existing workers in energy although investment in re-training re-tooling will be required".[3] Achieving this transition smoothly will require effective collaboration between governments, industry, workforces, and the wider society.

The move away from fossil fuels requires significant infrastructure and technology changes. The energy workforce will need to 'bridge' these changes by continuing to service and support incumbent infrastructure and technologies, as they are progressively decommissioned, while simultaneously building the skills (whether repurposed or new) to support emerging infrastructure and technologies. These innovations might involve increasing layers of complexity, including remote operation and automation.

This process carries risks of disruptive corrections, and the negative impacts of a disorderly transition on workers and their communities.

The International Labour Organisation predicts a slow and uncertain recovery from the continuing impact of the COVID pandemic and the Ukraine war, with global divergence in recovery patterns. Recovery is expected to be earlier and stronger in higher income populations (e.g., Europe, North America, Australasia, UK). In these areas, unemployment is structurally low. Turnover and attrition are higher post pandemic and retaining, replacing, and recruiting talent is difficult.

Employees' top priorities post pandemic have changed. According to a 2022 McKinsey study for the World Economic Forum these are now work life balance, flexible work, and mental health.[4]

New Zealand is facing the same challenges

The StatsNZ Labour Market statistics issued March 2022 reports unemployment at historical low rates for New Zealand and corresponding improvements in employment levels in the two years since March 2020.[5] Similarly, a National Survey of Employment Intentions (NSEI) issued by MBIE in 2020 and updated in 2022 confirms increases in intent to hire and acknowledge shortages particularly tradespeople, labourers, and process workers.[6]

Employers anticipate difficulties to attract and hire new staff reporting that the skills most sought in staff were firstly personal qualities (e.g., reliable & honest, willing to learn, flexible, and personable).

All participants interviewed for this review report and industry skills action plan:

- had vacancies and opportunities in their organisations exceeding average or normal turnover; and
- shared difficulties in attracting quality new talent across most employment groups.

Most vacancies are in core skill employment categories (trades and graduate qualifications). New energy participants that are still generally in start-up or development phase, have relatively small employee numbers and plan to rely on contractors initially.

Participants in the oil and gas sector acknowledge that some skills (sub-surface, well or drilling) have always been difficult to resource locally and that is not expected to change.

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3 *Our inclusive energy future – Programmes.* (2022). IEA. https://www.iea.org/programmes/our-inclusive-energy-future

4 McKinsey. (2022). *McKinsey and the world economic forum.* McKinsey & Company. https://www.mckinsey.com/featured-insights/world-economic-forum/overview

5 Home | Stats NZ. (2022, May 4). *Labour market statistics: March 2022 quarter | Stats NZ.* https://www.stats.govt.nz/information-releases/labour-market-statistics-march-2022-quarter

6 Ministry of Business, Innovation & Employment. (2022, June 10). *NSEI final report.* https://www.mbie.govt.nz/business-and-employment/employment-and-skills/labour-market-reports-data-and-analysis/national-survey-of-employment-intentions/nsei-final-report/

4.4 New Zealand's energy workforce

The energy sector has attracted a highly skilled and multi-cultural workforce to the Taranaki region. This workforce provides the skills, expertise, and access to global resources we need to deliver affordable and reliable energy for New Zealand's households and firms, while also providing the foundations for the new energy sector and businesses.

As of 2022, approximately 7,340 people are employed through the energy sector. This represents over 10% of the Taranaki workforce.[7]

Of this, 2,150 are employed in upstream activities, such as exploration, drilling, production, processing, engineering, and maintenance. Many people are employed by large downstream customers of gas, including at least 420 people in methanol, fertiliser, and fibre-based packaging.

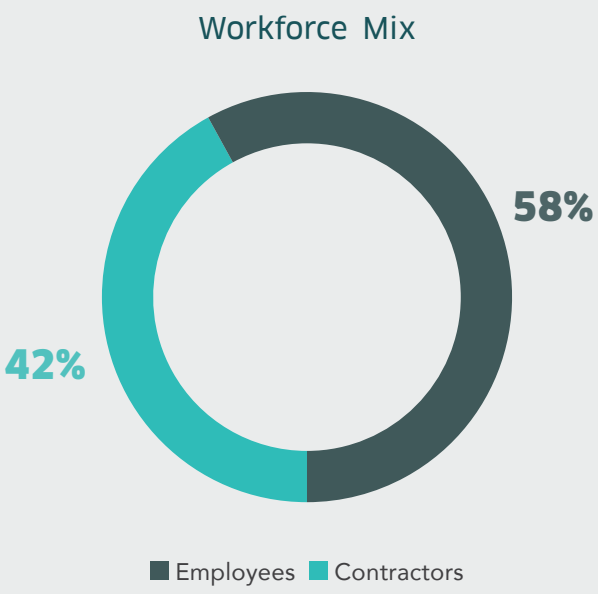
A further 1,400 people supply the industry. Including logistics, specialist services, general suppliers, and professional services personnel.

Energy Resources Aotearoa's 2022 workforce survey

Energy Resources Aotearoa undertook an interview-based survey in 2022 encompassing existing and emerging activities. This survey workforce data includes circa 3,300 people directly employed and a specialist service sector of a further 2,500, all based primarily in the Taranaki region.

Definitions of employees and contractors vary, but indicatively the industry comprises 60% employees and 40% specialist service sector / contractors (see Exhibit 1 below).

Exhibit 1: Taranaki's energy sector workforce mix



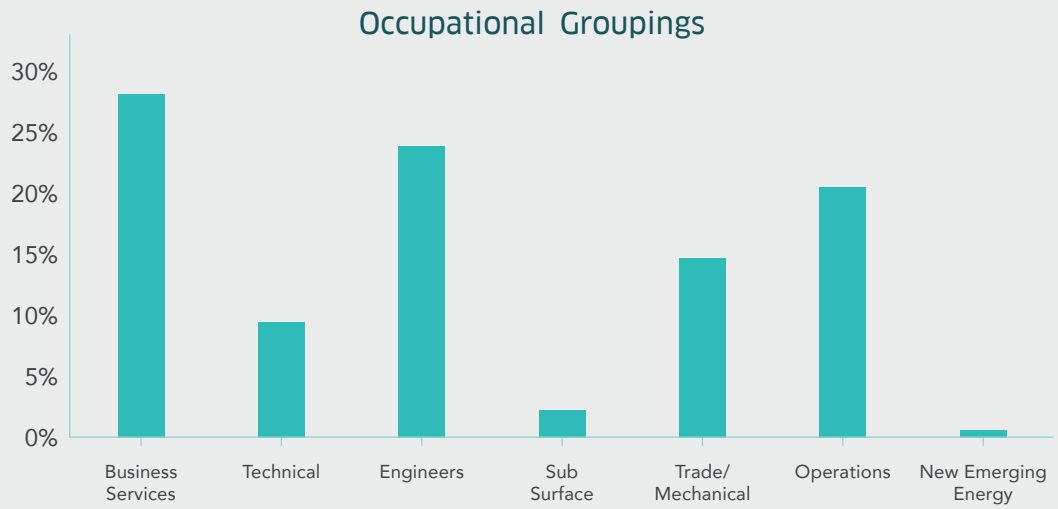
Integration and co-dependence between employees and contractors in the sector provide flexibility and responsiveness. However, this model comes with limitations for the development of people and skills. Demand tends to be based on short term requirements and is not widely supporting investment in new recruits and their training or on the job development.

