ACIL ALLEN

12 March 2021

Report to BEYOND ZERO EMISSIONS

Regional economic impact analysis of Renewable Energy Industrial Precincts

Hunter Valley REIP

About ACIL Allen

ACIL Allen is a leading independent economics, policy and strategy advisory firm, dedicated to helping clients solve complex issues.

Our purpose is to help clients make informed decisions about complex economic and public policy issues.

Our vision is to be Australia's most trusted economics, policy and strategy advisory firm. We are committed and passionate about providing rigorous independent advice that contributes to a better world.

Suggested citation for this report

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Introduction

Beyond Zero Emissions (BZE) commissioned ACIL Allen to estimate the potential economic impact of the Hunter Valley Renewable Energy Industrial Precinct (REIP) in the jurisdiction that it is located (Hunter Valley), the rest of New South Wales and on the Australian economy as a whole.

The REIP

According to BZE, REIPs will support a cluster of manufacturers powered by 100 per cent renewable energy. These precincts will either be located within Renewable Energy Zones or connected to renewable energy generation through high voltage transmission lines.

The potential capital and operational expenses of the Hunter Valley REIP is summarised in **Table ES 1**. Based on the information provided by BZE, it is estimated that the REIP itself would incur capital expenses of $8.55 billion (excluding renewable electricity generation). It is expected that a range of new manufacturing activities will be potentially base their location in the Hunter Valley region because of the presence of the REIP. Currently, these include:

— Hydrogen production
— Tyre recycling
— Green Steel production
— Battery manufacturing
— Fly ash for building materials

Additional capital expenses will be incurred to base the above manufacturing firms in the Hunter Valley REIP. It is estimated that the additional capital expenses to establish these new manufacturing activities will be around $20.4 billion. The combined total expected capital expenditure in the region will therefore be around $28.9 billion.

Table ES 1 Potential capital and gross operating surplus — Hunter Valley REIP

	Total capital expenditure	Annual operational profits
	A$m	A$m
REIP (excluding renewable electricity generation)	8,550	481
Potential new industries	20,376	1,146
TOTAL	**28,926**	**1,627**

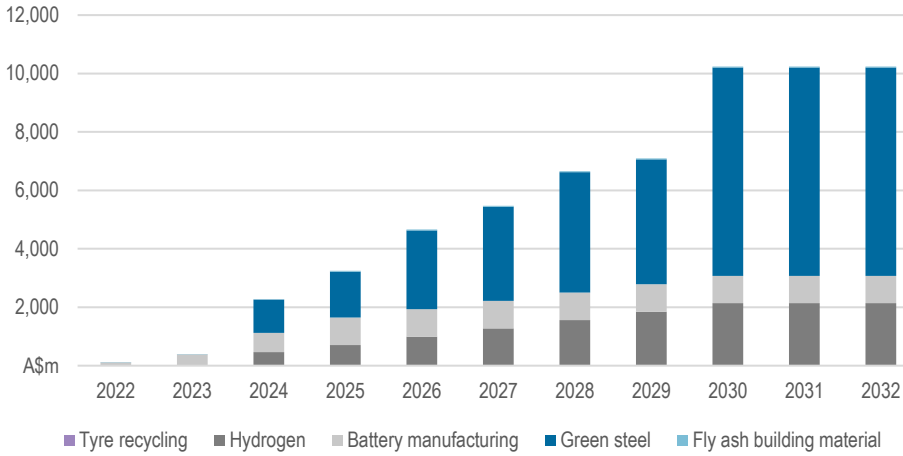
Note: Asset life of 45 years with 5 per cent return is assumed to generate profit to meet the capital commitments.

Source: ACIL Allen estimates based on BZE data and assumptions

Given the preliminary nature of the discussions with potential participants in the REIP, the scheduling of the capital expenses and the ramp-up of operations is uncertain.

The estimated revenue from the above five new activities is summarised in **Figure ES 1** and it is based on public announcements. By 2032, the revenue estimated from these new manufacturing activities expected to total around $10.2 billion.

