ESSENTIAL ECONOMICS

Bango Wind Farm

Economic Impact Assessment

FINAL

Prepared for

CWP Renewables on behalf of *Bango Wind Farm Pty Ltd*

by

Essential Economics Pty Ltd

November 2017

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EXECUTIVE SUMMARY

CWP Renewables on behalf of *Bango Wind Farm Pty Ltd* have commissioned Essential Economics Pty Ltd to prepare an Economic Impact Assessment (EIA) for the proposed Bango Wind Farm development to be located on a 5,200ha site between Boroowa and Yass in southern NSW.

The capacity of the turbines to be installed is as yet undetermined, but for the purpose of this report we have assumed the capacity of the installed wind farm will be 150 Mega Watts (MW). The installed capacity could be more or less than 150MW, depending on the number and capacity of turbines installed. The Bango Wind Farm will comprise up to 75 turbines with tip height no greater than 200 metres.

The wind farm will be located across 10 farming properties and, subject to planning approval and financing, it is expected the facility will be operational by 2020.

The main findings of this EIA are summarised as follows.

Regional Economic Context

1 The Study Area has a resident population of around 35,470 persons in 2016, which is projected to increase to 42,030 persons by 2031.

2 The relatively low unemployment rate (4.0% compared to 5.0% for NSW) in the Study Area (ie, a relatively small pool of unemployed persons from which to draw) may have implications in terms of labour supply for the construction phase of the project, particularly with regard to seasonal labour requirements (harvesting, tourism etc) and concurrent infrastructure projects in the region.

3 The Study Area's occupational, industry and business structures indicates that a good base exists to service the needs of the project, including the needs of approximately 4,730 construction-related workers (based on occupation) and 860 construction and transport businesses.

4 The regional centre of Yass will underpin most project needs in view of the centre's reasonable supply of accommodation (150 rooms, plus cabins, power sites, B&Bs and private accommodation), trade supplies and transport services, retail services, entertainment and so on. However, the towns of Boorowa and Young would also be expected to provide project support services, including lower-cost commercial accommodation options and convenience services.

Economic Impact Assessment

5 The Bango Wind Farm project will involve $320 million in investment during the construction phase and will support 150 direct and 240 indirect FTE positions over the construction period. Once operational, 10 direct and 30 indirect FTE jobs will be supported by the facility.

6 Allowing for the project to be carefully managed around the region's peak times for harvesting, tourism etc and having regard for potentially concurrent infrastructure projects, accessing adequate labour supply should not present a major issue for the project. The peak local employment requirement (60 FTE positions) represents less than 2% of workers occupied in construction-related activities in the Study Region.

7 Competing projects may include the proposed Rye Park Wind Farm and a number of smaller local infrastructure projects funded through the NSW Stronger Communities Fund.

8 The Bango Wind Farm project will provide significant participation opportunities for businesses and the labour force located in the Study Area, having regard for the good match of skills and resources available. In this regard, organisations such as ICN might be involved in ensuring maximum local inputs are secured and this would be in addition to the proponent's own local sourcing initiatives.

9 The 'external' project labour requirement would be expected to generate an accommodation requirement for 90 project workers at the peak of the project. This represents only 20-25% of total commercial accommodation rooms available in the Study Area and would provide a boost to local accommodation operators, noting that room occupancy rates are around 60% across the region. Other accommodation providers such as caravan parks, B&Bs and private households will offer additional supply and may also benefit from the project.

10 Non-local construction workers living in the Study Area would be expected to inject approximately $4.1 million in additional spending to the regional economy over the construction phase, supporting around 20 jobs in the service sector.

11 Agricultural land use would only be marginally affected by the project, with existing farm activities continuing as normal.

12 Ongoing economic stimulus associated with the operation of the wind farm through the Community Fund, financial returns to host landowners, local wage spending and net rates returns to the two Councils is estimated at approximately $77 million over 25 years (adjusted for CPI @ 2.5%).

13 Additional community benefits could include construction of community legacy projects and potential for the community to directly invest in the wind farm. Host landowner properties will also benefit from the project through the construction of new internal roads which reduce bushfire risks and decrease the likelihood of loss of buildings, machinery, livestock, fencing etc.

14 The project has the capacity to supply sufficient clean energy to power approximately 90,000 homes and, in the process, to reduce $C0_2$ emissions by 0.5 million tonnes per year.

15 The project could potentially support small-scale tourism initiatives, such as viewing opportunities for visitors to the region. In the longer-term, potential exists for Bango Wind Farm to form part of organised tours to renewable facilities in the broader region as part of the SERREE Renewable Energy Trail.

Table A provides a summary of key economic benefits arising from the construction and operation of the Bango Wind Farm. These benefits apply to a facility with 150 MW installed capacity, with benefits to grow proportionally to the actual installed capacity (noting that capacity of the wind farm will depend on the number and capacity of turbines instated, which may be more or less than 150 MW).

Table A: Bango Wind Farm (150 MW) – Key Economic Benefits

Construction Phase	
Item	**Value**
Investment	$320 million (2017 dollars)
Employment (direct and indirect)	390 FTE
Local wage spending stimulus	$4.1 million (2017 dollars)
Operational Phase	
Employment (direct and indirect)	40 FTE (ongoing)
Local economic stimulus (host landowner and new wage spending)	$64.9 million (over 25 years)
Net rates returns to both Councils	$4.8 million (over 25 years)
Community Fund	$7.2 million (over 25 years)

Sources: CWP Renewables; Essential Economics Pty Ltd, ABS Input-Output Tables; ABS Average Weekly Earnings and ABS Household Expenditure Survey.
Figures rounded.

INTRODUCTION

Background

CWP Renewables on behalf of *Bango Wind Farm Pty Ltd* have commissioned Essential Economics Pty Ltd to prepare an Economic Impact Assessment for the proposed Bango Wind Farm development to be located near the townships of Boroowa and Rye Park, north of Yass in southern NSW.

The capacity of the turbines to be installed is as yet undetermined, but for the purpose of this report we have assumed the capacity of the installed wind farm will be 150 Mega Watts (MW). The installed capacity could be more or less than 150MW, depending on the number and capacity of turbines instated. The Bango Wind Farm will comprise up to 75 turbines with tip height no greater than 200 metres.

The Bango Wind Farm will be developed in an area of 5,200ha and across 10 individual farming landholdings. Subject to planning approval and financing, it is anticipated the wind farm could commence construction by 2018 and be operational by 2020.

Objectives

The objectives of this study are:

- To highlight likely local and regional economic benefits arising from the project
- To identify potential impacts associated with the project

This Report

This report contains the following chapters:

Chapter 1: **Project Context**
Presents a description of site location, project components and staging, and definition of the project Study Area.

Chapter 2: **Regional Economic Profile**
Presents an overview of population and demography, labour force, occupational structure, industry structure, business structure, and township services, including an audit of commercial accommodation capacity.

Chapter 3: **Economic Impact Assessment of Proposed Project**
Presents an assessment of the economic impacts of the proposed development, including investment, employment, business participation, local wage stimulus, impact on accommodation, impact on agricultural activities, financial returns to landowners, Council and community benefits, environmental benefits, and potential tourism-related opportunities.

