

24 February 2023

AUTHOR MERZAN WADIA

REVIEWED BY ADAM THOMPSON

51980.5.01



Economic Assessment of: Proposed Solar Farm at 1618 Wellington Road, Marton

PREPARED FOR
Energy Farms Limited



ABOUT US

OUR AREAS OF EXPERTISE

Economic Analysis

Our work aims to bridge the gap between land-use planning and urban economics. Our focus is on the interaction between land markets, land-use regulations, and urban development. We have developed a range of methodologies using a quantitative approach to analyse urban spatial structure and audit land-use regulations.

Property Research

We provide property and retail market research to assist with planning and marketing of new projects. This includes identification of new sites and market areas, assessments of market potential and positioning, and the evaluation of market-feasibility of specific projects.

Development Advisory

We provide development planning and costing advisory services to support small and large-scale developments.

DISCLAIMER

This document has been completed, and services rendered at the request of, and for the purposes of the client only. Urban Economics has taken every care to ensure the correctness and reliability of all the information, forecasts and opinions contained in this report. All data utilised in this report has been obtained by what Urban Economics consider to be credible sources, and Urban Economics has no reason to doubt its accuracy. Urban Economics shall not be liable for any adverse consequences of the client's decisions made in reliance of any report by Urban Economics. It is the responsibility of all parties acting on information contained in this report to make their own enquiries to verify correctness. © 2021 Urban Economics Limited. All rights reserved.

P: 09 963 8776

7 Tamariki Avenue, Orewa, Auckland

s 9(2)(a)

www.ue.co.nz



CONTENTS

1.	EXECUTIVE SUMMARY	4
2.	INTRODUCTION.....	5
	2.1. The Proposal.....	5
3.	ECONOMIC CONTRIBUTION.....	6
	3.1. Construction Phase.....	6
	3.2. Ongoing Operations.....	7
4.	FAST TRACK ASSESSMENT CONSIDERATIONS.....	8
5.	NPS-UD ASSESSMENT	9
6.	CONCLUSION.....	9



1. Executive Summary

The proposal is to build a solar farm with the agricultural activity (sheep farming) continuing to operate underneath the solar panels. The site area of approximately 194.3 hectares. It is expected to generate approximately 115,000 MWh of electricity annually, supporting approximately 15,800 homes¹.

The construction of the proposed development is expected to contribute approximately \$53.9 million to the construction sector's GDP and generate 445 FTE jobs.

The ongoing economic impact from the proposed development including sheep farming is expected to contribute approximately \$9.8 million to GDP and generate 33 FTE jobs per annum. The proposal is expected to have a net present value of approximately \$158.0 million over a 30-year period with a discount rate applied at 5% per annum.

The proposal contributes towards achieving Policy 1 of the NPS-UD by increasing the accessibility to renewable energy, which is fundamental to a well-functioning urban environment (i.e. urban environments require a reliable energy supply). In addition, a key requirement of Policy 1 of the NPS-UD is the enabling of suitable sites for a range of businesses in terms of location and size. Solar farms are land-extensive businesses which require large sites to operate. Additionally, the site is efficiently located to supply electricity across the Manawatū-Whanganui Region. Therefore, the proposal is consistent with Policy 1 of the NPS-UD.

Overall, the proposal would meet the economic requirements of the fast track consenting process and is recommended for approval.