Figure ES 1 Estimated revenue from new manufacturing activities — Hunter Valley REIP ($2020 prices)



Source: ACIL Allen estimates based on BZE data and assumptions

In addition, existing high energy intensive businesses such as steel and aluminium production would maintain their production in the region. The revenue of existing energy intensive manufacturing industries that will be supported by the REIP is conservatively estimated at around $2.3 billion.

Economic impact analysis

To estimate the potential net economic impacts of the REIP (excluding renewable generation), new manufacturing activities — hydrogen, green steel, tyre recycling, battery manufacturing and fly ash — and maintaining existing high energy intensive manufacturing activities, ACIL Allen employed its Computable General Equilibrium (CGE) model, *Tasman Global*. It is a regional economic model with detailed supply chain relationships within the region, rest of the region and the rest of the world. ACIL Allen has employed this model for several economic impact assessments for private and government clients.

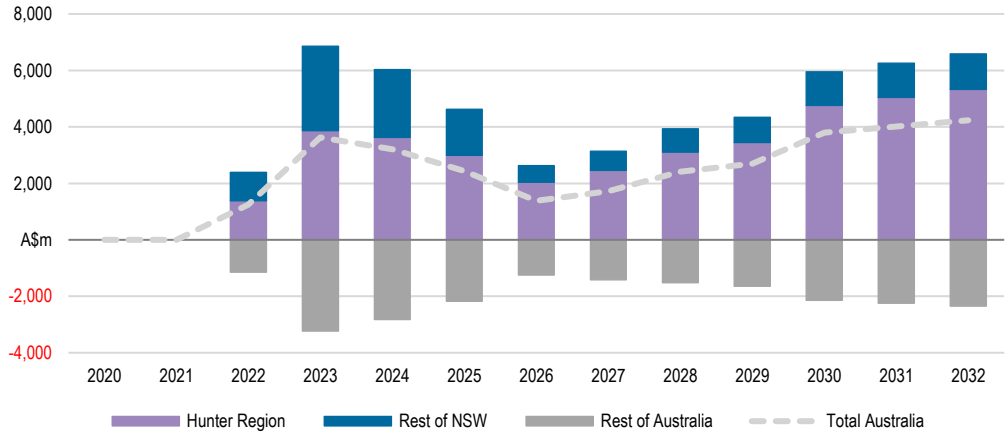
The estimated macroeconomic and employment impacts of the REIP and its supported existing and new activities are summarised below.

Real income impacts

A rise in real income indicates a rise in the capacity of residents to purchase goods and services and also to accumulate wealth in the form of financial and other assets. The change in real income arising from REIP and supporting industries is a measure of the change in the well-being of residents in the region.

Figure ES 2 shows the projected potential real income impact for the Hunter Valley region, the rest of NSW and the rest of Australia between the 2022 and 2032 financial years. This includes construction phase of the REIP infrastructure to 2025 and operation of the REIP, new industries and the sustainment of existing energy intensive industries in the region.

Figure ES 2 Real income impacts relative to a reference case ($2020 prices), 2022–2032



Source: ACIL Allen modelling based on BZE data and assumptions

Table ES 2 Real income impacts relative to a reference case, 2022-2032

Regions	Annual average	Total (2022-2032)	Impact at 2032	NPV at 3%	NPV at 7%
	$2020, A$m	$2020, A$m	$2020, A$m	$2020, A$m	$2020, A$m
Hunter Valley	3,459	38,044	5,325	30,363	23,014
New South Wales	4,795	52,749	6,585	42,637	32,869
Australia	2,798	30,778	4,234	24,670	18,814

Source: ACIL Allen modelling based on BZE data and assumptions

Over the period 2022 to 2032, the REIP and related activities is projected increase the real income of residents in:

- the Hunter Valley region by a cumulative total of $38.0 billion (with a present value of $23.0 billion using a 7 per cent discount rate)
- NSW by a cumulative total of around $52.75 billion (with a present value of $32.9 billion with a 7 per cent discount rate)
- Australia by a cumulative total of over $30.8 billion (with a present value of $18.8 billion with a 7 per cent discount rate).