1 PROJECT CONTEXT

1.1 Site Location

The proposed Bango Wind Farm is located near the towns of Boorowa and Rye Park, north of Yass in NSW. The project area is bordered by the Lachlan Valley Way to the west, Wargeila Road to the east, Boorowa-Rye Park Road to the north, and Moorbys Lane to the south.

The subject site is approximately 5,200ha in size covering 10 landholdings, with this land currently used for farming purposes (sheep grazing) under the Farming Zone (FZ). It is estimated that around 2% of the site will be utilised for permanent wind farm infrastructure.

A significant number of studies have been completed since 2009 to assess the feasibility of developing and operating a wind farm in this location, including:

- Wind monitoring assessments
- Electrical connection assessment
- Planning studies
- Environmental noise assessment
- Ecology assessment
- Socio-economic assessment
- Geology and civil engineering assessment
- Landscape and visual impact assessment
- Traffic and transport assessment
- Aviation assessment
- Communications assessment
- Fire and bushfire assessment
- Water assessment
- General environmental assessment.

An Environmental Impact Statement has been prepared for the project which has been publically exhibited, with the proponent responding to submissions received. The NSW Department of Planning and Environment are considering the Planning Application and will make a recommendation to the Planning Assessment Commission (PAC). The PAC will then determine whether the project should be granted consent. This decision could be made by the end of 2017, but more likely in early 2018.

1.2 Study Area

The Study Area for the project is defined as the Local Government Areas (LGAs) of Hilltops Council and Yass Valley Council, where the turbines are to be located and most economic benefits are likely to accrue. This Study Area is illustrated in Figure 1.2.

Benefits are also likely to be generated for the broader region, including the neighbouring Local Government Areas (LGAs) of Cowra, Goulburn and Wagga Wagga, as well as Canberra/ACT.

Figure 1.1: Bango Wind Farm Study Area

Source: Essential Economics

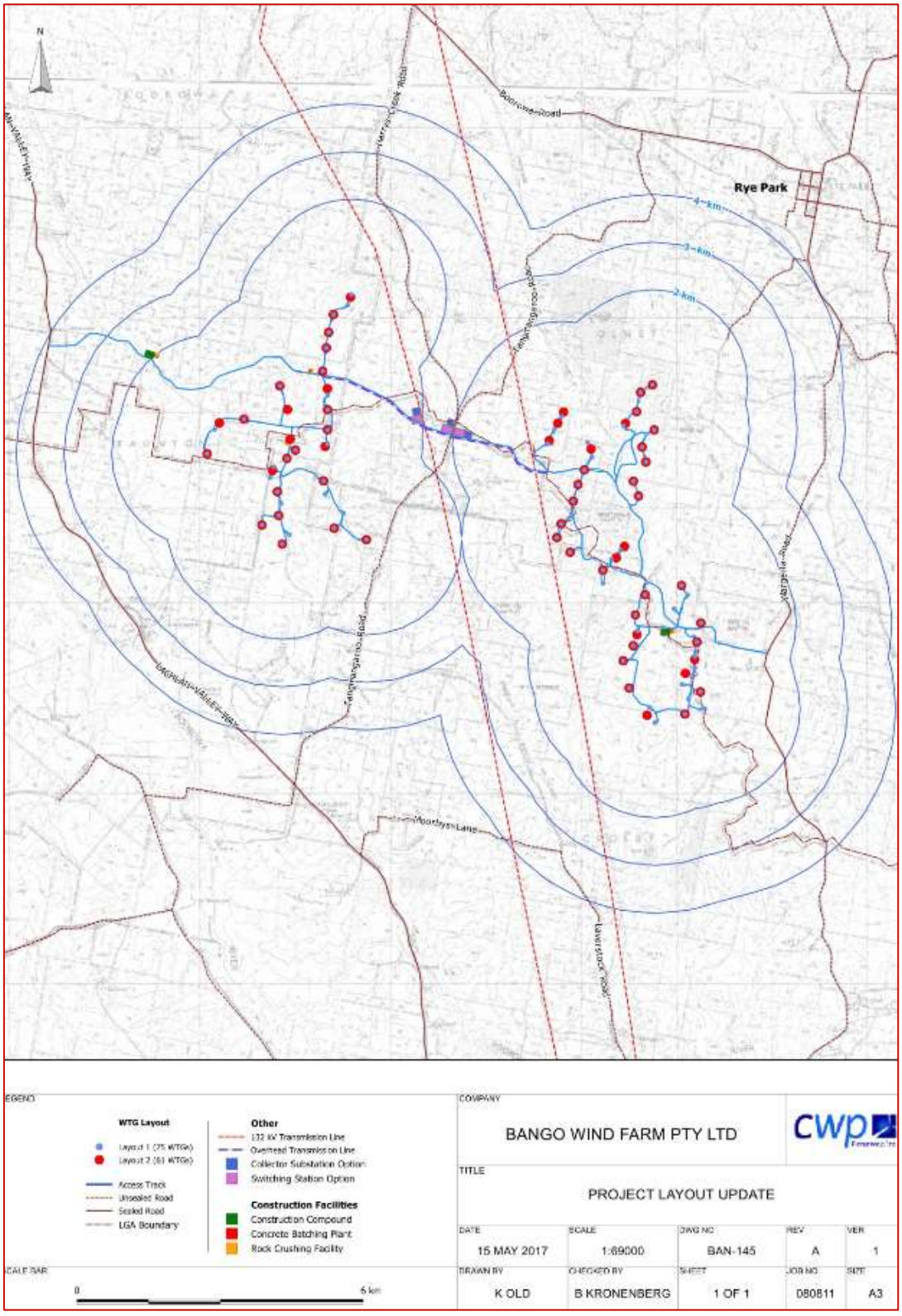
1.3 Project Description

Plans for the project include the following:

- Total installed capacity of 150 MW (assumed for the purposes of this report)
- 75 turbines, with tip heights of up to 200m
- Estimated annual output of 613,200 MWhr
- Other permanent project infrastructure will include:
  - Access tracks and hardstand areas suitable for cranes
  - Overhead and underground electrical cabling
  - Onsite substation
  - Wind monitoring masts
  - Storage compounds
  - Operational buildings
- During construction temporary infrastructure will include:
  - Temporary concrete batch plants
  - Rock crushing compounds
  - Temporary site office buildings and facilities
- Turbines to be spread across land held by 10 host farms
- Construction start date estimated 2018 (subject to planning approval and financing)
- Construction period is estimated at 12-28 months
- Wind Farm might be fully operational by 2020
- Operational lifespan estimated at 25 years.

Note, the parameters outlined above may change subject to planning approval guidelines, while project financing may also influence the final project plan.

Figure 1.2: Bango Wind Farm Preliminary Site Layout



Source: CWP Renewables

1.4 Policy Context

Federal and State policy are important factors in influencing demand and investment in the renewable energy sector, as noted below.

Paris Climate Accord

The Paris Accord is a comprehensive international climate agreement to which Australia is a party. The Accord provides a framework for participating nations to set themselves nationally determined contributions (NDCs), beginning in 2020, with review at five-year intervals. The agreement sets out a global consensus to limit temperature increases to below two degrees Celsius when compared to pre-industrial levels; an additional goal is to maintain this increase at less than one and a half degrees Celsius. NDCs do not have any set lower limit but are required to progress over time (beginning with the intended NDC pledged during the Paris conference), and to be 'ambitious'. Australia's current targets are a reduction of emissions by five percent from 2000 levels by 2020, and by 26-28 percent below 2005 levels by 2030.

