BEFORE AN INDEPENDENT HEARINGS COMMISSIONER FOR WAITOMO DISTRICT COUNCIL

IN THE MATTER	of the Resource Management Act 1991 ("Act")
AND	
IN THE MATTER	of an application to vary resource consent RM050019 by Taumatatotara Wind Farm Limited under s127 of the Act

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EVIDENCE OF GLENN STARR
ON BEHALF OF TAUMATATOTARA WIND FARM LIMITED

CORPORATE

20 OCTOBER 2023

Counsel: G K Chappell

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1. INTRODUCTION

1.1 My name is Glenn Michael Starr.

1.2 I have a Bachelor of Engineering (Honors) Civil Engineering from University of Canterbury. I have thirty years' experience in wastewater treatment plant design, biogas plant design, electric bus transportation, international business and wind energy development.

1.3 I am the sole shareholder and director and of Ventus Energy (NZ) Limited (1488775), ("Ventus Energy"), a position I have held since September 2004. The Company was incorporated on 24 March 2004.

1.4 Ventus Energy is the majority shareholder of Taumatatotara Wind Farm Limited ("T4"), incorporated 15 July 2019. I am the sole director and minority shareholder of T4.

1.5 In 2004 I incorporated Ventus Energy NZ Limited. Ventus Energy currently has four wind farm projects totalling 600MW under development.

1.6 I have been active in the wind energy sector since 2000 when I began developing independent wind farms in the Republic of Ireland via Ventus Energy (Ireland). Two projects, namely Slieve Callan and Knockastanna were successfully developed, sold and then constructed by Brookfield Renewables (www.brookfield.com) and Scottish and Southern (www.sse.com). I have also previously held a position on the executive of the NZ Wind Farm Association Inc.

1.7 Other successful business activities undertaken by Ventus Energy include the establishment of Electric Autobus Ltd which has now built, imported or contracted for c. 200 fully electric urban buses – primarily for Auckland and Wellington.

1.8 I oversee the project management of all development activities on the Ventus Energy (NZ) Ltd portfolio of projects. My role in relation to wind farm development includes identifying appropriate sites, securing land access, site design, securing approvals, stakeholder engagement and ultimately procurement, and construction.

1.9 Ventus Energy is the original consent holder of Resource Consent RM050019 granted in 2008 to construct 22 turbines with tip heights of

110m above existing ground level at Taumatatotara West Road by the Waitomo District Council ("the T4 Project").

1.10 The Resource Consent RM050019 was varied in 2011 to permit the northern most 11 turbines with tip heights to 121.5m above existing ground level. This was processed by Waitomo District Council as a non-notified variation.

1.11 I advised the Council of the transfer of Ventus Energy's interest in the resource consent to T4 on 22 August 2019.

1.12 As part of the T4 Project, I have sought to strike an appropriate balance between designing a technically and commercially feasible project while ensuring that all stakeholders are adequately informed about and consulted on in relation to the proposal, as well as ensuring that any effects of the project are appropriately managed.

1.13 Having visited the T4 Project site and its surrounds over 50 times I am very familiar with it and the general area. I am also familiar with the application, the Council's requests for further information, the responses to those requests, submissions of other parties and the Section 42A report.

1.14 I am authorised to give evidence on behalf of Ventus Energy and T4.

Scope of evidence

1.15 In my evidence, I:

(a) Provide an executive summary of my key conclusions;

(b) Set out the background to the wind farm project as consented under resource consent RM050019 ("the Consented Wind Farm") and reasons for the application for variation to the Consented Wind Farm;

(c) Describe the terminology used for the components of a turbine;

(d) Describe the site for the wind farm;

(e) Provide an overview of the wind farm as it is proposed to be varied with reasons for the application;

(f) Summarise the positive effects arising from the wind farm in general terms;

(g) Outline the Updated Variation Proposal;

(h) Refer to the consultation undertaken;

(i) Respond to relevant submissions and proposed amendments to the resource consent to address issues raised in submissions, noting that these are dealt with more fully in the evidence of the various T4 experts;

(j) Address relevant matters in the Section 42A Report; and

(k) Provide some concluding comments on behalf of T4.

2. EXECUTIVE SUMMARY

2.1 T4 holds a consent to establish a 22 turbine on the Taumatatotara Wind Farm Site. Although the Consented Wind Farm has not yet been constructed, the site remains well located and suitable for a wind farm and the consent is capable of implementation. T4 has secured offers of supply from two different manufacturers for the turbines to implement the existing consent. However, engineering advances mean that since 2011 larger diameter turbine models with the same generators have become steadily more available. As a result, the ability for fewer turbines to now generate an equivalent amount of power has improved the financial viability of the project.

2.2 To accommodate these developments T4 has applied for a variation to change conditions of the current resource consent to:

(a) Reduce the number of turbines consented from 22 to 11 (Conditions 1 and 2);

(b) Increase the tip height of the remaining turbines from 121.5m to 172.5m (condition 3).

2.3 Since lodging the Variation Application, I have proposed some refinements to the project as follows:

(a) A further reduction in the number of turbines from 11 to 8;

(b) A minor increase in the maximum diameter of the rotor area from 155m to 163m for the remaining 8 turbines (an increase of 5%);

(c) A corresponding minor increase in tip height of the turbines from the proposed 172.5m to 180.5 m. This represents a 5% increase in tip height compared to the Variation Application. This is to allow the ground clearance of 17.5m, as proposed by the Variation Application, to be maintained.

