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Social Impact Assessment

No WAF Accommodation Scenario

BYLONG COAL PROJECT

SOCIAL IMPACT ASSESSMENT - NO WAF ACCOMMODATION SCENARIO

Prepared by

HANSEN BAILEY
Level 15, 215 Adelaide Street
BRISBANE QLD 4000

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For

WORLEYPARSONS SERVICES PTY LTD
Level 12, 141 Walker Street
NORTH SYDNEY NSW 2060

On behalf of:

KEPCO BYLONG AUSTRALIA PTY LTD
Suite 1301, 141 Walker Street
NORTH SYDNEY NSW 2060

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LIST OF ABBREVIATIONS

ABS	Australian Bureau of Statistics
CHPP	Coal Handling and Preparation Plant
COA	Commonwealth of Australia
DEC	Department of Education and Communities
DPC	NSW Department of Premier and Cabinet
DP&E	NSW Department of Planning & Environment
DP&I	NSW Department of Planning & Infrastructure (former)
EP&A Act	Environmental Planning and Assessment Act 1979
ERP	Estimated Resident Population
FTE	Full-Time Equivalent
KEPCO	KEPCO Bylong Australia Pty Ltd
LEC	NSW Land and Environment Court
LGA	Local Government Area
LH	Local Hire
M	Million
MWRC	Mid-Western Regional Council
NLHs	Non-Local Hires
NSW	New South Wales
PY	Project Year
QLD	Queensland
RFS	Rural Fire Service
ROM	Run of Mine
RPData	RPData Pty Ltd
RTS	Response To Submissions
SA2	Statistical Area Level 2
SA3	Statistical Area Level 3
SA4	Statistical Area Level 4
SEARs	Secretary's Environmental Assessment Requirements
SIA	Socio-Economic Impact Assessment
SIMP	Social Impact Management Plan
SS	State Suburb
The Project	Bylong Coal Project
TWA	Temporary Workers Accommodation Facilities
UCL	Urban Centre / Locality
URS	Urban Release Strategy

VPA	Voluntary Planning Agreement
WAF	Workforce Accommodation Facility
WALA	Western Australian Legislative Assembly
WEP	Wilpinjong Extension Project
WorleyParsons	WorleyParsons Services Pty Ltd

BYLONG COAL PROJECT SOCIAL IMPACT ASSESSMENT OF NO WAF WORKFORCE ACCOMMODATION SCENARIO

for
WorleyParsons Services Pty Ltd

1 INTRODUCTION

This document provides a revised Social Impact Assessment (revised SIA) of the No Workforce Accommodation Facility (WAF) scenario for the Bylong Coal Project (the Project). This section describes the background to this revised SIA and outlines the purpose and structure of this revised SIA.

1.1 BACKGROUND

In 2015, Hansen Bailey prepared a SIA to be included as part of an Environmental Impact Statement (EIS) for the Project. The EIS was placed on public exhibition from 23 September 2015 to 6 November 2015 from which a number of submissions have been received by NSW Department of Planning and Environment (DP&E) from various stakeholders.

This report has been prepared as a revised SIA included within the EIS to assist in the response to submissions received during the public exhibition of the EIS.

1.1.1 Workforce Size

The Mid-Western Regional Council (MWRC) and some stakeholders have questioned the size of the proposed Construction Phase 1 workforce presented within the EIS. These stakeholders are of the opinion that the numbers presented in the EIS are inflated above what normal industry practice has demonstrated to date. In response to these concerns, WorleyParsons Services Pty Limited (WorleyParsons) has conducted a review of the proposed workforce numbers as part of the RTS process and has provided a revised workforce profile for Construction Phase 1.

The Construction Phase 1 workforce numbers included in the EIS have been revised down from a peak of 800 workers to a peak of 665 workers. The reduction in the Construction Phase 1 workforce is a result of further detailed planning which was conducted in relation to workforce arrangements and scheduling of construction activities. It should be noted that detailed construction planning is occurring in parallel with the EIS assessment process.

This detailed planning has and will continue to inform the revised EIS workforce numbers. The duration of Construction Phase 1 remains at 24 months, consistent with the original EIS schedule. The revised workforce is presented in **Section 3.2**.