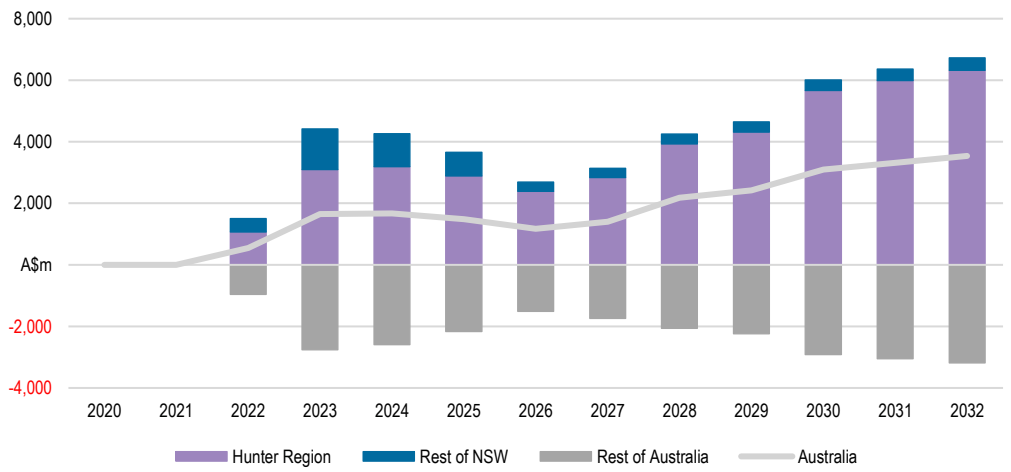
To place these projected changes in income in perspective, the discounted present values (using a 7 per cent real discount rate) are equivalent to a one-off increase in the *average* real income of all current residents of Hunter Valley region by $34,908 per person or annual increase in income of $5,246. This is a noticeable increase in well-being of Hunter region residents.[1]

Impact on real economic output

Real economic output (real GDP) is one of the primary indicators used to estimate the economic impacts of a project. At the state level, this measure is defined as Gross State Product (GSP) and at the regional level, it is defined as Gross Regional Product (GRP). The projected changes in real economic output as a result of the REIP and related activities are presented in **Figure ES 3**.

[1] According to ABS, estimated residential population of Hunter region (Hunter Valley including Newcastle and Lake Macquarie) in 2019 was 659,271.

Figure ES 3 Projected change in real economic output due to the Hunter Valley REIP, relative to a reference case ($2020 prices), 2022–2032



Source: ACIL Allen modelling based on BZE data and assumptions

Table ES 3 Projected change in real economic output due to the Hunter Valley REIP, relative to a reference case, 2022–2032

Regions	Annual average	Total (2022-2032)	Impact at 2032	NPV at 3%	NPV at 7%
	$2020, A$m	$2020, A$m	$2020, A$m	$2020, A$m	$2020, A$m
Hunter Valley	3,790	41,694	6,319	32,863	24,482
New South Wales	4,334	47,673	6,725	37,915	28,596
Australia	2,045	22,491	3,540	17,681	13,128

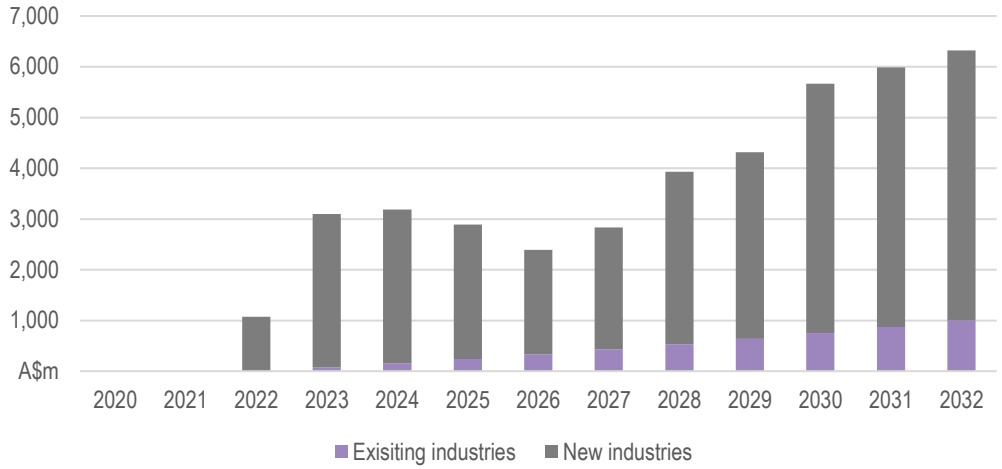
Source: ACIL Allen modelling based on BZE data and assumptions