Federal Renewable Energy Target

The Renewable Energy Target is an Australian Government scheme designed to reduce emissions of greenhouse gases in the electricity sector and to encourage the additional generation of electricity from sustainable and renewable sources.

The Renewable Energy Target (RET) works by allowing both large-scale power stations and the owners of small-scale systems to create certificates for every megawatt hour of power they generate. Certificates are then purchased by electricity retailers who sell the electricity to householders and businesses. These electricity retailers also have legal obligations under the RET to surrender certificates to the Clean Energy Regulator, in percentages set by regulation each year. This creates a market which provides financial incentives to both large-scale renewable energy power stations and to the owners of small-scale renewable energy systems.

In June 2015, the Australian Parliament passed the Renewable Energy (Electricity) Amendment Bill 2015. As part of the amendment bill, the large-scale RET was reduced from 41,000 GWh to 33,000 GWh in 2020, with interim and post-2020 targets adjusted accordingly.

Finkel Report

The Independent Review into the Future Security of the National Electricity Market, released in June 2017, is a report commissioned by the Federal Government in order to establish a framework for the development the Australian energy sector. Also known as the Finkel Report, it recommends the use of a Clean Energy Target (CET) scheme to stimulate renewable energy production throughout the National Electricity Market (NEM). This would likely replace the present federal RET scheme due to expire in 2020, and would result in a more technology-neutral allocation of renewable energy generation certificates; any generator producing energy at a level of pollution below a benchmark rate would be eligible as opposed to only specific technologies as with the RET scheme. The report modelled outcomes utilising this type of scheme to achieve the trajectory committed to by the Federal Government by 2030 and determined that renewable energy would constitute approximately 42 percent of the NEM at

this time. Other policies including an Emissions Intensity Scheme and lifetime limits on coal-powered generation were considered, with the report deeming CET the most effective based on their model.

The Federal Government recently signalled its response to the Finkel Report, although the response does not include a CET. The Federal Government's proposal is based on a National Energy Guarantee scheme involving the following main components:

- No subsidies for renewable or any other kind of energy generators
- Power companies will be forced to guarantee on-demand electricity from coal, gas, hydro, or batteries that store renewable energy
- Power companies will also be forced to keep carbon dioxide emissions below a certain level through the purchase of low emissions generated energy.

Note, implementation of the proposed National Energy Guarantee scheme will likely require Federal parliamentary legislation and will need the agreement of States and Territories.

ACT Renewable Energy Target

The Australian Capital Territory in 2016 legislated a renewable energy target of sourcing 100 percent of the territory's electricity from renewable sources, either from within the ACT or the NEM. This is to be accomplished through an innovative reverse auction scheme, where renewable energy providers compete to supply renewable energy to the ACT. Their bids will be assessed based on price, risk, engagement with the community, and local investment benefits. These auctions are intended to be targeted towards projects located in the south-eastern region of Australia. Once an auction is won, the energy producer will essentially have their supply price guaranteed for a period of 20 years, regardless of the market price of electricity. Any renewable energy certificates associated with energy generated for the scheme will be transferred to the ACT in an effort to encourage further renewable generation outside the scheme.

NSW Renewable Energy Action Plan 2013

The NSW Renewable Energy Action Plan (2013) provides a framework to enable the State to meet the RET target, through a range of 24 actions associated with:

- Attracting investment and projects
- Building community support
- Attracting and growing expertise in renewable energy technology.

While the NSW Government does not mandate a specific renewable energy target for the State (unlike Victoria which recently set a 40 per cent renewable energy target for the State by 2025), it does have an aspirational target of zero emissions by 2050.

The NSW Renewable Energy Action Plan Annual Report monitors implementation of the Plan and reports on progress to meeting the 2020 RET target. The 2016 Annual Report notes that 17

of the 24 actions have been implemented, with the further seven substantially progressed, and notes the percentage of renewable energy in the state's electricity mix has more than doubled over the past six years, underpinned by large-scale solar and wind farm projects.

1.5 Summary

1 CWP Renewables are proposing the construction of the 150 MW Bango Wind Farm near Boorowa, in southern NSW. The facility will be located across 10 properties and is likely to provide economic benefits to businesses and communities located in Hilltops Council and Yass Valley Council (ie project Study Area). The site has the potential to accommodate a much larger facility of approximately double the size of the wind farm currently proposed.

2 Subject to planning approval by the NSW Department of Planning and Environment, it is anticipated construction of the wind farm could start in 2018, and the facility may be operational by 2020.

3 In the past 18 months, federal and state governments have updated long-term renewable energy targets and this should provide greater investment certainly within the sector in the short-term (ie 2020). However, the National Energy Plan is currently being formulated by the Federal Government and at this stage it is unclear as to the eventual impact on the renewable energy sector, noting the proposed Clean Energy Target (Finkel Report) is unlikely to feature in the Plan.

4 To obtain planning approval for the project, the proponent has undertaken a comprehensive range of studies and investigations, including a publically-exhibited Environmental Impact Statement. The Department of Planning and Environment's recommendation to the Planning Assessment Commission (PAC) is expected in late 2017. The PAC process usually takes 2-3 months, at which time the State Government approvals process will be complete.

5 The following chapters identify the potential economic impacts arising for businesses and communities located in the Study Area, should the project proceed. These impacts are described and quantified for both the construction and operational phases of the project.

2 REGIONAL ECONOMIC PROFILE

2.1 Population and Demography

The population of the Study Area totalled approximately 35,470 persons as of June 2016, with Hilltops Council accounting for 53% (18,840 persons) and Yass Valley Council 47% (16,630 persons). As Table 2.1 shows, over the period 2016-2031 population levels in the Study Area are expected to expand by 1.1% per annum (pa), driven by population expansion in Yass Valley Council of 1.9% pa, while Hilltop population growth is projected to be more modest at 0.4% pa over this period.

Table 2.1: Population – Study Area, 2016-2031

Municipality	2016	2021	2031	Change 2013-31	AAGR 2013-31
Hilltops Council	18,840	19,110	19,860	1,020	0.4%
Yass Valley Council	16,630	18,440	22,170	5,540	1.9%
Study Area	**35,470**	**37,550**	**42,030**	**6,560**	**1.1%**

Source: Profile Id
Notes: AAGR = Annual Average Growth Rate
Figures rounded

2.2 Labour Force

As of June 2017 (latest available), the Study Area had an unemployment rate of 4.0%, which is significantly below the rate for New South Wales of 5.0%; in particular, unemployment in the Yass Valley Council area is notably low at just 2.2%.

As Table 2.2 shows, in March 2017 the Study Area had a labour force totalling approximately 17,295 persons, including approximately 700 persons who were unemployed.

Table 2.2: Labour Force – Study Area, 2017

Municipality	Employed	Unemployed	Total Labour Force	Unemployment Rate
Hilltops Council	7,945	505	8,450	6.0%
Yass Valley Council	8,650	195	8,845	2.2%
Total Study Area	**16,595**	**700**	**17,295**	**4.0%**
NSW	**25,245**	**199,800**	**4,016,400**	**5.0%**

Source: Department of Employment, Small Area Labour Markets – March Quarter 2017.
Note: Figures rounded to multiples of five.

