

# KAIMAI WIND FARM

19 November 2018

## Assessment of Environmental Effects Precis for Direct Notification

Kaimai Wind Farm Ltd (“KWF”) seeks to establish a wind farm with 24 large-scale turbines at the north-western end of the Kaimai Ranges, located in the Waikato Region of New Zealand’s upper North Island. The site is located at 771 and 604 Rotokohu Road and 6356 State Highway 26 (combined site area of 1304ha). The Project will introduce seven 180m high turbines to the main Kaimai Range ridgeline (turbine numbers 18 – 24), and seventeen 207m high turbines at the lower elevation ridgeline (heights being to rotor tip). Ancillary structures and works are also required, including 596,500m<sup>2</sup> / 900,000m<sup>3</sup> of earthworks, 24 turbine platforms with supporting areas, a new sub-station with two grid-connection towers, two internal overhead lines, 18.9km of internal/access roads with modified culvert crossings, a quarry area for aggregate, and an underground cable network between the turbines. All vehicular traffic associated with the construction of the wind farm will access the site from Wright Road, off Rawhiti Road.

Resource consent applications have been lodged with Hauraki District Council (“HDC”) and Waikato Regional Council (“WRC”). An Assessment of Environmental Effects (“AEE”) has been prepared by Tektus Consultants Ltd and lodged with the HDC and WRC in support of the consent applications. The AEE has been informed by numerous technical assessments undertaken by experts for both the construction and operational phases of the Project. Further information has also been prepared and submitted, summarised by Shearer Consulting Ltd on 24 October 2018. The AEE and supporting documents can be accessed on the HDC website:

<http://www.hauraki-dc.govt.nz/services/resource-consents/kaimai-wind-farm-project/>.

Impacts on landscape, visual amenity and character of the surrounding environment have been assessed by Mike Moore, referencing Project photomontages completed by Energy3 Services Ltd. These can be viewed at the above link. Mr Moore concludes that there will be ‘adverse / high’ effects on the landscape character and values as a result of the upper group of seven turbines, and ‘adverse / moderate’ effects for the main lower group of turbines. ‘Adverse / high’ to ‘adverse / very low’ impacts are assessed in respect of visual amenity effects on the various affected viewing audiences. Impacts are most pronounced on close-by residents and from viewpoints to the east of the Ranges due to the highly natural landscape context of the upper ranges as viewed from the east. It is not possible for a wind farm to avoid adverse visual effects given the necessary scale and positioning of turbines along ridges to efficiently and economically utilise available wind resources. KWF proposes to retire and plant around 23.5ha of current pastoral land sloping towards the Kaimai Mamaku Conservation Park in native vegetation to reduce the adverse landscape effects to the east to ‘moderate / high’ in the long term.

An acoustic assessment has been undertaken by Dr Stephen Chiles of Chiles Ltd to determine the predicted ongoing noise levels from the operation of the wind farm and noise effects associated with construction. The wind farm will operate within a 40 dB LA90 noise limit at the closest houses to the wind farm. This limit is set under the New Zealand Standard on Acoustics – Wind Farm Noise (NZS 6808: 2010), specifically to protect health and reasonable amenity. Vibration from wind farms has been shown to be within acceptable thresholds. Dr Chiles concludes that the noise effects of the Kaimai Wind Farm are acceptable in this environment.

An assessment of the potential ecological effects associated with the construction and operation of the wind farm has been undertaken by Kessels Ecology Ltd following extensive investigations from 2009-2017. Supplementary ecological investigations have been undertaken by Ecology New Zealand Ltd (“ENZL”). Both reports draw similar conclusions. The ENZL report concludes that the effects of the project in terms of vegetation clearance (confined to 1700m<sup>2</sup> of secondary vegetation) and on bats, birds, herpetofauna (lizards)

and freshwater resources, will not be significant. This includes the effects of turbine blade strike on bats and both native and migrating shore bird species, based on studies of similar operating wind farms in New Zealand. Mitigation is proposed and includes providing funds to support local restoration and rehabilitation projects. In addition to the native revegetation along the eastern side of the Kaimai Ranges ridgeline, 1km of the Waitoki Stream will be retired from stock, fenced and planted in native species. KWF will also offer to contribute to conservation management at the Miranda Shore Bird centre to maintain or enhance that habitat and/or breeding success of water birds.

The potential for 'Shadow Flicker' has been assessed by Energy3 Services Ltd with a specific focus on 39 dwellings near the wind farm. Generally accepted international exposure levels are 30 hours in total per year on a modelled basis, 10 hours per year actually experienced, or no more than 30 minutes per day. Energy3 estimates that 15 occupied residences may be exposed to shadow flicker for more than 30 hours per year (ranging from 30.1 hours to 92.6 hours), and have outlined mitigation measures that could be explored in the event that shadow flicker becomes a nuisance, which KWF is open to providing.

