

# Renewable Energy Zones – Submission on behalf of Northland Business Group

## Introduction

Thank you for the opportunity to submit on the National Consultation on Renewable Energy Zones (REZ). We are a group of mostly large Northland businesses with a common interest in supporting effective economic development in the North. Collectively we employ over 2,700 people, with strong capability and skills to see Northland emerge as a leader in renewable energy development.

It is clear that New Zealand's decarbonisation goals will not happen without large scale and urgent investment in renewable energy. The need for REZ's could not be greater, and we commend the proposal to designate Northland as the first pilot.

The region currently pays some of the highest electricity prices in the country despite its known levels of energy poverty, and many of the losses incurred transporting the power here would be avoidable under this proposal.

At the same time, Northland also risks having to turn away renewable energy developers, including Māori landowners, because the networks are at capacity. This fundamentally goes against the vision we have for New Zealand, socially, economically and environmentally and the notion of a 'just transition.'

The creation of a Renewable Energy Zone (REZ) provides the opportunity to correct those inefficiencies, benefit local consumers, support our decarbonisation goals, create jobs and catalyse new businesses. It also presents the potential for transformational investment for Northland, a region with some of the highest rates of deprivation in the country.

This submission responds to both the National consultation paper and the Northland Pilot consultation.

## Response to Renewable Energy Zones – National Consultation

**Q1: Do you agree that the first mover disadvantage and high connection cost can be challenges for connecting new renewable generation and/or large electricity loads to the electricity network?**

Yes.

**Q2: Do you think the concept of a REZ could be beneficial in a New Zealand context?**

A very strong yes. We fully support tools or commercial mechanisms that will help unlock the development of affordable renewable energy to help New Zealand reach its carbon emissions targets.

However, in order to generate additional renewable energy in a timely and affordable way, we need to leverage our existing assets and infrastructure and maximise what we currently have rather than building from scratch.

This would also minimise disruptions to communities and should be our starting point, although new infrastructure may be required in the medium to long term.

**Q3: What region(s) do you think would be suited to REZ?**

In general, regions with strong natural resources and those close to major load centres would be suited to REZ.

Given its wind resources and high number of sunshine hours however, Northland is best placed for the pilot REZ. Northland is best located to export energy to Auckland, NZ's largest energy demand.

This is supported by the very high number of renewable developments that have applied to connect to the networks in the region, including those that cannot be accepted as there is no further capacity.

Consideration should also be given to the optimisation of existing network investments. We believe it would be more efficient to fully utilise the existing network capacity from Bream Bay to Auckland rather than upgrading lines south of Auckland and bringing power to that market from further away.

**Q4: What benefits do you think should be considered in the decision-making process for a REZ in New Zealand?**

We believe the benefits should be three-fold - social, economic and environmental - and would support such a lens being applied in the decision-making process.

A REZ should support broader community benefits, including increased competition in wholesale markets to lower energy costs for local consumers while also stimulating jobs off the back of infrastructure investment.

The benefit of increased resilience and diversity of the electricity system should also be considered, particularly in cases like Northland where, apart from Ngawha, load is a long way from generation.

**Q5: Do you agree with the proposed guiding principles? Are there any that you would change or add?**

We are broadly supportive of the guiding principles but wish to express particular support for the following, which are a priority for Northland.

- **Future focused**  
Northland wants to play a significant part in the decarbonisation solution, through unlocking our untapped renewables potential. We are uniquely placed to add diversity to the energy flows into the country's largest population centre.
- **Customer driven**  
To maximise the chance of REZ being successful, it must be in an area of high developer interest, like Northland, otherwise there is a risk of creating a mismatch to investor appetite. Northland already has proven developer interest up to 2 GW.
- **Local consumers will be no worse off as a result of developing a REZ**  
This concept underpins our thinking about REZ and is crucial in a region like Northland with high social and economic deprivation. Our communities, while they can be part of the solution, are already struggling with high unemployment, energy poverty, social challenges, lack of economic growth and inadequate infrastructure development. It is crucial that REZ is an advantage and not a burden on our communities, and this principle should be rephrased: *Local consumers will be better off as a result of developing a REZ.*
- **Developed in partnership and collaboration**  
It is essential that communities including Iwi and hapū have a meaningful voice and opportunity in the REZ process and that projects go through the normal planning and consenting processes.

**Q6: Do you agree with the proposed criteria for selecting suitable regions for REZ development? Are there any that you would change or add?**

Yes, we support the proposed criteria, including the proposed additional criteria. They strike the right balance between matching investor demand with renewable resource, ensuring efficient investment and considering wider socio-economic benefits.

**Q7: Do you agree with using a tender process for committing projects in a REZ? Are there alternative processes that could be considered?**

Yes. We note that there are some useful lessons to be learned from Australia in dealing with both over-subscriptions or no-shows. Again we re-iterate the need to avoid our local community picking up the tab for developer failure.

**Q8: Who should be involved with coordinating and undertaking the various steps within a REZ development process?**

We expect the owners of the networks affected will lead the REZ process as it relates to their assets. In Northland, this means all three (Transpower, Top and Northpower), will need to work collaboratively together. Top Energy and Northpower already work closely together on operational matters, and the proven collaboration between the three network owners on the Northland Pilot, demonstrates a solid foundation upon which to successfully develop a Northland REZ.

It is also important to note that there may be private networks that wish to develop their own renewable resources that may also support the development of a REZ.

Key demand and supply side users should be involved in collaboration for the development of future network planning to realise the development of new renewable energy zones and clusters. We note that battery owners may also have a role to play in an overall REZ.

Potential conflicts of interest will need to be managed with the co-ordinating process where a network owner is also potentially a generation provider.

**Q9: Do you agree with the proposed criteria? Are there any that you would change or add?**

The criteria reflect the range of complexities involved in developing new generation. Potentially, greater weight could be afforded to proposed generation that confers additional long-term economic and social benefits and can demonstrate strong local support. The issue is that well resourced developers who are ready to move now may crowd out a range of other investors (such as iwi). There may be useful models in other areas, such as the broadcasting frequencies around New Zealand that are reserved for Māori.