2.4 Turbines 2, 4 and 9 will be removed. I have selected these turbines for removal to increase separation distances between turbines as close turbines cause unacceptable turbulent effects on each other.

2.5 The added advantage of the Updated Variation Proposal over the Variation Proposal is an overall 14% reduction in turbine rotor area compared to the Existing Consent, as well as the fact that Turbines 2 and 4 are close to some areas of vegetation. This will ensure that the potential intersection for avifauna is decreased, which is a positive effect.

2.6 Throughout the project I have endeavoured to consult with submitters and have proposed further amendments to conditions to respond to issues raised by submitters, the Council's various s92 requests and its Section 42A Report.

2.7 As has proven particularly true for many NZ wind farm projects, consented projects often need to be re-consented or varied due to the long timeframes to bring the essential ingredients together to result in a constructed project.

2.8 Overall, I consider the Updated Variation Application option to be a more efficient and effective use of resources with superior environmental and economic outcomes and I ask that the consent be amended / granted in accordance with the conditions proposed by Mr Shearer.

3. BACKGROUND TO THE PROJECT

3.1 T4 applied to change conditions of the current resource consent to:

(a) Reduce the number of turbines consented from 22 to 11 (Conditions 1 and 2);

(b) Increase the tip height of the remaining turbines from 121.5m to 172.5m (condition 3).

3.2 Further conditions of consent will require amendment as outlined in the planning evidence of Mr Shearer.

3.3 As the application has progressed, and as I will outline below, I have proposed some revisions to the Variation Application as follows:

(a) A further reduction in the number of turbines from 11 to 8 (removing turbines 2, 4 and 9);

(b) A minor increase in the maximum diameter of the rotor area from 155m to 163m for the remaining 8 turbines (an increase of 5%);

(c) A corresponding minor increase in tip height of the turbines from the proposed 172.5m to 180.5 m. This represents a 5% increase in tip height compared to the original Variation Application. This is to allow ground clearance to the bottom of the blade rotation of 17.5m, as proposed by the Variation Application, to be maintained.

3.4 I address the proposed changes to the Variation Application ("Updated Variation Proposal") further below. A diagram showing the Updated Variation Proposal is attached as **Appendix One**.

3.5 There are several reasons key reasons why Consented Wind Farm has not yet been implemented:

(a) There was a slump in the wholesale electricity market around the time of the Global Financial Crisis in 2009. Subsequently wholesale electricity prices have become significantly more positive and this situation is expected to further improve;

(b) The controlled electricity market is dominated by Gentailers (ie the generators and retailers of electricity), noting that independent wind farm projects are extremely difficult to progress and build in New Zealand due to a preferential market structure which favours market incumbents;

(c) There was a reduction in national electricity consumption due to appliance efficiencies (eg LCD screens, efficient light bulbs,

industry processes) between 2012 to 2016 resulting in a lower wholesale market price;

(d) Wind monitoring at the site demonstrated a lower wind resource whereas earlier turbine designs were focused on higher wind regimes.

3.6 Additionally, there have also been grid connection delays with the Lines Company as they required a new application to connect a larger capacity wind farm project. The grid connection application for 30MW was finally approved in June 2022.

3.7 More recently, the pandemic has contributed to increasing issues with:

(a) The turbine supply chains and on-site construction activities. The ability to source experienced overseas qualified engineers became exceptionally difficult from late 2019 to more recently, firstly in terms of getting those people into the country until it re-opened and then subsequently with respect to the pent-up demand for such services.

(b) Communications with stakeholders in particular Iwi and local residents as travelling to the Waikato was not permitted for the Auckland based team.

(c) Delays in on-site investigations including geotechnical, mast installation and ecological monitoring.

3.8 T4 is now in a position to bring the essential aspects of the project together:

(a) It has negotiated two contracts for supply of electricity for 50% of the wind farm output – one to a retailer and one to a manufacturing company. This is sufficient to allow the project to proceed.

(b) The company is currently negotiating with investors to invest in the full Ventus Energy portfolio of wind projects. Finalising this investment will accelerate the development and construction.

(c) The project site land is owned by three farming families – John McOvinney (TM Station Limited), Mitch Harper and Katey

Mitchell, and Larry and Lynnette Harper.[1] T4 has legal rights to access the land through options for easements.

(d) Wind data has been collected on the site historically with a 55m mast and more recently with a 65 mast, which remains in service. Over two years of recent data is now available to support the final turbine selection and financing which I expect to be in place by early 2024.

(e) A new earthworks consent issued by the Waikato Regional Council was applied for and granted in 2021, replacing the earlier lapsed consent. This authorises the earthworks required for the construction of turbines 1 to 11 which are expected to commence in the New Year.

(f) In June 2022 grid connection was confirmed by the Lines Company ("TLC") for 30MW of capacity.

3.9 The electricity market is currently very positive and is set to remain so in the foreseeable future, which will facilitate the completion of the matters referred to above. Government policy is also strongly supportive of decarbonisation and the energy transition to more renewable energy is in full swing.

4. TURBINE TERMINOLOGY

4.1 To understand the terminology applied to wind farms I attach as **Appendix Two** a diagram of a turbine.

4.2 Each turbine consists of:

(a) a supporting tower

(b) nacelle, (housing all the generating componentry including the power train);

(c) the rotor hub, and

(d) rotor blades (the propeller-like blades which capture the wind resource).

[1] None of which have submitted on the application.

4.3 The overall height of each turbine is measured to the vertical blade tip, and represents a combination of the tower height, hub diameter and blade length.

