



# Waiuku Wind Farm: Fast Track Consent Application

Economic Impact Assessment

14 March 2023 – Final Report

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Economic Impact Assessment

Prepared for

LET Capital Number 3 Limited Partnership

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# 1 Introduction

LET Capital Number 3 Limited Partnership (LET) is seeking referred project status under the COVID-19 Recovery (Fast-track Consenting) Act 2020 (the Act) to accelerate the development of a Windfarm, located over three farms outside of Waiuku. Given some sectors of the Auckland economy have been particularly hard hit by the effects of a COVID-19 driven downturn, granting fast tracked referral status has the potential to be beneficial. LET has commissioned Market Economics to assess the economic effects of the Project for people and communities affected by the COVID-19 downturn and to quantify the effect of approving a referral under the Act.

## 1.1 Background

The Government has recognised that the COVID-19 pandemic has caused serious economic and social disruption in New Zealand – in particular, in areas that are highly reliant on tourism (especially international tourism) to sustain their economies. Further, COVID-19 has had significant impacts on other key sectors to the New Zealand economy such as hospitality and healthcare. The lockdown measures which were implemented in New Zealand's response to COVID-19 have impacted revenue in the hospitality industry due to the shutdown of hotels, restaurants, bars and cinemas. New Zealand's healthcare sector has also felt the negative effects of COVID-19 with medical staff and hospital occupancy being put under extreme pressure throughout the pandemic, and various associated supply chain issues.

In order to provide a degree of economic impetus, the Government recognised that by speeding up the development consenting process, benefits would flow early to communities as demand for labour would increase sooner and wages and salaries paid would sustain communities earlier. In addition, the developments themselves (commercial, residential and infrastructure) would stimulate and facilitate economic activity in communities suffering from COVID-19 driven downturns.

To this end, the Act came into effect in July 2020. The purpose of the Act is to promote economic activity while continuing to promote sustainable management of natural and physical resources.

LET seeks that the Project be referred under the Act. As set out in the assessment below, the Project will provide significant positive economic benefits to an economy affected by COVID-19. In particular, developments with a focus on increasing the generation and supply of renewable electricity will provide positive social, economic and environmental benefits for future generations.

The Act lays out a set of criteria that a project will be assessed against to see the degree to which it supports the purpose of the Act.

## 1.2 Assessment Criteria

Before deciding whether to refer a project to an expert consenting panel under the Act, the Minister must be satisfied the project will help to achieve the purpose of the Act. The Minister will have regard to a list of matters set out in Section 19 of the Act, included in those matters are:



- a) *the project's economic benefits and costs for people or industries affected by COVID-19:*
- b) *the project's effect on the social and cultural well-being of current and future generations:*
- c) *whether the project would be likely to progress faster by using the processes provided by the Act than would otherwise be the case:*
- d) *whether the project may result in a public benefit by, for example*
  - i. *generating employment*
  - iv. *providing infrastructure in order to improve economic, employment, and environmental outcomes, and increase productivity*
  - vii. *contributing to New Zealand's efforts to mitigate climate change and transition more quickly to a low-emissions economy (in terms of reducing New Zealand's net emissions of greenhouse gases)*
  - ix. *strengthening environmental, economic, and social resilience, in terms of managing the risks from natural hazards and the effects of climate change*

The following assessment evaluates the impacts of fast-tracking the Project and the degree to which the Project generates economic benefits for people and communities affected by the COVID-19 downturn. The economic impact of the development of the Project and its ongoing operation is measured through an Input-Output (IO) model which is informed by projected spending and timeline estimates. The results are presented in terms of its contribution to GDP, through value added, and the level of employment it will sustain.

## 1.3 The Application

LET has applied for a fast-track referral for the construction of a new wind farm, with an installed generation capacity of up to 80 MW, comprising a maximum of 18 wind turbine generators. It should be noted that a range of turbine types are being investigated that are suited to the site and fit within the project envelope. These options vary in individual MW rating and energy production, and therefore the proposal has flexibility to achieve project viability and equivalent MW output with less turbines. At this stage of the project, it is essential to maintain this flexibility while observing project maximums so that the project effects can be considered. The site is located on the west coast of the North Island approximately seven kilometres north of Port Waikato, and adjacent to the Waiuku Forest and steel mining operations within the forest. The current site is currently occupied by three farms which are expected to continue operations during and after construction. Figure 1-1 shows the general location and layout of the proposal.

Figure 1-1: Project Location and Indicative Layout



Source: 4SIGHT, February 2023

Under the standard RMA process the application for resource consent would be estimated to be lodged at the end of 2024, with establishment works for construction commencing in 2029. This considers a three year lodgement, public notification period and hearing process under the RMA, with subsequent Environment Court appeals. This would be followed by the site establishment, civil/siteworks, construction of transmission lines and roading upgrades, between 2029 and completion in 2031.

However, if the Project is referred, access to the fast-track consenting pathway under the Act would reduce this project timeframe by around three and a half years. The major difference being the referral process and EPA processing timeline taking less than a year (till early/mid 2024), when building consenting/engineering approval process can be undertaken and construction can begin.

It must be noted that the standard consent scenario used for the analysis of the RMA timeframes is somewhat optimistic. It assumes a minimal timeframe when there is likely be significant delays through appeals. This means timeframe difference while estimated to be around 3.5 to 4 years, it could be as long as 14 years. The benefit of fast track is construction is required to be underway within two years. Furthermore, LET has indicated that it is unlikely it would be moving forward with the proposal without the fast-track process as the level of uncertainty in the process under the RMA around cost and timeframe would be too great.