Iwi should be given opportunity and industry support to participate in the development of the REZ and potential renewable project participation which could directly support Iwi development and prosperity. They should not be constrained from doing so at a later stage, given some Treaty claims have not yet been settled.

We also note sizes of the proposed generation investments in relation to the proposed network connection may need to be considered. One 150MW project could shut out three smaller 50MW projects for example.

**Q10: Do you agree with the challenges we have identified?**

Yes, we believe the main challenges are technical and regulatory in nature, and those related to generator uptake and who bears the risk if developers fall away through the process. We reiterate our concerns above that our communities should not end up bearing this risk.

There is also uncertainty about environmental consenting and approvals and the role the new Natural and Built Environments Act may play, along with any regional or district plan (spatial and otherwise) constraints. We are interested to know if provision for REZ's can be built into the legislation to facilitate fast-tracking.

Delays to projects that require consents could have implications for other generation developers and slow the overall progress and pace of the REZ.

**Q11: What are some of the ways to overcome these challenges and who should be involved?**

The Natural and Built Environments Act must not serve to act as a handbrake on the country's decarbonisation ambitions. We therefore believe special planning zones could be considered, along with fast-tracking processes and aggregation of project consents, providing the same levels of environmental assessment and community and iwi input as exist today. Dedicated REZ consenting resources could also be explored.

Given also our concern that our customers be no worse off, such as exposure to developer failure, we believe central government support may be needed to be considered to underwrite risk and incentivise development.

**Q12: Do you see any other potential challenges that need to be considered?**

Experience in Australia suggests there are potential negative impacts from connecting too much solar too quickly. We expect New Zealand can learn from this, including technical and operational learnings, as well as ensuring the cost of this integration falls to the generation developers.

## Response to Renewable Energy Zones - Northland Pilot Consultation

### Q1: Do you support the development of a REZ in Northland?

Yes. There are considerable potential benefits for a Northland REZ.

The Third IPCC report released on 5 April gives a stark warning of the need to move quickly to curb New Zealand's emissions. We believe Northland, with its outstanding wind and solar resources, is well positioned to help the country move quickly toward achieving its 2030 decarbonisation goals. Greater renewable output from Northland will in particular assist in reducing Auckland's need for power from non-renewable sources.

Northland's proximity to Auckland and the ability to use the existing infrastructure between Marsden Point and Auckland is a particularly strong factor in favour of a Northland REZ.

The regulatory environment in Northland is supportive of renewable energy projects. The District Plan provisions of Northland's three territorial authorities are supported by overarching provisions in the Regional Policy Statement (RPS) for Northland. The Northland RPS was prepared under, and gives effect to the National Policy Statement Renewable Energy Generation (NPSREG). The Northland RPS explicitly recognises electricity generation as 'Regionally Significant Infrastructure' (RSI). RSI has elevated importance in the RPS, as exemplified in Objective 3.7 which is:

#### *Objective 3.7 Regionally Significant Infrastructure*

Recognise and promote the benefits of regionally significant infrastructure, (a physical resource), which through its use of natural and physical resources can significantly enhance Northland's economic, cultural, environmental and social wellbeing.

In addition, Objective 3.9 'Security of Energy Supply', together with Policy 5.4.1 'Recognising and providing for the benefits of renewable electricity generation activities and supporting sustainable use and development of Northland's renewable energy resources' seek to reduce reliance on outside sources of electricity by encouraging renewable electricity generation activities.

Further, *Objective 3.9 'Security of energy supply'* states:

Security of energy supply Northland's energy supplies are secure and reliable, and generation that benefits the region is supported, particularly when it uses renewable sources.

And finally 5.4.1 Policy: '*Recognising and providing for the benefits of renewable electricity generation activities and supporting the sustainable use and development of Northland's renewable energy resources'* states:

Recognise and provide for the national significance of renewable electricity generation activities, including the national, regional and local benefits and support the sustainable use and development of Northland's renewable energy resources.

Consistent with the NPSREG, these provisions elevate the importance of renewable electricity generation activities by directing that they be "recognised and provided for".

Under the RMA, Northland's three District Plans must give effect to these RPS provisions. Accordingly, all three plans present a favourable regulatory environment for renewable energy projects (regardless of the relevant zone), and particularly for solar (noting that there has been major solar projects consented in both the Whangarei and Far North districts in recent times).

Northland also offers regional cohesion. We are proud to part of a community where business, councils, Iwi and community groups have proven their ability to combine to unlock outcomes that support economic development in the North. This REZ consultation process has been an example of this, and that ability to collectively combine and problem solve would provide a strong platform for the pilot stage of this process.

Our support does have two caveats: it should only proceed subject to the supporting principles, and it must result in an overall net benefit to the consumers and residents of the region.

**Q2: What potential benefits of a REZ are important to you?**

At the core of our vision for a REZ in Northland is that end consumers could eventually benefit from lower energy costs. The region currently pays higher lines prices in order to transport power north (up to 20% loading), and this, combined with the area's low per capita incomes, creates real energy hardship. This is also the context for stipulating that there must be a net benefit from a Northland REZ.

The region has also suffered from higher unemployment levels than many other parts of the country. Lower energy costs should help to encourage load growth, for example by attracting energy intensive businesses to set up or expand here. Regional economic development driven by the REZ would see investment in job creation and skill development both during construction and ongoing in operations and maintenance.

Solar construction and integration with distribution and transmission networks is new ground to be broken in New Zealand and deployment of construction capability will be important. Northland includes both the capability and the interest to enable new technologies to be deployed. They include McKay, Culham, United Civil, Northpower and Top Energy among others, supported by enabling infrastructure such as Northport's deep water port.

The REZ could be a catalyst for the development of skills, trades training and new capabilities for the businesses of Northland as many renewable development projects are undertaken. The companies mentioned above already have an ongoing commitment to train apprentices, and more would be taken on if output expanded. Northland also has the potential to be a Renewable Centre of Excellence. This could help utilise some of the talented and highly skilled workers recently released from Refining NZ. It is our view too, that other industry would be attracted to the region as additional skill sets would also be required.

