TAUMATATOTARA WIND FARM

APPLICATION TO CHANGE CONDITIONS OF CONSENT

5 JULY 2020

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1. EXECUTIVE SUMMARY

Ventus Energy (NZ) Ltd was granted resource consent to construct 22 turbines with tip heights of 110m at Taumatatotara West Road in 2006 by the Waitomo District Council. That decision was appealed but the appeal was withdrawn in 2008 and hence the final approval was granted in 2008. The consent number is RM050019. Ventus subsequently applied to increase the turbine height of the northern 11 turbines to 121.5 in 2011 which was approved. A lapse date extension was applied for in 2016 for a further 8 years until 2024. This was also approved.

Shortly after the turbine height extension was granted the wholesale electricity market slumped, largely due to the economic downturn associated with the global financial crisis, which made the project uneconomic. In recent times the wholesale electricity market has improved and, in association with larger turbine rotors which reduce the cost of energy, wind farms are now a viable alternative to other forms of electricity generation. Larger turbines capture greater energy from the wind for a disproportionately small increase in capital cost.

Ownership of the resource consent has now been transferred to Taumatatotara Wind Farm Limited ("TWF"), which is the entity pursuing the project completion.

TWF now wishes to change Conditions 1, 2, 3 and 11 of the current resource consent to:

- Reduce the number of turbines consented from 22 to 11 (Conditions 1 and 2), including reducing the on-site roading proposed. The proposal is to provide for the 11 northern turbines (turbines 1-11 in the original consent).
- Increase the tip height of the remaining turbines from 110m to 172.5m.

TWF also wishes to delete Condition 5, relating specifically to turbines 19-22 – this condition will no longer be relevant.

There will be consequential changes to the effects of the project such as landscape and visual effects, and slightly larger concrete foundation pads, but these will be more then offset by the reduced number of turbines propsed.

As required under section 127 of the Resource Management Act ("RMA") this application is for a discretionary activity change of the existing consent conditions.

Due to the halving of the number of turbines, and the remaining turbines being at the northern of Taumatatotara West Road, the actual and potential environmental effects of this proposal compared to the consented project have been assessed as being significantly.

For notification purposes because the overall effects are assessed as being less than the consented project, and consequently less than minor, TWF is requesting that this application to change the above conditions of the resource consent condition be processed without the need for public notification.

Further, TWF does not believe any person who made a submission on the original application will be affected by the change, and therefore limited notification is not necessary.

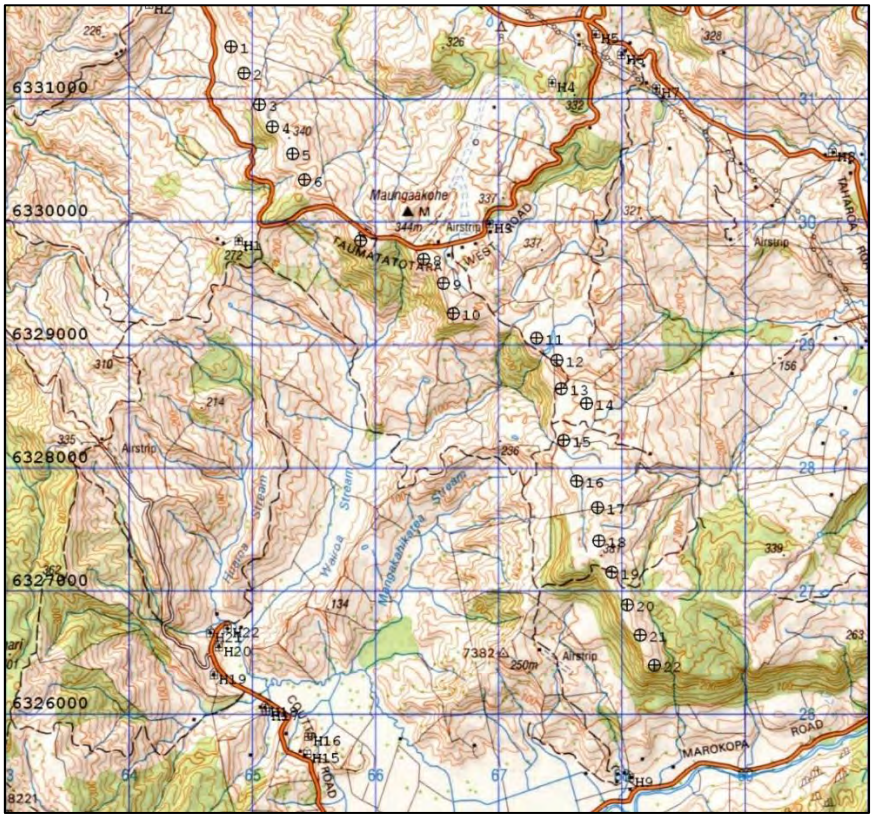
2. BACKGROUND AND SITE

The proposed windfarm site is 10km south of Taharoa Village and above the Taumatatotara Gorge in the Waitomo District, and is located on farms owned by three separate landowners, all of whom have given their approval to the project. The site and the adjacent hills generally have very defined but level ridgelines with steep slopes on the flanks. The local peak to the northern end of the site has an elevation of 340m with the remainder of the site ranging between 300m and 320m at the southern end. The gradient of the construction site is moderate to steep with slopes generally between 1 in 20 and 1 in 5. The site is currently used for grazing cattle and sheep with a very small plantation of radiata pines at the location of turbine 7.

Ventus Energy was granted consent to construct a 22-turbine wind farm at Taumatatotara West Rd, Te Anga in 2008 (after an appeal to the Environment Court was withdrawn). All turbines were to be 110m high. A copy of the existing resource consent conditions is provided as supplementary information (see Attachment 9) to assist the reader. Regional consents for earthworks were also granted by Waikato Regional Council but these have since expired. A new consent has been applied for from the Regional Council.

