2 July 2021

SUBMITTED BY PORTAL AND EMAIL

Mr. Ross Copland
Chief Executive
New Zealand Infrastructure Commission
Level 7
The Todd Building
95 Customhouse Quay
Wellington 6011, New Zealand

Dear Ross,

OFFSHORE WIND ENERGY DEVELOPMENT TO SUPPORT THE INFRASTRUCTURE STRATEGY

Oceanex Energy Pty Ltd, an Australian-headquartered offshore wind energy developer (described further below), writes this submission in response to the Aotearoa New Zealand Infrastructure Strategy Consultation Document (He Tūāpapa ki te Ora - Infrastructure for a Better Future) released in May 2021 (**'Consultation Document'**).

The Consultation Document, which will help shape the Infrastructure Strategy to be delivered by the Minister for Infrastructure by the end of March 2022, sets out clear objectives for Aotearoa to ensure that infrastructure helps New Zealanders have the services, and life, they expect into the future. Key to that is the need to develop infrastructure that is 'future-focused' and adaptable and responsive to changing circumstances, including climate change.

The New Zealand Government is already well-progressed in this objective and has further set an ambitious target for the country of 100% renewable electricity by 2030. This restructuring of energy supply is expected to happen in tandem with a push to electrify transport and industrial process heat which will greatly increase electricity demand. Although smaller scale renewable energy developments such as solar and onshore wind farms can contribute to this demand, we believe that New Zealand has a chance to think big and promote the development of large energy infrastructure projects such as offshore wind farms.

Offshore wind is now considered a mature technology in Europe and China, with other global markets such as the US Atlantic Coast, Taiwan, Japan, South Korea, and Vietnam following closely and Australia also on the cusp of introducing legislation to promote its development. Around the world, the role that offshore wind can play in achieving ambitious energy transition commitments is becoming increasingly clear[1].

[1] GWEC (2020). Global Offshore wind Report

Oceanex makes this submission proposing the development of an offshore wind energy industry to help the New Zealand Minister for Infrastructure (and Government) reach its infrastructure and energy goals and help deliver a number of benefits including supporting a push for a zero-carbon economy, creation of a large and sustainable workforce with strong roots in existing industries and skillsets, assisting with consolidating a governance and regulatory package to advance stated objectives and attracting significant investment (local and international).

We have completed relevant parts of the survey that accompanies the Consultation Document which are included in the Appendix to this submission.

About Oceanex Energy

Oceanex Energy Pty Ltd, is an Australian-headquartered company actively developing a portfolio of offshore wind farms off the coast of Australia and has recently announced its plans to develop a number of projects off the coast of Aotearoa through its New Zealand entity, Oceanex Energy NZ Ltd (together **'Oceanex'**). Our plans include the potential to develop, construct and operate over 3GW of offshore wind energy capacity in multiple locations off the NZ coast strategically identified to support utilisation of existing infrastructure, large job creation and optimisation of existing skillsets.

Oceanex was founded, and is led, by Andy Evans and Peter Sgardelis, who are two of the founders of the Star of the South, Australia's first and largest proposed offshore wind farm and have been integral to the Australian Government implementing a regulatory framework to govern offshore electricity infrastructure, which is expected to come into operation by the end of 2021.

The Oceanex interest in New Zealand has been long-held with first correspondence with the Ministry for Business, Industry and Employment (**'MBIE'**) in September 2019 and more recently with numerous private sector companies and industry bodies. With a well-established renewable industry in New Zealand and a renowned perception of 'getting things done', Oceanex believes New Zealand is well-placed to fit offshore wind energy into its' infrastructure and energy mix by the end of this decade.

Oceanex is committed to 'on the ground' development of an offshore wind industry in New Zealand through its' local entity and consultants currently progressing project and, in the near future, a locally-led workforce at the appropriate time.