[7] Ministry of Business Innovation and Employment. (2022). *Māori labour market statistics snapshot - March 2022*. https://www.mbie.govt.nz/dmsdocument/20217-maori-labour-market-statistics-snapshot-march-2022

Occupational groupings

The largest occupational grouping is in business services followed closely by engineers and operations. New energy is still relatively small (but growing). Please refer to appendix 1 for definitions of occupational groupings. See Exhibit 2 below.

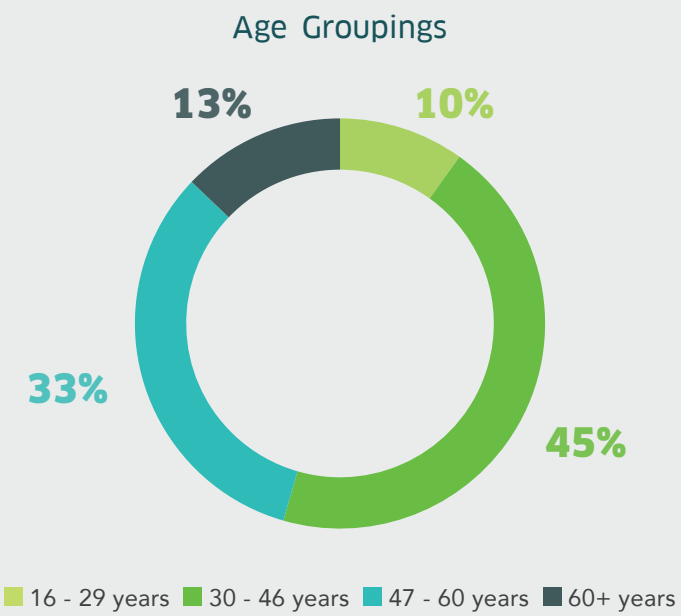
Exhibit 2: Occupational mix



Workforce demographics

Our 2022 survey indicates the age demographics of the workforce are as follows (see Exhibit 3).

Exhibit 3: Age split of the workforce in 2022



This age split is roughly comparable with 2012, with a small ageing trend evident across this ten-year period (see Exhibit 4). This reflects that, while the share of workers over 60 is roughly in line with New Zealand's population, it is not balanced with intake of younger workers. It is important to note that Venture Taranaki's data reports the age group of 16-29 represents 16.7% of the population, so therefore the 10% of the 16-29 years group used in this skills survey is relative to the overall Taranaki population data.

Exhibit 4: Age split in 2022 compared to 2012

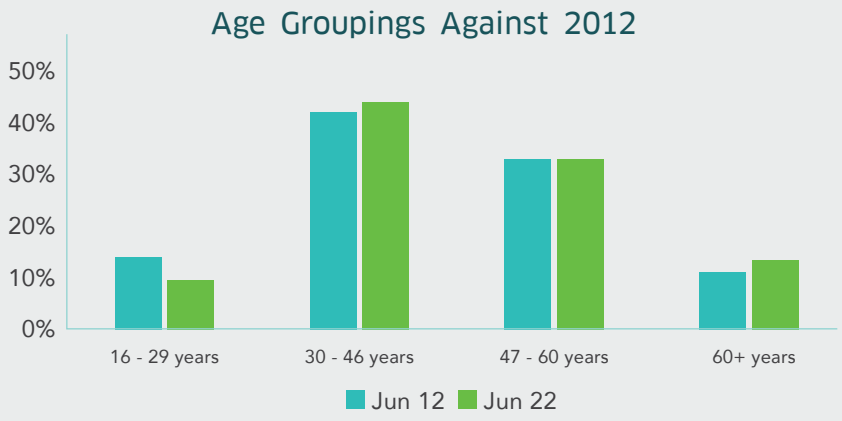
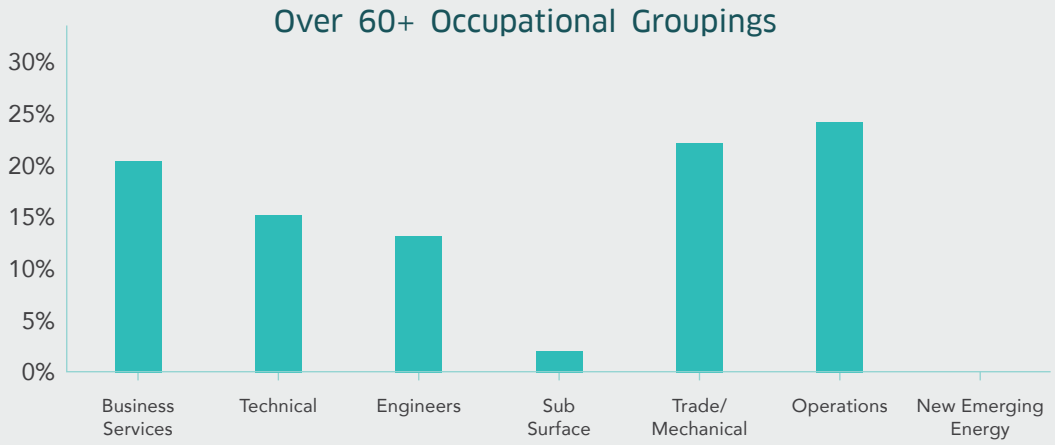


Exhibit 5: Occupational grouping for workers over 60



We received feedback from industry that it continues to be difficult to attract young people into the industry, particularly graduates or employees seeking a first career step.

Exhibit 5 shows the occupational split among workers over 60 years.

Gender representation in the workforce remains heavily skewed to male (outside of business services). There have been small trends toward greater female representation in operations and trade/mechanical since 2012, which has been a focus of the Process Operations Scheme governed by Energy Resources Aotearoa and delivered by the Western Institute of Technology at Taranaki (WITT). Exhibit 6 shows occupational groupings in the sector by gender.