5. SITE DESCRIPTION

Site suitability

5.1 By way of background, for a site to be considered by T4 as suitable for a wind farm, it must first generally satisfy the following criteria:

(a) The site must have a good wind resource i.e. is exposed to prevailing winds and is elevated;

(b) The site must be of a sufficient size to allow for a project with the required economies of scale;

(c) The site must be reasonably proximate to the high voltage electricity transmission network and load centres;

(d) There must be sufficient capacity within the proximate transmission network to accommodate the electricity to be generated by the wind farm;

(e) The site must be reasonably accessible and have suitable geotechnical characteristics.

5.2 The T4 Project site meets the criteria identified above.

5.3 Other considerations include the applicable regulatory framework, proximity to residences, land tenure issues and the presence of areas or issues of environmental or cultural significance.

5.4 As it is necessary to line up all of these criteria to ensure an economically feasible development, there is significant challenge in locating such sites, particularly within the North Island where there is a greater demand for electricity supply and associated increased efficiency in locating wind farms. I note, for example, that according to information sourced from the Department of Conservation, long tailed bats are located throughout most

of the rural North Island.[2] I attach as **Appendix Three** a diagram of a map provided that shows that locations of long tailed bats – sourced from "Bats and Windfarms in New Zealand; DoC; June 2023. This issue is further discussed in the evidence of Mr Chapman.

Site Location

5.5 The site of the consented T4 wind farm is located on an unnamed ridgeline, situated approximately 6.5 kilometres south of Taharoa and 2.5 to 3 kilometres east to south-east of Te Anga. Surrounding land uses are predominantly rural, including livestock farming and forestry. The topography of the site ranges from moderate to very steep hill country. Taumatatotara West Road traverses through the centre of the site in an east-west orientation and effectively divides the wind farm site into two parts with consented turbines 1 - 6 located on the northern side of the road and turbines 7 - 22 located to the south.

5.6 The site also displays the following characteristics:

(a) It Is highly modified from an ecological perspective (i.e the existing land use is predominantly pastoral grazing (sheep and beef) with scattered pockets of radiata pine forest, some of which has been recently harvested);

(b) It is not adjacent to the coastline or high amenity areas;

(c) It is located in a rural production zone;

(d) It is generally well screened from views;

(e) It has good access from the public road network to support construction and operation;

(f) It is appropriate from a geotechnical perspective.[3]

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[2] https://www.doc.govt.nz/nature/native-animals/bats-pekapeka/long-tailed-bat/#:~:text=Long%2Dtailed%20bats%20are%20widely%20distributed%20throughout%20mainland%20New%20Zealand,in%20urban%20and%20rural%20landscapes.

[3] Conditions 24 and 36 of the Existing Consent address geotechnical issues.

6. OVERVIEW OF THE VARIATION WIND FARM

6.1 The Variation has been applied for to accommodate the greater efficiencies and advances in producing wind energy which has improved the financial viability of the project. The technological advances include the increase in wind turbine size over time – both in terms of generation output and physical size. In particular, blade lifting trailers are now available to transport longer blades to site. In turn, larger turbines are able to be assembled on site.

6.2 Larger rotor diameters allow wind turbines to sweep more area, capture more wind, and produce more electricity. A turbine with longer blades will be able to capture more of the available wind than shorter blades.

6.3 T4 has secured offers of supply from two different manufacturers for 117m and 115m diameter rotor machines – at 4.2MW - to implement the Consented Wind Farm (refer **Appendix Four**) However, engineering advances mean that since 2011 larger diameter turbine models with the same generators have become steadily more available.

6.4 This means that greater efficiencies can be obtained from fewer turbines which in turn has enabled the reduction from 22 turbines to 11 (and subsequently 8). For example, increasing rotor diameter from 117m to 163m results in a c. 90% increase in the energy (GWh per annum). Although the capex also increases, this is not proportionate, so the use of capital (and hence resources such as steel, concrete, conductor) is much more productive as the number of turbines needed to generate the same amount of power reduces. Associated benefits include reduced transportation requirements, less earthworks, and less visual impacts across the total ridgeline.

6.5 During the three years that the Variation Application has been in process I have observed that turbines continue to generally increase in size. When I visited China recently (September 2023) it was apparent the minimum diameter rotor for at least two manufacturers had shifted to 160m, though other manufacturers continue to produce smaller turbines of the dimensions consented. This illustrates how wind farm technology and turbine length continues to advance and develop at pace.

Infrastructure requirements

6.6 An ancillary consideration for development of a wind farm is the infrastructure required to facilitate installation of the turbines. This includes:

(a) Upgrades to public roading with some minor widening and bridge strengthening. These matters are addressed through a number of existing consent conditions;

(b) Bulk earthworks and on-site roading design. The discharge aspects of the bulk earthworks are covered by the Regional Council consent while the existing consent addresses ancillary matters such as restoration strategies (condition 29) and detailed roading design plans (condition 24);

(c) Overhead lines to connect to The Lines Company network (the construction of overhead lines is a permitted activity);

(d) Concrete foundations to allow for installation of the turbines;

(e) Voltage control upgrades in The Lines Company network that will also improve stability in the local distribution network.

6.7 From a transport perspective, key differences in turbine transportation since the grant of the Consented Wind Farm are:

(a) Blade lifter devices that facilitate blade transportation around much tighter corners are now available.

(b) Powertrains can now be transported independently of the Nacelle (essentially halving the mass per transporter). Max mass is c. 70t per load.