Tourism and recreation values have been assessed by TRC Tourism Ltd, concluding that associated effects will be minimal and can be appropriately managed. The wind farm will be noticed but will not restrict public access or prevent enjoyment of the nearby recreational and tourism facilities. There is potential for tourism benefits with the wind farm presenting a new visitor experience to the District.

A geotechnical assessment has been undertaken by KGA Geotechnical Ltd (KGA) relative to the specific ground conditions at the Site, and this concludes there are no significant geotechnical issues that would prevent the safe formation of the Project on the Site.

Tranzcarr Heavy Haulage Ltd have assessed and confirmed that transportation of the turbine equipment to the site is feasible, albeit with the necessary input and approvals from the transport authorities and potential modifications along the route from Port of Tauranga to the Site.

Gray Matter Ltd have assessed traffic impacts, addressing the safety and efficiency effects of the Project on the wider transport network through the construction and operation of the wind farm. The construction phase is likely to generate approximately 104 vehicles per day (vpd) with peaks up to 218 vpd for a duration of 18 months, and thereafter traffic movements will be negligible (1-2 vpd). Access to the wind farm for construction and operation can be adequately and safely achieved, and any increased traffic generation from the Project can be adequately accommodated within the surrounding traffic network, adopting recommended mitigation in terms of localised road widening and a construction traffic management plan.

A comprehensive and supplementary erosion and sediment control plan has been prepared by Ridley Dunphy Environmental Ltd, which addresses the effects associated with the bulk earthworks, aggregate extraction operation and the culvert replacements. The report confirms that erosion and sediment controls can be effectively employed for the construction phase of developing the wind farm. Together with a robust construction methodology and continued management, monitoring and reporting of sediment controls and methodologies, any sediment related runoff to receiving environments will be minimised.

The management of stormwater from the road alignment and cross-road culverts has been assessed by Civil Engineering Services Ltd. This concludes that the potential effects of discharges to land and water associated with stormwater from the road alignment will be appropriately managed and mitigated.

An archaeological assessment has been undertaken by Andrew Hoffman, demonstrating that none of the known or probable heritage features on the Site will be affected by the Project.

Consultation with iwi undertaken to date is summarised through the AEE, and this is ongoing. Ngāti Hako provided a summary Cultural Values Assessment in April 2018 which highlighted that the Kaimai Mamaku range is an area of high spiritual and cultural significance to Hako and identified some key issues.

Impacts on aviation activities have been assessed by Peet Aviation Ltd, concluding that effects on activities such as hang-gliding and paragliding, as well as glider aircraft from the Matamata Soaring Centre can be appropriately managed and mitigated.

Lambda Communications Ltd have assessed that effects on radio communications services will be minimal.

The Kaimai Wind Farm has the potential to generate numerous positive and economic benefits at local and national levels. Benefits include:

- The use of renewable energy resources, effectively assisting in meeting the required targets under the National Policy Statement for Renewable Energy Generation (“NPS-REG”).
- The installed capacity of circa 100MW will put downward pressures on the wholesale electricity price.
- Security of supply at a Local and National level.
- The NPS-REG requires new generation supply by 2026 to meet the 90% renewable generation target, with 37% forecast to come from Wind Generation. The Kaimai Wind Farm will contribute 11% of the required new wind supply targets embedded in the NPS-REG.

The AEE also contains an assessment of the Project against the statutory tests set by the Resource Management Act 1991 (“RMA”), and the relevant provisions of the national, regional and district policy statements and plans in particular. In brief, the Project is generally consistent with, and not contrary to, the objectives and policies throughout the NPS-REG, Waikato Regional Policy Statement, Waikato Regional Plan, Waikato Regional Energy Strategy, Hauraki District Plan, and the Zero Carbon Bill. Numerous provisions recognise the need to develop renewable electricity generation infrastructure, including at significant scale, and the need for such infrastructure to be located where the resource exists. The NPS-REG is of paramount importance to recognising renewable energy as a matter of national significance in its own right, and is the only national planning instrument of direct relevance to the Project, giving national direction as to how the Part 2 principles of the RMA should be applied in assessing it.

The AEE concludes that on balance the Kaimai Wind Farm has been designed and can be constructed and operated in a manner that will appropriately avoid, remedy or mitigate adverse effects on the environment. The Site is considered to be an appropriate location for a wind farm, particularly given the immediate proximity to the National Grid and the accessibility of a strong wind resource, the rural zoning and pastoral land use, available noise buffer separation distances from residential dwellings, and a lack of designated ecological or landscape values within the Site. While not all potential adverse effects from the Project can be avoided, remedied or mitigated in their entirety; in particular, the adverse impacts on landscape character and on visual amenity, the Kaimai Wind Farm has evolved through an iterative design process – seeking to address often conflicting values, and the proposal now represents an appropriate resource management outcome.

Finally, the Project addresses the growing need for renewable energy generation and is in synergy with the statutory framework of relevance to this consent application.