Exhibit 6: Occupational grouping by gender in 2022

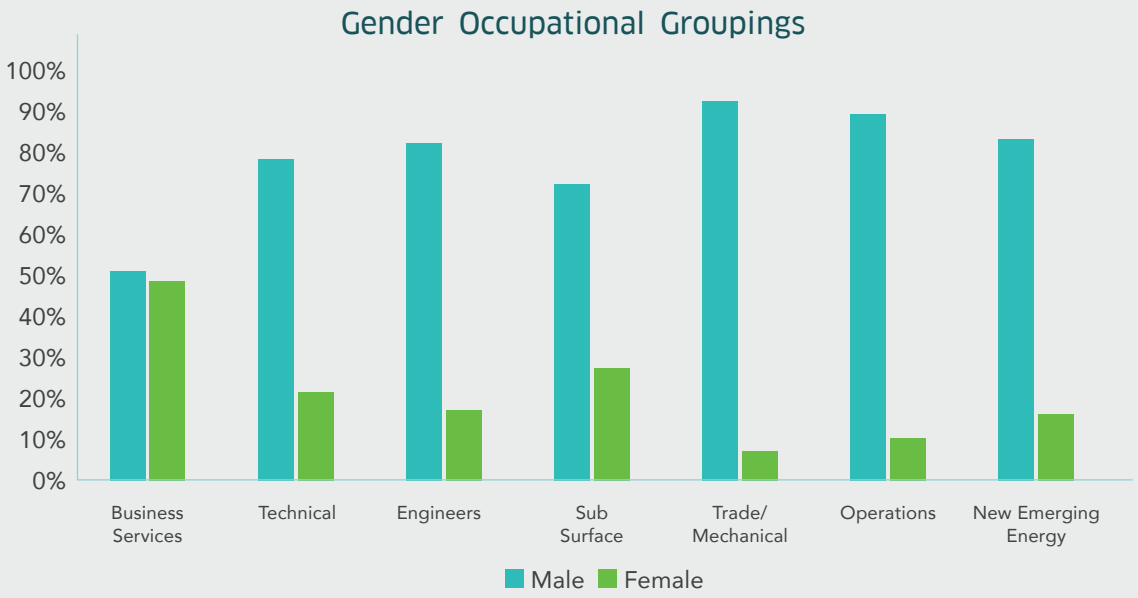
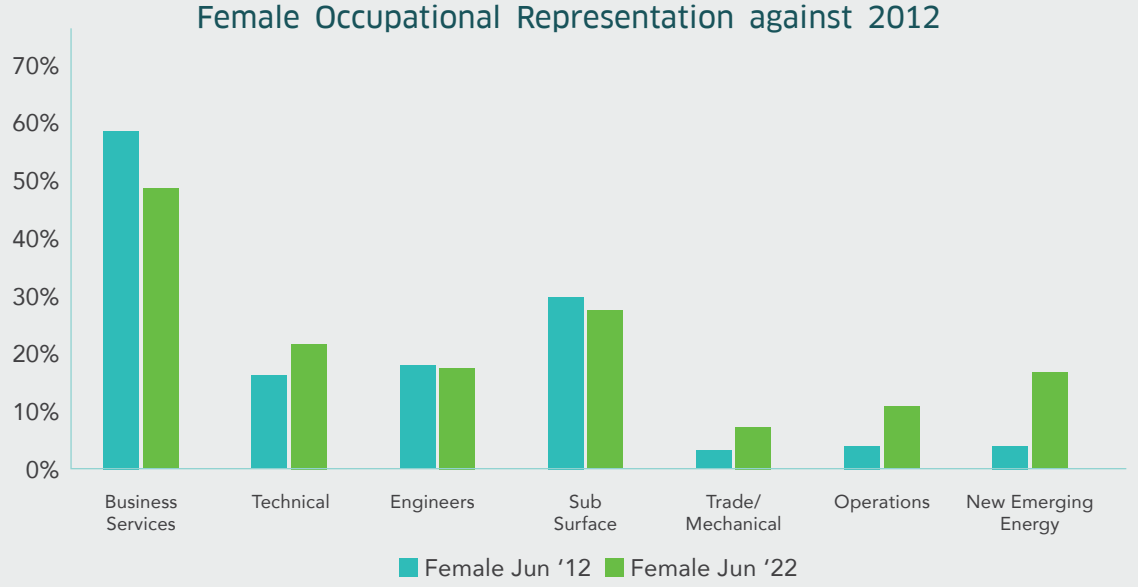


Exhibit 7: Occupational grouping by gender in 2022 compared to 2012



Other diversity characteristics (particularly ethnic representation) are not readily available. We were told anecdotally that Māori representation in the sector is relatively low.

Vacancies

The majority of those interviewed reported a concerning level of turnover and higher number of vacancies than desired. This is in common with all other employers in the 2022 post-COVID economy. This also reflects systemic issues in energy with difficulties hiring new employees into the industry and the loss of people to other sectors because of uncertainty around the future of energy.

Exhibit 8: Staffing vacancies in June 2022

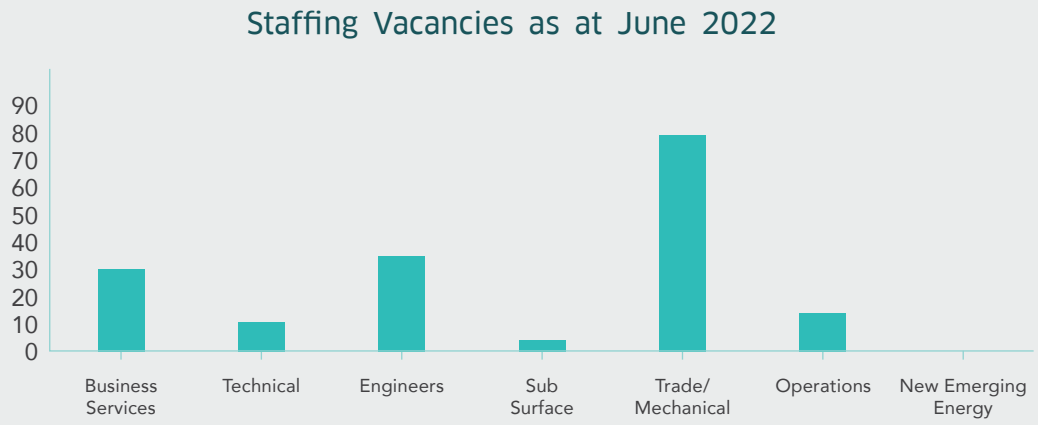
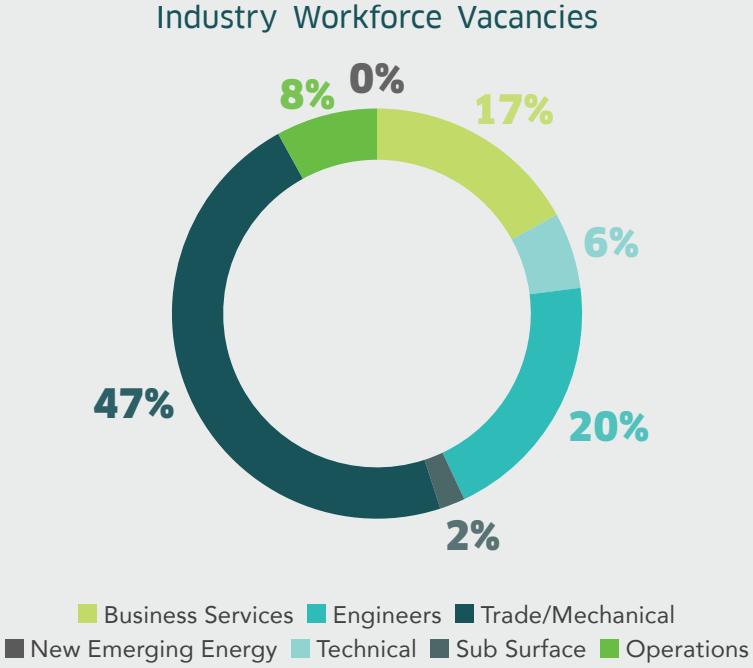


Exhibit 9: Staffing vacancies in June 2022 as % of occupational grouping



Immigration

The energy sector continues to rely on imported talent. New Zealand's population and universities do not produce science, technology, engineering, and mathematics (STEM) graduates in numbers that meet demand. Attracting these graduates into the energy sector continues to be challenging.

The New Zealand energy industry is relatively small, and projects which require specialist skills are cyclical. This exacerbates these challenges and offshore talent tends to support these short-term spikes in demand. In the past decade, skills shortages in other technical energy areas have seen a further increase in reliance on importing talent. This is consistent with the observation earlier in this report that the 'Outsourcing' model does not always produce talent over time but there is still demand.