The offshore wind opportunity for NZ

Offshore wind provides large-scale clean, reliable, affordable electricity able to create huge new investment and jobs to transform New Zealand. Offshore wind provides many benefits that differentiate it from other proposed sources of electricity generation including:

Electricity reliability and security

- Offshore wind provides large electricity supply and network reliability as winds blow longer and stronger at sea. Generation is often well aligned with peak demand periods.
- Offshore wind projects can provide effective replacement of part of the generation which will be lost with the gradual decommissioning of the Huntly thermal power plant, planned in the coming years, and utilisation of existing transmission assets

- Offshore wind projects generally have higher capacity factors than onshore equivalents which, combined with lower variability and large project scale can give them a system value comparable to that of baseload technologies[2]. This could impact the engineering and business case for future large NZ projects such as the proposed NZ Battery (e.g. development of Lake Onslow), potentially leading to revising total storage and the time required to fill the reservoir.

- A large offshore wind farm feeding directly into the North Island grid would provide resilience to the NZ energy infrastructure by mitigating the risk of damage and interruptions to the HVDC inter-island connection. Given the importance of the connection in balancing load across the islands and the vulnerability of the HVDC transmission to an Alpine Fault 8.0 magnitude earthquake[3], we feel this is a point that cannot be overlooked.

Corporate PPAs and downward pressure on prices

- High wholesale electricity prices due to dry year and gas shortages are seriously impacting large electricity users, even forcing industries to cut production. Large Offshore wind projects provide exceptional opportunities for corporate Power Purchase Agreements (‘**PPAs’**), promising stable electricity prices over long periods. Based on the Oceanex-proposed location of offshore wind projects in NZ, they could act as catalysts for large energy users moving production facilities around the country, potentially leading to redistribution of load and employment opportunities.

- Transpower are currently updating their Transmission Pricing Methodology[4]. In the case of costs for inter-island HVDC transmission being recovered from users based on load, this would effectively mean that large energy users in the North Island will be paying a premium when using electricity generated in the South Island and transmitted across the Cook Strait. This highlights the opportunity of promoting large generation projects such as offshore wind to be installed off the North Island coastline.

[2] IEA, Offshore wind Outlook 2019
[3] Project AF8 (2018). Safer Framework: South Island / Te Waipounamu Alpine Fault earthquake response
[4] https://www.transpower.co.nz/industry/transmission-pricing-methodology-tpm

Oceanex

Large inbound investment and growth

- Offshore wind developments have all the characteristics of large infrastructure projects, requiring capital expenditures, mobilising international investment, creating many direct and indirect jobs (including highly skilled) and promoting growth of regional and national economies. For example, Oceanex expects its Australian projects to have development expenditures of >NZD 250 million and capital expenditures of up to NZD 10 billion, with similar expenditures expected on the 2-3 potential projects planned for New Zealand.

- In Europe and globally, institutional investors such as pension and infrastructure funds, as well as large operating and corporate groups, are increasingly adding offshore wind developments to their portfolios. This has been the case in Australia with Copenhagen Infrastructure Partners (a large Danish infrastructure fund backed by dozens of global pension funds) investing in the Star of the South, and Green Tower (a European fund backed in large part by the Japanese Daiwa Group) investing in Oceanex. Such groups encourage strong local partnership, and this could represent an attractive proposition for New Zealand e.g. with Crown and Iwi acting as co-investors, enabling Māori communities' participation in energy infrastructure development.

The introduction of key signals such as regulatory frameworks or an open approach to welcoming new investment will only stimulate greater interest in countries such as New Zealand.

Enabling new industries

- Offshore wind has been recognised as an enabler of innovative new industries such as green hydrogen production for export and electric transportation[5] and able to accelerate the supply chains and support infrastructure (physical and financial) necessary to make them a reality.

Employment stimulus and Just Transition

- The installation, operation and maintenance of offshore wind farms share many synergies with offshore oil & gas activities, requiring a highly skilled labour force[6]. This offers an opportunity to aid the Just Transition of the Taranaki workforce towards a renewable energy future. Studies are currently underway to determine the amount of supply chain that would be activated locally by an Offshore wind development off the coast of Taranaki - several consultants and fabricators have already been identified who could provide services to the offshore wind industry.