There is another uniquely Northland factor at play here too. Ngā hapū o Ngāpuhi are presently preparing themselves for Te Tiriti negotiations with the Crown, and in the process undertaking due diligence on long-term sustainable development opportunities for their people. From their local consultations, Northpower and Top Energy are aware that renewable energy investments are among these, but without a REZ, Northland faces the position of turning away Māori land-owners because the networks are at capacity.

Finally we note the environmental benefits already mentioned above. The size of the renewable resource in Northland suggest the decarbonisation impact could be very substantial.

**Q3: What potential costs of a REZ are important to you?**

Financially, it is important that our community does not pay more as a result of a REZ. We have high rates of socioeconomic deprivation in Northland and the REZ must not exacerbate these in any way. It is also important that our community does not underwrite REZ investments in the event of developer failure. Care will therefore be needed in the commercial structuring.

Any development has impact. Given the importance of tourism in the Northland region we would want to see any adverse impacts clearly identified and plans put in place to minimise or mitigate them.

**Q4: Do you support enable development through upgrades to existing lines and substations as demand for connections to the networks emerge? If not, what alternatives would you propose?**

In principle, we support efficient utilisation of, and maximising, existing infrastructure, rather than overbuilding with new assets, which can be more disruptive.

We see the development of new technology and energy storage as part of the incremental investment landscape to support the development of the REZ.

We also see the development of industry and demand in region as another successful outcome from the REZ.

New assets may however be required in the medium-to-long-term.

**Q5: If new lines are needed to be built to connect resources, where should they be constructed/not constructed?**

We note that a number of iwi groups wanting to invest in renewable generation on their own tribal lands are prevented from doing so by distance from existing lines infrastructure.

Please refer to individual submissions for other comments.

**Q6: Are there alternative proposals that you think we should consider?**

No comment.

**Q7: Do you have development projects that a REZ might assist you to construct and connect?**

No comment.



**Gavin Carroll**  
Acting Chief Executive



**Lindsay Faithfull**  
Managing Director



**Jon Moore**  
Chief Executive



**Naomi James**  
Chief Executive



**Steve Smith**  
Chief Executive



**Rob Kirwan**  
Managing Director



**Ben Marsh**  
Manufacturing Manager



**Andrew Campbell**  
Managing Director



**Andrew McLeod**  
Chief Executive



**Russell Shaw**  
Chief Executive



**Tania Heyrick**  
Chief Executive



## COMPANY BIO's

### McKay Ltd:

As one of New Zealand's fastest growing technology companies, McKay endeavour to work at the forefront of the industry, providing solutions that support New Zealand's vision for the future. We have extensive experience in the power generation industry, with one of our renewable energy strengths being solar power. We work with governments, like-minded companies, and key individuals to develop sustainable solutions as we work towards our own sustainable business practices.

For a more detailed capability statement on McKay, please refer to the appendix content following.

### Marsden Maritime Holdings Ltd:

With over 150ha of prime commercial property available immediately behind Northland's deep water part and transport infrastructure, Marsden Maritime Holdings is a key driver in Northland's growing economy. As a holdings company, our vision is to enable Northport's growth and actively invest in business ecosystems and infrastructure to transform Northland's economy.

### Channel Infrastructure NZ:

[Channel Infrastructure](#), based at Marsden Point in Northland, is New Zealand's leading fuel infrastructure company. Channel Infrastructure owns critical infrastructure, supplying the Northland and Auckland markets, which make up 40% of New Zealand's fuel demand and all of the jet fuel to the Auckland International Airport. Utilising the deep-water harbour and jetty infrastructure at Marsden Point, as well as 280-million litres of storage tanks, and the 170-kilometre pipeline from Marsden Point to Auckland we import, store, test and distribute fuel owned by our customers. Channel Infrastructure's wholly-owned subsidiary, Independent Petroleum Laboratories, provides quality fuel testing services at Marsden Point and around New Zealand.

### United Civil Construction:

United Civil Construction, is a leading civil engineering construction company that builds and delivers a range of infrastructure projects. Founded in Whangarei, Northland, it builds and delivers large-scale, often complex civil engineering infrastructure developments, including industrial, roading and pavements, and water projects. With over 120 staff, United Civil delivers innovative, high value solutions to customers across the upper North Island.

### **Culham Engineering:**

Established in 1958 in Whangarei, Culham Engineering is one of New Zealand's largest privately owned fully integrated heavy fabrication and construction company. Our fabrication facility located on the edge of Northland's Whangarei Harbour, it is one of the largest fabrication facilities in New Zealand. Our facility has some of the most advanced robotic fabrication equipment available in the current market. Our workshops total 22,000m<sup>2</sup> on a 9 ha area, with substantial laydown available. Being fully integrated we can fabricate, industrial blast and coat and site install.

For a more detailed capability statement on Culham Engineering, please refer to the appendix content following.

### **Golden Bay Cement:**

Golden Bay Cement operates the Portland Cement Plant, which is New Zealand's only fully integrated cement manufacturing plant. The plant is supported by a national supply chain that utilised costal bulk shipping, road tankers and rail networks to supply service centres and distributions depots located across the country.

The Portland Plant supplies approximately 60% of the country's cement to New Zealand's unique and stringent building and seismic standards. GBC produces high-quality cement that is used in, the products designed and produced to meet New Zealand's needs that arise because of its seismic environment.

### **Northport:**

Northport, Northland's deep-water port at the entrance to Whangarei Harbour, is ideally placed to support projects right across the region.

The port has been involved with many significant and large-scale projects over the past 20 year. In addition to a range of container handling equipment, it has handled super-sized cargoes such as modules for Refining NZ's expansion at its Marsden Point refinery, large industrial units such as those destined for Top Energy's geothermal expansion project at Ngawha, and specialist lifting operations such as pontoon modules built locally in Ruakaka for the new ferry terminal in Auckland. For a more detailed capability statement on Northport, please refer to the appendix content following.

### **Tupu Tonu:**

Tupu Tonu's purpose is to establish an investment portfolio which is intended to support any future agreements that may be entered into by the Crown in relation to the historical Treaty of Waitangi claims of ngā hapū o Ngāpuhi. To achieve this, Tupu Tonu seeks to acquire and manage a portfolio of assets that collectively:

- support any future agreements that may be entered into by the Crown in relation to the historical Treaty of Waitangi claims of Ngāpuhi; and
- grow the value of Tupu Tonu's investment portfolio.