All businesses are concerned at further loss of talent and increasing difficulties attracting talent, as other markets and borders reopen offering attractive employment opportunities.

Transferability of the current workforce

Based on feedback from organisations operating or planning to develop new energies there is a very high commonality of skills across the sector. All respondents require more suitably qualified experienced people than the market can provide in 2022.

OCCUPATIONAL GROUPINGS	INCLUDES	% OF EMPLOYEES	TRANSFERABLE SKILLS Y/N	SKILLS USED IN NEW ENERGY?	COMMENTS
Business Services	HSSE, Legal & Regulatory, HR, L&D, Finance, Logistics, Commercial, Admin	28	Yes - readily	Yes	Common in Industry
Operations	Production, operations, product accounting, optimisation	20	Yes - readily with site and organisation specific onboarding	Yes	Precedent in businesses operating for e.g. Gas and solar facilities
Energy Engineers	Develop, enhance, decommission - design, plan, manage, construct, maintain, quality	24	Yes - readily as above	Yes	
Sub Surface	Geo science, explorers, drilling, well maintenance, reservoir manage	3	No - roles not replicated, but qualifications are generic	Limited e.g. geothermal. Core qualifications are transferable	% may be understated - some in operations
Technical	Control systems, technicians, quality, integrity	12	Yes - readily as above	Yes	Very similar
Trade Mechanical	Install, repair, service	12	Yes - readily as above	Yes	
New Energy	Hydrogen, turbine, solar industry / equipment specialists	1	NA	NA	NA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5. STOCKTAKE OF EXISTING ACTIVITY

5.1 Reform of Vocational Education

In February 2019, the Government began a Reform of Vocational Education (RoVE). The Reform proposed that New Zealand will end up with a strong, unified, and sustainable vocational education system fit for future work. Whilst delivering the skills that learners, employers and communities need to thrive. These are the biggest reforms of New Zealand's Vocational Education system in 30 years.

The seven key changes included:

- creation of six Workforce Development Councils (WDCs) to assume responsibility for skills leadership and standard setting;
- establishing Regional Skills Leadership Groups (RSLGs) to provide advice on the skills needs of their regions;
- establishing Te Taumata Aronui to ensure that the Reform of Vocational Education reflects the Government's commitment to Māori Crown partnerships;
- creating the New Zealand Institute of Skills and Technology (Te Pūkenga). This is a unified, sustainable, public network of regionally accessible vocational education, bringing together the 16 Institutes of Technology and Polytechnics (ITPs);
- transferring the role of supporting workplace learning from ITOs to the provider network;
- establishing Centres of Vocational Excellence (CoVEs) to grow excellent vocational education provision and share high-quality curriculum and programme design across the system; and
- unifying the vocational education funding system.

Regional Skills Leadership Groups

Regional Skill Leadership Groups (RSLGs) are part of a joined-up approach to labour market planning that will see our workforce, education and immigration systems working together to better meet the differing skills needs across the country. Their work is complemented by other initiatives targeting population groups, sectors and regional economic development, including the Government's Employment Strategy and Employment Action Plans, Industry Transformation Plans and identification of Regional Economic Priorities. RSLGs also sit as part of the Reform of Vocational Education (RoVE) and work closely with the six Workforce Development Councils.

RSLGs have a broad, well-connected membership of regional leaders. They provide a regional voice on workforce issues that is grounded in local knowledge, experience and insights. RSLGs focus on addressing current and future regional workforce opportunities and challenges at a regional level wherever possible. The groups are supported by a secretariat of analysts, advisors and workforce specialists provided by the Ministry of Business, Innovation and Employment (MBIE). The MBIE secretariat works with other government agencies to support the RSLGs.

Taranaki RSLG is one of 15 RSLGs that are independent advisory groups that are locally based and regionally led. They identify and support better ways to meet future skills and workforce needs in their region, both now and in the future, and advise on actions to address these. This report has been conducted in close consultation with the Taranaki Regional Skills Leadership Group. The Taranaki RSLG launched its first tranche of the Taranaki Regional Workforce Plan in July 2022, which focused on food, fibre and whenua and energy sectors. The plan recommends ten actions specifically for energy, some of which are via a collaboration between Energy Resources and the RSLG. Taranaki RSLG look forward to working in collaboration as they move forward into the phase of progressing the action items whilst moving into tranche 2.

Role of Workforce Development Councils[8]:

Six Workforce Development Councils (WDCs) were established on 4 October 2021 through ROVE. The role of the WDCs is to ensure the vocational education system meets industry needs and gives a stronger voice to Māori business and iwi development. WDCs are tasked to set standards, develop qualifications, and help shape the curriculum of vocational education. The WDC's will consider recommendations from respective RSLG's to inform their development of qualifications.

Centres of Vocational Excellence:

On the 3rd of September 2020 the education minister announced two Centres of Vocational Excellence (COVEs) had been confirmed. Including one for the Primary Sector and one for Construction. The strategy behind the establishment of COVE's were to bring together industry, researchers, tertiary providers, iwi and other groups to work on specific issues and opportunities each sector has identified and to develop solutions for training and education.

Western Institute of Technology at Taranaki

The Western Institute of Technology at Taranaki (WITT) expressed its interest in establishing a COVE for the energy sector. This initiative has the full support of the region's stakeholders, along with industry consensus that the centre should be established in the Taranaki region.

Despite the EOI, WITT has been advised by the Tertiary Education Commission there is currently no requirement or opportunity to submit an ROI as there is no Energy CoVE in mention, nor have they released any further funding for new CoVE's.

WITT now sits within Te Pūkenga and has been working towards advancing its training for the current and emerging energy industry.

They have recently signed two Agreements with New Zealand Universities:

- Victoria University of Wellington to provide a collaborative BE in the university's Faculty of Engineering. Te Herenga Waka will provide pathways for BEngTech and DipIT students at WITT to further study for degrees at VUW; and
- University of Canterbury (UC) for a joint appointment. This role will include research, course development and teaching. Aligned with the civil, mechanical, or other engineering areas of interest that will benefit the energy sector.

[8] New Zealand Ministry of Education. (2022, March 11). *Workforce development councils.* Tertiary Education Commission. https://www.tec.govt.nz/rove/workforce-development-councils/

5.2 Energy Specific Training Programmes

Another new development is in the fields of Energy Micro credentials where WITT has had NZQA approved delivery of new solar training with TEC funding approved.

WITT has until recent years delivered a very successful industry partnership programme in process operations training with 30% of this training based in the classroom and 70% in company work placement. This programme has an industry governance board and is a viable model for re-development to incorporate micro credential training in both the current energy industry along with new emerging energy. WITT is working with Energy Resources Aotearoa and industry to re-develop the programme for a 2023 delivery.

Universities

New Zealand's Universities have developed and provided new sustainable energy transition programmes in the period since our last review.