[5] Venture Taranaki (2019). Offshore Wind – A new energy opportunity for Taranaki
[6] GL Garad Hassan (2013). A guide to UK Offshore Wind Operations and Maintenance

- The rapid development of floating offshore wind projects[7], with wind turbines deployed in waters deeper than 50 metres, also provide an opportunity for New Zealand to become a technology and innovation leader in a large-scale industry with a global impact.

Energy in the right places, avoiding competing use

- The availability of a world-class offshore wind resource around most of New Zealand means that offshore wind farms could be built close to the main load centres (e.g. upper North Island), limiting the required long-distance transmission.

- Offshore wind does not compete for land otherwise used for residential, agricultural, or industrial purposes.

Consenting of marine structures

Most prospective offshore wind developers would agree that one of the major hurdles to early project planning and financing is the risk deriving from an unclear pathway to consenting and permitting. At present, no specific resource consent process exists in New Zealand for leasing offshore wind areas and, ultimately, building an offshore wind farm. In the next few years, developers will have to work alongside local and central government authorities and interest groups to establish a framework for consenting these kinds of projects, recognising their impacts and their benefits.

This aligns well with the proposal by the Infrastructure Commission to establish Renewable Energy Zones with a "permissive/enabling consenting environment". We feel it important to clarify that establishing a consenting environment for offshore wind should not be considered an impossible task: marine structures have been successfully consented in the past in New Zealand, both within 12 nautical miles distance from the coast (under the authority of regional councils) and beyond 12 nautical miles (in the Exclusive Economic Zone or **'EEZ'**, subject to the authority of the Ministry for the Environment). Some examples of projects which would have gone through analogous resource consent processes are:

- Offshore Oil & Gas platform in Taranaki
- Cook Strait HVDC cables
- International communications cables in the Hauraki Gulf

Offshore wind farms installed in the EEZ will likely require similar processes and engagement with government agencies to that required for offshore exploration and mining. The figure below shows which local and central government agencies are involved in overviewing activities for offshore exploration and mining[8].

[7] IRENA (2019). Future of wind
[8] www.epa.govt.nz/industry-areas/eez-marine-activities/roles-and-responsibilities/who-does-what-and-when