In 2011 Ventus Energy applied for a change in the conditions of the 2008 consent to increase the turbine height of the northern 11 turbines to 121.5m. This was approved by the Council. A lapse date extension was applied for in 2016 for a further 8 years until 2024. This was also approved.

Figure 1: Locality Plan showing location of previously consented turbines



To date the wind farm has not been constructed, for a variety of reasons, but mainly because of the slump in the wholesale electricity market around the time of the global financial crisis. Wholesale electricity prices are now much more positive in New Zealand, and this situation is

expected to further improve in the medium term as demand for electricity is increasing. Since the slump in 2008 wind farm development has changed with turbines around the world increasing in size to extract greater efficiencies and to enable them to be more competitive with other sources of energy.

The proposed grid connection is via 33kV overhead lines into the existing The Lines Company network which comprises two separate circuits of 33kV. The upper technical limit of connection via each 33kV circuit is between 20 and 30MW so the total capacity is 40 to 60MW. However, should one of the circuits be upgraded to 110kV then the carrying capacity would approach 90MW. The larger turbines proposed at the site have a nominal capacity of 4.4MW each – so a total export capacity of 48.4MW. TWF currently has an agreement with The Lines Company to connect 16.5MW however they are now proceeding through a revised process to connect 30MW. Once this is complete then a view will be taken on how best to connect the remaining wind farm capacity. The total wind farm output of 48.4MW would then equate to about 186 GWh/year.

Transpower, in a report released in May 2018[1] projects that 47,000GWh/yr of new generation supply is needed in New Zealand by 2040, 25% of it or 11,750MWh/yr expected to come from wind generation. That equates to 63 wind farms of the size proposed in this application. In addition, the Government has set a target of 90% of electricity being generated from renewable energy sources by 2025, and 100% by 2035, up from the 82% at present.

The global wind industry has been busy developing more efficient ways to produce wind energy in recent years – having to compete with the low cost and complexity of grid-scale solar energy. Modern wind turbines now offer a much-reduced cost of producing energy. The most significant advancement to reducing the cost of energy is moving to larger turbine rotors – effectively much greater energy capture from the wind for a disproportionately small increase in capital cost. Turbines in new proposed wind farms in New Zealand and world-wide are commonly now a minimum of 170m in tip height.

The advancements in producing wind energy, coupled with increasing demand for electricity and improved wholesale electricity prices in New Zealand have improved the financial potential of the Taumatatotara Wind Farm site significantly, assisted by increases to the size of turbines in line with international trends.

The scope of the investigation and this report is strictly limited to reducing the number of turbines too eleven, and changing the tip height Conditions 3 and 11 on the 2008 consent relating to tip height. Conditions 1 and 5 will be updated to reference this application as a matter of process.

3. THE PROPOSAL

In line with trends elsewhere in New Zealand and internationally, TWF wishes to increase the tip height of turbines at its Taumatatotara site. The proposal is to increase the tip height above existing ground of the 11 northern turbines from 110m to 172.5m. A consequence of this increase is the deletion of the southern 11 turbines from the project, leaving a total of 11 turbines.

The positioning of the 11 turbines would not change from that already consented (see Site Plan, Figure 5, below). There will be consequential changes to other components of the turbines, such as the tower dimensions and height and nacelle size.

[1] Transpower: Te Mauri Hiko Electricity Futures, May 2018

TWF seeks changes to the conditions of the existing consent conditions 3 and 11, relating to turbine height, to the general condition, condition 1, as it relates to the number of turbines. Conditions 3 and 11 are as follows:

3. *The turbines shall have a maximum height of 110 metres measured from the ground to the top of the vertically extended blade tip.*

11. The wind turbines shall not exceed a rotor tip height of 110 metres above ground level and a sound power of 107.2dBA unless it can be demonstrated by a person specialising in acoustics and accepted by the Manager, Policy and Planning, Waitomo District Council that higher turbine heights or sound power will still comply with the requirements of NZS6808: 1998.

Condition 5 will be deleted as it relates to turbines 19-22, to be removed from the project.

It is unfortunate that Condition 11 tied in the two unrelated concepts of turbine height and noise levels, as the turbine height is unrelated to noise level estimation that was carried out as part of the investigation and consent application.

The nominal turbine in the 2008 consented wind farm had a 100m rotor with a 60m Hub Height – 110m tip height. The largest technically feasible machine that could be built within that envelope is a 100, rotor machine (eg GE 100 or Gamesa G97). The design of wind turbines has continued to evolve and develop since the consent was granted. In particular, we now see taller towers to capture higher wind speeds and avoid areas of wind turbulence closer to the ground.

TWF wishes to pursue an amendment to the existing resource consent conditions to allow tip heights of 172.5m for the 11 northern turbines previously consented.

Figures 2 and 3: Proposed and Existing Consented Turbines viewed from Coutts Road/Marokopa Road corner

A site plan showing the proposed location of the 11 turbines is located in Attachment 13.

The proposed nominal turbine dimensions are:

- 172.5m tip height, 95m hub height and 155m rotor

The changes to the turbine dimensions are set out in Table 1, on the following page. Apart from the changes in overall height, there is a corresponding increase in hub height and rotor diameter. Most of the other features of the turbines are not significantly different to the proposal that has been consented.

The wind regime has been tested with 25m and 55m tall wind monitoring masts. The data collected was independently analysed by Connell Wagner (now Aurecon) (See Attachment 1). The average wind regime is lower than first anticipated and therefore the site is more suited to larger rotor machines on taller towers.