## 2 Economic impacts

### 2.1 Approach

This assessment relies on an estimated cashflow analysis based on data provided in respect of forecasted spending and the timing of that spending on earthworks, construction, infrastructure upgrades. That is, the costs and anticipated timeframes to obtain necessary consents, develop the site and infrastructure connections. This spending by LET is mostly directed to businesses within the Auckland region.<sup>1</sup>

Specifically, M.E have assumed that all construction related activity will be carried out by businesses within the Auckland region. The balance of spending (i.e., consent, design, and development project management costs) is also assumed to be directed to businesses based in Auckland, due to the scale of Auckland's service sectors. M.E. have matched this planned spending to 109 economic sectors in a Multi-Regional Input-Output (MRIO) model which has been customised for the Auckland economy (using a 2020 base year). The MRIO model provides projections of the value added and employment generated and sustained in the economy as a result of this additional activity. Value added (synonymous with GDP) arises through the spending, directly through the construction process and indirectly as construction suppliers increase their purchases of raw materials and services, as the new activity flows on to other sectors of the economy and businesses pay wages and make profits. The links between the study area and the surrounding regions are also captured, showing the extent of the spread of the additional economic activity. This means that if the Auckland construction sector purchases aggregates or construction supplies from the rest of the North Island, then increased demand in Auckland, as a result of this development, has flow on effects in the rest of the North Island which are captured in the MRIO.

The IO model contains data on gross output for each sector and employment in Auckland. We are then able to then generate an annual average ratio of gross output per person employed in each sector in order to translate additional economic activity into additional employment – by sector. As the cashflow analysis provides spending detail based on a mix of costs per stage of the development and for construction, we have split the year into quarters for this analysis. By applying these ratios to the quarterly revenue each sector is forecast to receive from LET's construction activity, M.E have been able to estimate the additional count of jobs (by sector and approximate location) sustained in each year as a result of the proposed development ("job years"). The employment projections are modelled using and measured in Modified Employee Counts (MECs). This measure is based on Statistics New Zealand's Employment Count (EC) statistic but also includes an estimate of the number of working proprietors. As the IO model uses 2020 as a base year, the projected spending inputs to the model are deflated to 2020 terms. From here, the IO model value added outputs are reinflated to present terms, while the employment outputs reflect the 2020 proportions of gross output per MEC without reinflation. For comparison of the results, approximations of FTEs have been included. Further detail of the use of MECs as a measure of employment and translation of MECs to Full Time Equivalent (FTEs) is included in the Appendix.

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<sup>1</sup> For the IO model all expenditure is assumed to be in Auckland for simplicity. Businesses within the Auckland economy have sufficient construction skills and capacity to cover all of the various construction tasks required for this build.





The project team have provided forecasted cashflow by year, with time estimates under the fast-track pathway and a resource consent scenario. The fast-track consent scenario has a projected total spend of  $\$9(2)(b)(ii)^2$ , which is also expected under the standard consent scenario. This estimated spending covers civil works, on farm electrical and transmission connection, plant and onsite infrastructure. Both scenarios are expected to deliver the same scale of development, although the standard consent scenario is expected to be subject to a three and a half year delay to the start of construction<sup>3</sup>. Therefore, the scenario under the regular consent process pushes back construction related cashflows by three and a half years.

The analysis compares the value added and employment, sustained over time for each scenario. As the IO model uses 2020 as a base year, the projected spending inputs to the model are deflated to 2020 terms. From here, the IO model value added outputs are reinflated to present terms, while the employment outputs reflect the 2020 proportions of gross output per MEC without reflation. The value added results are then discounted on a quarterly basis at an annual rate of 5%<sup>4,5</sup>. Discounting is used to reflect the rate of time preference and the opportunity cost of capital, reflecting the present value of future benefits. In other words, economic activity that happens today is worth more to the community in terms of the wages and salaries paid and the overall economic activity, than the same activity happening in several years' time. The difference in value added between those two scenarios represents the benefits achieved under the Act.

## 2.2 Economic Effects

### 2.2.1 Direct Impacts: Value Added

The most appropriate measure of the economic impacts that occur in an area as a result of the development of a project such as proposed, is 'Value added'. Value added is effectively the contribution to GDP (less GST) that a project generates, as such it is the value of construction minus the intermediate costs to generate the construction (such things as the cost of building materials, consents, electricity, business services and imported goods). It captures wages and salaries paid, operating surpluses generated for owners, depreciation, and tax. In the construction sector it is equivalent to approximately 30% of total output.

The distribution of the direct value added impact by industry under the fast track consent scenario is shown in Figure 2-1. Under the fast-track scenario, we are informed that the development's works will begin towards the end of 2025 and be completed near the end of 2027. The cumulative direct value added from the present to completion of the Project under this scenario is projected to be around \$35.7 million. Breaking the results down annually, in 2025, the fast-tracked development could have directly sustained around \$6.4 million in value added related to the establishment works. In 2026, the annual direct value added would increase to \$20.1 million for the year, as the scale of construction activity increases. Finally,

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<sup>2</sup> The estimates provided indicate a total cost of  $\$9(2)(b)(ii)$ , however, from this  $\$9(2)(b)(ii)$  was excluded the estimated cost of the turbines. Most of which will be towards importing them from outside the NZ economy. While the installation of these at the Waiuku site will have a significant impact on the local economy, the value of this has not been considered in the analysis.

<sup>3</sup> See appendix for a full summary of assumptions.