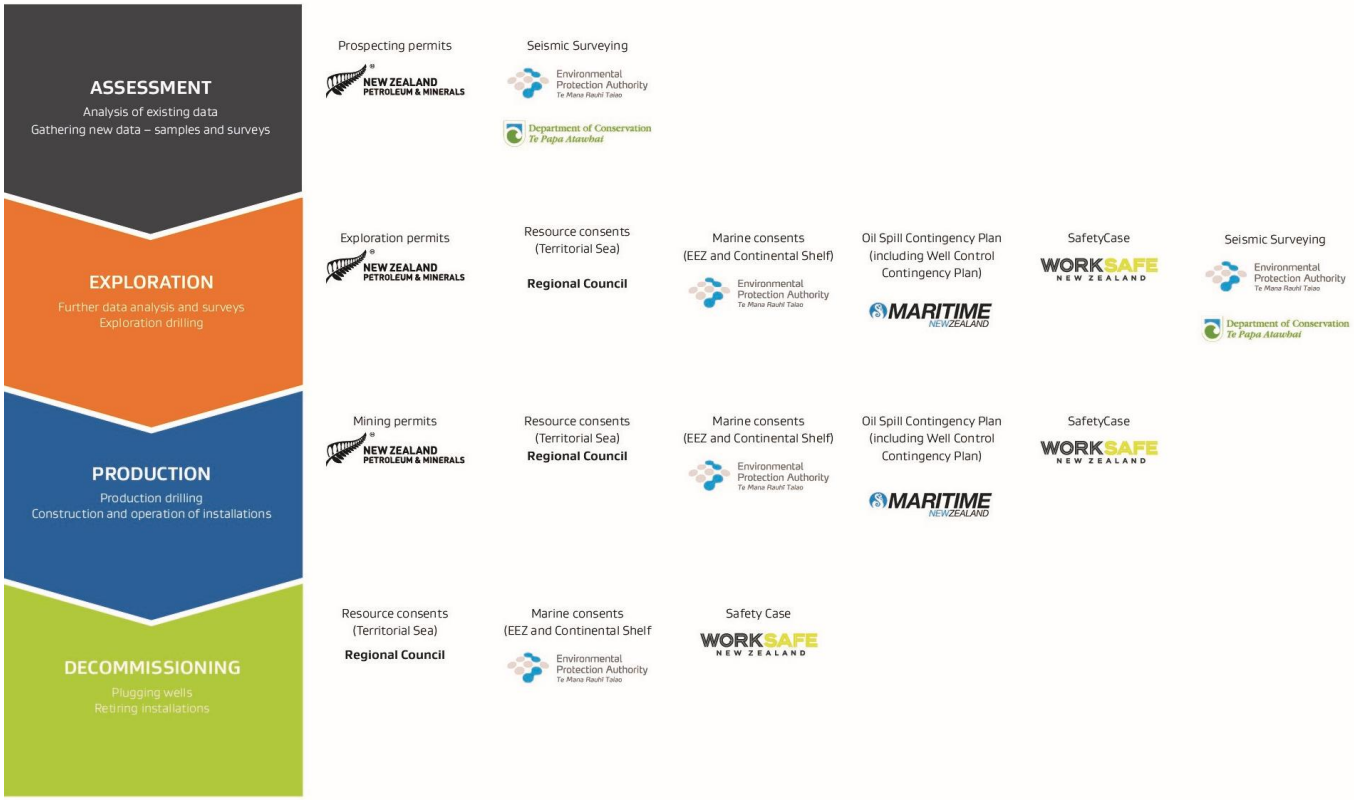

Figure 1 – Roles and responsibilities for developments in the EEZ

Offshore wind projects installed or partly installed within 12 nautical miles from the coast would fall under the jurisdiction of regional councils and the *Resource Management Act* (which is currently under revision). Their consenting would likely be assessed by means of instruments such as regional coastal plans.

As an example, Taranaki Regional Council has prepared a regional coastal plan with the express purpose to "promote the sustainable management of natural and physical resources in relation to the coastal marine area". The Taranaki coastal plan focuses on the issues listed below, several of which would be of relevance for an offshore wind development.

- Recognition of differing coastal processes, natural values and uses of the coastal marine area
- Protection of social and cultural values
- Effects on areas of outstanding coastal value
- The relationship of tangata whenua with the coastal marine area
- Adverse effects on the foreshore, seabed and coastal land
- Natural hazards
- Adverse effects on existing structures
- Adverse effects on water quality
- Use of water
- Adverse effects of unreasonable noise

- Degradation of air quality arising from the discharge of contaminants
- Effects on navigation and safety
- Occupation and public access

We believe that a consenting roadmap for offshore wind in New Zealand could make use of many legislative processes that already exist in acts such as the Crown Minerals Act, the EEZ Act and the Marine and Coastal Area (Takutai Moana) Act 2011. For example, offshore oil & gas installations based in the Exclusive Economic Zone off the coast of Taranaki such as the Maui gas field must regularly obtain resource consent for their marine operations. A resource consent application will see the following evidence submitted by applicants:

- Stakeholder engagement – ongoing planning and reporting of engagement with iwi, hapū and whanau and consideration of customary interests.
- Economic impact – for example, justifying the adoption of one type of vessel rather than another to carry out the activities
- Impacts on commercial fisheries
- Impacts on marine mammals
- Impacts on seabirds
- Marine ecology and biosecurity
- Hydrodynamic studies
- Harmful substances and unplanned spill impacts
- Planning and conditions

An offshore wind project is likely to require similar types of studies.

Like any marine operation, installing and operating an offshore wind farm will have some impact on the surrounding environment. However, strategies for effectively mitigating these impacts exist and are currently successfully being used in offshore wind farms around the world.

The role of Government

Government can support offshore wind development in New Zealand in different ways. A major help would be to establish a resource consent system which reduces project risk for developers of renewable energy and will attract new investment.

The Government can also take a more proactive approach. In the UK, the Crown Estate play an active role in gathering pre-feasibility data for areas of seabed which they have assigned for offshore wind development. The selected areas are then put out for tender, alongside the initial information on the resource and main site characteristics such as water depth, type of seabed etc. This helps developers with early project de-risking. Alternatively, developers like Oceanex, may undertake detailed studies to inform the Government in allocating rights in a more expedient way.