Other characteristics of the wind regime that have emerged, supporting taller turbines, include a higher than expected turbulence close to the ground which however diminishes with elevation, and a low extreme wind speed (which is the design wind speed for failure of turbine components, foundations and load bearing soils).

There are other consequential changes to the proposal resulting from the increase in the height, size and weight of the turbines. These changes are as follows.

Changes to the turbine foundations. The 172.5m tip height turbines will each require a 18 x 18m concrete foundation, up from the 14m x 14m in the consented application.

There will be some amendments to the way the machines are transported. In relation to movement of the turbine components, there are three distinct component types with each of their own criticality:

Nacelle	- heaviest (and bulky)
Tower Sections	- bulkiest
Blades	- longest

The applicant has issued a memorandum to explain the changes to turbine designs and the methodology of transportation – see Attachment 2.

Table 1: Taumatatotara Wind Farm Turbine Nominal Dimensions

	Modelled 175m tip	**110m tip**
	Narrow Blade	**Wide Blade**
Overall Height	172.5	110
Hub height	95	60
Blade chord (widest)	4	4.4
Tower diameter (top)	3	2.3
Tower diameter (bottom)	4.1	3.2
Rotor diameter	155	100
Hub diameter -	5.76	4.1
Nacelle width	5.8	4.2
Nacelle Height	5	4.2
Nacelle length	17.5	12.5
Footing width	18	18
Multiplier (for shadow flicker)	265	265
Shadow Flicker extent (metres)	1060	1166

Note that it is intended for some flexibility in the dimensions of the hub height and rotor diameter as the actual turbine manufacturer has not been selected yet. The applicant is however comfortable with a limit on the tip height.

The basic outcome from the analysis on new transportation methods is:

- Nacelles can now be easily split into components to reduce size and weight.
- Tower Sections are made with thicker steel and shorter lengths to keep the diameter low and the weight manageable.
- Blades can be transported with a specialist cantilevered transporter system to allow the blades to negotiate tight corners - see photograph in Figure 4 below. This modern trailer unit will therefore avoid roadside cuts such as the one identified in a previously carried out road survey.

Figure 4: Specialist bade lifting unit.

It is possible that development of the wind farm will be staged, with Stage 1 consisting of 7 machines, being the northern most turbines (and to match the grid capacity of one 33kV circuit). These will be operational by Q4 2021. The other 4 turbines will then be constructed as Stage 2, to the south, before the expiry of the current lapse period (2024) and will depend upon how the grid network is upgraded.

The location of the 11 turbines is shown in the site layout on the Site Plan, Figure 5, on the following page.

……..Page for A3 Site Plan

4. ENVIRONMENTAL EFFECTS ASSESSMENT

4.1 Introduction

When considering an application for a section 127 change of conditions of a resource consent, sections 88 to 121 of the Act apply as if the application were an application for a resource consent for a discretionary activity, and the references to a resource consent and to the activity were references only to the change of conditions and the effects of the change.

When considering an application for a discretionary activity the Council as consent authority must, subject to Part 2 of the RMA, have regard to any actual and potential effects on the environment and any provisions of relevant policy documents. Schedule 4 of the RMA sets out the information required in the assessment of effects of an activity.

A full assessment of effects of the TWF was undertaken prior to the application being granted in 2008. As the current application is to change conditions 1, 3 and 11 (and delete condition 5) of the current resource consent to provide for an increase in height whilst decreasing the number of turbines, then only the actual or potential effects of these changes and any related matters, are assessed in this application.

The following actual or potential effects have been assessed:

4.2 Geotechnical Stability

A taller tower results in slightly larger loading on the subsurface ground due to the greater overturning movement under extreme wind loads. However, the extreme wind loads at the site have been determined to be very low and well below the certified limit for wind turbines. The Connell Wagner report (see attached) determined the extreme windspeed to be 37m/s whereas the Class III certified limit is 52.5m/s (the original assumption for the November 2005 AEE was for a Class II extreme wind regime of 59.5 m/s. The combination of the taller tower and the lower extreme wind speed results in a lower ground loading from the turbine foundation than first estimated. There will be no increase in effects on geotechnical stability.

4.3 Turbine Foundations

The taller tower induces a higher loading on the foundation, requiring larger foundations than the originally proposed 14m x 14m gravity foundation pads. Although the gravity pads will be larger - 18m x 18m for the 172.5m turbines the WPS Opus report has assessed the landscape effects and determined they be very limited and assessed as being ‘very low’. The increased size of the pads will not be noticeable from any public location as all are to be located on top of ridgelines. The closest dwellings are the landowners of the wind farm site, and no other dwellings will be able to see the pads. Any additional earthworks on each site will be small in the wider context of the proposal, albeit with only half the number of pads in the existing consent and the environment will be safeguarded by compliance with conditions in the earthworks consent.

The conclusion is that there will be no additional effects on the environment from the larger pads.

Should the consent authority consider this to be of importance then more compact in-ground solutions can be employed – notably piling – which would reduce the foundation size.

4.4 Transportation Effects

The originally consented turbines allowed for transportation of turbines with a diameter of up to 100m with 10m ground clearance. Turbines available included the Vestas V90 the GE100, and the Gamesa 97m machines. The existing consent allows for the transportation of these turbines, subject to conditions to protect the condition of WDC roads.

Although the amended proposal provides for larger, longer, and heavier machines, it is anticipated that transportation will be easier, due firstly to technological advances in fabrication and transportation techniques - Attachment 2 sets out those advances – and secondly because there are less turbines.

For example, nacelles can now be fabricated and assembled on site; towers, although heavier, can be made shorter to reduce weight when transported; although the blades will be significantly longer, Attachment 2 points out that the proposal is to use narrow design blades and cantilevered transporters. There now two-piece blades available. Finally, the cantilevered transporter vehicles were not available when the consent was first granted in 2006 – their benefit to mobility is the ability to lift the blades on an angle to make it possible to navigate narrow corners – see Figure 4 above.