The settlement of historical Treaty of Waitangi claims has been a priority for the Crown for over 30 years. For settling groups, these settlements are, in part, an opportunity to acquire or re-acquire properties and other commercial assets that can grow value and strengthen iwi and hapū footprints in their rohe. Settlement negotiations with ngā hapū o Ngāpuhi have been longstanding, and this presents a loss of opportunity for ngā hapū, including from growing value and taking up time-limited investment opportunities.

Tupu Tonu was established by the Crown in part to mitigate this lost opportunity by taking up suitable investments and growing value through a fund that is ultimately intended to be available to ngā hapū o Ngāpuhi as commercial redress in any future Treaty settlement negotiations.

### **NorthChamber:**

The Chamber of Commerce and Industry of Northland (Inc) is a non-political, non-profit organisation which represents the full spectrum of business interests, both small and large, in Northland – retailing, service, manufacturing exporters, importers and other organisations. Since 1902, the Northland Chamber of Commerce has served the needs of the Northland business community through its public policy and advocacy initiatives and its business development programmes and services.

### **Top Energy:**

Top Energy's vision is *"Enabling Northland to contribute to the decarbonisation challenge"*. Top Energy is the local electricity network provider which supplies over 33,000 electricity consumers in the Far North. We are owned by the power consumers of the Far North and profits are returned to the consumers through discounts and dividends. Top Energy provides significant community support through our grants, sponsorship program and local employment.

Top Energy is a major contributor to the community's financial well-being and as one of the largest businesses based in the area, is uniquely placed to act as a catalyst to develop economic potential in the region.

### **Northpower:**

Northpower has operated and maintained the electricity distribution network in the Whangarei and Kaipara region for over 90 years and we now have over 61,000 connected customers. Over the last decade we also rolled out high speed fibre to Whangarei city and towns across our region. We're a company that believes in the value of infrastructure in enabling regional outcomes.

Northpower also provide specialist contracting services to our partners, other network owners and operators, across the North Island of New Zealand. Contracting is a successful business in its own right, which brings profits back to Northland. But it's also key to us learning and developing. We get to 'work with the best' in the power industry, and Contracting gives us the 'can do' attitude to try new things.

# APPENDIX - CAPABILITY STATEMENTS

## Culham Engineering

Established in 1958 in Whangarei, Culham Engineering is one of New Zealand’s largest privately owned fully integrated heavy fabrication and construction company. Our fabrication facility located on the edge of Northland’s Whangarei Harbour, it is one of the largest fabrication facilities in New Zealand. Our facility has some of the most advanced robotic fabrication equipment available in the current market. Our workshops total 22,000m<sup>2</sup> on a 9 ha area, with substantial laydown available. Being fully integrated we can fabricate, industrial blast and coat and site install.

We have a fully certified Management system that includes Quality, Health & Safety and Environment to ISO standards.

Culham Engineering has a large labour pool comprising of both employees and long-term subcontractors in excess of 850 in total. We have a proud history in training apprentices continuously since 1959. Currently Culham’s have 40 apprentices at various stages of their training. This commitment to the industry and the region has produced over 700 tradesmen. Many of the senior management within our organisation have advanced internally from the shop floor.