2.3 Occupational Structure

The skills base of the Study Area is reflected in its occupational structure, as shown in Table 2.3.

ABS Census data for 2011 (latest available) shows 31% of Study Area workers (4,730 workers) were occupied in activities generally associated with the types of skills required for the construction of a wind farm (ie technicians and trades workers, machinery operators, drivers and labourers).

The Study Area's representation in these occupations is slightly higher than the State average of 28%, indicating a generally suitable occupational base for the proposed project.

Table 2.3: Occupational Structure – Study Area, 2011

Occupation	Hilltops Council		Yass Valley Council		Study Area		NSW
	No.	*Share*	*No.*	*Share*	*No.*	*Share*	*Share*
Managers	1,625	21.7%	1,505	19.4%	3,130	20.5%	13.3%
Professionals	950	12.7%	1,580	20.4%	2,525	16.6%	22.7%
Technicians and trades workers	**1,105**	**14.8%**	**1,065**	**13.7%**	**2,170**	**14.2%**	**13.2%**
Clerical and administrative workers	610	8.1%	715	9.2%	1,325	8.7%	9.5%
Community and personal service workers	795	10.6%	1,195	15.4%	1,990	13.0%	15.1%
Sales workers	720	9.6%	515	6.6%	1,230	8.1%	9.3%
Machinery operators and drivers	**455**	**6.1%**	**355**	**4.6%**	**810**	**5.3%**	**6.4%**
Labourers	**1,085**	**14.5%**	**665**	**8.6%**	**1,750**	**11.5%**	**8.7%**
Not stated	140	1.9%	175	2.3%	315	2.1%	1.8%
Total	**7,490**	**100%**	**7,760**	**100%**	**15,250**	**100%**	**100%**

Source: Profile Id
Note: Census employment data for 2016 is pending release
Figures rounded to multiples of five.

2.4 Industry Structure

ABS Industry structure data for 2011 (latest available) shows, the Study Area has 1,290 workers directly employed in the construction sector and a further 525 workers employed in transport, postal and warehousing sector. In total, these two sectors employ 1,815 workers or approximately 12% of the labour force (the same proportion as for New South Wales).

As with occupational structure, this industry structure indicates the Study Area provides a good labour force base upon which to service the Bango Wind Farm project.

Industry Structure data is shown in Table 2.4.

Table 2.4: Industry Structure – Study Area, 2011

Industry Structure	Hilltops Council		Yass Valley Council		Study Area		NSW
	No.	*Share*	*No.*	*Share*	*No.*	*Share*	*Share*
Agriculture, forestry and fishing	1,645	22.1%	680	8.8%	2,325	15.3%	2.2%
Mining	35	0.5%	5	0.1%	40	0.3%	1.0%
Manufacturing	525	7.0%	220	2.8%	745	4.9%	8.4%
Electricity, gas, water and waste services	70	0.9%	170	2.2%	240	1.6%	1.1%
Construction	**485**	**6.5%**	**805**	**10.4%**	**1,290**	**8.5%**	**7.3%**
Wholesale trade	245	3.3%	175	2.3%	420	2.8%	4.4%
Retail trade	980	13.1%	640	8.2%	1,620	10.6%	10.3%
Accommodation and food services	445	6.0%	505	6.5%	950	6.2%	6.7%
Transport, postal and warehousing	**315**	**4.2%**	**210**	**2.7%**	**525**	**3.4%**	**4.9%**
Information media and telecommunications	15	0.2%	110	1.4%	125	0.8%	2.3%
Financial and insurance services	135	1.8%	85	1.1%	220	1.4%	5.0%
Rental, hiring and real estate services	45	0.6%	85	1.1%	130	0.9%	1.6%
Professional, scientific and technical services	180	2.4%	650	8.4%	830	5.5%	7.9%
Administrative and support services	125	1.7%	155	2.0%	280	1.8%	3.3%
Public administration and safety	370	5.0%	1,480	19.1%	1,850	12.2%	6.1%
Education and training	565	7.6%	635	8.2%	1,200	7.9%	7.9%
Health care and social assistance	805	10.8%	650	8.4%	1,455	9.6%	11.6%
Arts and recreation services	25	0.3%	100	1.3%	125	0.8%	1.5%
Other services	275	3.7%	250	3.2%	525	3.4%	3.7%
Inadequately described/Not stated	170	2.3%	155	2.0%	325	2.1%	2.5%
Total	**7,460**	**100%**	**7,760**	**100%**	**15,220**	**100%**	**100%**

Source: Profile Id
Note: Census employment data for 2016 is pending release
Figures rounded to multiples of five.

2.5 Business Structure

One of the more tangible benefits of an investment project is the extent to which local businesses can participate in the project, through project contracts and other service provision opportunities. ABS Business Count data for 2016 (latest available at the LGA level) shows the Study Area included 590 construction businesses and a further 270 businesses associated with transport, postal and warehousing service, with these two sectors contributing 860 businesses or 13% of all businesses located in the Study Area.

This data is included in Table 2.5 and indicates a good presence of the types of firms that may be well-placed to service aspects of the project. This opportunity is explored in more detail in the following Chapter.

Table 2.5: Business Structure – Study Area, 2016

Business Types	Hilltops Council		Yass Valley Council		Study Area	
	No.	*Share*	*No.*	*Share*	*No.*	*Share*
Agriculture, Forestry and Fishing	1,855	41.2%	715	37.3%	2,570	40.1%
Mining	20	0.4%	5	0.3%	25	0.4%
Manufacturing	140	3.1%	50	2.6%	190	3.0%
Electricity, Gas, Water and Waste Services	30	0.7%	5	0.3%	35	0.5%
Construction	**590**	**13.1%**	**305**	**15.9%**	**895**	**14.0%**
Wholesale Trade	125	2.8%	40	2.1%	165	2.6%
Retail Trade	235	5.2%	85	4.4%	320	5.0%
Accommodation and Food Services	120	2.7%	70	3.7%	190	3.0%
Transport, Postal and Warehousing	**270**	**6.0%**	**90**	**4.7%**	**360**	**5.6%**
Information Media and Telecommunications	5	0.1%	5	0.3%	10	0.2%
Financial and Insurance Services	245	5.4%	80	4.2%	325	5.1%
Rental, Hiring and Real Estate Services	275	6.1%	90	4.7%	365	5.7%
Professional, Scientific and Technical Services	170	3.8%	180	9.4%	350	5.5%
Administrative and Support Services	85	1.9%	45	2.3%	130	2.0%
Public Administration and Safety	-	0.0%	-	0.0%	-	0.0%
Education and Training	30	0.7%	15	0.8%	45	0.7%
Health Care and Social Assistance	120	2.7%	40	2.1%	160	2.5%
Arts and Recreation Services	30	0.7%	25	1.3%	55	0.9%
Other Services	110	2.4%	55	2.9%	165	2.6%
Not Classified	45	1.0%	15	0.8%	60	0.9%
Total	**4,500**	**100%**	**1,915**	**100%**	**6,415**	**100%**

Source: ABS Business Counts, 2016

2.6 Township Services Capacity

Commercial Accommodation

The ability to accommodate non-local workers (ie those who are not resident in the Study Area or not living within a daily commutable distance) is a key consideration for major construction projects, especially in regional and rural areas underpinned by agricultural activity and tourism that are subject to seasonal demand for labour.