Degree Programmes Currently Offered by New Zealand Universities - 2010 and 2022

✓ **2010 & 2022** ✓ **2022 (added since 2010)**

	AUCKLAND	AUT	CANTERBURY	MASSEY	OTAGO	VICTORIA	WAIKATO
ENGINEERING							
Civil	✓	✓	✓	✓	✓		✓
Mechanical	✓	✓	✓	✓	✓		✓
Electrical (Electronic & Software)	✓	✓	✓	✓		✓	✓
Chemical (process)	✓		✓	✓			✓
Materials	✓	✓					✓
Computer Science & Info	✓	✓	✓	✓		✓	✓
Management	✓		✓				✓
Eng. Science	✓						
Eng. Technology		✓		✓	✓		
Mechatronics	✓		✓	✓			✓
Software Engineering	✓	✓	✓	✓	✓	✓	
Natural Resources Eng.			✓				✓
EARTH SCIENCES							
Geology	✓		✓		✓	✓	✓
Geophysics	✓					✓	
SUSTAINABLE TRANSITION ENERGY							
Research	✓					✓	
Sustainable Energy Transition			✓				
Energy Science Tech / Management					✓	✓	

Targeted Training and Apprenticeships Fund and Apprenticeships Boost:

The Targeted Training and Apprenticeship Fund (TTAF) supports learners to undertake vocational education and training without fees from 1 July 2020 until 31 December 2022. This is to enable Tertiary Training Organisations to provide education and training without fees to learners. This covers a range of training and apprenticeship programmes at sub degree level targeted towards industry skill needs where demand from employers for these skills will continue to be strong or is expected to grow during New Zealand's recovery period from the impacts of COVID-19. All apprenticeships, targeted Level 3-7 sub-degree programmes and industry training in targeted areas will be funded and provided.

Apprenticeship Boost is a payment to help employers keep or take on new apprentices. It is designed to keep apprentices earning and training as the economy recovers from the impacts of COVID-19. It is a payment of $500 per month, paid directly to employers, and the scheme has been extended through to end December 2023.

WITT has advised that uptake of apprenticeship related vocational training has remained at a relatively low level and the programmes above have not resulted in any obvious increase in enrolments.

Local Taranaki Training or Learning Providers

The following table outlines regularly used providers of trade, vocational, energy specific operational training and learning referenced in survey response data:

PROVIDER	TRAINING
WITT, Competenz, Skills ITO	Apprenticeship training, process operator course
Primary Industry Training Organisation	Enchem and boiler operations.
Wood Group Training NP, Vertical Horizonz, Safety n Action, BeSafe, EMCS	HSSE, Emergency response and management, Fire Fighting, gas testing, confined spaces, offshore emergency escape, etc
ProMed, Red Cross	First Aid
MasterDrive / AA	Driver training
AB Equipment	Equipment Training
MIT SLOAN	Simulator training

5.3 Current energy workforce development activities

PROVIDER	ACTIVITIES
Copenhagen (Offshore wind farming company)	Industry capability mapping work package to provide outlook into training and employment opportunities offered by nascent offshore wind industry in Taranaki and wider New Zealand. This is due to commence in September 2022.
Electrical Engineers Association	Workforce Development Strategy – published early 2022, a research project that supports Government objectives to meet growing sustainable energy demands.
Energy Academy	Investigative work on competency mapping between NZQA and industry.
Energy Resources Aotearoa	Facilitates a Process Operations Programme with WITT. Represents the energy sector at university and careers fairs. Manages internships and scholarships on behalf of its sector members. Delivers an annual grassroots STEM fair for primary schools. Offers and deliver an Introduction to Energy programme, currently delivered to new sector entrants and government officials.
Evolocity	Administers a programme wherein secondary students design, build, and compete in electric vehicles.
House of Science	'Empowering Teachers to Raise Scientific Literacy', provides science resources. User pays model where schools or sponsors purchase the resources.
NanoGirl Labs.	Programmes, events (labs) to encourage young people into science. Provides resources free into schools for teachers to access.
New Zealand Government	MBIE provides the Curious Minds projects and programmes that work with communities, businesses, and educators to boost engagement with science and technology. Careers NZ provides a website and resources for vocational advice, information, and planning. The Tertiary Education Commission allocates gateway funding to enable secondary schools to give senior students access to structured workplace learning integrated with school-based learning. The Pūkenga – Management of Polytechnics and Industry Training Organisation initiatives with Vocational Education Training.
Taranaki Chamber of Commerce	Provides resources and support for members and employment services.
Taranaki Futures	Provides a range of services and programmes to get youth into work by bringing talent and industry together.
Venture Taranaki	Overseeing implementation of Tapuae Roa and Taranaki 2050 (Just Transition). Promotion of Taranaki as a destination to Live, Work, Visit, Learn and Invest (this includes promoting work and study opportunities to Taranaki people). One on one business capability development.
Western Institute of Technology at Taranaki (WITT)	Vocational training in various disciplines related to the energy sector. Co-delivers a Process Operations Programme with Energy Resources Aotearoa. Hosts the Centre of Energy Excellence. Hosts a secondary school science and technology fair.

6. IDENTIFYING BARRIERS, OPPORTUNITIES, AND GAPS

(in the energy sector workforce through the transition)

6.1 Our approach

Having laid out the context in the preceding section; this section details the process we used to identify barriers, opportunities, and gaps as we seek to build and maintain a highly skilled energy sector workforce through the transition.

Project objectives

Our research sought to:

- support the development of a skilled labour pool to support the industry's future activity;
- provide sound and accurate information to inform companies of future workforce planning and to training providers to inform future training needs; and
- provide a strengthened industry driven structure to support skill development and gain support from government decision makers, funders, stakeholders, and alignment to the New Zealand Energy Strategy.

Project Scope

Industry input and feedback was obtained using a questionnaire (see Appendix 2) and over 70 confidential interviews. Participants were selected to represent existing and new energy and service companies, local stakeholders, training providers, schools, and future talent.

The Taranaki energy resources sector; both incumbent and emerging, has been the focus of this report. Separate reviews are already underway in the electricity industry, and consultation indicates our findings and proposals are well-aligned.

6.2 Findings

6.2.1 Notable international (and New Zealand) best practices:

Some notable international (and New Zealand) best practices reviewed and used to develop proposals in this report are:

- ensuring the maximising of local jobs for existing skill set workers in new energy projects during development and into operating (Denmark, Canada, Europe etc);
- skills transition and individual resilience programmes for workers in the energy sector (NZ Electricity Sector, Spain, UK);
- IEA - Integration of Youth in a Just Transition, redesign new jobs for increased gender and indigenous people's participation (IEA); and
- increase visibility to attract the people, designing for intuitive career pathways, build resilient workforces (NZ ESI workforce development strategy).

Skills shortage interviews – most Common quotes

Happening Now

- The Great Resignation is real!
- Fear of shortages getting worse when international borders return to pre-COVID activities.
- Cannot compete with the $'s. Australia and others are offering.
- COVID borders highlighted our reliance on importing talent.
- Cannot find good apprentices.
- New Energy is taking our highly skilled employees.
- Need high end IT literate people to understand our business better and work the future with us.
- Desperately need more integrity specialists.
- We rely on contractors and consultants to provide us with people ready to work.
- Workers want more updates and communication about the impact of the transition

Root Causes

- Energies image perceived as past sunset / dirty / male heavy – opportunities not known / well understood.
- Schools / Community perceptions that trade roles are not required / desirable / fashionable.
- Government heavy focus on long future.
- Taranaki tertiary training traditionally not aligned with industry demands.
- Lack of building our own competences in some areas (e.g. integrity).
- Still early for New Energy opportunities.
- We are not sustainably building our own workforce.