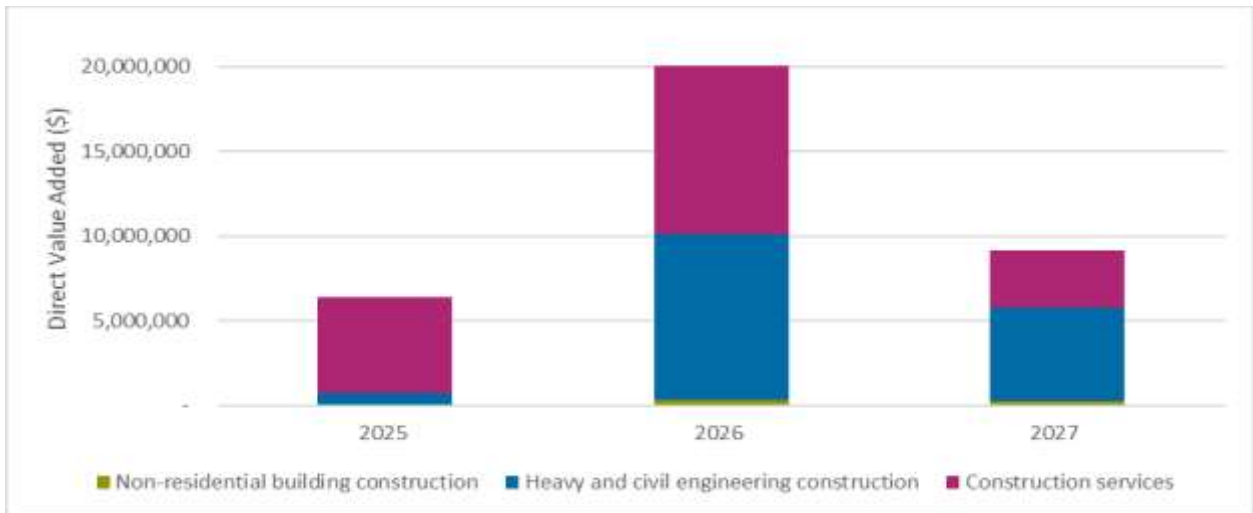
<sup>4</sup> Treasury NZ default discount rate is 5%.

<sup>5</sup> Discounting is not applied to the employment impacts.



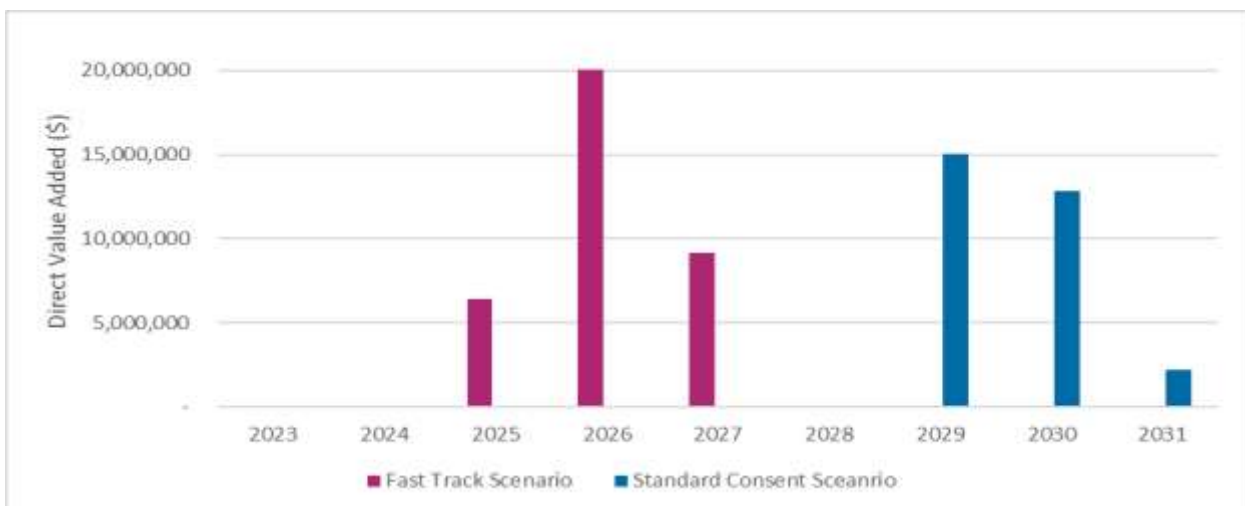
direct value is \$9.2 million in 2027, as construction of platforms and foundations concludes. The development as proposed would create an estimated \$11.9 million value added per year, on average, if approved by fast-track consent.

**Figure 2-1: Direct Value Added by Industry – Fast-track Scenario**



The value added directly created by the development is also shown in Figure 2-2 for the standard consenting process scenario (blue line) and the fast-track process (red line). The scenario for development under the standard RMA timeline consent generates a cumulative direct value added of \$5.6 million less than the fast-track scenario.

**Figure 2-2 - Total Direct Value Added by Quarter – Fast-track v Delayed Consent Scenario**



The difference is a result of the timing of construction which means a greater reduction in the present value of future benefits through discounting. Without the fast-track consenting process under the Act, the development will have to be authorised through the normal consenting process. This is expected to add around three and a half years onto the delivery, hence the peak construction phase is around three and a



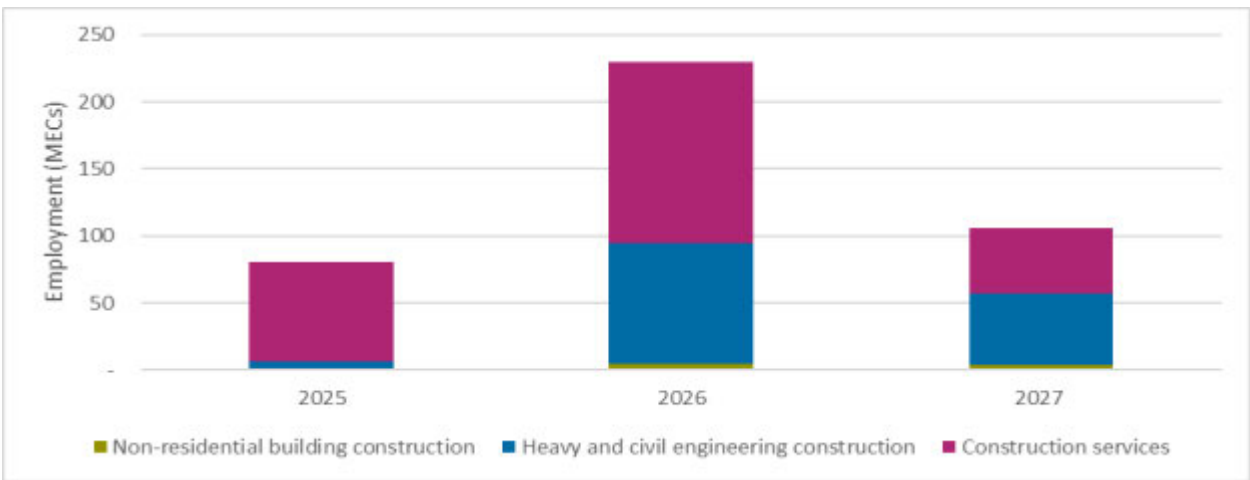
half years into the future. As the standard consent scenario has construction occurring from early-2029 to early-2031, these inflows are discounted significantly more than the scenario with fast-track consent. Thus, as future periods are discounted more heavily, for two scenarios with identical direct spending amounts, the one which is first to begin will generate the greatest value added in current terms. These benefits are particularly significant relative to the standard consent scenario from 2025 to 2027, as construction under the fast-tracked scenario is completed one year before it would begin under the standard consent scenario.