As Table 2.6 highlights, the Study Area has a reasonable supply of commercial accommodation as measured by the ABS Tourism Accommodation series for the March Quarter 2016. This data, which identifies supply for hotels, motels and apartments with 15 rooms or more, shows the Study Area has 15 establishments, 385 rooms and 1,120 beds, reflecting the high level of tourism associated with this general region. Yass, which would be the most convenient location to house project workers, has 6 establishments, 150 rooms and 460 beds.

Room and bed occupancy rates, 61% and 31% respectively, can be considered modest (noting that this data relates to the peak summer period), indicating the wind farm project will boost

the commercial accommodation sector, especially during off-peak periods. This factor is further discussed in section 3.5.

Table 2.6: Hotel, Motel and Apartments Accommodation (with 15 Rooms or more) – Study Area, March Quarter 2016

	Establishments	Rooms	Beds	Room Occupancy Rate	Bed Occupancy Rate
Yass	6	150	460	69%	38%
Yass Region	4	100	270	n/a	n/a
Young	4	110	320	60%	25%
Young Region	1	25	70	n/a	n/a
Study Area	**15**	**385**	**1,120**	**61%**	**31%**

Source: ABS Tourism Accommodation, Australia 2015-16

In addition to commercial accommodation outlined above, Boorowa provides a range of smaller facilities (which are not included in the ABS data), such as the Court House Hotel and Boorowa Hotel.

The Study Area also provides a range of additional options which could be used for worker accommodation, including the following:

- Caravan/ Holiday parks providing cabins, such as:
  - Boorowa Caravan Park
  - Yass Caravan Park
  - Young Caravan Park
- Bed and Breakfast
- Guest houses.

Private Accommodation

Private accommodation is often used to support construction worker needs and this could be through leasing of holiday homes and investment properties, either privately or through real estate agents. ABS Census data for 2016 indicates the Study Area has an above-average level of unoccupied dwellings; this is consistent with a tourist region that includes many holiday homes.

As Table 2.7 shows, 13.5% of Study Area dwellings (1,970 dwellings) were unoccupied at the 2016 Census, which is well above the average for NSW at 9.9%. Shared private housing accommodation is one potential option for the wind farm project workers, and this is further explored in section 3.5.

Table 2.7: Unoccupied Dwellings – Study Area, June 2016

	Occupied Dwellings	Unoccupied Dwellings	Total Dwellings	Unoccupied Dwelling Share
Hilltops Council	7,080	1,340	8,420	15.9%
Yass Valley Council	5,520	630	6,140	10.3%
Study Area	**12,590**	**1,970**	**14,560**	**13.5%**
New South Wales	**2,604,320**	**284,740**	**2,889,060**	**9.9%**

Source: ABS Census of Population and Housing, 2016

Township Services

In addition to accommodation, workers locating temporarily to the Study Area will require a wide range of other convenience services, and the project will also need to source trade and other services from businesses located in the immediate region. The following paragraphs provide an overview of the services located in the main townships in the Study Area.

Yass

Figure 2.1: Images of Yass Town Centre

Source: www.bing.com

The Yass Township is a strategically important settlement located in the southern NSW area north of Canberra, accommodating approximately 6,500 residents (2016 Census, Yass State Suburb). Yass provides significant access to services for surrounding smaller towns, and as such has a multitude of stores and amenities available. Yass is located approximately 70 kilometres from the subject site (or an hour's drive) and will therefore be an important base for non-local workers, as well as providing construction and other support services to the project.

Key services available in Yass include:

- Range of commercial accommodation options (see above)
- Large range of retail service (Woolworths, Aldi, IGA etc)
- Construction services (Yass Valley Hire – builders and contractors equipment)
- Trade Supplies (Home Timber & Hardware, B & G Hardware)

- Transport and freight services (Roche's Transport, Muscat Haulage, Jones Transport etc)
- Automotive Mechanics
- Cafes, bakeries, restaurants and take-away
- Entertainment (parks, hotels, clubs, sports and recreational activities)
- Most major financial institution branches
- Fuel supplies (Caltex, United Petroleum)
- Postal Services
- Employment Service (Campbell Page, Employment Plus etc)
- Medical and Emergency Services (Yass District Hospital with 24-hour emergency centre, NSW Ambulance Service, Yass Medical Centre, Yass Fire Station, Yass Police Station).

Boorowa

Figure 2.2: Images of Boorowa Town Centre

Source: www.bing.com

Boorowa is a township with a population at approximately 1,640 people (2016 Census, Boorowa State Suburb). The township provides convenience services, particularly for local residents, businesses and agricultural producers. Boorowa is located within 20 km (or a 20-minute drive) from the subject site and, as such, will provide an ideal base for non-local workers while providing local labour and some support services to the project. The township has a limited range of stores and other services, including:

- Accommodation (two hotels and a caravan park)
- IGA Supermarket
- Construction services (Hurley's Excavation Hire)
- Local Hardware stores (Boorowa Hardware, JD's Hardware & Rural Supplies)
- Fuel supplies (Caltex)

- Automotive mechanics
- Cafes, bakeries, restaurants and take-away
- Bendigo Bank Branch; Third party ATM
- Entertainment (clubs, hotels, recreation and sport)
- Postal Services
- Health and Emergency Services (Boorowa Medical Centre, Boorowa Fire Station, Boorowa Police Station).

Young

Figure 2.3: Images of Young Town Centre

Source: www.bing.com

Young has a population of approximately 10,295 people (2016 Census, Young State Suburb). The township provides convenience services particularly for the local community and agricultural producers. Young is located within 70 km (or a 75 minute drive) from the subject site and as such will provide an potential base for non-local workers, while providing local labour and some support services to the project. The township has a reasonable range of stores and other services, including:

- Accommodation (see above)
- Woolworths and IGA supermarkets
- Construction services (Everdell Construction, Hardy Brothers Earth Moving)
- Local Hardware stores (Mitre 10, Home Timber & Hardware)
- Fuel supplies (BP, Caltex, Mobile)
- Automotive mechanics
- Cafes, bakeries, restaurants and take-away
- Most major financial institution branches

- Entertainment (clubs, hotels, recreation and sport)
- Postal Services
- Health and Emergency Services (Young District Hospital – with 24 hour emergency department, Young Fire Station, Young Police Station).

2.7 Conclusions

The key findings of this Regional Economic Profile are as follows:

1 The Study Area has a resident population of around 35,470 persons in 2016, which is projected to increase to 42,030 persons by 2031.

2 The relatively low unemployment rate (4.0% compared to 5.0% for NSW) in the Study Area (ie, a relatively small pool of unemployed persons from which to draw) may have implications in terms of labour supply for the construction phase of the project, particularly with regard to competing seasonal labour requirements (harvesting, tourism etc) and concurrent infrastructure projects in the region.

3 The Study Area's occupational, industry and business structures indicates that a good base exists to service the needs of the project, including the needs of approximately 4,730 construction-related workers (based on occupation) and 860 construction and transport businesses.

4 The regional centre of Yass will underpin most project needs in view of town's reasonable supply of accommodation (150 rooms, plus cabins, power sites, B&B's and private accommodation), trade supplies and transport services, retail services, entertainment and so on. However, the towns of Boorowa and Young would also be expected to provide project support services, including lower-cost commercial accommodation options and convenience services.