It is not anticipated that any road widening over that already approved for the existing consent will be necessary, and this is also the case with the site access roads.

It is noted that any use of public roads to access the wind farm site must first gain prior approval from the relevant Road Controlling Authority – in this proposal NZTA and Waitomo District Council. Over-dimension and over-weight permits will be required from both authorities, and also from Kiwirail and Lines Companies. Accompanying such applications will be detailed assessment of the preferred route, including swept path analysis of track and trailer tracking, road closures necessary, timing etc.

For the purposes of this consent application, the applicant is confident that access is achievable and detailed assessment, subject to more detailed assessment and approvals being gained from the relevant Road Controlling Authorities.

4.5 Aviation

The increased tip height results is an increase in risk to aircraft, but there will now be half the number of turbines. However, 172.5m above ground level is still well below the normal height for aircraft *en route*. In response to a request to the Civil Aviation Authority (CAA) on regulations regarding possible nominal 165m tip height turbines, the CAA responded on 8 July 2019 instructing that the new height will require notification to the CAA and a new determination needs to be applied for and issued. We propose to provide the requested information to CAA once the amended resource consent has been issued and propose a condition be applied to the consent requiring a new determination be obtained from CAA. A copy of the email from CAA dated 8 July 2019 is attached as Attachment 4.

4.5 Sound

Since the original consent was applied for in 2005 wind technology has progressed to the point where larger turbines now generate similar or less noise than older, smaller turbines. The technical assessment by Altissimo Consulting (Attachment 5) when assessing an Enercon E138 turbine, representative of the type of turbine likely to be used for the project, is that

increasing turbine heights to up to 172.5m (tip) will not meaningfully alter the extent of the 30 and 40 dB LA90 sound contours.

Altissimo concludes that increasing the turbine height will not materially change the sound level received at the affected properties, and therefore the acoustic effects of this alteration are minimal.

4.6 Shadow Flicker

Shadow flicker was previously regarded to potentially affect properties with 2km of a wind turbine. This was the accepted rule of thumb when the original application and tip height increase amendment were submitted. However, since that time the understanding has been refined to be a product of the maximum blade chord (or width). The Australian guideline (National Windfarm Development Guidelines; EPHC; 2010) on the matter recommends a factor of 265 is applied to the blade chord. Turbine blades of the modern design have become narrower relative to the overall size of the machine. A typical max chord for the larger machines that could be used at this site is 4m.

As the blade is estimated at a maximum of 4m for this assessment, then there are no third-party houses within 1060m (265 x 4) of the proposed 11 wind turbines so shadow flicker effects are considered negligible. Regardless, this distance is less than the shadow flicker effect likely from the original consented turbines – 1166m,

4.7 Landscape and Visual Effects

A landscape and visual assessment has been completed by WPS-Opus (see Attachments 6A and 6B) and informs this assessment. Also attached as Appendix 10 is the Opus Landscape Assessment 2012, prepared for as a S92 response at that time. The primary issue - whether a windfarm is appropriate in this setting or not – has already been resolved by granting consent for 22 turbines. The visual effects of the changes proposed, and especially the tip height subject to this application, have been assessed using the seven point scale; 'very low'-'low'-'moderate to low'–'moderate'-'moderate to high'–'high'–'very high'[2]. Low and very low are assessed as equating to 'less than minor' by WPS-Opus. The effects of the potential increase on landscape character and visual effects arising from the additional extent of the turbine height have been considered.

In respect of landscape effects, any permanent changes to the landscape are limited to the earthworks associated with construction of access roading and foundations. This includes road benching and the formation of cut and fill batters on either side of the road. Most of the turbine platforms and reduced roading length occurs along ridgelines, avoiding highly visible slopes from public places, and along with the halving of the number of turbines, any landscape effects have been assessed in the WPS-Opus report as leading to 'significantly reduced landscape effects' in comparison to the 22 turbine consented option.

Using the seven-point scale of effects, the visual effects of the increase in turbine height have been assessed as 'very low'. The primary issue of whether a windfarm can be located in this setting has already been determined - the consented 110m tall turbines are very large

[2] "Very low" and "low" can be considered as less than minor in RMA terms; "moderate to low", "moderate" and "moderate to high" being minor; and "high" and "very high" being more than minor.

structures and so this question has been answered. The turbines are striking features and therefore the actual size of the turbines becomes less important.

With the sparsely lived-in and visited receiving environment and the site's remoteness, the visual assessment concludes that the increase in height sought will not trigger additional visual effects above 'low'. In support of this conclusion it is noted that the number of third party dwellings within the receiving environment are low and well away from the turbine sites. Therefore, the area has capacity to absorb further change beyond what has been consented due to its remoteness, relatively low population and its modified character. Overall, any increase in visual effects and visual dominance generated by an increase in turbine height over what has been consented for the northern eleven turbines is offset by halving the consented turbine numbers. On balance the visual effects generated by the proposal when tested against the consented environment will be 'low', or 'less than minor' in RMA terms.

On a more specific scale, the ZTV maps demonstrate that there will be no additional turbines visible from public places or occupant views. The hub and tower heights will increase by 58% and form the key potential visual impact. However, the effects are assessed as having low adverse effects. Any increases in the proposed tower diameters, blade stem chord width, hub and nacelle dimensions above what has been consented will be acceptable given what has been consented, as the change in scale of these items is relatively small compared with the overall turbine height increase. It will be unlikely that these increases are discernible from a distance.