(c) Tower sections can be supplied at shorter lengths (or split sections) to ease loads and decrease the required turning circles.

6.8 When considered against the Consented Wind Farm, the Variation Application reduces transportation effects. This is also true of the Updated Variation Proposal, as set out in the memoranda from Traffic Engineering Solutions Limited dated 7 December 2020 and 12 September 2023 and

Ventus Energy of 3 July 2020. The Section 42A Report has not recommended any additional transport conditions.

7. POSITIVE EFFECTS OF THE WIND FARM

7.1 In this section I address some of the positive effects of construction of the wind farm from an overview perspective. To be clear, some of these matters are not positive effects in the sense of a comparison of the Consented Wind Farm and the Updated Variation Proposal, but are matters where I consider it appropriate to provide some context to the wind farm. In particular:

(a) Government targets for decarbonisation require an extra 12,000 MW of generation by 2050;

(b) The construction of the wind farm will provide improved grid stability as the project includes voltage control;

(c) There will be improved energy security. For example, the Hamilton blackout of 2022 demonstrated the fragility of the electricity system for northern demand centres. The nearby Te Uku wind farm mitigated the effects by ensuring that less households were disconnected. The T4 Project will add to this resilience by making the region's electricity demands less reliant on long transmission from generation points further south with associated higher transmission losses;

(d) There is an estimated Capex of c. $90M of which around $20M will be spent in local construction services and materials;

(e) There is a continuing operating expenditure of c. $1.3M/year – some of which will also flow through to the local community – particularly if a new turbine supplier enters into the NZ market to establish a local depot in response to local demand;

(f) In terms of the Variation Application and Updated Variation there is a greater amount of renewable energy generation from less turbines;

(g) A workforce of between 20 and 40 people will be required to install the infrastructure and turbines;

(h) The Variation Application and Updated Variation propose various improved ecological supports as outlined in the evidence of Mr Shearer.

(i) Local road users will ultimately benefit from the upgrade of local roads and bridges, including the strengthening of Bridge 7 at Piripiri.

(j) Additional support and engagement will be provided to local Iwi;

(k) Revenue will be provided to local landowners which may assist in upgrading farm infrastructure.

8. THE UPDATED VARIATION PROPOSAL

8.1 As outlined in section 3, I have proposed some refinements to the Variation Application as follows:

(a) A further reduction in the number of turbines from 11 to 8;

(b) A minor increase in the maximum diameter of the rotor area from 155m to 163m for the remaining 8 turbines (an increase of 5%);

(c) A corresponding minor increase in tip height of the turbines from the proposed 172.5m to 180.5 m. This represents a 5% increase in tip height compared to the Variation Application. This is to allow the ground clearance of 17.5m, as proposed by the Variation Application, to be maintained.

8.2 Turbines 2, 4 and 9 will be removed. I have selected these turbines for removal to increase separation distances between turbines as close turbines cause unacceptable turbulent effects on each other.

8.3 The added advantage of the Updated Variation Proposal over the Variation Proposal is an overall 14% reduction in turbine rotor area compared to the existing consent, as well as the fact that Turbines 2 and 4 are close to some areas of vegetation. This will ensure that the potential intersection for avifauna is decreased, which is a positive effect. This change is addressed further in the evidence of Mr Chapman.

8.4 The reduction in the number of turbines, with no loss of power output, have become feasible as a result of improving technology, for reasons I have explained above.

8.5 Positive effects of the Variation and Updated Variation Proposals are also discussed in the evidence of Mr Smith (noise), Mr Moore (landscape), Mr Daly (transport) and Mr Shearer (planning).

9. CONSULTATION

9.1 I recognise that the T4 Project has been in the planning for a significant period of time. Over that period, I have endeavoured to keep in touch with local residents and to undertake consultation with local iwi. For consultation with local iwi I have employed an iwi liaison advisor (Steven Wilson) who has been charged with facilitating korero and hui as well as communicating the key aspects of the project.

9.2 For details of the consultation undertaken I refer to the evidence of Mr Shearer.

10. RESPONSE TO RELEVANT SUBMISSIONS

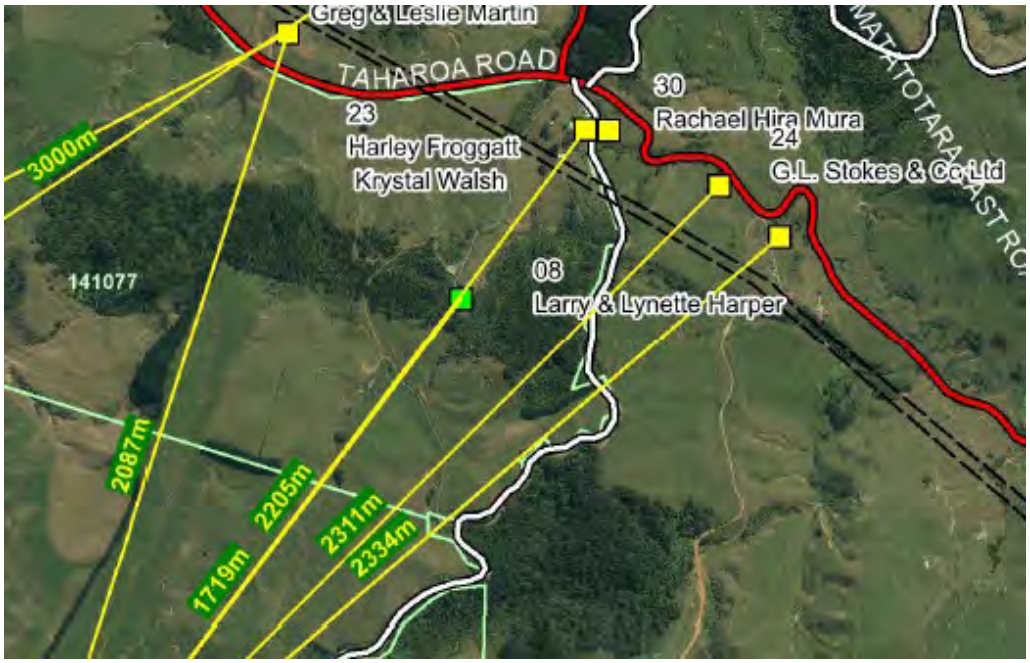
10.1 Thirteen on-time submissions and two late submissions were received on the Variation Wind Farm application. The submissions are addressed in the evidence of Mr Shearer and the other expert witnesses as appropriate.

