

## Taumatotara Wind Farm: Summary comparison of effects comparing 2020 proposal against 2008 consented proposal.

- Section 127 Application to Waitomo District Council to delete turbines 12-22 and increase the height of turbines 1-11 from 110m to 172.5m

1. The conditions TWF Limited have applied to change are as follows (the 127 variation is track-changed from the original conditions):

2. For the purposes of this consent and for the avoidance of doubt the activities authorised by this consent include

a) the installation, operation and maintenance of no more than eleven (11) ~~twenty-two (22)~~ horizontal axis wind turbines (“turbines”).

3. The turbines shall have a maximum height of 172.5 ~~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 172.5 ~~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 the final location of turbines 19-22, to be removed from the project.

2. S127. The test is whether or not the variation would result in a fundamentally different activity or one having materially different adverse effects.

3. Table setting out the differences between the 2008 consent and the 2020 proposal.

Feature	July 2020 Application	Consented 2008	Effects Assessment of July 2020 option compared to 2008
No of Turbines	11	22	Half the number of turbines
<u>Turbine Characteristics</u>			
- Tip Height (see photomontage attachment below for comparisons between 2008 and 2020 options)	172.5m	110m	Individual turbines 57% higher than those they replace, but overall height of turbines (11 cf 22) is minus 22%
- Hub Height	95m	60m	- Individual hubs 58% higher than those they replaced but overall hub height is minus 35%

Feature	July 2020 Application	Consented 2008	Effects Assessment of July 2020 option compared to 2008
- Rotor diameter	155m	100m	- Individual rotors 55% longer but overall rotor diameter minus 22% } These turbine characteristics are not discernible to any observer off the site, but there are 11 less nacelles, blades thereby reducing visibility
- Rotor height from ground	17.5m	10m	
- Blade Cord	4m	4.4m	
Tower Diameter	3-4m (top to bottom)	2.3m-3.2m	
Nacelle Width	5.8m	4.2m	
Nacelle Height	5m	4.2m	
Nacelle Length	17.5m	12.5m	
Shadow Flicker Extent	1060m	1166m	
Closest Visible 3rd Party House	South - 3,742m (Galbraith) North – 2,087 (Martin)	1,812m (Gilbert)	Greater distance and half the number of turbines to view
Landscape/Visual - See photomontages below	<ul style="list-style-type: none"> <li>- Visual – low compared with consented 2008 environment = less than minor</li> <li>- ZTV maps – no additional turbines visible from public places</li> <li>- Landscape – reduced effects</li> <li>- Amenity – low effects</li> </ul>	2008 provides the existing landscape/visual environment	The 2020 proposal at best leads to neutral landscape/visual effects on the environment
Ecology/Ornithology	Negligible potential adverse effects over existing consent		50% reduction in turbine numbers in 2020 proposal is critical - would lead to a positive overall benefit compared with the greater number of 22 x 110m consented turbines project.
Traffic/Roading	Turbine structures now can be spilt into components, specialised cantilevered transporters now available for avoiding roadside cuts, half the number of turbines etc to be	Componentry for 22 turbines, much bulkier, cannot be split into components, transporters not specialised, more road cuts	Traffic and roading effects less in 2020 due to improved transportation techniques and componentry

Feature	July 2020 Application	Consented 2008	Effects Assessment of July 2020 option compared to 2008
	transported, reduced road cuts needed		
Foundations	18m x 18m	14m x 14m	No effects as they are confined to each site and not viewed from elsewhere
Aviation	Turbines higher but less of them (11)	22 x 110m turbines	Difference in height not material for aviation; reduced numbers is significant.
Noise	Improved technology with taller turbines generating no additional noise No 3 <sup>rd</sup> party dwelling will be able to hear any noise due to greater distance		Less effect as: <ol style="list-style-type: none"> <li>1. New 2020 technology quieter turbines lead to no noise increase over smaller 2008 turbines</li> <li>2. Less turbines (11 cf 22)</li> <li>3. Greater distance to 3<sup>rd</sup> party dwellings</li> </ol> Overall, reduced effect
Electricity generation output	48.4 MW	32.5 – 37.5MW	Overall positive benefit
Summary: The variation does not result in a fundamentally different activity – a wind farm is still proposed; nor is the variation proposing materially different adverse effects.			

**Viewpoint 4** Recommended Viewing Distance 13.9cm when printed A3 Landscape (40cm image width)



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**KWF Turbine distances: 11 and 22 turbine options**