¹ Based on New Zealand average energy consumption per household



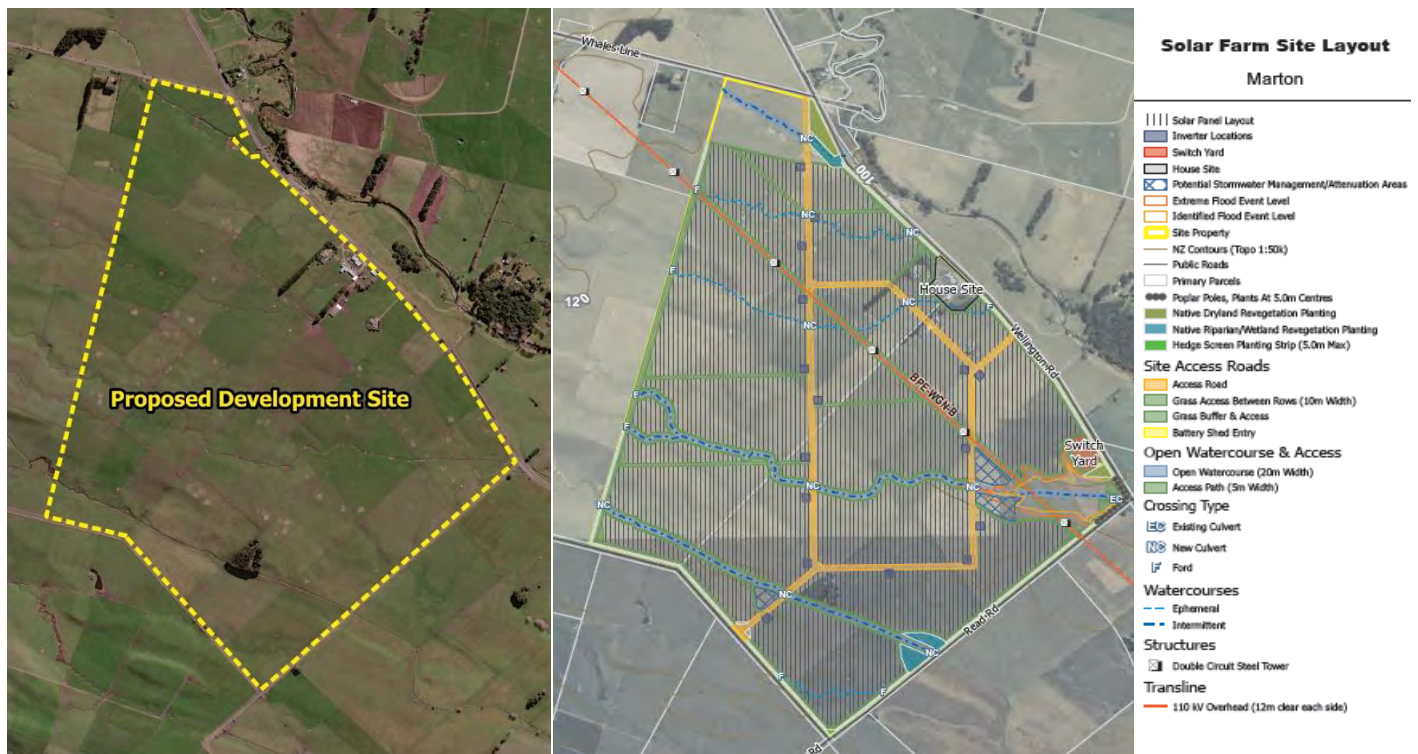
2. Introduction

This report provides an economic assessment of a proposed solar farm located at 1618 Wellington Road, Marton. This is to support an application for a consent under the COVID-19 Recovery (Fast-track Consenting) Act 2020.

2.1. The Proposal

Figure 1 outlines the location of the proposed development site. It has a total site area of 194.3 hectares and is currently zoned Rural. The proposal is to build a solar farm with the agricultural activity (sheep farming) continuing to operate underneath the solar panels. The solar farm would generate approximately 115,000 MWh of energy per annum, sufficient to support approximately 15,800 houses.

Figure 1: Proposal Site



Source: CoreLogic, Reyburn & Bryant



3. Economic Contribution

The proposal would create a significant number of jobs within the construction and energy sectors (electricity, gas, water & waste services). This is comprised of the initial construction and ongoing operation of the solar farm including sheep farming.

3.1. Construction Phase

The national 'value-added per employee' for each sector has been used to estimate the GDP contribution and the related full-time equivalent (FTE) employment for this project. This methodology accounts for both the direct and indirect contributions generated from the proposed development.

Figure 2 outlines the 'value-added' GDP and FTEs that the proposed solar farm would generate. It is estimated that the construction of the proposed solar farm would contribute approximately \$53.9 million to the construction sector's GDP and generate 445 FTE jobs.

Figure 2: GDP and FTE Employee Estimates

Proposed Development	Project Value (\$M)	Value Added (\$M)	FTE Employees			Total
			Land & Building Construction	Construction Services	Architectural, Scientific & Engineering Services	
Construction Phase	s 9(2)(b)(ii)	\$53.9	112	248	85	445

Source: Statistics NZ, Urban Economics

The proposed development is expected to be developed over a 2-year period. Figure 3 outlines the value added GDP and the number of FTE jobs created in each year of the proposed development. Some of the key points to note are:

- The proposed development would contribute approximately \$53.9 million to GDP and generate a total of 445 FTE jobs over a two-year development period. This equates to a contribution of approximately \$32.1 million to GDP and 264 FTE jobs in Stage 1 and a contribution of approximately \$21.8 million to GDP and 181 FTE jobs in Stage 2.
- The proposed development would generate approximately 112 FTE jobs in the building construction sector. This equates to 56 FTE jobs per annum in Stage 1 and Stage 2.
- The proposed development would generate approximately 248 FTE jobs in the construction service sector, of which 149 FTE jobs would be generated in Stage 1 and 99 FTE jobs would be generated in Stage 2.
- The proposed development would generate approximately 85 FTE jobs in the architectural scientific and engineering services sector, of which 59 FTE jobs would be generated in Stage 1 and 26 FTE jobs would be generated in Stage 2.



Figure 3: FTE Jobs at Different Development Time Periods

Development	Timeframe	Project Value (\$M)	Value Added (\$M)	FTEs			Total
				Land & Building Construction	Construction Services	Architectural, Scientific & Engineering Services	
Stage I	2024-2025	s 9(2)(b)(ii)	\$32.1	56	149	59	264
Stage II	2025-2026		\$21.8	56	99	26	181
Total			\$53.9	112	248	85	445

Source: Urban Economics

Figure 4 shows that the construction sector has a \$23.2 billion contribution to the national GDP and a workforce of 191,500 FTEs. The agriculture sector has a \$14.1 billion contribution to the national GDP and a workforce of 84,900 FTEs. The energy sector has an \$8.5 billion contribution to the national GDP and a workforce of 20,300 FTEs. This results in a respective value added of \$121,000, \$166,000 and \$419,000 per FTE employee.