Although the turbine tip height will increase from 110m to 172.5m, this increase is acceptable because the proposed new blades are narrower than previously consented turbines, and visual effects are mitigated by the slower maximum blade rotation (12.5 rpm compared with 18 rpm), leading to a 'less visually frenetic and more languid rotation'.

In respect of amenity values the Landscape and Visual Assessment report acknowledges that the introduction of eleven fewer albeit taller turbines to the setting over what is already consented is the key generator of the magnitude of the effects. On balance the assessment determines the difference between what is consented and what is proposed generates only 'low' adverse visual effects, due mainly to the halving of the proposed turbine numbers compared to what has been consented. Any potential adverse effects on amenity values were determined at the initial consenting process on a broader receiving environment compared to now. Turbine height is less important. Nonetheless, the height increases of the proposed 11 turbines will generate 'low' adverse effects on amenity levels above what has been consented to date.

In conclusion, the difference in effects between the consented twenty-two 110m tall turbines and the now proposed eleven turbines at 172.5m tall will have 'low' adverse visual effects, and landscape effects arising from the proposal will be less than what has previously been consented. This can be translated into effects that are less than minor in RMA terms, particularly in regards to notification in the Section 95 of the Act.

4.8 Ecology

The actual or potential effects of tip height increase was assessed by Ecology NZ. A copy of the Memorandum can be found as Attachment 7.

The primary potential adverse ecological effects of the TWF are bird and bat death and injury resulting from direct strike by turbine blades, and barotrauma (i.e., injuries or deaths resulting from changes in air pressure) to any bats that fly too close to turbines.

International literature regarding the ecological effects of wind farms on birds and bats focuses on wind farm location and the configuration/positioning of individual turbines. This is reinforced by the New Zealand Department of Conservation concluding that it is unknown whether larger turbines cause increased bird mortality (see page 2 of the Memorandum).

Only one study was found on the subject and this concluded that turbine rotor dimensions did not influence the rate of bird or bat fatality and turbine height had no effect on bird fatalities. The Memorandum predicts that the risk of long-tailed bats encountering turbine blades and/or zones of higher/lower air pressure) would remain unchanged with the proposed increase in turbine size.

The Memorandum refers to a meta-analysis of international literature relating directly to the impacts of wind farms on birds and bats which concluded that a smaller number of large turbines resulted in lower predicted mortality rates for birds and bats compared with a greater number of small turbines. Even if there is an increase in impacts on birds and bats resulting from increased turbine size, the ecological benefits of a 50% reduction in turbine numbers will outweigh any negligible increases arising from larger turbines.

The Ecology NZ Memorandum says that “the potential adverse ecological effects of increasing the maximum turbine tip height from 110m to 172.5m and increasing the rotor diameter from 100m to 155m are likely to be negligible at most”. The Memorandum concludes the 50% reduction in turbine numbers is critical and would lead to a positive overall benefit compared with the 110m, 22 turbine consented project.

4.10 Positive Effects

The proposed amended proposal will lead to a slightly greater amount of electricity being generated - up to 48.4 MW will be able to be produced, up from the output of the consented turbines, 32.5MW to 37.5MW. This will occur with only half the number of turbines to that originally consented. The power output from the proposed new machines demonstrates the significant improvements in wind power technology and the positive benefits such technology can bring.

The actual and potential effects of the amended proposal will be positive compared to the consented proposal. Although taller structures may have some minor localised increased effects, the reduced number of structures will lead to less disruption on roads, less tracking required, and less visible physical turbine structures than the 22 consented project. This is overall a positive effect.

4.11 Iwi Consultation

Consultation has taken place with Ngā Tai o Kāwhia Regional Management Committee (Maniapoto) to determine if they have any issues with the proposed wind farm. Discussions regarding the earthworks resource consent application to the Waikato Regional Council in particular have been productive. Documentation was sent to them explaining the general proposal including the reduction in the number of turbines, the earthworks proposed and the effects assessment, the Site Plan, and the proposed earthworks conditions. Their response

is attached as Attachment 13. Unfortunately, information on the amended size of the turbines, relating to the District Council consent, was not sent at the same time.

Nga Tai O Kawhia have expressed a neutral position towards the earthworks application provided there are appropriate conditions to:

1. Manage environmental effects, including discharges to air, land and water, sediment and erosion controls, so that these effects will be less than minor.
2. Manage accidental discoveries of wāhi tapu and archaeological sites.
3. Invite at least two tāngata whenua representatives to monitor the construction phase of the project, including appropriately resourcing those representatives.

TWF agrees to conditions covering these matters being applied and anticipates such conditions could be applied to consents granted by both Councils.

Additional information has now been forwarded to Maniapoto on the application to Waitomo District Council. In particular the size of the turbines along with the visual landscape effects report and accompanying photomontages have been provided, as well as the ecology Memorandum appended to this report. The results of further discussions with Nga Tai O Kawhia will be reported at a later time.

4.12 Overall Effects Assessment

The potential effects of increasing the tip height and rotor dimensions of the turbines at the proposed Taumatatotara Wind Farm have been assessed against the existing consented environment. Only those potential effects that may have changed from the existing consented environment have been assessed.

Overall, with the changed dimensions of the proposal the actual and potential environmental effects have been shown to be less than the existing consented environment and are assessed as being ‘less than minor’ in RMA terms.

Geotechnical stability can still be achieved and the foundation changes have a very small and very localised impact. Modern design of turbine componentry and transportation techniques will allow transport of all machinery within the confines of the existing consent, albeit with a greatly reduced number of components to be transported. There will be no shadow flicker effects on any dwellings outside the site – in fact shadow flicker will be significantly reduced. Larger turbines are not anticipated to increase impacts upon birds and bats, with the halving of the number of turbines being a positive effect. The increased height of the 11 turbines will not create increased noise levels above existing consented levels. Finally, visual effects of increasing the tip height and dimensions of the turbine and structures have been assessed as being less than minor.