Opportunities Looking Ahead

- 'Energy' new...old... transitional...We need an aligned workplace proposition for the opportunities and the future.
- Let's use this report to promote New Zealand / Taranaki energy opportunities.
- Need to work to keep our people. Give staff confidence in a future here.
- All the skills, competences and experiences are 90% transferable.
- Collaborate to optimize formal learning availability in Taranaki and New Zealand for Energy.
- Must build our own competences in some areas (e.g. integrity, technical, IT, Trades).
- Opportunity to get as many sustainable local employment opportunities in new energy developments as we can & get great value and quality (versus importing).

6.2.2 Union and Worker Perspectives

E tū provided views to us from a 2021 consultation with its members.

In 2021 E tū surveyed 100 workers in the Taranaki region, consulted focus groups and undertook structured interviews.

From these interviews findings show that workers do not feel well engaged by employers about future skill developments, and do not feel prepared for change. Most would like to remain with industry and would like advice from employers of a structured redeployment, supported retraining and income and relocation assistance.

6.2.3 Perspectives from a mix of local Secondary Schools

We talked with a mix of local schools and some common themes highlighted there was limited information on energy careers, uncertainty regarding future roles in the sector, although with a high awareness of transition.

Interest in possible curriculum development for years 9-10 (seen as optimum age to target, prior to assessments and NCEA).

Gateway is valued for students with an interest in trade type roles. There is currently no energy specific gateway programme which is attributable to the requirement for high skilled roles in sector and HSSE challenges to host students at working production plants and sites.

Anecdotally, some schools will pass on information regarding apprenticeships to selected students.

6.2.4 Todays (Secondary) Student Perspective

Concurrently with the industry survey, a small survey of diverse local Taranaki Year 12/13 students was conducted to provide insights from our employees of the future.

Individual differences are acknowledged, but in general what young people value today is quite different and face a different world. Environmental concerns, economics, technological advancements, greater diversity, and recently a global pandemic; these are just some key influences that have reshaped youth priorities and preferences.

Questions were aimed to provide an understanding of awareness of the energy landscape, interest in working in energy and insights into how future employees find their careers.

What they told us was:

The level of interest in energy sources now and for the future has risen. However, the interest in working with energy has not, as roughly 65% of students did not show any inclination to work in the industry. Most students who completed the survey agreed that natural gas is important to New Zealand's energy supply now and as we continue to build our renewable energy sources. Rather overwhelmingly, a majority expressed that they believed it is very important for New Zealand to have its own energy supply and energy industry.

Insights on selecting a career:

The key factors for these students when selecting a career are (in order); money, flexibility, the industry, learning, progression and travel. Using job sites and Careers NZ are key places used to learn about career options and develop knowledge and interest about different career paths. Online platforms are the preferred tool students would use to source information about careers. Social media and internet portals would be useful for students to use and share information with those working in the sector. Teachers, Gateway, whānau, online searches and Universities are also referenced as useful tools for careers advice. However, 80% of students that took the survey do not learn about energy in school and those that did stated the learning was predominantly about climate change/global warming. A further 60% didn't know anyone working in energy industry (or didn't know they did). Knowledge of roles and employment in energy is limited with most listing traditional roles, such as drillers, engineers in oil and gas. Only a small number listing solar panel installation and wind turbine repairs. Therefore, there is clearly room for education in this area. Due to the large presence social media has in students lives, a social media platform where industry professionals can engage and talk with students about their roles would be useful and a great initiative.

NZ University Talent June 2022

The 2022 graduate recruitment has been unlike others', with all industries reporting extremely low applications compared to previous years. This can be attributed to the cumulative effects of COVID. Employers are advised to focus on getting good quality applications, not high interest and ensure any offer is matching workforce expectations (pay, flexibility, hybrid working, advancement opportunities, organisation culture). Employees have also been advised to build a brand and tell your story and confirm you are hiring whilst also looking at international students again now that borders are reopening. It is also time to integrate with student 'quieter times' not to suit the corporate calendar. Another important initiative for employees is to have a strong online presence. This is important for the new generation of future employees.


RANGI H

7. KEY CONCLUSIONS AND BASIS FOR PROPOSED ACTIONS

7.1 Workforce and Skills are high quality and transferable:

All industry and supporting participants confirm that the skills of the current energy sector are of high quality and (with few exceptions – e.g. sub surface will be able to be deployed readily into new energy businesses). New energy businesses will require industry/organisation/site specific onboarding and training. Start-ups interviewed plan to develop this as part of implementation and seek local partners for this.

The transferability of skills, together with difficulties attracting new people to oil and gas creates challenges. This will include obstacles for current operators in oil and gas to retain people to operate through transition and safe decommissioning.

Current employees in energy do not yet value this transferability. High quality resilience education can support personal value assessment and retention through transition. The change represents an opportunity for people centric changes.

7.2 High demand from industry for education sector to support flexible vocational training:

'Apprenticeship' type formal training and accreditation identified as high priority to train trades for all energy sectors – employers recognize the need to commit to employment.

7.3 Attraction needs to be different in the future

Workforce expectations have and continue to change, workers prefer individual flexibility, high engagement, and rapid challenge, use of technology and automation. The energy industry cannot afford to continue to use old systems and values of attracting talent. They must adapt and update their messaging to reflect that change, or risk becoming increasingly out of touch with a new generation of talent.

7.4 High vacancies and high reliance on importing resources and talent from outside New Zealand

COVID border closures highlighted a historical reliance on migrant labour. Border reopening will result in the input of skilled talent during 2022. The industry relies heavily on low employee/ high contractor or outsourced models. Anecdotal evidence suggests this does not support investment in developing new talent within either the operators or the supporting contractor market. Attracting new talent into energy has been difficult for several years (related to availability of specialist skills, geographic location in Taranaki and latterly perceptions of energy).

7.5 New Zealand Universities New Energy Curriculum

New Zealand Universities offer a range of degrees from undergraduate through to doctorate level in the major engineering disciplines which align with the changing requirements of the energy industry. Major engineering programmes are now offered by more universities and in addition, engineering programmes are now available in mechatronics, software engineering and natural resources engineering. Three universities have added Sustainable, Renewable, and Transition Energy programmes, the programmes are offered as part of other degrees, as post graduate master's, or specific research studies. Survey participants confirm continued satisfaction with the quality of the programmes available in New Zealand and the quality of the graduates. Attracting these graduates to join the energy industry has continued to be the key challenge.

7.6 Workforce Demographic

The workforce age demographic is relatively well distributed; females are a small proportion of that workforce and Iwi representation is not generally measured currently. 78% of the workforce is aged between 30-60 years, but representation below the age of 30 years is low and will not support or replace expected retirements. This skew has grown in the last 10 years. Gender representation remains heavily skewed to males. There has been an improvement in the past 10 years in process operations where intentional female intake has flowed through to the workplace.

7.7 Māori participation

Māori representation in the workforce, while not formally reported, is anecdotally not representative of the population. This is a key opportunity for the action plan requiring engagement with and advice from local Iwi.

Involvement with the build and growth of future new energy strategies and developments should adopt approaches that welcome Māori.

8.
THE INDUSTRY SKILLS ACTION PLAN


Ara
Ake
ALOHA
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8.1 ATTRACTION

Attract our future workforce through sustainable values, messaging and diversity.

OBJECTIVES

1. Inspire tamariki and rangatahi future talent into energy by engaging with schools, kura and wānanga.
2. Create gainful employment pathways for Māori into the Energy Sector.
3. Create desirable pathways to encourage more women into the sector.
4. Accelerate future energy opportunities to attract talent from New Zealand universities.
5. Facilitate the development of career pathway information materials for wider community interested in a career in the energy sector.