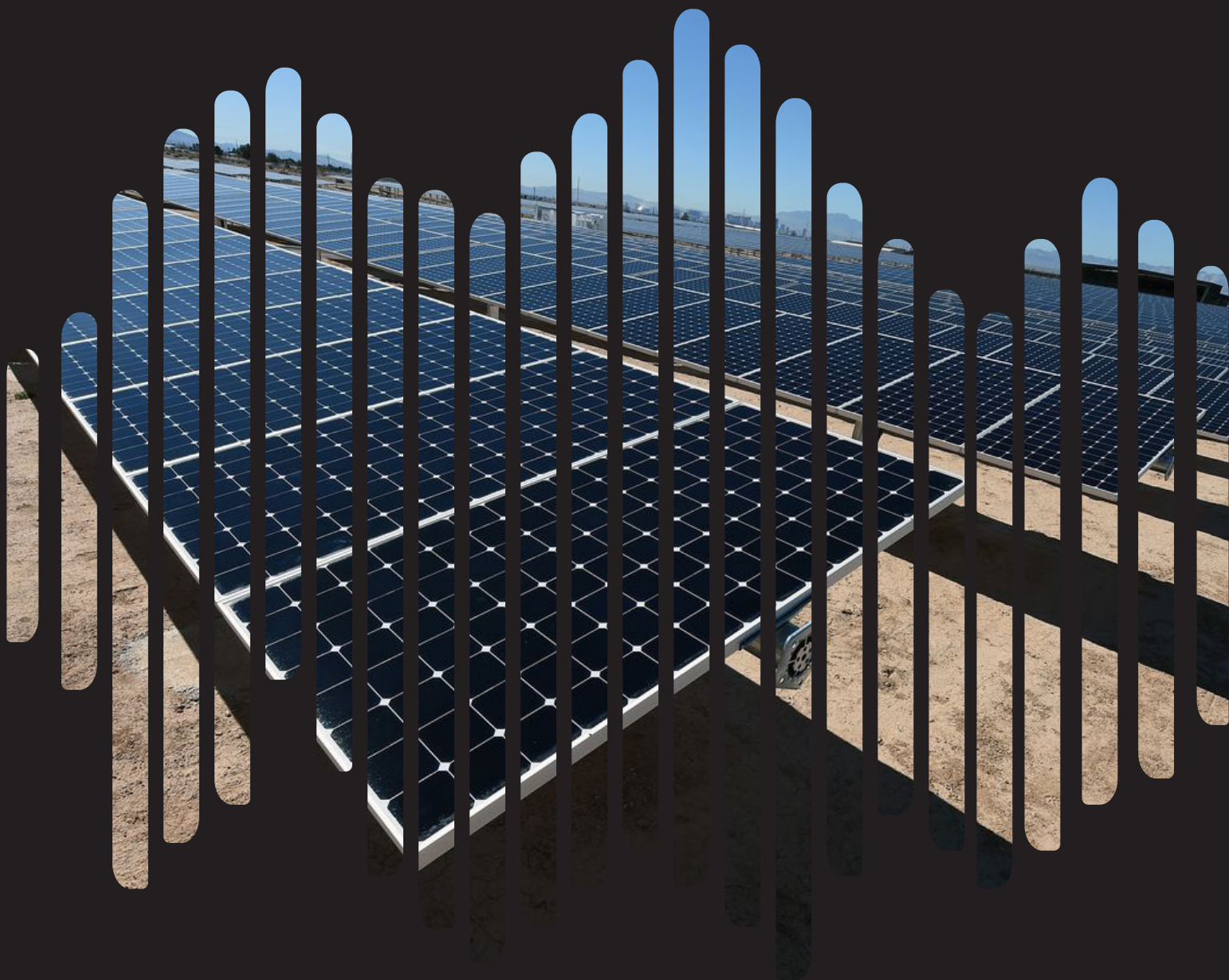


# RENEWABLE ENERGY

Capability Brochure



McKay™



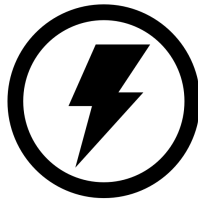
WORLD CLASS ELECTROTECHNOLOGY SOLUTIONS



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**As one of New Zealand's fastest growing technology companies, we endeavour to work at the forefront of the industry, providing solutions that support New Zealand's vision for the future.**

**As the country embarks on its mission to become carbon free and climate aware, we are keen to drive this movement and can support you in the development of cutting edge renewable energy solutions.**

**We currently work with governments, likeminded companies and key individuals to develop sustainable solutions both for our clients and for McKay, as we work towards our own sustainable business practices.**

**There are a number of funding options for companies looking to develop and implement renewable energy solutions. McKay will work with you to identify the most appropriate way to fund your project - from the initial concept through to the solution lifecycle.**

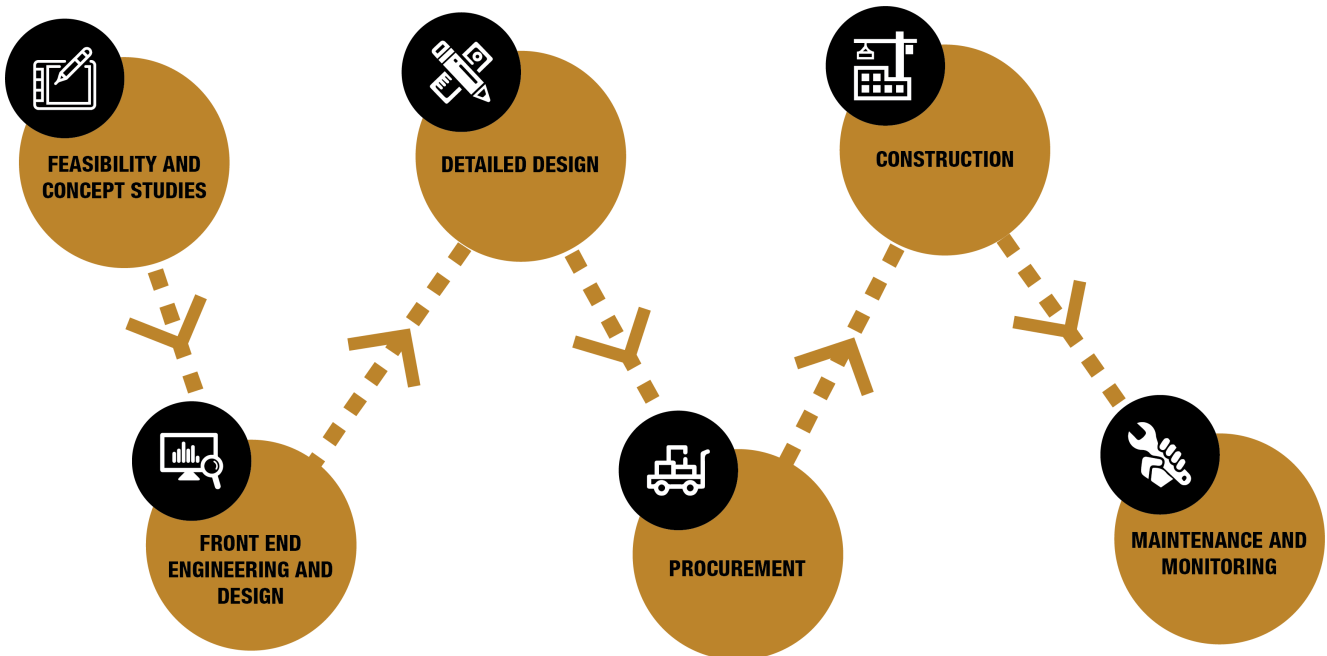
**Our goal is to achieve results through collaboration, innovation and world-class electrotechnology.**

**"We are committed to a low carbon energy future and with the launch of McKay Renewables we intend to deliver on this goal. We are eager to highlight our renewable services and look forward to what the future brings." - Richard Adams, Renewable Energy Manager**



# END-TO-END ENERGY SOLUTIONS

**McKay has the resources and capability to deliver leading energy solutions for our clients. Our end-to-end solutions handle everything, from initial conceptual design, to through-life support.**



Here at McKay, we have extensive experience in the power generation industry and have recently strengthened our ability to offer leading renewable energy solutions.

Our extensive resources combined with our partnership with leading renewable energy solution providers enables us to fulfil our clients needs and beyond.

One of our renewable energy strengths is solar power. Solar can not only reduce your carbon footprint, but it will reduce your long-term operating costs, allowing

governments and businesses across New Zealand to reduce energy expenditure and become more sustainable.

McKay can offer solar consultation, business uses and show you the benefits and long-term cost savings of implementing solar power.

We are experts in solar installation and can provide you with the knowledge to make informed decisions about your solar options.

# OUR WORK

## MARANGA RA SOLAR FARM

**Client:** Refining NZ

**Location:** Northland, NZ

**Value:** Overall project value approx \$38m;

**FEED development value approx. \$660k;**

**Detailed design value approx \$650k**

**Date:** 2019 - 2020

**Description:** Project management of the FEED team for the development of a 26.7MW solar PV farm

McKay have been involved in the detailed design and engineering works for the Maranga Ra Solar Farm Project in Northland, New Zealand. The 31-hectare farm will be New Zealand's largest and will supply 26.7 MW or around 10% of the client's total electricity need. The solar farm will reduce electricity costs by around \$3-4 million and reduce CO2 emissions by a further 18,000 tonnes per year.