### 2.2.2 Direct Impacts: Employment

Under the fast-track scenario, directly sustained construction employment begins in 2025 and is completed in 2027. The results include job years (MECs<sup>6</sup>) estimated to be sustained inside the Auckland region, as it is assumed all direct activity is limited to the region. The majority of direct employment impact is construction sector activity with onsite construction related to the development running from 2025 to 2027.

Overall, a total of 416 job years' worth of work (330 FTEs) are directly sustained between 2025 and 2027. In 2025, the fast-tracked development is projected to directly sustain around 80 MECs (64 FTEs) through construction services, mainly. In 2026, this total increases to around 230 MECs (182 FTEs) sustained, as construction activity peaks. The direct employment impact finishes at 106 MECs (84 FTEs) in 2027 as construction is completed. The majority of the direct employment is in construction industries, across construction services and heavy and civil construction. Furthermore, the construction jobs are not limited to jobs occurring on the construction site, as the construction companies will have office-based staff included in the estimated ratios that will reside at headquarters around Auckland. It is important to note that while the development may generate a number of 'new jobs' and opportunities for apprentices and the like, the majority of the work will be carried out by existing skilled workers in the construction sector. Therefore, the development does not 'generate' new jobs as much as it sustains jobs across the sector. This is the case with all large scale construction activities.

Figure 2-3: Direct Employment Sustained by Industry – Fast-track Scenario

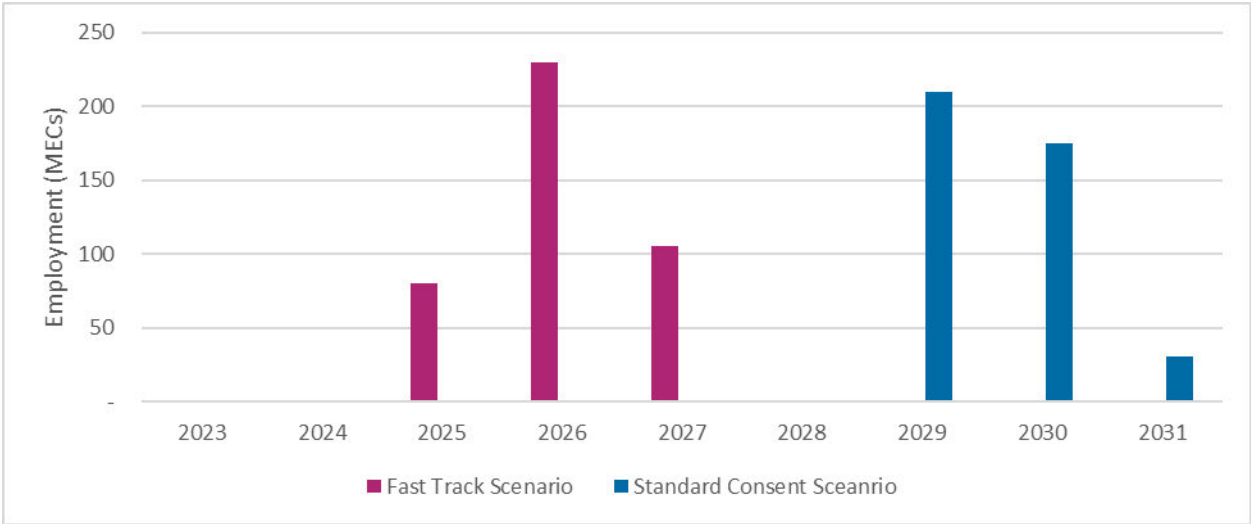


<sup>6</sup> Modified Employment Count (MECs) is a similar measure to FTEs. Generally speaking, an approximation of 0.79 FTEs per MECs can be applied, however, this varies significantly across industries.



A comparison of the direct impact on employment between consent scenarios is shown in Figure 2-4. It summarises estimated total job years or MECs sustained directly by the development, through direct activity under the fast-track scenario (red bars) and the standard consent scenario (blue bars). By comparison, under a delayed resource consent scenario, there is projected to be no differences in the overall employment impact, also with a total of 416 (330 FTEs). However, it is subjected to a longer time period estimated for approval. The large share of construction activity has a starting date of three and a half years later. This means that building construction does not start until 2029 and runs till 2031. The key point is the timing of the labour needs between the two scenarios as the benefits that the fast-track consent delivers relate to the timing of local jobs likely to be directly sustained by proposed development. Significant employment activity is sustained earlier, delivering employment benefits to the community sooner, compared with the delayed alternative.