3 ECONOMIC IMPACT ASSESSMENT

3.1 Project Investment

The total construction cost for the Bango Wind Farm project is estimated to be $320 million, according to information provided by CWP Renewables. The major investment cost is associated with the purchase of wind turbines, although significant investment is also required for civil, electrical and grid connection works. Additional investment will be required with regard to project management, planning and approvals, financing, insurance and other project costs.

3.2 Project Employment

Construction Phase

Project employment is assessed in terms of **Direct** jobs (ie, site-related) and **Indirect** (or flow-on) jobs in the local and wider economies (ie, jobs that are generated by the employment multiplier as funds circulate around the economy between various industry sectors).

Direct Construction Employment

CWP Renewables estimate a workforce requirement of 150 Full Time Equivalent (FTE) jobs over the construction phase of a wind farm project.

Construction jobs are expected to be associated with a wide-range of on and off-site activities, including:

- Structural concrete foundations
- Earthworks
- Roads and access tracks
- Fencing
- Landscaping
- Vehicle and equipment hire
- Trade services
- Security
- Office cleaning
- Waste disposal
- Building maintenance

- Foundation laying
- Electrical transformer installation
- Crane works
- Cabling
- Temporary site facilities (power, water, telecommunications)
- Transport of components/workers.

Local/ regional professional services might include:

- Civil engineering
- Mechanical engineering
- Environmental engineering and specialist consultants
- Employment agencies
- Electrical engineering
- Legal and financial services.

Indirect Construction Employment

In addition to direct employment, significant employment will be generated indirectly through the employment multiplier effect. By applying an industry-standard multiplier for the construction industry of 2.6 (based on ABS Input-Output tables), the project is estimated to generate an additional 240 FTE jobs over the construction period.

Indirect or flow-on jobs include those supported locally and in the wider economy (including metropolitan Sydney, regional NSW and interstate, such as the ACT and northern Victoria), as the economic effects of the capital investment flow through the economy. Indirect employment creation within the region would include jobs supported through catering, accommodation, trade supplies, fuel supplies, transportation, food and drink etc.

Total Construction Employment

In summary, approximately 390 FTE jobs (150 direct and 240 indirect) are expected to be generated by the Bango Wind Farm project during the construction phase.

As identified earlier, the Study Area has a relatively low unemployment rate and the labour market is subject to seasonality. The level of local employment required at the peak of the project is estimated by the proponent to be 60 FTE jobs (40% of the total project requirement).

This represents less than 2% of the Study Area's labour force who are occupied in construction-related activities (4,730 workers) and this should not present a constraint to labour supply for the project. Additionally, 675 labour force participants in the Study Area are

currently unemployed; therefore, the wind farm project presents new employment opportunities for these jobseekers (subject to an appropriate skill match).

Discussions with the Boorowa Business Chamber indicate the wind farm project should not negatively impact on farmers' labourers, as there is generally an ample supply of labour for farms (oats, wheats, barley, canola, sheep shearing) which are mostly serviced by contractors who have the flexibility to switch between harvest activities and infrastructure projects.

Employment requirements for potentially competing infrastructure projects also need to be considered, and this factor is discussed in section 3.3.

Operational Phase

Direct Operational Employment

CWP Renewables indicate that around 10 FTE jobs will be supported on an ongoing basis through the operation of the Bango Wind Farm, with 70% of these jobs (7 FTE positions) expected to be supported in the Study Area, with remaining jobs located in other areas, including Head Office. Local positions would be associated with managerial and maintenance activities.

Indirect Operational Employment

A number of additional jobs will also be supported indirectly through the employment multiplier effect. By applying an industry-standard multiplier for the electricity industry of 3.9 (based on ABS Input-Output tables) to the 10 direct operational and maintenance jobs, a further 30 permanent jobs (rounded) would be generated in the wider State and national economies, with some of these jobs generated locally through existing supply chains.

Operational-related employment is for the lifetime of the project (ie at least 25 years); therefore, while job creation is relatively small, it represents new long-term employment opportunities at a local, regional and state-wide level.

For the purposes of this assessment it is assumed that 20% of indirect FTE jobs are created in the Study Area. This equates to approximately 6 ongoing FTE positions.

Total Operational Employment

In summary, approximately 40 FTE jobs (10 direct and 30 indirect) are expected to be generated by the Bango Wind Farm through its ongoing operations, with 13 FTE positions expected to be created locally (ie within the Study Area).

3.3 Competing Projects

Discussions with Hilltops and Yass Valley councils have identified the following projects that may compete with the Bango Wind Farm projects for labour and resources. These projects are described below.

Rye Park Wind Farm

The proposed Rye Park Wind Farm is a 92-turbine facility (276 MW) to be located east of Boorowa near Rye Park Village. The project has received planning approval from the Planning Assessment Commission (May 2017).

According to the proponent, Tilt Renewables, the wind farm project will take between 18-24 months to complete from the start of construction.

The timing of the construction phase of the Rye Park Wind Farm is currently unknown, but potential exists for the facility to be constructed concurrently with the nearby Bango Wind Farm.

Coppabella Wind Farm

The Coppabella Wind Farm, to be developed by Goldwing Capital Australia Pty Ltd, will be located approximately 30km west of Yass. The wind farm site will extend 12 kilometres west to east and 10 kilometres north to south along the Coppabella Hills near the towns of Bookham and Binalong.

The NSW Government has approved construction and operation of up to 79 wind turbines and related civil and electrical infrastructure.

Construction is expected to commence in 2018.

Hilltops Council – Stronger Communities Fund Projects

The NSW Government, through the Stronger Communities Fund, has provided each newly amalgamated Council $15 million to invest in community projects and infrastructure.

Table 3.1 outlines funding allocated to major projects in the Hilltops Council area. In total, $14.1 million has been allocated to 'major projects', with a further $0.9 million allocated to small 'community projects'.

Most of these projects are relatively small-scale, ranging from $100,000 to $2.0 million and will therefore not involve significant construction-related resources.

Furthermore, the terms of the Stronger Communities Fund require all projects to be completed by 30 June 2019, with many projects likely to be finalised well before the Bango Wind Farm project commences.

Table 3.1: Hilltops Council – Stronger Communities Fund, Major Projects

Project	Investment
Boorowa Caravan Park	$200,000
Harden Caravan Park	$100,000
Urban Growth Boorowa	$1,000,000
Road Network Improvement Program Boorowa	$700,000
Chinese Cemetery Murrumburrah	$50,000
Hilltops Regional Library - Young	$2,000,000
Lambing Flat Chinese Tribute Garden - Young	$300,000
Solar Power	$328,995
Burrangong Creek - Young	$1,500,000
Murrimboola Creek - Murrumburrah	$1,000,000
Pool renewals - Harden	$300,000
Swimming Pool - Young	$1,700,000
Trinity Centre Refurbishment - Harden	$100,000
Mechanics Institute	$250,000
Tennis Courts - Boorowa	$300,000
Hilltops Regional Tennis Complex	$1,000,000
Play Ground - Boorowa	$250,000
Playgrounds - Harden	$350,000
Sports Fields - Harden	$1,000,000
Sports Fields - Boorowa	$500,000
Blackguard Gully - Young	$500,000
Museum extension - Harden	$100,000
Cranfield Over Improvements	$600,000
Major Projects Total	**$14,128,995**

Source: https://www.strongercouncils.nsw.gov.au/new-councils/hilltops-council

3.4 Industry and Business Participation Opportunities

In terms of cost efficiencies (lower transport, labour costs etc), many large construction projects located in regional areas are (where possible) serviced from within the same region.