McKay have worked closely with the client from initial concept, right the way through to feasibility study and detailed electrical design. McKay's ability to offer a complete end-to-end solution throughout each phase of the project makes us a unique contractor and demonstrates our full range of capabilities – from complex engineering and design, to on-site installation.

Full scope of works:

Front End Engineering and Design:

- Technology selection
- PV plant layout and optimisation
- Energy Yield Assessment
- RMA Consenting with WDC and NRC
- Community engagement
- Liaison with Northpower; Transpower and the Electricity Authority

- Produce the project construction budget
- Produce the operations and maintenance budget
- Development of the project financial modelling
- Engagement with project financiers and lending institutions
- Shipping and logistics
- Liaising with the insurance institutions

Detailed Design Phase – Overall project management of:

- Detailed Electrical design of the Solar farm including substation and grid connection
- Detailed design of the plant wide SCADA system
- Detailed Civil design
- Procurement contracts for major key equipment
- Develop the connection agreement with Northpower
- Construction contracts for the Electrical (internal McKay) and Civil works
- Final Energy Yield Assessment
- Final financial modelling
- Interface for the 3rd Party Technical Due Diligence
- Interface for all technical aspects with the project leaders
- Acquire final consents approvals from WDC and NRC as well as the License's to Occupy.

Construction Phase – Placed on hold due to a strategic company review

# OUR WORK

## SOLAR SITE ASSESSMENTS

**Client:** Various

**Location:** Northland

**Value:** \$10K-\$30K per site

**Description:** Assessment of a site's suitability for a solar farm

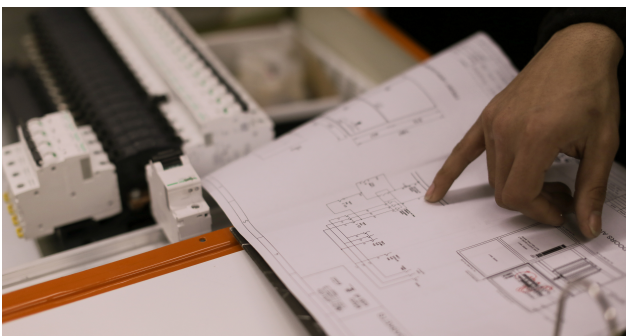
McKay is a local Northland company and has been working in the area for 84 years

Northland has some of the highest irradiance levels in New Zealand and with its proximity to the Auckland market it is a perfect location for a solar farm. This is evidenced by recent announcement of several large scale solar farm builds in the region.

Having worked on numerous projects in the region we are very familiar with the local grid infrastructure and ground conditions.

McKay also has a good network of local partners who specialise in areas like planning, earthworks, geotech.

This allows us to quickly assess any natural hazards associated with the site. We can also review the slope and orientation of the land to determine the likely ground coverage ratio (GCR) and any potential shading implications.

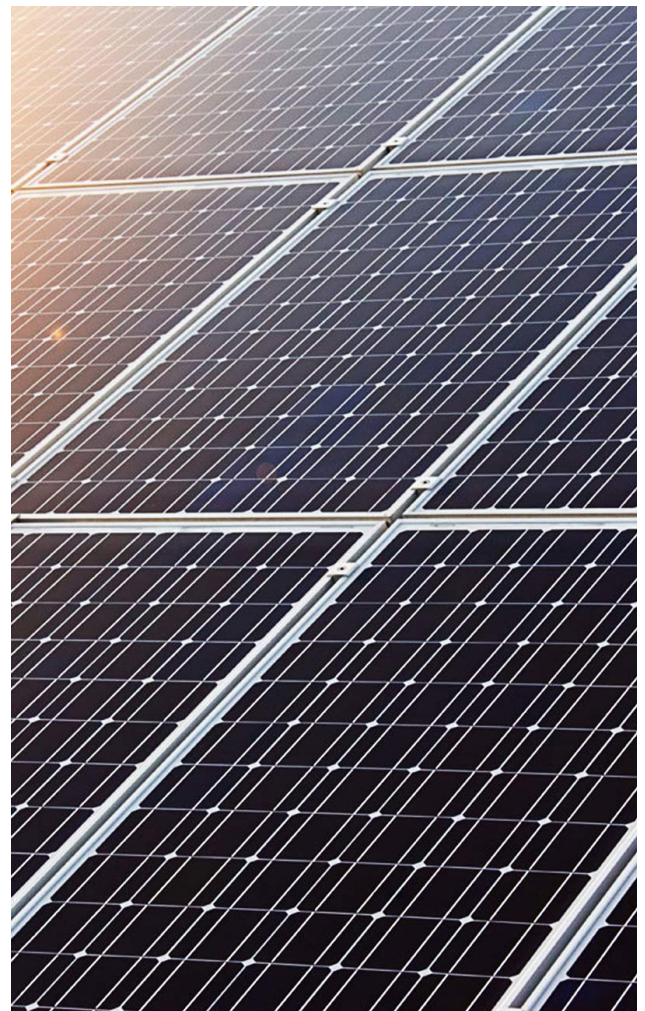


Drawing on this experience we can offer efficient site assessments to determine their suitability for solar

Should the site be suitable we can develop pre-feasibility and feasibility studies for the sites.

These studies include:

- Technology selection
- Basic site layout
- Basic energy yield
- Capital cost estimate
- Operating cost estimate



# OUR WORK

## WAIPIPI WIND FARM

**Client:** ISS (Industrial Site Services)

**Location:** Waipipi, Taranaki

**Value:** Approx \$600K

**Date:** 2020 - Ongoing

**Description:** Electrical Services for Windfarm Construction

McKay Ltd are providing 5+ electrical personnel for the assembly of the 31 wind turbines at the Waipipi windfarm in Taranaki. Technicians executing this project needed to have relevant track record in the installation and maintenance of complex electrical systems including electricity generation. Staff needed to undergo an intensive training course to receive several advanced training competencies in fire safety awareness, working at heights etc particular to this specific job type.