Figure 2-4 - Total Direct Employment Sustained by Year – Fast-track v Delayed Consent Scenario



### 2.3 Flow on Impacts

M.E’s analysis of value added, and employment sustained (above) considers only the direct economic impacts. That is, the effects that are directly associated with the amount of expenditure required to develop the site. From a comprehensive economic impact perspective, ‘indirect’ and ‘induced’ impacts – also known as flow-on impacts – are also relevant. These reflect the additional activity, stimulated by the development, across the whole economy.

Many of the products required in construction are manufactured by industries based across Auckland, with others made around New Zealand. As construction demands more cement (for example), cables and so on, the manufacturing sector increases output. In addition, when more labour is required in construction and in the supplying sectors, the workers are paid wages which they then spend at retail outlets generating more demand for goods and services. Thus, the indirect and induced impacts measure how much **additional activity** the direct spend will stimulate. The MRIO allows the calculation of these indirect and induced effects as they relate to this development – for the Auckland economy taking into account inter-regional goods flows.



Based on the IO modelling, if the development is fast-tracked, it will stimulate a total of **\$77.7 million** of direct plus indirect value added (GDP) in current terms. Once the induced effects are included, this rises to **\$129.3 million** in value added (GDP) across the duration of the development, again in current terms.

The fast-track scenario is also projected to contribute to sustaining the equivalent of around 1,415 job years or 1,415 MECs (1,124 FTEs) working for one year, when the indirect and induced effects are considered. Employment figures projected for each year are set out in Figure 2-5. While all the direct impacts are assumed to occur in the Auckland region, the indirect impact of the proposed development will have effects reaching the rest of the North Island and the rest of New Zealand.

**Figure 2-5: Employment sustained by Economic Sector under Fast-Track (MECs) scenario**

<b>Economic Sector</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>Total Job years</b>
<b><i>Direct Employment (MECs)</i></b>				
Construction	80.1	229.7	105.7	<b>416</b>
<b>Total Direct (FTEs)</b>	<b>80</b>	<b>230</b>	<b>106</b>	<b>416</b>
<b><i>Direct, Indirect and Induced (MECs)</i></b>				
Primary Sector	0.9	3.5	1.8	<b>6</b>
Mining and Quarry	0.4	2.3	1.3	<b>4</b>
Manufacturing	11.6	42.7	21.6	<b>76</b>
Utilities	1.3	4.4	2.2	<b>8</b>
Construction	106.1	343.4	166.1	<b>616</b>
Wholesale trade	6.8	25.5	12.9	<b>45</b>
Retail Trade	4.2	16.0	8.1	<b>28</b>
Accommodation and food services	2.1	7.9	4.0	<b>14</b>
Road transport	8.1	30.5	15.4	<b>54</b>
Information media and teleco	3.5	12.8	6.4	<b>23</b>
Finance, insurance and funds	4.6	16.9	8.5	<b>30</b>
Rental, hiring and real estate service	3.3	13.2	6.8	<b>23</b>
Professional Services	52.1	191.9	96.5	<b>341</b>
Government Admin (local and cent	2.9	10.6	5.3	<b>19</b>
Education and training	6.6	24.4	12.3	<b>43</b>
Health care and social assistance	1.0	3.9	2.0	<b>7</b>
Arts, Rec., Personal & Other service	11.8	44.2	22.3	<b>78</b>
<b>Total Direct, Indirect and Induced (</b>	<b>227</b>	<b>794</b>	<b>394</b>	<b>1,415</b>

When the indirect impacts of the two scenarios are compared, differences arise based on the timing of benefits. Due to the discounting of future activity, value added is greater under the fast-track consent scenario because it occurs sooner and is discounted less. Figure 2.6 presents a summary of impacts (in current terms) of the development under the fast-track timeline. It highlights how the impacts are concentrated into the Auckland Region, but a significant portion of indirect and induced impacts are felt across the rest of North Island (\$11.9m of Value Add) and a smaller portion in the South Island (\$4.7m in Value Add).



Figure 2-6: Summary of Impacts under the Fast-track consenting pathway

	Auckland Region	Rest of North Island	Rest of New Zealand	Total
Direct Value Added (\$m)	\$ 35.7	\$ -	\$ -	\$ 35.7
Indirect Value Added (\$m)	\$ 34.8	\$ 5.4	\$ 1.8	\$ 42.1
Induced Value Added (\$m)	\$ 42.3	\$ 6.4	\$ 2.9	\$ 51.6
<b>Total Value Added</b>	<b>\$ 112.7</b>	<b>\$ 11.9</b>	<b>\$ 4.7</b>	<b>\$ 129.3</b>
Direct Employment	416	-	-	416
Indirect Employment	377	18	15	409
Induced Employment	540	23	27	590
<b>Total Employment</b>	<b>1,332</b>	<b>41</b>	<b>42</b>	<b>1,415</b>

Under the RMA consenting timeline, the value added amounts (in current terms) are smaller given the greater discount, while the employment totals are the same – albeit they occur later (Figure 2-7).

Figure 2-7: Summary of Impacts under the RMA consenting pathway

	Auckland Region	Rest of North Island	Rest of New Zealand	Total
Direct Value Added (\$m)	\$ 30.1	\$ -	\$ -	\$ 30.1
Indirect Value Added (\$m)	\$ 29.4	\$ 4.6	\$ 1.6	\$ 35.5
Induced Value Added (\$m)	\$ 35.7	\$ 5.4	\$ 2.4	\$ 43.5
<b>Total Value Added</b>	<b>\$ 95.1</b>	<b>\$ 10.0</b>	<b>\$ 4.0</b>	<b>\$ 109.1</b>
Direct Employment	416	-	-	416
Indirect Employment	377	18	15	409
Induced Employment	540	23	27	590
<b>Total Employment</b>	<b>1,332</b>	<b>41</b>	<b>42</b>	<b>1,415</b>

In total, in current dollar terms, the fast-track development pathway generates approximately \$20.2m more value added (GDP) than the traditional RMA consenting pathway in current terms. However, there is no difference in the scale of employment impacts between the two scenarios, although the timing of the employment impacts and addition operational is delayed under the standard scenario.