All other effects originally assessed and approved in the 2008 consent will not change as a result of the new proposal – they will be no greater with this amended proposal than that originally assessed, and likely to be much less due to the reduced number of turbines.

5. STATUTORY ASSESSMENT

The following assessment is restricted to objectives and policies relevant to the change of conditions of resource consent, and not to those aspects of the original application where there are no changes proposed

5.1 National Policy Statement for Renewable Electricity Generation 2011

This National Policy Statement (NPSREG) was not assessed previously due to it only being approved in 2011. It is therefore relevant in the assessment of this Section 127 application.

The NPSREG has the following Objective:

> *To recognise the national significance of renewable electricity generation activities by providing for the development, operation, maintenance and upgrading of new and existing renewable electricity generation activities, such that the proportion of New Zealand's electricity generated from renewable energy sources increases to a level that meets or exceeds the New Zealand Government's national target for renewable electricity generation.*

The proposed wind farm, providing renewable energy, gives effect to the Objective. Further, the change in turbine height will further give effect to the Objective by providing a slight increase in the amount of renewable energy from the original consented proposal.

Relevant policies to the proposal include:

> *POLICY A*
>
> *Decision-makers shall recognise and provide for the national significance of renewable electricity generation activities, including the national, regional and local benefits relevant to renewable electricity generation activities. These benefits include, but are not limited to:*
>
> *a) maintaining or increasing electricity generation capacity while avoiding, reducing or displacing greenhouse gas emissions;*
>
> *b) maintaining or increasing security of electricity supply at local, regional and national levels by diversifying the type and/or location of electricity generation;*
>
> *c) using renewable natural resources rather than finite resources;*
>
> *d) the reversibility of the adverse effects on the environment of some renewable electricity generation technologies;*
>
> *e) avoiding reliance on imported fuels for the purposes of generating electricity*

"Recognise and provide" is a high level of obligation for decision-makers under RMA. Renewable electricity, such as is proposed at Taumatatotara is of national significance. It will help reduce greenhouse emissions, increase national electricity supply, and provides the benefits set out in the Policy.

> *POLICY B*
>
> *Decision-makers shall have particular regard to the following matters:*
>
> *c) meeting or exceeding the New Zealand Government's national target for the generation of electricity from renewable resources will require the significant development of renewable* electricity generation activities.

The Government's national target is for the renewable electricity target to be 90 per cent by 2025, and 100% by 2035. In 2017, 82% of the electricity generated in New Zealand came from renewable sources[3]. The proposal will assist in meeting the Government's target.

> *POLICY C1 Decision-makers shall have particular regard to the following matters:*
>
> *a) the need to locate the renewable electricity generation activity where the renewable energy resource is available;*
>
> *b) logistical or technical practicalities associated with developing, upgrading, operating or maintaining the renewable electricity generation activity;*
>
> *c) the location of existing structures and infrastructure including, but not limited to, roads, navigation and telecommunication structures and facilities, the distribution network and the national grid in relation to the renewable electricity generation activity, and the need to connect renewable electricity generation activity to the national grid;*

Again, the proposal has had regard to this policy – wind monitoring indicates the resource is available, it is a reasonably remote site, and supporting infrastructure – connection to the national grid in particular, but also road access is available.

Overall, the amended proposal the subject of this application will assist in achieving the policy direction set out in the NPSREG.

5.2 Waikato Regional Policy Statement

Energy

In reference to energy, the Waikato RPS reflects the NPSREG.

> *Objective 3.5 Energy:*
>
> *Energy use is managed, and electricity generation and transmission is operated, maintained, developed and upgraded, in a way that:*
>
> *a) increases efficiency;*
>
> *b) recognises any increasing demand for energy;*
>
> *c) seeks opportunities to minimise demand for energy;*
>
> *d) recognises and provides for the national significance of electricity transmission and renewable electricity generation activities;*
>
> *e) recognises and provides for the national, regional and local benefits of electricity transmission and renewable electricity generation;*
>
> *f) reduces reliance on fossil fuels over time; g) addresses adverse effects on natural and physical resources;*
>
> *h) recognises the technical and operational constraints of the electricity transmission network and electricity generation activities; and*

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3 *"Energy in New Zealand 2017". MBIE. October 2017*

i) recognises the contribution of existing and future electricity transmission and electricity generation activities to regional and national energy needs and security of supply.

The Taumatatotara wind farm proposal, and in particular the proposal to increase the tip height and generating capacity of the already consented wind farm, contributes positively to the achievement of all the components of this policy.

Tangata Whenua

The relationship of Maori with the environment is also recognised in the RPS:

3.9 Relationship of tāngata whenua with the environment

The relationship of tāngata whenua with the environment is recognised and provided for, including:

a) the use and enjoyment of natural and physical resources in accordance with tikanga Māori, including mātauranga Māori; and

b) the role of tāngata whenua as kaitiaki.

The relationship of tāngata whenua with the environment was assessed when the 2008 consent was granted. This proposal to amend the conditions of consent will not alter this relationship. However, TWF has initiated further consultation with Ngā Tai o Kāwhia Regional Management Committee on the amended proposal's earthworks and they have expressed a neutral position to the project provided a number of conditions applied to consents to protect their position. TWF has agreed to their request. Once further discussions on the size of the turbines has been completed, the applicant will be in a position to report fully on the relationship of Maori with the environment.

Landscape, natural character and amenity

The Waikato RPS also contains objectives and policies for landscape, natural character and amenity. However, landscape seeks to (Objective 3.20) identify and protect outstanding natural features and landscapes from inappropriate subdivision, use and development. The TWF site is not within one of those areas set out as Outstanding Natural Features or Landscapes in the RPA, and thus the policies are also not relevant in this case.