Australia is on the cusp of introducing a regulatory framework which will provide for the rights to undertake exploration/feasibility activities (under a 7-year 'Feasibility Licence') and then to

construct, operate, maintain and decommission offshore wind farms. The *Offshore Electricity Infrastructure Act (Cth)* (**'Australian Act'**) is expected to be introduced into the Australian Parliament in the Winter Session of 2021 and be passed into law by the end of 2021. It ties in with existing planning and environment laws already in existence at the Commonwealth and State levels.

The founders of Oceanex were responsible for introducing offshore wind to the Australian Government in 2015 and have been working closely with them to have the appropriate regulations put in place to stimulate further interest in the industry and provide a governance structure. The first interaction with MBIE in 2019 was as a result of publicity about the proposed regulatory framework and the interim rights provided to the Star of the South under an 'Exploration Licence', which provided contractual rights to that project to exclusively explore a proposed site. It is expected that the introduction of the Australian Act will be a clear signal to local and international industry and investors that Australia supports the development of an offshore wind industry. Oceanex believes this will lead to significant new levels of investment and benefit to other related industries.

Oceanex is extremely supportive of the further development of infrastructure and energy initiatives in New Zealand and believes that offshore wind energy provides a unique, large-scale opportunity to meet many stated objectives. We are hopeful of becoming a key contributor to a prosperous Aotearoa and welcome the opportunity to discuss our submission further with the Infrastructure Commission.

We would be delighted to discuss our plans and how they may support the Infrastructure Strategy further with you and can be contacted at [redacted]

Yours sincerely

[redacted]

Chief Executive Officer
Oceanex Energy Pty Ltd/Oceanex Energy NZ Ltd

APPENDIX

Discussion questions

Q1. What are your views on the proposed 2050 infrastructure vision for New Zealand?

Support. Renewable energy from Offshore wind projects can play a major role in building a productive, sustainable and carbon-neutral economy. Offshore wind developments require large capital expenditures, mobilise international investment, create many direct and indirect jobs (including highly skilled) and can assist Aotearoa on the path to a globally integrated economy. Moreover, a large offshore wind farm feeding directly into the North Island grid would provide resilience to the NZ energy infrastructure by mitigating the risk of damage and interruptions to the HVDC inter-island connection.

Q2. What are your views on the decision-making principles we've chosen? Are there others that should be included?

We support the decision-making principles for guiding the future of energy infrastructure in Aotearoa. We especially support the proposal that innovative (for NZ) energy generation options such as offshore wind be assessed not just relying on indicators such as the Levelized Cost of Electricity but considering wider benefits to society such as creation of employment opportunities, equitable redistribution of electricity prices, long-term resilience etc.

Q3. Are there any other infrastructure issues, challenges or opportunities that we should consider?

One of the key themes identified from the asset owners survey is ensuring Aotearoa is equipped to deal with climate change and how the transition to a low-emissions economy may occur (IC, page 39). Offshore wind farms offer an opportunity to aid the Just Transition of the workforce of regions such as Taranaki towards a renewable energy future since the installation, operation and maintenance of offshore wind farms share many synergies with Oil & Gas activities, requiring a highly skilled labour force.

Offshore wind represents a significant opportunity for Aotearoa's energy future. Offshore wind provides large electricity supply and network reliability since winds blow longer and stronger at sea, yielding more power, more of the time. Generation is often well aligned with peak demand periods. Offshore wind projects can provide effective replacement of part of the generation which will be lost with the closure of the Huntly thermal power plant, planned in the near future. New Offshore wind projects have generally higher capacity factors than onshore equivalents which, combined with lower variability and large project scale can give them a system value comparable to that of baseload technologies. This could impact the engineering and business case for future large NZ projects such as the proposed NZ Battery (e.g. development of Lake Onslow), potentially leading to revising total storage and reducing the time required to fill the reservoir.

Q7. What infrastructure issues could be included in the scope of a national energy strategy?

We support the view that, in the current environment of high pressure to reach climate goals and low interest rates, building spare transmission capacity could represent a positive signal to encourage the growth of future renewable energy generation.