## 2.4 Summary of Fast-Track Benefits

The development of the Waiuku Wind Farm is estimated to directly sustain employment equivalent to 416 MECs (330 FTEs) within the Auckland economy, in other words the employment equivalent to 416 people employed for one year (see Figure 2-5 for details). In addition to that, it will indirectly sustain considerable local jobs across the supply chain in a range of sectors. A fast-track consent will mean that construction related employment can begin sooner and during a period when it will deliver the most value to local construction businesses facing a projected downturn of growth in an uncertain economic climate. This will allow them to employ more people across Auckland – potentially offsetting some of the adverse impacts by COVID-19. As a fast-track consent is estimated to bring the peak of the Project’s activity forward by an estimated three and a half years.



The development under a fast-track consent is also projected to have a significant value added impact of \$35.7m, directly, and a total impact of \$129.3m. The difference between the standard consent scenario is approximately \$5.6m less directly and \$20.2m less when the total impact is considered.

Bringing forward development means additional certainty for investors as the returns on investments occur sooner and the risks of building cost escalation are reduced. This means that more investment is likely via the fast-track process – in total, than under the RMA process.

**Figure 2-8: Summary of Development Impacts: Fast-track vs RMA pathways**

	Auckland Region	Rest of North Island	Rest of New Zealand	Total
<b>Fast Track Scenario</b>				
Direct Value Added (\$m)	\$ 35.7	\$ -	\$ -	\$ 35.7
Indirect Value Added (\$m)	\$ 34.8	\$ 5.4	\$ 1.8	\$ 42.1
Induced Value Added (\$m)	\$ 42.3	\$ 6.4	\$ 2.9	\$ 51.6
<b>Total Value Added</b>	<b>\$ 112.7</b>	<b>\$ 11.9</b>	<b>\$ 4.7</b>	<b>\$ 129.3</b>
Direct Employment	416	-	-	416
Indirect Employment	377	18	15	409
Induced Employment	540	23	27	590
<b>Total Employment</b>	<b>1,332</b>	<b>41</b>	<b>42</b>	<b>1,415</b>
<b>Standard Consent Scenario</b>				
Direct Value Added (\$m)	\$ 30.1	\$ -	\$ -	\$ 30.1
Indirect Value Added (\$m)	\$ 29.4	\$ 4.6	\$ 1.6	\$ 35.5
Induced Value Added (\$m)	\$ 35.7	\$ 5.4	\$ 2.4	\$ 43.5
<b>Total Value Added</b>	<b>\$ 95.1</b>	<b>\$ 10.0</b>	<b>\$ 4.0</b>	<b>\$ 109.1</b>
Direct Employment	416	-	-	416
Indirect Employment	377	18	15	409
Induced Employment	540	23	27	590
<b>Total Employment</b>	<b>1,332</b>	<b>41</b>	<b>42</b>	<b>1,415</b>
<b>Difference</b>				
Direct Value Added (\$m)	\$ 5.6	\$ -	\$ -	\$ 5.6
Indirect Value Added (\$m)	\$ 5.4	\$ 0.8	\$ 0.3	\$ 6.6
Induced Value Added (\$m)	\$ 6.6	\$ 1.0	\$ 0.4	\$ 8.0
<b>Total Value Added</b>	<b>\$ 17.6</b>	<b>\$ 1.8</b>	<b>\$ 0.7</b>	<b>\$ 20.2</b>
Direct Employment	-	-	-	-
Indirect Employment	-	-	-	-
Induced Employment	-	-	-	-
<b>Total Employment</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

## 3 Other Benefits

While the assessment of the economic impacts of the Waiuku Wind Farm is focused on its construction, the ongoing operation is also expected to generate significant benefits. The creation of a new wind farm capable of delivering up to 80MW of renewable electricity, will have a noticeable impact on New Zealand's electricity supply and its emissions profile.

New Zealand's operation electricity generation capacity between 2010 and 2021 is shown in Figure 3-1. Electricity generation capacity from wind was 913MW in 2021, making up 10% of the overall generation capacity from electricity only plants. Wind has been a growing source of national capacity with an increase of 69% since 2010. Over that period generation capacity from electricity only plants other than wind has fallen by 0.4%. This is largely a reflection of the phasing out of Coal/Gas generation due to high rates of greenhouse gas emissions. The introduction of the Waiuku Wind Farm, assuming an 80MW capacity, would represent an 8.8% increase to the total generation capacity from wind. Across all generation sources, this would be an increase of 0.9% on electricity only plants and an increase 0.8% when cogeneration is also considered. Assuming that the level of demand remains the same, the electricity generated by the Waiuku Wind Farm has the potential to displace up to 80MW of generation from higher emitting generation, such as coal. While not quantified, this would generate an emissions reduction.

Figure 3-1: Operational Electricity Generation Capacity by Plant Types (MW) (Source: MBIE)