Similarly, Objective 3.22, Natural character, seeks to protect the natural character of the coastal environment, wetlands, and lakes and rivers and their margins are protected from the adverse effects of inappropriate subdivision, use and development - the TWF site does not have any adverse effects on the coastal environment, wetlands, and lakes and rivers and their margins.

In respect of Objective 3.21, Amenity, the qualities and characteristics of areas and features, valued for their contribution to amenity, are maintained or enhanced. This Objective is to be achieved though Policy 12.3, which requires that areas of amenity value are identified, and those values are maintained and enhanced. These may include:

a) areas within the coastal environment and along inland water bodies;

b) scenic, scientific, recreational or historic areas;

c) areas of spiritual or cultural significance;

d) other landscapes or seascapes or natural features; and

e) areas adjacent to outstanding natural landscapes and features that are visible from a road or other public place.

Only d) above could be considered relevant in some way, but the landscape and visual assessment in Attachment 6 is that any effects are already provided for by the existing consent approved in 2008.

In summary, the proposal to increase the generating capability of the turbines at Taumatatotara is consistent with the energy provisions of the Waikato RPS. The other policies of the RPS have been reviewed and the proposal is not inconsistent with them. However, compared with the 22 turbine consented wind farm, the impacts of the reduced number of turbines upon landscape, natural character and amenity values will be significantly less.

5.3 Waikato Regional Plan

The Waikato Regional Plan is largely an air, land and water plan. The proposal to increase the height of the turbines at the site and minor consequential changes to other parts of the project, for example roading, will not increase the impact on the resources the Regional Plan manages, However, the impact on these resources will be less due to the reduced amount of roading and turbine platforms, so a positive effect on those resources.

5.4 Waitomo District Plan

The Waitomo District Plan has not yet been amended to incorporate objectives, policies and rules to provide for the development, operation, maintenance and upgrading of new and existing wind generation activities as required in Section E3, Policy E3 of the NPSREG.

The wind farm is proposed in the Rural Zone. The following Objectives and Policies have been assessed as having relevance to the changes in the height of the wind turbines as applied for in this application.

Objectives

11.3.1 To promote the Rural Zone as a productive working environment where the use and development of its natural resources, consistent with meeting environmental safeguards, is encouraged.

The changes proposed in this application will not lead any reduction in the rural working environment. If anything, the project will enhance it by providing improved access to the wind farm area through improved roads, and by providing greater an additional source of productivity to the land without affecting the existing productivity.

11.3.7 To promote efficient and effective management of the District's physical resources of roading, land drainage, and bulk services.

The Council, as the Road Controlling Authority for its district, will require upgrades to roads, particularly Te Anga Road and Taumatatotara West Roads, to accommodate the slightly longer and heavier towers, turbines and nacelles provided for in this application. This is an efficient means of providing for upgrades, and will contribute to increased and more efficient use of the district's road resource. Note however that there will be less turbine componentry, leading to less disruption on public roads.

11.3.8 To promote use of rural land in a manner which encourages maintenance and enhancement of amenity values of the rural environment, protects outstanding natural features and landscapes from inappropriate use and development, and preserves the natural character of the coastal environment, wetlands, lakes and rivers, and their margins.

There are no outstanding natural features or landscapes in the wider vicinity of the proposed wind farm. The landscape assessment accompanying this application has demonstrated the changes to the tip heights of the turbines, when compared to the consented existing environment (110m tip height turbines) will have impacts upon landscape character values that are very low. Therefore, it is concluded that the amenity values of this rural environment will be maintained by the proposal.

11.3.9 To encourage maintenance and enhancement of rural visual character.

The visual assessment carried out to examine the impact of this amended proposal concludes that the difference between the consented existing environment and the proposed turbines – 172.5m in height – will have 'low' visual effects.

11.3.11 To ensure that rural activities and lawfully established industrial activities in the rural area are not adversely affected by the location of new activities with expectations of high amenity values. Issues, 11.2.17

The proposed amended wind turbines, as expanded activities in the rural area would have adverse effects on existing physical resources such as roads, but conditions of consent will ensure TWF will be required to maintain the standards of the roads to ensure other legally established rural activities are not adversely affected.

There is a Landscape Policy Area which is an "overlay" Policy Area covering land in two parts of the District; the Waitomo Caves locality and the Mokau-Awakino coastal area. The TWF site is not included in this area. So, there are no relevant district landscape objectives, polices or rules that apply to the site.

5.5 Part 2 RMA

Part 2 of the RMA contains the Purpose and principles. The relevant parts of Part 2 to the increase in height of the turbines are follows:

5 Purpose

(1) The purpose of this Act is to promote the sustainable management of natural and physical resources.

(2) In this Act, sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while—

(a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and

(b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and

(c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.

The proposal will utilise a sustainable resource – the wind – and the amended proposal will increase the use of this resource. Existing natural and physical resources will still be able to

utilise the natural and physical resources - land and soils, roads etc, for farming, and conditions applied to the consent will safeguard air, land, soil and ecosystems. The effects on the environment of increasing turbine height are low.

6 Matters of national importance

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall recognise and provide for the following matters of national importance:

(a) the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:

(b) the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:

(c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:

(d) the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:

(e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:

(f) the protection of historic heritage from inappropriate subdivision, use, and development:

(g) the protection of protected customary rights:

(h) the management of significant risks from natural hazards.

The proposal will not lead to any significant changes to the consented location or configuration of the proposed 11 wind turbines. The significant changes are the number of turbines and the turbine height. The project area is not in the coastal environment or affecting wetlands, lakes or rivers; there are no outstanding natural features or landscapes; indigenous vegetation is not affected; the ecology assessment is that there will be no increased effect on indigenous fauna over and above the existing consented environment; public access is not affected; there will be no increase in natural hazards.