Attraction

Attract our future workforce through sustainable values, messaging and diversity.

Objective 1: Inspire tamariki and rangatahi future talent into energy by engaging with schools, kura and wānanga.

ACTION ITEM	Lead & partners	Timescale
Continued promotion and support of science and engineering fairs for primary and secondary schools.	Energy Resources Aotearoa and industry partners	Ongoing
Identifying new and supporting current STEM programmes for schools.	Venture Taranaki/ Taranaki Futures	Ongoing
Increase the use of existing programmes and resources through sharing of information and encouraging more participation from the energy sector (e.g., Nano girl Labs, House of Science, Curious Minds, Taranaki futures).	Energy Resources Aotearoa	Annual update
Investigate feasibility of developing an energy curriculum for years 9-10 for energy production and use in society.	Energy Resources Aotearoa with industry/govt partners	2024 first delivery

Objective 2: Create gainful employment pathways for Māori into the energy sector.

ACTION ITEM	Lead & partners	Timescale
Increase the accessibility for Māori to engage with the sector directly.	Energy Resources Aotearoa with Iwi, industry and government stakeholders	Ongoing
Provide community roadshows, specifically for Iwi groups to encourage Māori to consider pathways into the energy sector.	Energy Resources Aotearoa with Iwi, industry and government stakeholders	Ongoing
Target and provide a support network to facilitate māori participation annually to train in specific training programmes (target a pilot programme to commence this initiative – possible the certificate in energy process operations).	Energy Resources Aotearoa with Iwi, industry and government stakeholders	Ongoing

Objective 3: Create desirable pathways to encourage more women into the sector.

ACTION ITEM	Lead & partners	Timescale
Utilise the proposed Women in Energy network to:		
Facilitate mentoring opportunities between future talent and women in the industry.	Energy Resources Aotearoa, industry and local stakeholders	2023
Manage an undergraduate woman in energy scholarship/s for local Taranaki students.	Energy Resources Aotearoa	2023
Increase female participation in operations training programme.	Energy Resources Aotearoa, industry and WITT	2023

Objective 4: Accelerate future energy opportunities to attract talent from New Zealand universities.

ACTION ITEM	Lead & partners	Timescale
Grow the annual university student programme introduction to energy (site tours, new emerging energy, professional networks, development opportunities).	Energy Resources Aotearoa with industry partners	Delivery February 2023
Attend University careers days with a coordinated Taranaki energy brand. Marketing energy/engineering/science internships/scholarships/university student programme.	Energy Resources Aotearoa with industry and Venture Taranaki	Throughout 2023
Deliver energy fundamentals programme to all energy Taranaki interns as part of their internship over summer.	Energy Resources Aotearoa	Delivery December 2022

Objective 5: Facilitate the development of career pathway information materials for wider community interested in a career in the energy sector.

ACTION ITEM	Lead & partners	Timescale
Collaborate with Careers NZ to update and include a section on jobs in the energy industry.	Energy Resources Aotearoa and local stakeholders	Throughout 2023
Develop a social media campaign for energy and energy pathways to employment.	Energy resources with local stakeholders	2023


FMG
Firstgas
Firstgas

8.2 DEVELOPMENT

Develop a future workforce whilst supporting the existing workforce to transition to a low emissions economy via investment and support through training and development.

OBJECTIVES

1. Keep and excite our existing workforce to stay and be part of New Zealand's energy transition.
2. Identify supply and demand for training programmes for the sector and develop and support new training initiatives alongside training providers.
3. Support new apprenticeship and entry level pathways into industry.
4. Maximise opportunities for local employment in future energy projects (lifecycle from build new to decommission).

Strategic Goal 2

Development

Develop a future workforce whilst supporting the existing workforce to transition to a low emissions economy via investment and support through training and development.

Objective 1: To keep and excite our existing workforce to stay and be part of New Zealand's energy transition.

ACTION ITEM	Lead & partners	Timescale
Work with Employers to build employee's skills to manage through change and to assess personal workplace value in a low emissions workforce. Proposed industry consistent 'Personal Resilience' programme, available for all people working in energy.	Energy Resources Aotearoa (facilitate) User Pay Model	2023
Stay and Join the Journey - Build awareness of the exciting energy future for Taranaki and Aotearoa. Provide regular region/sector wide updates, – take it to people & offer virtually.	Energy Resources Aotearoa	2023
Map high level transferability of skills (from current into new energy).	Energy Resources Aotearoa, Te Pūkenga / Copenhagen Partners	2023
Encourage energy businesses (including the service sector) to collaboratively re-invest in training and formal skill building of own resources and talent. This can reduce reliance on immigration and inter-industry head hunting.	Industry and All / Energy Resources Aotearoa	2023
Build links with Energy Academy and explore opportunities to experiment with 'Competency Mapping' workstream and LABS (sharing across entities).	Energy Resources Aotearoa	2023
Work with unions to ensure interventions appropriately support energy workers through transition.	Industry and All / Energy Resources Aotearoa/ RSLG	2023

Objective 2: Identify supply and demand for training programmes for the sector and develop and support new training initiatives alongside training providers.

ACTION ITEM	Lead & partners	Timescale
Develop a new and revitalized Certificate in Energy, Process Operations Training Programme. Incorporating a wider industry work-placement programme along with renewable energy modules.	WITT, Energy Resources Aotearoa, RSLG and industry	Delivery February 2023
Assess the relevance of development of an Electrical and instrumentation training programme delivered in Taranaki.	WITT, Energy Resources Aotearoa and industry	2023
Undertake an Asset integrity qualification review to assess relevance and efficiency of existing registration and asset risk assessment talent pathways.	Energy Resources Aotearoa	2023
Broaden the Fundamentals of Energy resource to appeal to a wider audience – investigate avenues to deliver a condensed version of this resource into schools/iwi/community.	Energy Resources Aotearoa and RSLG	January 2023

Objective 3: Support new apprenticeship and entry level pathways into industry.

ACTION ITEM	Lead & partners	Timescale
Undertake further investigation and clarification of demand for apprenticeships in energy in Taranaki.	Energy Resources Aotearoa with Te Pūkenga and subsidiaries	2023 – 2024
Make apprenticeships easier for industry to support – such as pre-apprenticeship energy industry schemes.	Energy Resources Aotearoa with Te Pūkenga and subsidiaries	2023 – 2024
Investigate an energy industry coordinated programme for industry to align and work with Gateway to establish early pathways into the sector.	Energy Resources Aotearoa with Te Pūkenga and subsidiaries	2023 – 2024

Objective 4: Maximise opportunities for local employment in future energy projects (lifecycle from build new to decommission).

ACTION ITEM	Lead & partners	Timescale
Support and challenge the sector to pro-actively demonstrate use of local New Zealand content, skills and capability as part of any new development proposals.	Industry	Ongoing
Build local expertise by collaborating / developing relationships with international and New Zealand organisations demonstrating best practice in energy skills transition.	Energy Resources Aotearoa / Local stakeholders	Ongoing


OVERSIZE

8.3 COLLABORATION

Collaborate to form strong and purposeful partnerships between industry, stakeholders and government to develop diverse skill and workforce opportunities.