10.2 However, I wish to respond to some issues raised by submitters relating to:

(a) Requests by other parties in relation to updating maps

(b) The disposal of blades.

10.3 Re requests by Marokopa Marae to update maps for local residences, the revised map is provided for this hearing (see relevant part of map below) and shows house no. 30 owned by Rachel Mura.



10.4 With respect to the disposal of blades, while about 90% of a turbine is readily recyclable, disposal of the blades which are typically made of fibreglass bound with an epoxy resin is more complex. The blades have an approximate lifespan of 25 years. I note that firstly, the reduction in turbines from 22 to 11 (or 8) will be a positive reduction. Secondly, there are 3 types of recycling available for blades:

(a) Mechanical – the blades are shredded for use in building materials;

(b) Thermal – the blades are combusted to recover the energy. The blades are shipped overseas, where they are combusted in a specialised waste to energy plant;

(c) Chemical – to recover the constituent materials. This also requires a specialised plant not currently available in NZ or Australia – but is likely to be available by the time the existing blades are at the end of their life.

11. RESPONSE TO SECTION 42A REPORT

11.1 In this section I respond to issues raised by the Section 42A Report, noting that other technical evidence deals with the issues specific to those experts.

Staging

11.2 The Section 42A Report requests clarification as to whether the wind farm will be staged. I confirm that the T4 Project will not be staged and that it is estimated to take between 12 – 18 months to achieve operation.

Ecological effects

11.3 In relation to ecological conditions and in response to matters addressed in the Section 42A Ecology Report prepared by Leigh Bull, although I initially proposed pest management conditions, including 200ha of pest control in surrounding areas and remain committed to undertaking this, it is not considered that this is suitable for inclusion as a consent condition as it is reliant on third party approvals to obtain access to privately owned land.

11.4 In terms of acoustic deterrents, similarly this proposal was withdrawn after receiving the Bats and Wind Farm Advice Note[4] which noted the variable success of such devices, that their effectiveness has not been tested with New Zealand species and that testing would require Animal Ethics Approval. An earlier draft of the Advice Note had suggested that Wildlife Act Approvals would be also required. This does not seem to be a feasible proposition or appropriate in the circumstances.

11.5 A similar concern arises with respect to curtailment strategies. The Advice Note says that no-one has tested curtailment strategies for New Zealand Bats.[5] In my view it is not appropriate to apply curtailment strategies to a variation of an existing consent where the number of turbines is being significantly reduced. The prospect that curtailment strategies could be applied as a mitigation in future also calls into question the potential economic viability of the consent because reducing turbine operation would impact on the amount of power generated and consequent income.

Bond

11.6 The Section 42A Report has proposed that the bond amount for road maintenance be updated to reflect inflation. The appropriate amount taking into account the Producer Price Index of 3% over 15 years is

[4] Version 5.0 Final version dated October 2023.

[5] Refer para 7

$134,000 calculated as follows: $86,000 x 1.03^15 = $134,000. I agree with the inclusion of this revised amount in condition 26.

Background sound level measurements

11.7 Condition 9 refers to the requirement to take background sound level measurements "prior to commencing any development of the wind farm". I have suggested that this be amended to allow these measurements to be undertaken prior to installation of the turbines. This is to ensure that the earthworks can commence without any delay. This is opposed by Siiri Wilkening who is concerned that construction noise can affect ambient noise level measurements. As set out in the evidence of Mr Smith (acoustics) it is feasible to undertake such surveys after construction of an activity has commenced to avoid periods where construction activities are occurring. Mr Shearer has proposed a further amendment to condition 9 to address this issue.

12. AMENDMENTS PROPOSED TO CONDITIONS

12.1 T4 is prepared to make significant concessions in recognition of the time that has lapsed between the grant of consent and the variation application. To address the concerns raised it is proposing:

(a) Updates to the noise conditions;

(b) Additional and amended ecological conditions including increased recording and reporting obligations and pathways for additional inspections in the event of adverse monitoring results;

(c) An update to the Civil Aviation condition.

12.2 With regard to the Civil Aviation condition (33) which refers to a determination by the Civil Aviation Authority (CAA), a new determination is necessary to reflect the proposed changes in turbine heights. I confirm that following confirmation of the changes to the Updated Variation Application to seek authorisation for a tip height of 180.5m I have applied to the Civil Aviation Authority for the necessary determination. I attach as **Appendix Five** a copy of the correspondence from CAA, confirming the receipt and processing of the application.