Maori (Ngā Tai o Kāwhia Regional Management Committee have been consulted and retain a neutral position to the proposal in respect of the regional consent. They have proposed conditions be applied to any consent, which should also apply to the District Council consent. These conditions will provide a greater degree of safety for the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga, than the previous consented proposal, which had no conditions aimed at protecting the relationship. Once consultation on the size of turbines and ecology has been completed, the applicant can report on the matters referred to in section 6(e) above.

7 Other matters

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to—

(a) kaitiakitanga:

(aa) the ethic of stewardship:

(b) the efficient use and development of natural and physical resources:

(ba) the efficiency of the end use of energy:

(c) the maintenance and enhancement of amenity values:

(d) intrinsic values of ecosystems:

(f) maintenance and enhancement of the quality of the environment:

(g) any finite characteristics of natural and physical resources:

(h) the protection of the habitat of trout and salmon:

(i) the effects of climate change:

(j) the benefits to be derived from the use and development of renewable energy.

The relevant provision are (ba) – this proposal seeks to make more efficient use of the energy resource; (i) – the effects of climate change will be lessened by the development of 'clean' energy resource without carbon emissions; (j) – this project is aimed at the development of renewable energy.

8 Treaty of Waitangi

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

There are no known Treaty of Waitangi issues with the proposal.

Overall, the proposal is considered to meet the purposes and principles of the RMA.

5.6 Statutory Conclusion

Regard has been had to the relevant planning provisions and the proposal has been assessed overall as being consistent with and not contrary to the provisions and in particular to the NPSREG, and also the Waikato Regional Policy Statement and the objectives and policies of the relevant plan – the Waitomo District Plan. Compared with the existing consented environment, overall, the proposal is consistent with the relevant provisions as assessed under section 104 (1)(b) of the RMA.

6. NOTIFICATION

In determining whether public notification is needed, the applicant is not asking for public notification and no further information or report has yet been requested (s95A(3).

Under section 95A(8)(b) of the RMA a consent authority must decide, in accordance with section 95D, whether or not the proposal is likely to have effects on the environment that are more than minor. The assessment undertaken in this application concludes that the effects of the proposed changes of conditions of consents will be less than minor, and therefore no public notification is required. No special circumstances exist in relations to the application that warrant the application being publicly notified (s95A(9). The proposal for a wind farm has

been canvassed in the surrounding district for some years and will not create any unexpected or special circumstances.

If a consent authority does not publicly notify an application for a resource consent for an activity, it must decide whether there is any affected person in relation to the activity who should be limited notified. Section 95B sets out the criteria for determining limited notification. There are no affected protected customary rights groups (s95B(2)(a), and no known statutory acknowledgements (s95(3)(a) and (b). Otherwise potentially affected persons are to be assessed in accordance with s95E. It is noted that s127(4) is relevant in this assessment, as follows:

As this is a section 127 application to change the conditions of an existing consent, then the RMA under section 127(4) states:

> *For the purposes of determining who is adversely affected by the change or cancellation, the consent authority must consider, in particular, every person who—*
>
> *(a) made a submission on the original application; and*
>
> *(b) may be affected by the change or cancellation.*

Under s95E, a person is an affected person if the consent authority decides that the activity's adverse effects are minor or more than minor (but are not less than minor).

The assessment of effects undertaken in this application has shown that the effects of the application are less than minor. The proposal has significantly less adverse environment effects than the existing consented proposal, and can therefore be considered to comparatively have positive effects. Thus, there is no person who can be assessed as being affected by the effects of the application in a minor or more than minor way, and there is no reason for the application to be limited notified.

It is recommended the application proceed on a non-notified basis.

7. OTHER MATTERS

The following policy initiatives, as per s104(1)(c) of the RMA are considered relevant to this assessing this application as they outline the higher-level strategic goals identified for New Zealand in achieving its goals for renewable energy:

- New Zealand Energy Strategy 2011–2021
- The Government's 100 per cent renewable electricity target by 2035
- Transpower's 2018 long-range planning report called "Te Mauri Hiko, Electricity Futures".

The application has been assessed against these policy documents and has been found to contribute to giving effect to them.

8. CONCLUSION

TWF is applying for approval under s127 of the RMA for a discretionary activity change of the consent conditions to its consent number RM050019 granted by Waitomo District Council in 2008. The changes are proposed in order to improve the economic feasibility of the site and to give better certainty on proceeding to construction. TWF wishes to amend the existing consent conditions by reducing the number of turbines from 22 to 11. The tip height of the

remaining 11 turbines will increase from 110m to 172.5m There will also be small changes to other dimensions of the turbines.

Final Iwi consultation withstanding, the changes have been assessed in accordance with section 104 of the RMA and have been found to have effects over and above the existed consented environment that are less than minor. The proposal has also been found to being consistent with and not contrary to the relevant statutory policy provisions.

Attachment 1: Wind Energy Yield Prediction Taumatatotara Wind Farm, Connell Wagner

Attachment 2: Transport

Attachment 3: Turbine Dimensions

Attachment 4: Civil Aviation email

Attachment 5: Noise assessment Altissimo Consulting

Attachment 6: Landscape and Visual Assessment, WPS Opus

Attachment 7: Memorandum, Ecology NZ

Attachment 8: Landowners' full names, phone number, addresses, land title information

Attachment 9: 2008 Consent Conditions, Waitomo District Council

Attachment 10: Opus Landscape Visual Assessment S92 Response 2012

Attachment 11: ZVI Analysis, Energy3

Attachment 12: Response to Mansergh Graham Memo Dec 2019

Attachment 13: Nga Tai O Kawhia Communication