As identified above, the Study Area comprises 895 construction firms (which include individual contractors) and many other businesses associated with activities likely to be required for the project. These include transport operators, trade suppliers, vehicle and machinery hire, and repair companies, among others.

As a regional centre, Yass is likely to have firms of sufficient scale to compete for project contracts and many smaller firms which could supply fencing, machinery hire, waste disposal, electrical services and the like.

Consultation with officers from both councils and Boorowa Business Chamber representatives confirms the potential of local businesses and contractors from across the Study Area to benefit from the project.

In order to maximise local business participation a number of strategies should be implemented, such as widespread advertising of contracts in local media and directly through the project website. CWP Renewables has already compiled a database of potential local (and non-local) suppliers who have expressed an interest in providing services to the project.

The Industry Capability Network (ICN) is another organisation that often plays an important business facilitation role for major infrastructure projects, such as the proposed wind farm. The ICN is an independent, non-profit organisation funded by the Federal Government to support business opportunities, including linking suppliers to project contracts at a local level through its ICN Gateway website where details of work packages are advertised.

3.5 Housing and Commercial Accommodation Sector Impacts

Information supplied CWP Renewables indicates that up to 90 non-local staff may need to be accommodated in the region at the project's peak. These staff will comprise a range of occupations, including managers and specialist technicians. Contracts lengths will vary. This highlights the need for a number of types of accommodation, which would be expected to range from higher-end options for professional staff on longer contracts, to convenient low-cost options for those on short-term contracts.

As highlighted in Chapter 2, the Study Area has a capacity of around 400 commercial rooms (including the small supply of rooms in Boorowa). Assuming each non-local worker requires individual accommodation, approximately 22% of total accommodation stock would be required at peak times to service the project. The actual proportion would be lower on the expectation that some workers may be accommodated in caravan parks (cabins or powered sites), B&Bs, private rentals or with family or friends – none of these categories are included in the accommodation audit. Additionally, some workers are likely to share motel rooms/cabins, private rentals etc to reduce personal costs.

ABS Tourism Accommodation data for 2015/16 shows the Study Area had a room occupancy rate of approximately 60% and a bed occupancy rate of 30% for its hotels, motels and serviced apartments in the March Quarter, 2016 (refer to Table 2.6).

This data indicates that adequate capacity exists in the region to accommodate the numbers of non-local workers expected at the peak of the wind farm project. Importantly, the influx of these workers would support higher occupancy rates and revenues for local accommodation operators over the construction period.

3.6 Local Wage Spending Stimulus

CWP Renewables estimate that 60% of jobs (90 jobs) are likely to be sourced from outside the Study Area, particularly specialist and management positions.

This level of employment would equate to $7.3 million in wages (2017 dollars) on the basis that each is employed for 12 months on the project and at an average construction wage of $80,850 including on-costs (source: ABS Average Weekly Earnings 6302.0, May 2017).

A considerable portion of these wages would be spent in Boorowa, Yass, Young and the surrounding region. An estimated $4.1 million in wages (2017 dollars) would likely be directed to local and regional businesses and service providers during the construction period (once 25% in average income taxes are removed). This estimate is based on reference to the ABS Household Expenditure Survey which indicates that approximately 75% of post-tax wages are likely to be spent by workers in the regional economy in view of the wide range of goods and services available, especially in Yass. This spending would be likely to include the following:

- Housing expenditure, including spending on accommodation at hotels, motels, caravan parks and private rental dwellings
- Retail expenditure, including spending on supermarket items, clothing, books, homewares etc
- Recreation spending associated with day trips and excursions, gaming (lottery, sports betting, etc), purchases in pubs and clubs (although noting that expenditures at restaurants is included in the retail category)
- Personal, medical and other services, such as local prescriptions and GP fees, household cleaning services, fuel, vehicle maintenance and so on.

This level of personal spending would support approximately 20 FTE jobs in the services sector (1 job allocated for every $200,000 of spending), including jobs in the Study Area associated with retail, accommodation, trade supplies, cafes and restaurants etc. These jobs are included in the 'indirect employment' estimates outlined in Section 3.2 above.

3.7 Impact on Agricultural Land

The impact of the Bango Wind Farm on agricultural activity is likely to be small, due to the following factors:

- Only a very small proportion of agricultural land, estimated at 90 ha or 2% of the 5,200ha site area, will be lost to permanent infrastructure eg internal access roads, siting of turbines and other infrastructure requirements.
- The land is principally used for sheep grazing associated with wool and lamb production, and this activity can continue as normal within the subject site (minus the 90ha required for permanent infrastructure).
- The Aviation Assessment (REHBEIN Airport Consulting) undertaken for the Bango Wind Farm Environmental Impact Statement found the wind farm would have minimal impacts on agricultural activity noting the following (p.253):

  "Agricultural aerial spraying activity for pest management and pasture top-dressing is not considered to be a common activity across the Project site. Pest management spraying is unlikely to be affected by the Project. Top-dressing activity will require care by pilots applying the material to properties along the ridgelines.

  Despite the presence of another wind farm in the vicinity of the Project, no cumulative impact on air activity in and around the Project is expected"

It is also important to recognise benefits to host landowner properties from the project through improved access facilitated by new internal roads which also reduces bushfire risks across these agricultural landholdings decreasing the likelihood of loss of buildings, machinery, livestock, fencing etc.

3.8 Ongoing Economic Stimulus

Landowners

CPW Renewables advise that turbines will be spread across 10 host landowners, providing income returns to these farming families. Payments are made on the basis of the number of turbines hosted on each property with a fixed rate per turbine linked to CPI.

These new income streams can be particularly important in supporting the financial sustainability of some farms, especially as primary agricultural activities are not impacted upon to any great extent (as outlined above).

As noted earlier, securing a guaranteed 25-year drought proofed income stream (indexed to CPI) also allows farming families more flexibility in the long-term planning for their farming operations, including succession planning. Potential exists for landowners to continue to host turbines post the initial 25-year period (assuming the wind farm is not decommissioned) and this would provide income for future generations or new landowners.

Wage Stimulus

Additionally an estimated 13 FTE permanent local jobs (direct and indirect) will be created through the project (refer to section 3.2), and wage spending associated by these jobs will benefit local businesses and communities. The extent of retained local spending has been calculated in line with the methodology outlined in section 3.6.

Over 25 years, and allowing for 2.5% CPI pa, cumulative host landowner payments and wage stimulus factors will inject an estimated $64.9 million into the Study Area's economy.

3.9 Returns to Council and the Community

Council Rates Revenue

Unlike other states (such as Victoria), NSW does not currently have in place a legislative framework to assist in determining rates payable for electricity generating facilities.

The NSW Valuer General's Policy No. 12 (*valuation of land used as a wind farm*) states that the value of land under lease for the purpose of a wind farm has an increased value compared to similar land without a wind farm lease – this has implications for taxes and council rates. The proponent has made a commitment to cover any increase in council rates caused by the installation of wind farm infrastructure.