This windfarm generation system will be connected to the Transpower 110kV network via 11 kilometres of 110kV transmission line to the Waverley Substation. The overall result will be power generation and supply of an estimated 133MW with an annual output of 455GWh of electricity to supply the NZ electricity grid.

The scope of works has included the tower section assembly in conjunction with the mechanical teams, supply and internal cable terminations of copper and aluminium materials, electrical switchboard and control cabinet installation, and electrical testing and commissioning. Supplementary tasks have included fault

finding of site equipment and imported machinery such as generating sets and onsite plant and equipment.

McKay Ltd have provided a competent and capable service to the client with the client noting that the first commissioned tower to be handed over was inspected to have a pre-commissioning defects list one third lower than the expected quantities. This was seen to be even more so impressive since these are not only the first wind turbines of their size in New Zealand, but also the first wind turbines of their kind in the world.



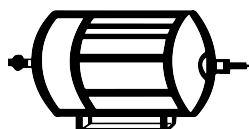
# OTHER POWER EXPERIENCE

## KA51 Geothermal Reinjection Wellhead

The McKay Team have completed and commissioned a new reinjection wellhead for Mighty River Power. In this design / build contract all facets of the project were performed by resources from within the business. Our electrical and instrument staff undertook the 11KV power reticulation to the site from the local network as well as the fibre optic cable link back to the power station control room. At the wellhead, specialist foundation fieldbus instrumentation & control valves, local power, lighting and security cameras were installed. A Honeywell remote DCS rack was also installed at the wellhead with the DCS control code and HMI design and commissioned by McKay control system engineers.

## Nga Awa Pura Geothermal Power Station Trip Testing

The Nga Awa Pura Station has the largest geothermal power turbine in the world, situated near Taupo central north Island NZ. Our control system engineers were engaged to undertake a project to develop a full set of shut down trip testing procedures to conform with statutory inspection requirements. This enabled full functional checking of all alarms and interlocks associated with the turbine including inputs & outputs from upwards of 200 instruments, monitors and 11Kv generation protection relay. On completion the McKay engineers successfully undertook the trip testing during the plant annual shutdown.



## More Geothermal Projects

- Design and build of the Putuaki Steam field power, E&I
- Project managed construction Kawerau Geothermal station E&I
- Design and Build Miraka clean steam plant E&I
- Design and build NAP steam field E&I
- Design & build well head E&I NAP pad G (3 wells, KA 47, KA 51, KA 54, PK 8, RK 22
- Design build separation plant E&I SP31
- Turbine trip procedure copulation and trip testing Kawerau Geothermal Station.
- Upgrade Eastland Energy HMI & servers GDL station

## Talk to us about your other power needs

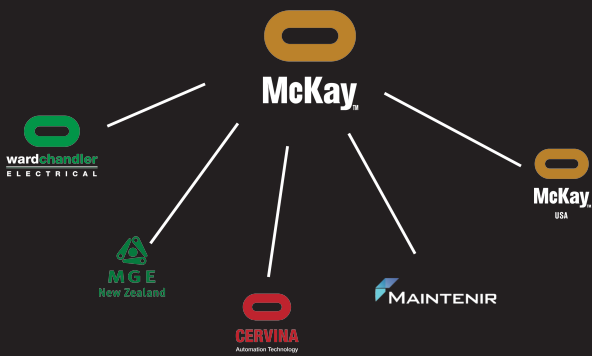
Whether its large scale solar or micro-grid generation, we are here to help. We can assist with the design of:

- Small scale hydro power
- Biomass waste to energy solutions
- Biogas utilisation
- Solar pumping

New Zealand is uniquely poised with an abundance of natural resources which are often overlooked when planning for power supply. Talk to us about how we can explore these options for you and deliver a power system unique to your business and location.

# THE SKILL AND RESOURCES OF SIX OPERATING DIVISIONS

Working with McKay means that you will have access to our seven main operating divisions, providing you with the extensive skills and resources to deliver any renewable energy project.



Our unique structure ensures that we deliver many aspects of our renewable energy projects in-house, delivering efficiency and supply chain benefits for our clients. This, coupled with our fantastic teams of designers, engineers, electricians and renewable energy specialists means that you will receive the best service every time.

The company's proud history began in 1936 (registered 1943) when McKay was first founded by Tom McKay and then purchased by its now current owner the Faithfull Family. Our current Managing Director Lindsay Faithfull (Tom's great Nephew), with the help of the late Joe Faithfull, has successfully grown the business from the provinces of New Zealand into a multinational electro technology service provider that specialises in all types of electrical contracting and electrical engineering. We specialise in electrical installation, maintenance, repair and commissioning for low voltage systems.

This includes electrical engineering and systems integration; automation and

control system engineering; software engineering and development; electrical and communications installation and maintenance; marine electrical; and switchboard design and manufacture.

Our Services include:



We deliver these services to a range of sectors and industries across New Zealand and deliver electrical and engineering works for water and wastewater, local and central government and the dairy industry to name a few. Our teams specialise in delivering works for both large scale and small-scale projects and can deliver a full end-to-end solution, from initial concept and design, right the way to through-life maintenance. Markets we serve:



# RENEWABLES TEAM



## Lindsay Faithfull, Managing Director

Lindsay is CEO & Managing Director of McKay and has successfully grown the company from the provinces of New Zealand into a world-class international electrotechnology solutions provider. Lindsay is passionate about innovating energy solutions and has overseen and driven the establishment of the renewable energy division at McKay. He has extensive knowledge in electrical engineering and has been personally involved in the high-level design and delivery of some of our largest renewable energy projects. Lindsay has a BE(HONS) from Canterbury University, is a Member of the New Zealand Institution of Professional Engineers, the UK Institution of Engineering and Technology, is a UK chartered engineer and is a Member of the Institute of Directors.



## Richard Adams, Renewable Energy Manager

Richard comes to McKay with, over 20 years' combined experience in the renewable energy power generation sector. His impressive career history demonstrates Richard's successes in project execution and ability to secure projects through the implementation of strategic business development initiatives in both existing and new market environments. His excellent understanding of advanced technologies enables Richard to instil confidence and trust in clients, stakeholders and employees. Having vast international working experience throughout Africa, the Middle East and South East Asia, he employs a participative management style, crafting a persuasive vision and inspiring people across geographic and cultural divides to collaborate in forming strong and cohesive teams.