Year End	Electricity Only Plants									Cogeneration			Total
	Hydro	Geothermal	Biogas	Wind	Diesel	Coal/Gas	Gas	Other Thermal	Sub-total	Gas	Other	Sub-total	
2010	5,332	734	30	540	163	1,000	1,208	-	9,008	327	313	640	9,648
2011	5,407	734	32	623	172	1,000	1,408	-	9,377	327	313	640	10,016
2012	5,421	760	32	623	180	750	1,508	-	9,275	327	313	640	9,914
2013	5,435	832	32	623	180	500	1,508	-	9,111	327	311	638	9,748
2014	5,435	958	36	682	180	500	1,510	-	9,302	327	311	638	9,940
2015	5,435	982	37	689	180	500	1,130	-	8,953	327	311	638	9,591
2016	5,435	977	33	690	180	500	1,130	-	8,946	157	311	468	9,413
2017	5,435	977	33	690	180	500	1,130	-	8,945	157	315	472	9,417
2018	5,435	1,001	33	690	183	500	1,130	-	8,972	157	315	472	9,444
2019	5,443	1,001	33	690	183	500	1,130	-	8,980	157	315	472	9,452
2020	5,443	1,035	33	690	191	500	1,230	-	9,122	159	257	416	9,538
2021	5,443	1,035	33	913	191	500	1,230	-	9,345	159	257	416	9,761
Δ2016/2020 p.a.	0.0%	1.5%	-0.6%	0.0%	1.5%	0.0%	2.1%	n/a	0.5%	0.3%	-4.6%	-2.9%	0.3%
Δ2019/2020	0.0%	3.4%	0.2%	0.0%	4.4%	0.0%	8.8%	n/a	1.6%	1.3%	-18.4%	-11.9%	0.9%

### Notes

- 1) All capacities are net of any plant decommissioning and small scale distributed generation such as solar PV is not included.
- 2) 'Other Thermal' in this instance includes generation by all major coal only (Meremere), fuel oil only (Marsden A and B), and gas/fuel oil plants (New Plymouth).
- 3) Plants that run solely on natural gas are listed under 'gas'. Multi fuelled plants that run partly on natural gas are listed under 'other'.
- 4) Includes cogeneration by some multi fuel or single fuel biomass, coal, liquid fuel and geothermal plants. It also includes multi fuelled plants running

Furthermore, the location of the wind farm, within close proximity to Auckland, means that it offers a close source of generation to the country's largest population centre. With most of the generation from the national grid located in the South Island, the proposed windfarm would contribute towards reducing the imbalances of the location of New Zealand's electricity supply compared to where the demand is located. This is beneficial in terms of improving resilience and reducing the cost of transmission.





## 4 Conclusion

The proposed development of the Waiuku Wind Farm is expected to positively contribute to the future economic and social wellbeing of the Auckland region, and through flow on effects, other areas of New Zealand. To be eligible under the COVID-19 Recovery (Fast-track Consenting) Act 2020, projects must meet several criteria set out in the Act. As discussed throughout this report, the proposed development project will result in economic benefits for an economy significantly affected by COVID-19 and will assist in sustaining the large construction sector (and many other sectors) within the Auckland region (including upstream suppliers) suffering as a direct and indirect result of a downturn in economic activity and the uncertainty of the economic climate.

The benefit of the fast-track process is clear. It means that a larger number of local jobs can be sustained in the short-term future, with the site establishment works expected to begin in 2025, three and a half years sooner than would be likely under a standard consent approach. While building consent data shows that recent levels of construction activity are likely to be maintained over the short term, the outlook beyond that is highly uncertain and there is a real risk that construction activity will rapidly slow, putting even more local jobs (and households) on the line. Consenting the Project under the FTCA will generate a greater contribution to GDP than if the standard consent process were used. Numerically, the referred projects pathway generates a direct net additional contribution to GDP of approximately \$5.6m, in current dollar terms, over and above the standard RMA development timeline. When indirect and induced impacts are considered, the additional contribution of the fast-track process rises to \$20.2m in current dollar terms.

In terms of employment, the development will directly sustain approximately 416 MECs (330 FTEs) for a year. Once the flow on effects are included, this rises to employment equivalent to 1,415 workers working for a year (1,415 MECs or 1,124 FTEs). Note that this figure does not change between the two scenarios - rather it is directly related to the scale of the development.

Once fully developed, the Project will provide further capacity to the electricity grid, which has the potential to deliver up to 80MW of renewable, wind energy, annually. Not only does this help meet the needs of the high growth of Auckland demand, but it potentially reduces the need for non-renewable generation and subsequently reducing carbon emissions.

# Appendix A – IO Model Assumptions

The following assumptions were made in order to run the input-output analysis:

- The analysis is based on a series of estimates for project expenditure and the timing of project stages. Annual expenditures are used, and the impacts are calculated based on the year in which they are expected to occur.
- This planned spending is to 109 economic sectors with 3 regions (Auckland, rest of the North Island, and rest of New Zealand) in an input-output model which has been customised for the Auckland economy using a 2020 base year.
- It is assumed that all direct expenditure of the development is received in the Auckland region. This was made for simplicity and the high likelihood that the major of spending is directed to Auckland and as one of New Zealand’s major financial and service hubs, the city (region) has the capability to be largely self-sufficient in completing the development. While the site is located in the Waikato region, within close proximity to the Auckland-Waikato border, it is likely to have closer linkages with the Auckland regional economy as opposed to the Waikato.
- The estimates provided indicate that if approved, direct construction activity will begin in 2025 and finish in 2027. For the standard RMA consent scenario, this will start in 2029 and be finished in 2031. The timelines provided are shown below:

Process	Consenting Application Prep Start Nov 2022	Consent hearing and decision process (incl. notification, submissions etc. for RMA process)	Detailed design, turbine negotiations etc.	Construction	Total
Fast Track Scenario	Nov 22 – Nov 23 1 year	Dec 23 – Mar 24 4 months	Apr 24 - Apr 25 1 year	Nov 25 – Nov 27 2 years	5 years to completion Nov 22 – Nov 27
Standard Scenario (RMA)	Nov 22 – Nov 24 2 years	Dec 24 - Dec 27 3 years (assumes appeals to EC)	Jan 28 – Jan 29 1 year	Feb 29 – Feb 31 2 years	8 years to completion Nov 22 – Feb 31