WorleyParsons is currently preparing to initiate an expressions of interest process from contractors to build the mine. Once these expressions of interest are received over the next several months, more accurate required construction employee numbers will be available.

1.1.2 Workforce Accommodation Facility

The SIA prepared in support of the EIS (EIS SIA) identified the potential social impacts of the Project and presented appropriate measures for managing adverse impacts and enhancing potential benefits. In particular, the EIS SIA assessed the potential social impacts of the Project under the following three workforce accommodation scenarios:

- Scenario 1 (base case scenario) - The WAF operates from Project Year (PY) 1 to the end of underground construction in approximately PY6;
- Scenario 2 - The WAF operates for Construction Phase 1 (PYs1 and 2) only; and
- Scenario 3 - The WAF operates for the life of the Project and accommodates all non-local hires (NLHs).

Consultation during the EIS process, and throughout the public exhibition phase, revealed some stakeholder concern about the requirement for a WAF. In particular, the Mid-Western Regional Council (MWRC) asserts in their recent submission that the local area has capacity to fully accommodate the workforce, while local business owners are now advocating a local housing model so that they can capitalise on opportunities associated with a local workforce (e.g. increased retail spend).

The MWRC's position in relation to the inclusion of a WAF in the Project has wavered significantly throughout the course of EIS preparation. This has made Project planning difficult for KEPCO. KEPCO has spent a considerable amount of time discussing the following issues with the MWRC: the fluctuating Project workforce demands; accommodation provision across the MWRC Local Government Area (LGA); the Project related demand for accommodation at different Project phases e.g. Construction Phase 1 and Open Cut Operations; and the inclusion of the WAF in the Project as a risk management strategy.

Throughout the final stages of preparing the EIS, KEPCO has maintained a position that the WAF would operate for six years to accommodate the workforce predominantly associated with the two construction phases of the Project. The workforce associated with the Project operations phases would be accommodated in housing within a one hour commute of the Project site.

Discussions held with MWRC in March 2016 have confirmed their desire that all available rental accommodation in the MWRC LGA should be relied upon to house the construction workforce, prior to accommodating construction employees at the mine site in a WAF.

KEPCO is continually listening and working with MWRC's expectation to maximise local economic stimulus flowing from the Project to the MWRC LGA.

This is demonstrated by KEPCO's commitment that it will encourage its permanent workforce to be accommodated as permanent residents within Mudgee and its surrounds (the Local Area).

To meet MWRC's expectation, KEPCO conducted an accommodation survey in late 2015 to gain an understanding of the available capacity of accommodation within the MWRC LGA. The survey has identified that there is unlikely to be a sufficient supply of suitable accommodation within the Local Area to house the entire construction workforce during the peak period of construction and this will result in adverse effects on the mine construction schedule. Therefore KEPCO now proposes to seek approval for a temporary WAF for the workers who are unable to be accommodated in the Local Area or where it is necessary for the completion of their work that they reside in immediate proximity to the Project site.

KEPCO is currently initiating the tender process seeking contractors to build the mine. Once these expressions of interest are received over the next several months, more accurate required construction employee numbers will be available. Based on the current forecast and dependant on the results of the tender process, a peak construction workforce of 665 full-time equivalent (FTE) employees is likely to be required, this would equate to the requirement for a temporary WAF of 300 beds as a minimum. Based on the results of this tender process, the size of the temporary WAF will be adjusted accordingly.

KEPCO's preferred approach is to operate the nominal 300 bed temporary WAF for Construction Phase 1 (PY1 and PY2), to mitigate the risk of identified shortfall of accommodation in the Local Area. KEPCO will plan to decommission the temporary WAF at the end of Construction Phase 2 (~PY 6). Consistent with the EIS, some infrastructure and services including, first aid room, offices, car park, etc will be retained for the life of the Project. Prior to the commencement of Construction Phase 2 (~PY4), KEPCO proposes to update the Workforce Accommodation Study (similar to the recent surveys) to confirm whether there is availability in the Local Area to accommodate the estimated FTE workforce on a regular basis. This Workforce Accommodation Study will be undertaken in close consultation with the MWRC and DP&E to confirm whether there is a requirement for a temporary WAF during the relevant period.