## Lauren Faithfull, Renewables Engineer

Lauren is a skilled engineer with a depth of experience in energy solutions for both non-renewable and renewable sectors. Having begun her career in the oil and gas industry, Lauren has an in-depth understanding of process engineering and the delivery of engineering support for large-scale energy production processes. This knowledge, combined with her impressive university education and supplementary certification in renewable and solar energy has enabled the trained engineer to deliver highly effective engineering support for energy projects, including those with a renewable scope. Within her role at McKay, Lauren has played a key role in the design and delivery of some of New Zealand's largest solar projects. Lauren has a Bachelor of Engineering in Chemical Engineering and a Post graduate certificate in renewable energy.



**McKay**<sup>TM</sup>



## **Northport geared to support regional growth**

Northport, Northland's deep-water port at the entrance to Whangarei Harbour, is ideally placed to support projects right across the region.

The port has been involved with many significant and large-scale projects over the past 20 years. In addition to a range of container handling equipment it has handled super-sized cargoes such as modules for Refining NZ's expansion at its Marsden Point refinery, large industrial units such as those destined for Top Energy's geothermal expansion project at Ngawha, and specialist lifting operations such as pontoon modules built locally in Ruakaka for the new ferry terminal in Auckland.

Northport is also able to offer significant amounts of storage space, both on and off the wharf. This capability, along with a corresponding saving in storage costs, enabled Whangarei's Culham Engineering to compete effectively with global steel suppliers by landing nearly 10,000 tonnes of high-quality fabricated structural steel destined for high-profile major construction projects in Auckland.

"Northport was able to offer us a complete on-site logistics package," said Rob Kirwan, managing director of Culham Engineering. "Both Northport and joint owner Marsden Maritime Holdings were brilliant to work with. They have a really big-picture view of how they can support businesses like ours right across the upper North Island and have been really supportive of our growth plans."

Northport's two mobile harbour cranes are well suited to handling larger or more awkward cargoes.

The Auckland ferry terminal's nine pontoon modules were built locally by Ruakaka-based SPIIND Industrial Engineers at its facility on Marsden Point Road. These were put into the water at Northport and towed by tug to Auckland. The heaviest single lift was 165 tonnes which required the two cranes to work together in a coordinated lift. Individually the cranes are able to lift up to 125 tonnes. The units were transported at night to Northport's wharf on specialised heavy-haul transporters. As with the enormous modules for Refining NZ's expansion project, the port had to remove a segment of boundary fencing each time to let the loads enter.

SPIIND managing director Paul Hebbard said Northport's ability to handle large loads with its two mobile harbour cranes was "a deal-maker".

Northport is well suited to handle large cargo and its team can add significant value to any project planning process. Early consultation and a collaborative approach are important to ensure that designers are aware of limitations around weight or width, avoiding the need for costly changes to design and even identifying where savings and efficiencies might be made.

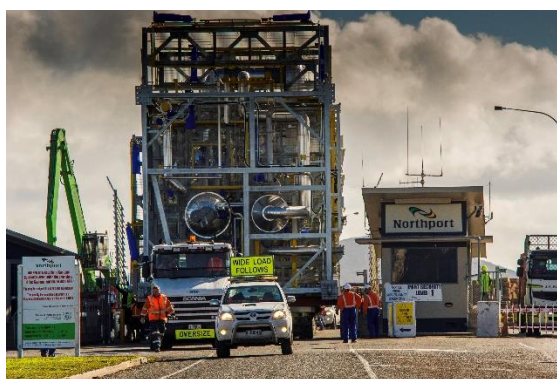
Collaboration was the name of the game when Northport helped engineering contractors get a vital construction crane onto a barge so they could build a new loading system and terminal for Golden Bay Cement at Portland. This was a true piece of teamwork involving Northport, Culham Engineering, Refinery Rigging and Brian Perry Civil, part of Fletcher Building's infrastructure group. Teams from all parties worked under tight time-frames to develop a plan for the lift.

“I was impressed by the rigour and quality of the planning and coordination I saw from Northport,” said Tom Stewart, Brian Perry Civil’s piling superintendent. “It helped ensure that the job got done carefully, safely and effectively.”

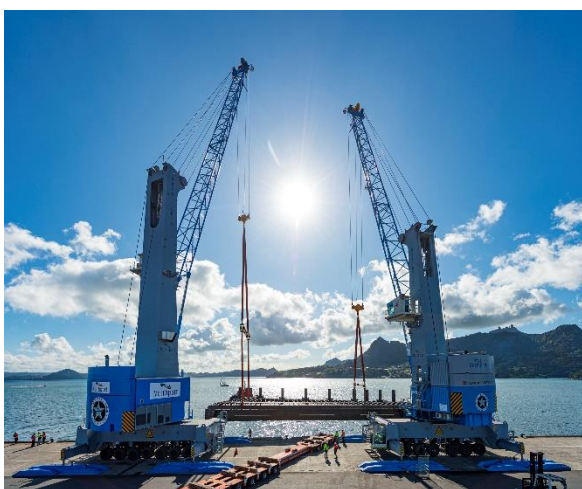
That feedback is reflective of Northport’s ability to work in a flexible way, with single or multiple partners, within tight time frames and at competitive rates.

“Our strength is that we’re a small team, highly focused on meeting customer needs in a proactive and collaborative way, working a multi-purpose port that was designed to support economic growth in Northland,” said Northport chief executive Jon Moore. “That’s what we do. And that’s what we’re great at.”

**Heavy lifting.** Modules for the expansion project at Refining NZ being offloaded at Northport and transported to the refinery (below).



**Doubling up.** Modules for the Auckland ferry terminal pontoon weighing up to 165 tonnes were put into the water by Northport’s two mobile harbour cranes and towed by tug to Auckland (below).



**Flexible.** Carbon dioxide storage modules coming ashore at Northport (below). The port’s small team is highly focused on meeting customer needs in a proactive and collaborative way.