- Estimates were provided for the value of total spending at § 9(2)(b)(ii). The estimated construction costs provided cover civil/siteworks and roading upgrades at a total cost of § 9(2)(b)(ii) over the duration of the development and estimate of § 9(2)(b)(ii) for a new 33KV line from site to Waiuku. The remained is made up of an estimated § 9(2)(b)(ii) for the remaining balance of plant including crane hire, operation and maintenance building and associated site facilities, transmission collector facility, transportation, SCADA control systems, wind monitoring equipment, fencing, concrete production or delivery, lease payments.
- Excluded from the analysis was an amount totalling § 9(2)(b)(ii) was provided as an estimate of the cost of the wind turbines, this was not in the analysis as the majority of this is directed towards the purchase of the turbines from a foreign supplier outside of the NZ economy. However, spending related to the installation activity will generate local activity.
- From here it is assumed that the costs are spread evenly across the duration over which each activity is projected to occur. This is done according to the assumed timeline. These assumptions therefore create figures close to an average expenditure per year, rather than the potential distribution of activity and expenditure. These are all classified as expenditure to either the heavy and civil construction and construction services industries and are exclusive of GST.
- Two scenarios are used, one which reflects approval of a COVID-19 Fast-track consent and the other a delayed RMA resource consent, which reflects the standard process. For the basis of the economic assessment, it is assumed that the project would proceed through the resource consenting process, however, this may be unlikely. According to the provided estimates, the timing difference is around three and a half years and there is no cost difference under the standard consent scenario.



- The results of the input-output model are discounted (except for employment) quarterly at an annual rate of 5%, which is line with the default discount rate recommended by Treasury NZ.
- The input-output model has a base year of 2020. As such, the spending projections are deflated to 2020 terms to be used as inputs to the model. For the model outputs, the value added results are reinflated back to present terms, while the employment results reflect employment numbers based on the base year (2020) proportions between gross output and employment (Gross Output per MEC) where no reflation is applied. Furthermore, future inflation is not accounted for across the assessed timeline.

## Appendix B – Employment Impacts in FTEs

Modified Employee Count (MEC) is a headcount of all employees and includes an allowance for working proprietors. This is based on data from the Business Demography Survey (BDS) and the Linked Employee-Employer Dataset (LEED). The result is a headcount of employees (wage or salary earners) and working proprietors (the self-employed), i.e., modified employee count. Both LEED and BDS includes all workers with wages or salaries reported to Inland Revenue (PAYE data), and LEED data is augmented with self-employment data from annual tax returns to include working proprietors. LEED is a comprehensive database which contains data belonging to all individuals with taxable income, suggesting that there is a lower risk of sampling errors being introduced. Both these data sets have a fine-grained sector resolution that provides insight into how different parts of the economy are impacted.

StatsNZ's provide high level information about Full Time Equivalents (FTEs) in the Quarterly Employment Survey (QES). The QES collects data from a sample of employers (approximately 3,900 enterprises) about filled jobs, earnings, and paid hours and covers all employees on the employer's payroll, but working proprietors are not included. The QES does not cover all industries of NZ's economy (agriculture is excluded), and the sector aggregation is very high level. The employment levels are translated into full-time employment equivalents using a basic calculation - total number of full-time employees plus half of part-time employees.

This suggests MEC is a more robust measure of employment providing finer resolution, covering all sectors and capturing the self-employed (working proprietors). Despite these limitations, the employment impacts presented in section **Error! Reference source not found.** have been translated from Modified Employee Counts (MECs) to Full Time Equivalents (FTEs) below. The value of one MEC is approximately 0.79 of a FTE.

### Employment Impacts in FTEs

	Auckland Region	Rest of North Island	Rest of South Island	Total
<b>Annual Employment Impact (MECs)</b>				
Direct Employment	415.6	-	-	<b>416</b>
Indirect Employment	376.6	17.9	15.0	<b>409</b>
Induced Employment	539.8	23.4	26.8	<b>590</b>
<b>Total</b>	<b>1,332</b>	<b>41</b>	<b>42</b>	<b>1,415</b>
<b>Annual Employment Impact (FTEs)</b>				
Direct Employment	330.0	-	-	<b>330</b>
Indirect Employment	299.0	14.2	11.9	<b>325</b>
Induced Employment	428.7	18.6	21.3	<b>469</b>
<b>Total</b>	<b>1,058</b>	<b>33</b>	<b>33</b>	<b>1,124</b>

Employment sustained by Economic Sector under Fast-Track (MECs) scenario

<b>Economic Sector</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>Total FTEs</b>
<b><i>Direct Employment (FTEs)</i></b>				
Construction	63.6	182.4	83.9	<b>330</b>
<b>Total Direct (FTEs)</b>	<b>64</b>	<b>182</b>	<b>84</b>	<b>330</b>
<b><i>Direct, Indirect and Induced (FTEs)</i></b>				
Primary Sector	0.7	2.8	1.4	<b>5</b>
Mining and Quarry	0.3	1.8	1.0	<b>3</b>
Manufacturing	9.2	33.9	17.2	<b>60</b>
Utilities	1.0	3.5	1.8	<b>6</b>
Construction	84.3	272.7	131.9	<b>489</b>
Wholesale trade	5.4	20.3	10.3	<b>36</b>
Retail Trade	3.4	12.7	6.5	<b>23</b>
Accommodation and food services	1.7	6.3	3.2	<b>11</b>
Road transport	6.5	24.2	12.2	<b>43</b>
Information media and teleco	2.8	10.1	5.1	<b>18</b>
Finance, insurance and funds	3.7	13.4	6.7	<b>24</b>
Rental, hiring and real estate services	2.6	10.5	5.4	<b>18</b>
Professional Services	41.4	152.4	76.7	<b>270</b>
Government Admin (local and central)	2.3	8.4	4.2	<b>15</b>
Education and training	5.2	19.4	9.7	<b>34</b>
Health care and social assistance	0.8	3.1	1.6	<b>6</b>
Arts, Rec., Personal & Other services	9.4	35.1	17.7	<b>62</b>
<b>Total Direct, Indirect and Induced (FTEs)</b>	<b>181</b>	<b>631</b>	<b>313</b>	<b>1,124</b>