Over the period 2022 to 2032, the REIP and related activities is projected to increase real economic output of:

- the Hunter Valley Region by a cumulative total of $41.7 billion relative to a reference case (with a present value of $24.5 billion using a 7 per cent real discount rate).
- NSW (i.e. real GSP) by a cumulative total of around $47.7 billion relative to a reference case (with a present value of $28.6 billion, using a 7 per cent real discount rate).
- Australia (i.e. real GDP) by a cumulative total of over $22.5 billion relative to a reference case (with a present value of $13.1 billion, using a 7 per cent real discount rate).

Real economic output impacts for existing energy intensive industries transitioning, and new industries planning to use to use renewable energy sources are summarised in **Figure ES 4**. Over the next 10 years, over 16 per cent of projected benefit in the Hunter Valley region is related to existing industries.

Figure ES 4 Real output impacts in the Hunter Valley region, 2022–2032



Source: ACIL Allen modelling based on BZE data and assumptions

Employment impacts

The employment impacts from the REIP and related activities are shown in **Figure ES 5** and **Table ES 4**.

Table ES 4 Employment impacts relative to a reference case, 2022-2032

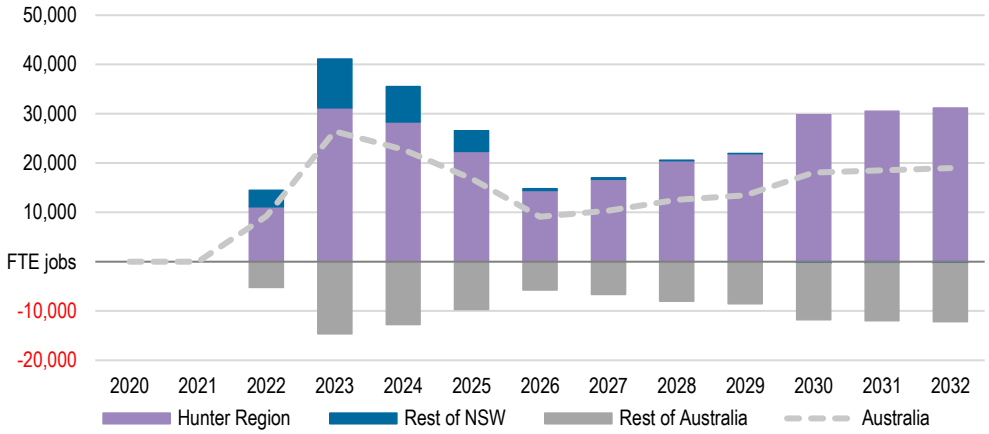
Regions	Annual average	Employment in 2032	Total (2022-2032)
	FTE	FTE	Employee years
Hunter Valley	23,475	31,210	258,229
New South Wales	25,706	30,870	282,765
Australia	16,038	19,005	176,415

Source: ACIL Allen modelling based on BZE data and assumptions

As a result of the REIP and related activities, it is projected that full time equivalent employment within the:

- Hunter Valley Region will increase by a cumulative total of 258,229 additional employee years between 2022 and 2032 (or an annual average of 23,475 FTE jobs)
- NSW will increase by a cumulative total of 282,765 additional employee years between 2022 and 2032 (or an annual average of 25,706 FTE jobs a year)
- Australia will increase by a cumulative total of 176,415 additional employee years between 2022 and 2032 (or an annual average of 16,038 FTE jobs a year).

Figure ES 5 Employment impacts relative to a reference case, 2022–2032



Source: ACIL Allen modelling based on BZE data and assumptions

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