12.3 Proposed changes to the conditions of the existing consent are set out in the evidence of Mr Shearer. These include a number of Augier conditions, in recognition of the time that has lapsed between the grant of consent and the variation application.

13. CONCLUSION

13.1 Consented projects often need to be re-consented or varied due to the long timeframes to bring the essential ingredients together to result in a constructed project. This has proven particularly true for many NZ wind farm projects. To the best of my knowledge such variations, for example, the Harapaki wind farm in the Hawkes Bay, have been processed as s127 applications on a non-notified basis.

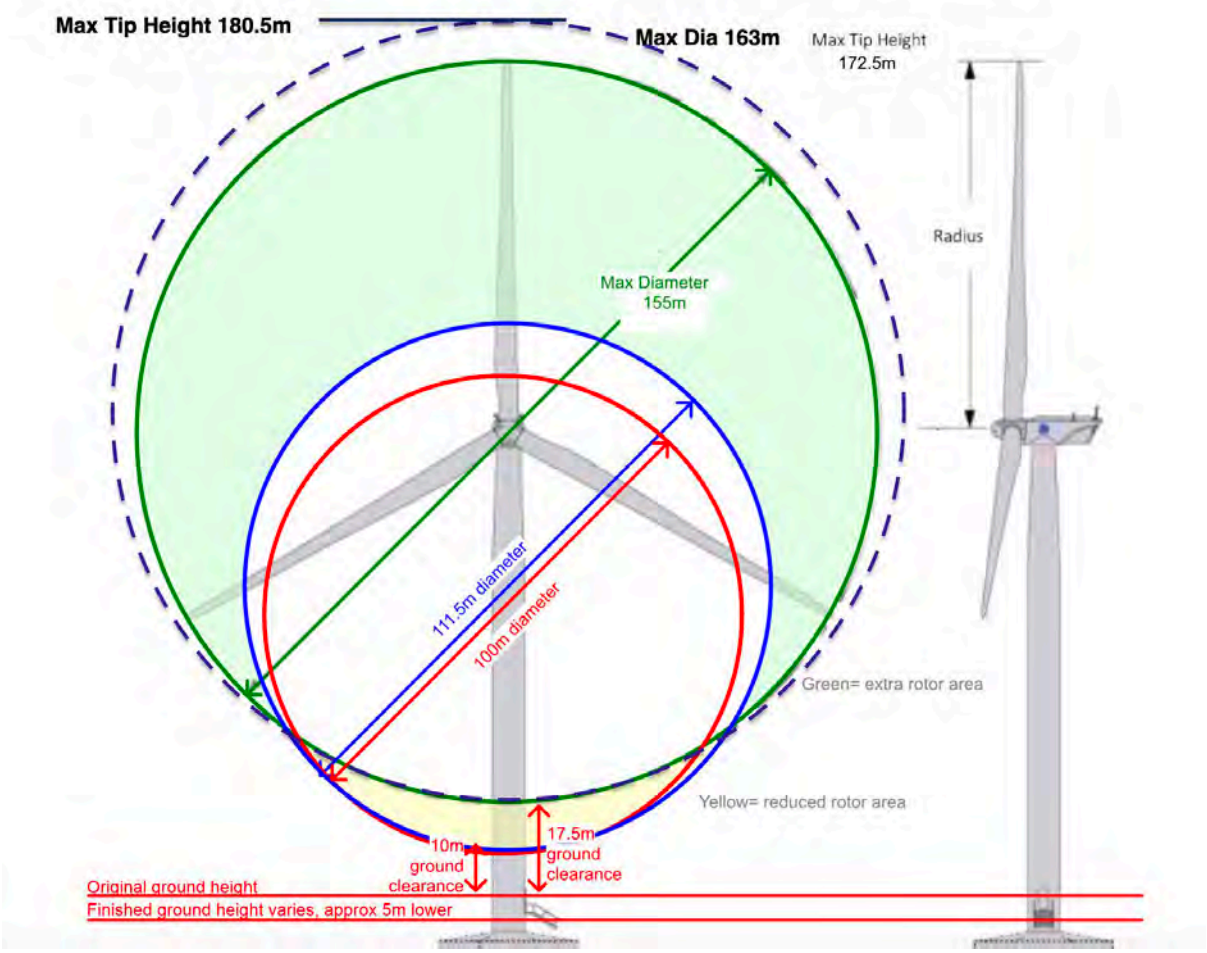
13.2 Taumatatotara Wind Farm Ltd is ready to implement the Consented Wind Farm (with 11 turbines) though its strong preference is to implement the Updated Variation Proposal. Overall, I consider this option to be a more efficient and effective use of resources with superior environmental and economic outcomes and I seek that the Updated Variation Application be amended / granted in accordance with the conditions proposed by Mr Shearer.