OBJECTIVES

1. Support the Western Institute of Technology at Taranaki in its quest towards becoming a training center of excellence for Energy.
2. Build partnerships with appropriate organisations to better understand the current workforce (iwi, local government, government, stakeholders, economic development agencies, training providers etc.).
3. Provide opportunities to grow diversity within the sector through industry/government/stakeholder collaboration.
4. Continue to collaboratively build a better understanding and evidence of future skills needs to support New Zealand's transition to a low emissions economy.

Collaboration

Collaborate to form strong and purposeful partnerships between industry, stakeholders and government to develop diverse skill and workforce opportunities.

Objective 1: Support the Western Institute of Technology at Taranaki and its quest towards becoming a training center of excellence for Energy.

ACTION ITEM	Lead & partners	Timescale
Support WITT to become the preferred provider for pre-employment vocational training for energy.	Energy Resources Aotearoa / Industry / Local Stakeholders	Ongoing
Provide support and information/knowledge to WITT on energy capability assessments/resourcing requirements as and when appropriate.		
Provide resource to WITT on future programme development that will provide strong value proposition for industry.		

Objective 2: Build partnerships with appropriate organisations to better understand the current workforce (Iwi, local government, government, stakeholders, Economic Development Agencies, training providers etc.)

ACTION ITEM	Lead & partners	Timescale
Form a methodology to obtain ongoing workforce data such as workforce numbers, demographics, movement.	Industry / Energy Resources Aotearoa / Local stakeholders / government	Ongoing
Align with relevant organisations to ensure resourcing for regional industry projects are accessible for marketing/development/ awareness activities.		

Objective 3: Provide opportunities to grow diversity within the sector through industry/government/stakeholder collaboration.

ACTION ITEM	Lead & partners	Timescale
Design and develop a "Women in Energy" programme to encourage networking between the wider energy sectors.	Energy Resources Aotearoa	2022
Support and work with the women in energy network and People & Culture teams in energy to develop further responses designed to grow change and build cultures that will attract and retain a more diverse workforce in future. For example, annual reporting of representation to measure progress, learning interventions for leaders, awareness programmes etc.	Energy Resources Aotearoa / Industry	2023

Objective 4: Continue to collaboratively build a better understanding and evidence of future skills needs to support New Zealand's transition to a low emissions economy.

ACTION ITEM	Lead & partners	Timescale
Support WITT and its quest towards a center of excellence for Energy for the Taranaki region.	Energy Resources Aotearoa / All stakeholders	Ongoing
Support new energy projects through collaboration, providing advice, knowledge and resource to new projects/initiatives that reflect positively towards our sector and the Taranaki region.	Energy Resources Aotearoa / All stakeholders	Ongoing


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9. IMPLEMENTATION, MONITORING AND REPORTING

On launch of this report and action plan, a steering committee will be appointed by Energy Resources Aotearoa. Including appropriate representatives from industry and other stakeholders to oversee and report to stakeholders on action items and their implementation.

To ensure accountability and transparency, the steering committee via Energy Resources Aotearoa will provide an annual stocktake report of our progress against deliverables and achievement of outcomes.

10. ACKNOWLEDGEMENTS

Energy Resources Aotearoa is grateful for the support and participation of a wide range of stakeholders in both the interview process and development of this report and Industry Skills Action Plan for the energy sector.

Introducing our contributors for this project:

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We would like to acknowledge our partnership with the Taranaki Regional Skills Leadership Group in the consultation phase of this report.

Taranaki REGIONAL SKILLS LEADERSHIP GROUP

11. APPENDICES

Appendix 1: Occupational groupings used in this report

GROUPING	DEFINITION
Business Services	Includes health and safety, regulatory affairs, human resources, stakeholder relations, training and development, logistics, warehousing, finance, commercial, legal, and administration support.
Energy Engineers	Involved with the production of energy through natural resources such as the extraction and production of natural gas as well as from renewable sources of energy including biofuels, hydrogen, wind, solar etc. Work involves the design, construction, maintenance, and quality control systems critical to the energy sector. Most engineers used within the energy sector are trained in process and materials, chemical, electrical, mechanical, and environmental disciplines.
New Energy	New Energy roles are roles which are different to those currently in the sector. For example, wind-turbine fabricators, renewable engineering, and specialist environmental roles. It is anticipated that the roles will involve a high degree of automation, robotics etc.
Operations	Roles used in a range of energy production plants including oil and gas, geothermal, electricity and hydrogen. These roles can relatively easily transition across different areas of energy and other manufacturing and engineering industries. Work involves operation of specialised control systems and equipment related to plants and facilities.
Subsurface	Subsurface roles include, geoscience, drilling and well maintenance and petroleum reservoir related skills. Many, but not all, of these skills and roles are transferable to different or new energy environments. The underlying skills, knowledge, experience and qualifications or degrees are transferable.
Technical	These are specialist roles used widely in the industry and include roles such as control system, process, electronic, electrical and instrumentation technicians and offshore specialist and well specialist technicians. People in these roles generally have a specialist background in the industry (e.g., general mechanical or electrical engineering) then move to plant specific technical skills on the job.
Trade / Mechanical	Trade and mechanical roles include installation, operation, servicing, monitoring troubleshooting and repairing of equipment used in a range of energy operations. Trade and mechanical roles (generally) have the following backgrounds: mechanical, electrical, fitter/turner/welders, pipe fitters, and solar technicians.

Appendix 2: Question summary for industry interviews

General information about the scope of workforce in this organization

1. What is the size of your workforce (amount of employees/ number of contractors)?
2. How many employees would be in the following occupational groupings?
   a. Business Services
   b. Technical
   c. Engineers
   d. Sub surface (geology)
   e. Trade/mechanical
   f. Operations
   g. New Emerging Energy (roles not as above that are new to energy)
3. How many female/male employees would be in each occupational group?
4. How many employees would fit within the following age categories (approximately)
   a. 16-29 years
   b. 30-46 years
   c. 47-60 years
   d. 60+ years
5. How many employees that are in the 60+ category would fit into the following occupational groupings:
   a. Business Services
   b. Technical
   c. Engineers
   d. Sub surface (geology)
   e. Trade/mechanical
   f. Operations
   g. New Emerging Energy (roles not as above that are new to energy)
6. Of the staff at this company, how many of these would you classify as:
   a. Senior leaders/managers
   b. Middle leaders/managers
   c. Front line leaders/managers

Vacancies

7. How many vacancies do you currently have and in what occupational groupings?
8. Have you seen any staff exits due to new emerging energy roles and in what areas?

Skills shortages

9. What are your companies top 3-6 skills shortages?
10. Do you see these as?
    a. short term (1-2 years)
    b. med term (2-5 years)
    c. long term (5-10+ years)
11. In your opinion, what are the root causes or reason for the shortage and what can be done about it in the:
    a. short term (1-2 years)
    b. med term (2-5 years)
    c. long term (5-10+ years)

Training

12. What skills are required in your business today that are not being addressed by current training providers?
13. What development/training opportunities exist in your business today, and how many of your current employees will assume more senior roles in your operation because of this training?
14. Who are the key external training partners you engage with?
15. Does your company provide internship opportunities and with what occupations?
16. Does your company provide apprenticeship opportunities and with what occupations?

Future state

17. From a skills perspective what are the biggest concerns to your business over the next 2, 5, and 10 years?
18. How will future ways of working (i.e., automation, remote work) impact the skills your company needs?
19. Where does your company envisage finding people with the right skills in the future? (i.e., within the existing workforce, other regions, international).

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