Meeting the targets will likely require developing large energy projects and currently, the risk is that consenting becomes a major non-technical barrier to these developments. Many countries are asking for

a "one-stop shop" approach to consenting of projects of national significance, where developers have to only deal with one or few consenting authorities. An example of such a scheme is the UK, where the Planning Inspectorate is the government agency responsible for examining applications for Nationally Significant Infrastructure Projects.

Q8. Is there a role for renewable energy zones in achieving New Zealand's 2050 net-zero carbon emissions target?

Yes. As discussed in Q7, clearer and simpler pathways to consenting, akin to those suggested for renewable energy zones, will enable and accelerate investment in the large renewable energy projects such as offshore wind which are required to meet the targets set by Aotearoa.

Q.9. Of the recommendations and suggestions identified in the Ministry of Business, Innovation and Employment "accelerating electrification" document, which do you favour for inclusion in the Infrastructure Strategy and why?

With reference to Section 8 of the MBIE document, we support the introduction of a Power Purchase Agreement (PPA) Platform (point 8.1) and the development of offshore wind assets (point 8.4).
We also support MBIE's views on national grid expansion, including the need for mechanisms to mitigate first mover risk (Section 10).

On the issue of dry-year storage and energy security, as discussed in Q3, new Offshore wind projects have generally high capacity factors which can give them a system value comparable to that of baseload technologies. This could impact the engineering and business case for future large NZ projects such as the proposed NZ Battery (e.g. development of Lake Onslow), potentially leading to revising total storage and the time required to fill the reservoir.

Q11. What are the most important regulatory or legislative barriers to technology adoption for infrastructure providers that need to be addressed?

Despite the technology being mature and adopted internationally, offshore wind projects still require large capital investments due to the specialised nature of fabrication facilities, installation vessels etc. Uncertain or exceedingly complex regulatory environments translate into greater project risk and represent an obstacle to investment. As discussed in Q8, large infrastructure projects would benefit from a "one-stop shop" consenting approach.

Q15. What steps can be taken to improve collaboration with Māori through the process of planning, designing and delivering infrastructure?

We recognise and respect the concept of kaitiakitanga and agree on the Infrastructure Commission's view that more work needs to be done to improve the relationship between iwi/Māori and key players in the infrastructure industry (Crown and private).
In our initial feasibility studies for offshore wind in New Zealand we are referring to the "Best practice guidelines for engagement with Māori" to make sure we engage early with the many Māori stakeholders which would be involved in the development of an offshore wind farm.

Q16. What steps could be taken to unlock greater infrastructure investment by Māori?

In Europe, institutional investors such as pension funds are increasingly adding offshore wind developments to their portfolios. This could represent an attractive proposition for Aotearoa e.g. with Crown and Iwi acting as co-investors, enabling Māori communities' participation in energy infrastructure development.

Q24. For the 'Creating a Better System' Action Area and the Needs:

- **What do you agree with?**
- **What do disagree with?**
- **Are there any gaps?**

We agree with the overall framing of the Area and the Needs. Under the header "Improve project procurement and delivery" we would like to point out that New Zealand seems at times quite impermeable to ideas and innovation coming from abroad, to the point that methods, technologies and processes are sometimes 'rediscovered' in the country (e.g. Health and Safety at work, better housing standards). The Infrastructure Commission could coordinate a project to make sure that international best practices in infrastructure delivery are recognised and push industry to adopt them.

Q26. How can local and central government better coordinate themselves to manage, plan and implement infrastructure?

In the case of offshore wind development provide clear jurisdictional guidance on sea and land tenure in terms of project development, construction, operation and decommissioning requirements.

Q27. What principles could be used to guide how infrastructure providers are structured, governed and regulated?

In the case of offshore wind, guidance on development and regulation frameworks can be inspired by other international jurisdictions like UK, USA and emerging legislation in Australia.

Q28. What steps could local and central government take to make better use of existing funding and financing tools to enable the delivery of infrastructure?

Grants and R&D programmes could be established to encourage first mover investment and bespoke local adaptation of international technology for applications in Aotearoa.