In summary, KEPCO's preferred workforce accommodation strategy is to:

- Seek to accommodate Construction Phase 1 and Phase 2 workers within existing accommodation within a one hour commute of the Project site;
- Accommodate the Operations Phase workforce in existing accommodation within a one hour commute of the Project site; and
- Accommodate the workers who are unable to be accommodated in the Local Area or where it is necessary for the completion of their work that they reside in immediate proximity to the Project, within a WAF to be located at the Project site.

1.2 PURPOSE AND SCOPE

1.2.1 Purpose of the Document

This revised SIA contributes to the RTS being prepared to provide further supporting information to DP&E following the public exhibition of the EIS for the Project. This revised SIA presents the findings of an assessment of the social impacts associated with the Project under a scenario where there is no WAF provided for the construction workforce.

1.2.2 Scope of Work

The scope of this revised SIA is to predict and assess the potential social impacts associated with the revised Construction Phase 1 workforce arrangements and the no WAF workforce accommodation scenario, with reference to the following potential areas of impacts:

- Housing and accommodation;
- Population growth and demographic change;
- Economic vitality;
- Community infrastructure accessibility; and
- Community liveability.

A further detailed discussion of potential cumulative impacts associated with the Project is also provided.

This revised SIA focuses predominantly on the potential social impacts and cumulative social impacts associated with Construction Phase 1, given the change in workforce numbers described in **Section 1.1**.

The scope does not include the preparation of a social baseline, as this information was previously included in the EIS SIA (Appendix AC of the EIS). The scope does include the provision of up-to-date housing market information, with a particular focus on accommodation for the Construction Phase 1 workforce.

The scope includes the qualitative re-analysis of social impacts identified in the EIS SIA (Appendix AC of the EIS) under the revised workforce arrangements. However, as the size of the operations phase workforce remains unchanged, and the preferred base case accommodation assessment assumes these workers will be accommodated in housing within a one hour commute of the Project site, the predicted impacts described in the EIS SIA for the Operations Phase of the Project will not change.

The scope of this revised SIA does not include revisiting the management and mitigation measures identified in the EIS SIA (Appendix AC of the EIS), however it does include consideration of mitigation measures to address potential social impacts specifically associated with the No WAF accommodation scenario.

1.3 DOCUMENT STRUCTURE

This revised SIA is structured as follows:

- **Section 1** - Introduction (this section), provides an overview of the Project, describes the revised SIA scope of work and outlines the regulatory framework;
- **Section 2** - Methodology - defines the SIA Study Area and provides a detailed explanation of the methodology adopted for the revised SIA;
- **Section 3** - Project Socio-Economic Characteristics - presents the revised workforce arrangements and other characteristics of the Project relevant to the assessment of socio-economic impacts;
- **Section 4** - Housing Market Analysis - presents up-to-date characteristics of the housing market within a one hour commute of the Project site, with a focus on short-term accommodation and the private rental market;
- **Section 5** - Impact Assessment - presents the predicted impacts anticipated to arise from the Project under the No WAF accommodation scenario and as a result of the revised Construction Phase 1 workforce arrangements;
- **Section 6** - Cumulative Impacts - Describes the potential cumulative social impacts arising from the Project. The discussion in **Section 6** supplements the discussion around cumulative impacts included in the EIS SIA;
- **Section 7** - Mitigation and Management - Identifies suitable management strategies, where necessary;
- **Section 8** - Conclusions; and
- **Section 9** - References.

2 SCOPE AND METHODOLOGY

2.1 METHODOLOGY

The methodology adopted for this revised SIA is consistent with the methodology described in the EIS SIA for the Project and involves the following key phases:

- Phase 1 - Identification of the SIA Study Area;
- Phase 2 - Baseline profiling;
- Phase 3 - Impact identification and assessment; and
- Phase 4 - Development of management strategies.

Further information on the methodology adopted for this revised SIA is provided in the EIS SIA (Appendix AC of the EIS).

2.1.1 SIA Study Area

The Study Area for the revised SIA incorporates the 'Project Area', the 'Sub Regional Area' and the 'Regional Area'. These components are defined in **Table 1**.