Glenn Starr

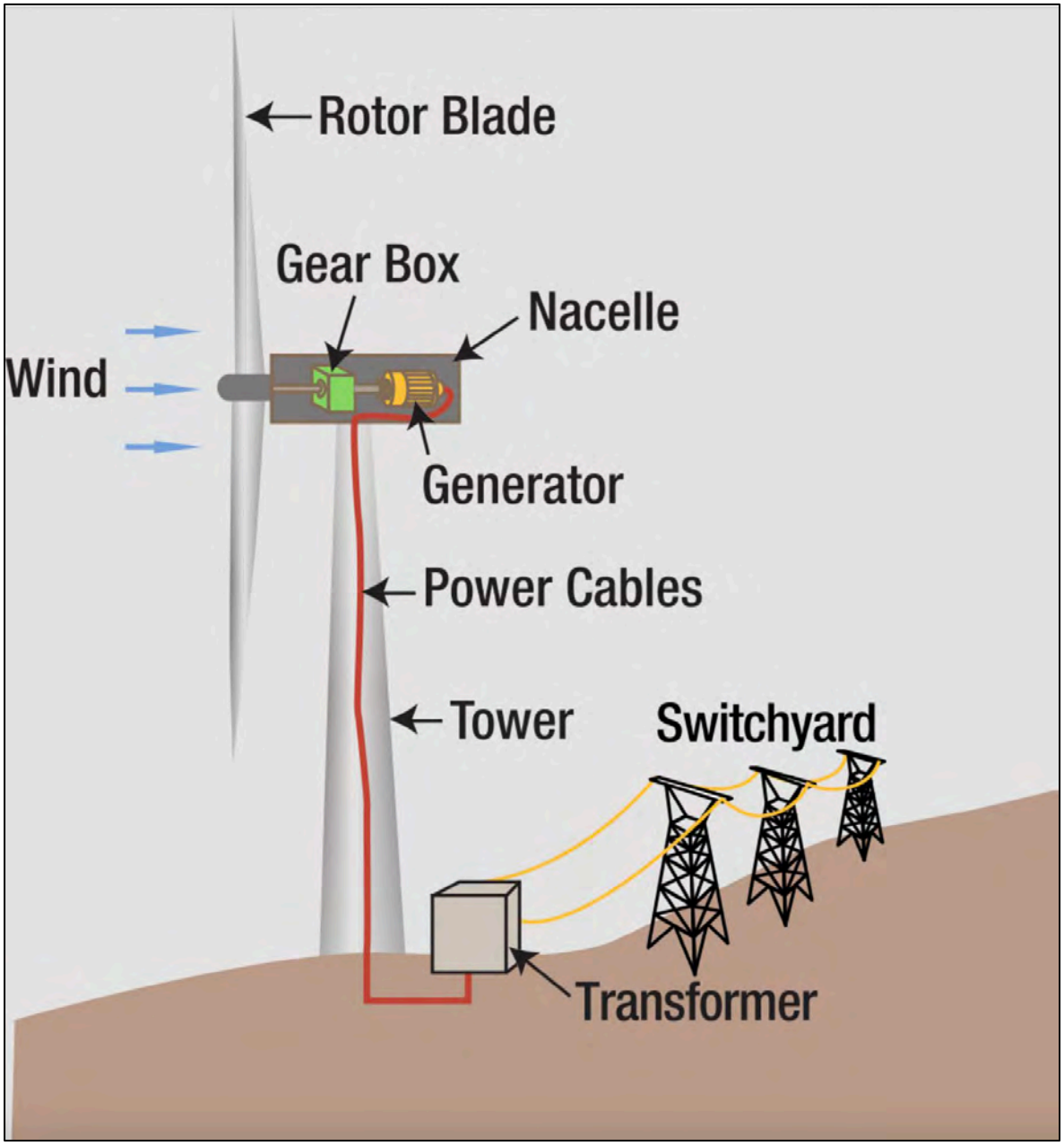
Attachments

Appendix One	- Updated Variation Proposal
Appendix Two	- Diagram of Wind Turbine components
Appendix Three	- Map showing distribution of bats in upper North Island
Appendix Four	- Turbine offer from Vestas for Existing Consented project / Power Purchase Agreement for Existing Consented project - redacted / Non Binding Indicative Offer of Investment for existing project – redacted
Appendix Five	- CAA correspondence for increase tip height

Appendix One – Updated Variation Proposal



Appendix Two:



Appendix Three

Appendix 2a: Distribution of long-tailed bat records in New Zealand from 1990 onwards. Sites where long-tailed bats have been detected are shown with a pink dot. Each sighting has a with 11 km buffer added to closely reflect median home range size based on home range studies (Dekrout 2009, Davidson-Watts 2019, Borkin and Parsons 2011, O'Donnell 2001).

Appendix Four

From: Steve Smith strsm@vestas.com
Subject: T4 price estimates
Date: 17 November 2021 at 1:37 PM
To: Glenn Starr glenn@ventusenergy.co.nz
Cc: Taijas Kumar taaku@vestas.com

Hi Glenn,

Please find attached our indicative estimate for the supply to port of import of V117 WTGs. The scope also includes commissioning, but not inland transport, or erection and installation. As discussed, Option 2 is a derated 4.2MW machine. We may not be able to offer the earlier version nacelle, but I will confirm in the coming days.

Option 1: 8x V117-4.2 HH84	EUR	[redacted]	[redacted]	[redacted]	
WTG supply, project management and commissioning	[redacted]	[redacted]	[redacted]	[redacted]	
NZD Equivalent Total *					[redacted]

Option 2: 18x V117-3.45 HH84	[redacted]	[redacted]	[redacted]	[redacted]	
WTG supply, project management and commissioning	[redacted]	[redacted]	[redacted]	[redacted]	
NZD Equivalent Total *					[redacted]

*based on the following FX rates; EUR/NZD: 1.63180; USD/NZD: 1.4239; and CNY/NZD: 0.2226. The Contract Price is the cumulation of the nominated currencies.