This increased land value is likely to result in a net increase in annual rates returns to both Councils from the subject site, but at no additional cost to the host landowners (who will also

be benefiting from annual payments from the proponent for hosting the turbines). The proponent estimates the increase in rates is likely to be approximately $140,000 pa or $4.8 million over 25 years (adjusted for CPI @ 2.5% pa).

Unlike a new residential development (where Council incurs costs such as garbage collection; maintenance of parks, open space, roads, footpaths; provision of community services; etc) the cost to Council of providing resources for the wind farm site is likely to be relatively small and would be limited to road maintenance, garbage removal and the like. Therefore, an uplift in rates revenues generated from the operation of the wind farm on the subject site will represent a net return to Council.

Importantly, this revenue can be re-invested in infrastructure and services, which will benefit the community more generally.

Community Fund

The Bango Wind Farm Community Fund will be based on an annual payment by the operator of $2,825 per turbine, with this payment linked to CPI.

Based on the existing 75 turbine layout, annual payments to the Community Fund would generate approximately $212,000 in Year 1 of wind farm operations.

Over the 25-year operational period, the Community Fund is projected to generate $7.2 million (adjusted for CPI @ 2.5% pa) for local projects, infrastructure and services.

Community Legacy Projects

CWP Renewables are considering delivering a series of longer-term, legacy projects that will span the life of Bango Wind Farm. This may involve working with the project contractors to plan, fund and deliver specific community projects in areas such as construction and education.

This approach has been used by CWP Renewables during the construction phase of the Sapphire Wind Farm (northern NSW) through the Construction in the Community program.

The Construction in the Community initiative aims to facilitate small community infrastructure projects (through an application process) which can be completed in the space of a half-day or day but require manpower, specialist skills and machinery which can be readily provided by the on-the-ground contractor team.

Examples of such projects include:

- Improvements and upgrades to existing infrastructure
- Minor earthworks or excavation
- Environmental projects: rehabilitation, rejuvenation of community spaces, tree planting
- Working bee projects such as painting or clearing.

Community groups, catchment and wildlife groups, school P&C associations and non-profit organisations have submitted applications for these community projects.

Community Investment

CWP Renewables is investigating the potential for local community investment in their renewable energy projects. Depending on the outcome of these investigations, locals within the Study Area may be offered the opportunity to invest in the Bango Wind Farm.

3.10 National Grid Supply Benefits

The Bango Wind Farm has the potential to provide sufficient renewable energy to support the annual electricity needs of approximately 90,000 NSW households (rounded). This annual calculation is based on:

- 613,200 MWhrs / by average annual Australian electricity consumption per household of 6.9 MWhr = 88,870 households.

In a regional context, the Study Area currently contains 14,560 dwellings (refer to Table 2.7) and therefore the Bango Wind Farm has the potential to provide the annual electricity needs of the Study Area six times over, highlighting the importance of the facility from a clean electrical generation perspective.

3.11 Environmental Benefits

Once fully-operational, the Bango Wind Farm will result in the reduction of an estimated 515,000 tonnes in carbon dioxide (CO_2) emissions on an annual basis compared to the same level of electricity generation using fossil fuels. This annual calculation is based on:

- 613,000 MWhrs x CO_2 savings per KWhr (0.84 tonnes) = 514,920 tonnes pa

This reduction on CO_2 emissions is the equivalent of taking approximately 185,000 cars off the road annually, based on an average of 14,000km travelled with CO_2 emissions of 200g/km (or 2.8 tonnes of CO_2 emissions per car pa).

3.12 Tourism Opportunities

The Bango Wind Farm site is situated across a number of private land holdings, somewhat limiting the tourism potential of the facility. However, wind farms have traditionally attracted interest from a range of groups and interests, and longer-term opportunities might be possible if suitable arrangements can be put in place regarding access to the site.

Potential visitor types include:

- Environmentalist
- Researchers

- Eco-tourists
- Schools and educational institutions (eg Canberra Institute of Technology's *Renewable Energy Skills Centre of Excellence*).

The South East Region of Renewable Energy Excellence (SERREE) Renewable Energy Trail provides a specific tourism opportunity for the Bango Wind Farm. The Renewable Energy Trail is a self-drive guided trail that showcases the diversity of renewable energy infrastructure sites located within the ACT–south-east NSW region.

A Concept and Action Plan has recently been developed for the Trail to guide its future development, with half and full day Renewable Energy Site Tours now available as part of the Renewable Energy Trail experience.

Benefits of attracting new visitors to the region include increased expenditures on accommodation, food and beverage, fuel, retail, entertainment etc, all of which will support local businesses and employment, especially in townships such as Boorowara, Rye Park, Yass and Young.

3.13 Conclusions

1 The Bango Wind Farm project will involve $320 million in investment during the construction phase and will support 150 direct and 240 indirect FTE positions over the construction period. Once operational, 10 direct and 30 indirect FTE jobs will be supported by the facility.

2 Allowing for the project to be carefully managed around the region's peak times for harvesting, tourism etc, and having regard for potentially concurrent infrastructure projects, accessing adequate labour supply should not present a major issue for the project. The peak local employment requirement (60 FTE positions) represents less than 2% of workers occupied in construction-related activities in the Study Region.

3 Competing projects may include the proposed Rye Park and Coppabella wind farms and a number of smaller local infrastructure projects funded through the NSW Stronger Communities Fund.

4 The Bango Wind Farm project will provide significant participation opportunities for businesses and the labour force located in the Study Area, having regard for the good match of skills and resources available. In this regard, organisations such as ICN might be involved in ensuring maximum local inputs are secured, which would be in addition to the proponent's own local sourcing initiatives.

5 The 'external' project labour requirement would be expected to generate an accommodation requirement for 90 project workers at the peak of the project. This represents only 20-25% of total commercial accommodation rooms available in the Study Area and would provide a boost to local accommodation operators, noting that room occupancy rates are around 60% across the region. Other accommodation providers, such as caravan parks, B&Bs and private households, may also benefit from the project.

6 Non-local construction workers living in the Study Area would be expected to inject approximately $4.1 million in additional spending to the regional economy over the construction phase, supporting around 20 jobs in the service sector.

7 Agricultural land use will only be marginally affected by the project, with existing farm activities continuing as normal.

8 Ongoing economic stimulus associated with the operation of the wind farm through the Community Fund, financial returns to host landowners, local wage spending and net rates returns to the two Councils is estimated at approximately $77 million over 25 years (adjusted for CPI @ 2.5%).

9 Additional community benefits include construction of community legacy projects, and potential for the community to directly invest in the wind farm. Host landowner properties will also benefit from the project through the construction of new internal roads which reduce bushfire risks and decrease the likelihood of loss of buildings, machinery, livestock, fencing etc.

10 The project has the capacity to supply sufficient clean energy to power approximately 90,000 homes and, in the process, to reduce $C0_2$ emissions by 0.5 million tonnes per year.

11 The project could potentially support small-scale tourism initiatives, such as viewing opportunities for visitors to the region. In the longer-term, potential exists for Bango Wind Farm to form part of organised tours to renewable facilities in the broader region as part of the SERREE Renewable Energy Trail.