Figure 4: Value Added GDP per Employee

Sector	Value Added GDP (\$M)	FTE Workers	Value Added GDP Per Employee
Construction	\$23,200	191,500	\$121,000
Agriculture	\$14,100	84,900	\$166,000
Electricity, Gas, Water & Waste Services	\$8,500	20,300	\$419,000

Source: Statistics NZ

3.2. Ongoing Operations

Figure 5 outlines the economic contribution of the ongoing operation of the proposed solar farm including sheep farming. Some of the key points to note are:

- The ongoing economic impact from the proposed solar farm is expected to contribute approximately \$7.2 million to GDP and generate 17 FTE jobs per annum. The proposed activity is expected to have a net present value of approximately \$116.0 million over a 30-year period with a discount rate applied at 5% per annum.
- The ongoing economic impact from the proposed sheep farming is expected to contribute approximately \$2.6 million to GDP and generate 16 FTE jobs per annum. The proposed activity is expected to have a net present value of approximately \$42.0 million over a 30-year period with a discount rate applied at 5% per annum.
- Overall, the ongoing economic impact from the proposed development is expected to contribute approximately \$9.8 million to GDP and generate 33 FTE jobs per annum. The proposed development is expected to have a net present value of approximately \$158.0 million over a 30-year period with a discount rate applied at 5% per annum.



Figure 5: Economic Contribution and Employment

Ongoing Operation	Value Added p.a. (\$M)	Net Present Value (\$M)	FTE
Solar Farm	\$7.2	\$116.0	17
Agriculture	\$2.6	\$42.0	16
Total	\$9.8	\$158.0	33

Source: Statistics NZ

4. Fast Track Assessment Considerations

The COVID-19 Recovery (Fast-track Consenting) Act 2020 requires several economic considerations, which are addressed as follows.

The project's economic benefits and costs for people or industries affected by COVID-19 (see section 19(a)).

The project will create a range of employment opportunities in the construction, energy and agricultural sectors. Notably, during the construction phase of the development, local spending in the Covid-19 impacted retail and hospitality sector is likely to experience a boost from the increased local employment and thus benefit from the construction of this project.

The project's effect on the social and cultural well-being of current and future generations (see section 19(b)).

The proposed development would provide employment and create a reliable source of renewable energy for current and future generations. The project is estimated to supply enough electricity per annum to power approximately 15,800 homes. This is a considerable social benefit for current and future generations in the local environment.

If applicable, whether the project may result in a public benefit by generating employment (see section 19(d)(i)).

As outlined above, the construction of the project would contribute approximately \$53.9 million to GDP and generate an estimated 445 FTE jobs. These jobs would be in roading, construction, landscaping, planting, land surveying, administration and support services and other related activities.

The ongoing operation of the solar farm would contribute approximately \$7.2 million to GDP and generate 17 FTE jobs. Additionally, the land will also be used for sheep farming, which will contribute approximately \$2.6 million to GDP and generate 16 FTE jobs in the agricultural sector. These are notable economic benefits.

If applicable, whether the project may result in a public benefit by contributing to well-functioning urban environments (see section 19(d)(iii)).

The project will provide a sustainable and reliable supply of electricity, which is a key contributor to



well-functioning urban environments. The project is estimated to produce approximately 115,000 MWh of energy per year, supplying electricity to approximately 15,800 homes. This is a considerable economic benefit.

5. NPS-UD Assessment

Policy 1 of the NPS-UD 2020 requires planning decisions to contribute to well-functioning urban environments. The policy states,

"Planning decisions contribute to well-functioning urban environments, which are urban environments that, as a minimum

(b) have or enable a variety of sites that are suitable for different business sectors in terms of location and site size; and

(e) support reductions in greenhouse gas emissions; and

(f) are resilient to the likely current and future effects of climate change".

The proposal contributes towards achieving this policy by increasing the accessibility to renewable energy, which is fundamental to a well-functioning urban environment (i.e. urban environments require a reliable energy supply). In addition, a key requirement of this policy is the enabling of suitable sites for a range of businesses in terms of location and size. Solar farms are land-extensive businesses which require large sites to operate. Additionally, the site is efficiently located to supply electricity across the Manawatū-Whanganui Region. Therefore, the proposal is consistent with Policy 1 of the NPS-UD.

6. Conclusion

The proposal would result in an increase in construction sector output, contributing approximately \$53.9 million in GDP and generating 445 FTEs.

The proposal would also create ongoing employment in the energy and agricultural sectors, with an additional 33 FTEs and a value added contribution of \$9.8 million to GDP. This equates to an NPV of \$158.0 million over a 30-year period.

The proposal would meet the economic requirements of the fast track consenting process and is recommended for approval.