Also attached are the performance specifications for these WTGs. This machine has been type certified to 4.2MW, but can also operate in a 4.3MW power mode

Kind regards

Steve Smith
Sales Manager
Australia & New Zealand

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http://www.vestas.com

Vestas

https://www.vestas.com/formulae

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[redacted]

Strictly Private and Confidential

To:

Mr./Ms.

Glenn Starr

Alistair Ward

Felix Lee

Ventus Energy: Lynch & Co Limited, PO Box 32569 Auckland, New Zealand, 0744

Campbell MacPherson Ltd: P.O. Box 329, Shortland Street Auckland 1140

New Zealand

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Non-Binding Offer of Project Kaimai Stage 1 and T4 Stage 1

Date: May 12, 2023

Dear Mr./Ms.

This Non-Binding Offer (NBO) refers to Information Memorandum (IM) dated March , 2023.

General Introduction

On behalf of [redacted] we are glad to lodge this NBO of the Project Kaimai stage 1 and Project T4 stage 1 . We understand that [redacted] can select 100% share of project company Kaimai Wind Farm Limited and Taumatatotara Wind Farm Limited (T4) (collectively ProjectCos) to bid for acquisition purpose, according to the Information Memorandum (IM).

[redacted]

Power Purchase Agreement – Term Sheet

This document records an indicative and non-binding summary of the key terms in relation to the Power Purchase Agreement. The purpose of this document is to record the key commercial terms agreed to date between the parties and to provide legal advisors an opening position to commence drafting of formal documentation.

This document is not intended to create, evidence or imply any legal relationship or contract between the parties.

1.	Seller	**Taumatatotara Wind Farm Limited**
2.	Purchaser	[redacted]
3.	Facility	Taumatatotara Wind Farm, located in Hangatiki, New Zealand.
4.	Term of Power Purchase Agreement	The term of the Power Purchase Agreement (the **PPA**) will commence on the date the PPA goes unconditional (the **Financial Close**) and continue until the end of the Supply Period (defined below, and unless terminated earlier) (the **Term**).
5.	Supply Period	The supply period commences on the date of commencement of the commercial operations of the Facility (the **Commercial Operations Date**) and continues for 10 years (the **Supply Period**).
6.	Installed Capacity	The **Installed Capacity** of the Facility is 30MW
7.	Committed Capacity	The **Committed Capacity** shall be 25% of the **Installed Capacity**. The **Committed Capacity** will apply to each and every Trading Period. The **Committed Capacity** shall not be more than 7.5MW
8.	Minimum Volume	The minimum volume of generation is 17 GWh p.a.
9.	Contract for Difference	This Term Sheet is drafted on the basis that the parties will enter into Contract for Difference (a **CfD**) incorporating derivative (cashflow swap) structure for electricity using a ISDA Master Agreement and Schedule published by the International Swaps and Derivatives Association, where: the Purchaser will be the "Fixed Price Payer"; and the Seller will be the "Floating Price Payer", where the "Fixed Price" is the rate set out in the Pricing section and the Floating Price is the Final Price (as defined in the Electricity Industry Participation Code) for the Grid Reference Point (defined below). The volume of electricity produced by the Committed Capacity will be the subject of CfDs.
10.	Settlement	The Seller must be a market participant (as defined by the Electricity Industry Act). The Purchaser must either be a market participant or appoint one as its agent. The parties will enter into a hedge settlement agreement (with NZX as clearing manager) which will specify the Fixed Price as per the CfD.

Appendix Five

S-A765-04 24/77/0019(DW1374452-0)

28 September 2023

Taumatatotara Wind Farm Limited
12 Madden Street
Auckland CBD
Auckland
0600

Dear Glenn,

Notice of Objects and Activities Affecting Navigable Airspace - Taumatatotara Windfarm, Waitomo

I acknowledge receipt of your notification under Civil Aviation Rule Part 77 of your proposal to construct a wind farm of eight wind turbine structures.

Under Civil Aviation Rule 77.17, the Director of Civil Aviation is required to conduct an aeronautical study to determine whether your specific proposal, if executed, will constitute a hazard in navigable airspace.

The Rule requires consultation with such persons, industry representatives, representative groups, and organisations as the Director considers appropriate. Submissions will be sought directly from:

- The Airways Corporation of New Zealand
- Aeropath Limited
- Local aerodromes and heliports
- Local aircraft operators
- Any other possible affected party

An advertisement seeking submissions from the public may be placed on the Civil Aviation Authority website, www.caa.govt.nz.

Following receipt of submissions, all matters raised will be considered against the criteria specified in Rule 77.19.

A formal Determination will be made in accordance with Rule 77.21 as to whether the proposal is or is not a hazard in navigable airspace. The Determination may also impose any conditions or limitations or specify additional notice requirements for the proposal.

The Director shall notify you of the Determination and also any other person the Director considers could be affected by the Determination.

On receipt of the Determination you may petition the Director for a review of the Determination in accordance with Rule 77.27 and Rule 77.29.

Civil Aviation Rules are published on the website at http://www.caa.govt.nz/rules/rules.htm

The proposed timetable for carrying out this aeronautical study and issuing the Determination is as follows:

- Closing date for submissions 26/10/2023

Under the Civil Aviation Charges Regulations (No. 2) 1991, the time taken to conduct an aeronautical study will be charged to you at $284.00 (including GST) per person hour.

A chargeable Work Request (24/77/19) has been opened for this notification. Please quote the Work Request number in all future correspondence.

Should you require any further information or clarification, please contact please contact aeropautical.services@caa.govt.nz.

Yours faithfully

Maddie Christie
Team Coordinator
Aviation Security & Infrastructure