Table 1
SIA Study Area Definition

SIA Study Area Components	Description
Project Area	Defined as the Bylong Valley (Figure 1) including stakeholders who reside within and adjoining the Project Boundary ¹ .
Sub Regional Area	The Sub Regional Area is defined as the MWRC LGA (Figure 2). The main communities of interest within the MWRC LGA are Bylong, Mudgee, Rylstone and Kandos. Outside of the Project Area, the primary area of influence of the Project is likely to be the town of Mudgee.
Regional Area	Defined as the Lithgow - Mudgee Region (Figure 3) which comprises the entirety of the MWRC and Lithgow LGAs, and portions of the Singleton, Upper Hunter, Wellington and Warrumbungle LGAs ² .

This revised SIA has focussed on the Project Area and Sub Regional Area (MWRC LGA) as these areas are most likely to be impacted by the Project.

¹ The Breakfast Creek State Suburb (SS) (Breakfast Creek), which includes the Bylong Valley is the smallest ABS geographical area for which statistical data is available. The ABS does not define a geographical area that aligns with the Bylong Valley.

² The Lithgow Mudgee is defined in ABS statistical geography as the Lithgow-Mudgee Statistical Area 3 (SA3).

In addition the Local Area is defined as the geographical area within an approximate one hour commute of the Project Boundary. For health and safety reasons the maximum permissible daily commute from the Project to a workers place of residence is one hour.

The Local Area has been defined based on an assumption that the existing dirt road between Bylong Valley and the town of Wollar (estimated 17 km of road) will be surfaced prior to the commencement of Construction Phase 1, thus reducing the commute time between the Project Boundary and Mudgee to less than one hour. MWRC secured Resources for Regions funding in 2015 to upgrade Wollar Road between the Bylong Valley Way and the township of Wollar. This will reduce the commute time between Mudgee and the Project to less than an hour.

The Local Area is illustrated in **Figure 4** and includes the settlements of Mudgee, Kandos and Rylstone in the MWRC LGA and Sandy Hollow and Denman in the Muswellbrook LGA. The settlements of Gulgong in the MWRC LGA and Merriwa in the Upper Hunter Shire LGA are located outside the one hour commute time and hence KEPCO does not consider Gulgong and Merriwa to be suitable accommodation nodes for the construction workforce.

2.1.2 Baseline Profiling

The methodology draws on the EIS SIA baseline (Appendix AC of the EIS), hence this is not repeated herein. However in **Section 4** the baseline housing and accommodation information presented in Section 9.2 of the EIS SIA is updated and supplemented with the findings of the Workforce Accommodation Study (provided as Appendix E of the RTS). A summary of the findings of the Workforce Accommodation Study is presented in **Section 4**.

2.1.3 Impact Identification and Assessment

The purpose of impact identification and assessment is to predict and evaluate the significance of any potential impacts of the Project on the communities of the Study Area.

This report identifies and assesses the potential impacts associated with the No WAF accommodation scenario and the revised Construction Phase 1 workforce arrangements. The methodology described in Section 3 of the EIS SIA (Appendix AC of the EIS) has been applied.

Sensitivity Analysis

The EIS SIA assessed the potential social impacts of the Project under the following three workforce accommodation scenarios, in which varying proportions of the workforce are accommodated in the WAF and in the Local Area:

- Scenario 1 (base case scenario) – The WAF operates from PY 1 to the end of underground construction in approximately PY 6;
- Scenario 2 – The WAF operates for Construction Phase 1 (PYs 1 and 2) only; and
- Scenario 3 – The WAF operates for the life of the Project and accommodates all non-local hires (NLHs).

This sensitivity analysis is conducted in order to ensure that impacts on either side of the base case scenario are assessed.

This revised SIA assesses the potential social impacts of a fourth accommodation scenario:

- Scenario 4 - There is no WAF provided for the Project and all employees across all phases of the Project are accommodated in the Local Area.

The following key assumptions underpin the identification and assessment of impacts associated with Scenario 4:

- The Peak Construction Phase 1 workforce is 645 people and not 800 people as presented in the EIS SIA (Appendix AC of the EIS);
- Any construction worker residing outside of Mudgee but within the Local Area would be required to commute by private car; and
- KEPCO will encourage car pooling from these destinations. Commuters would park their vehicles in a purpose built car park located at the original WAF location and would be bussed to and from the mine site.

A single hiring scenario has been assessed in the revised SIA and is described in the EIS SIA (Appendix AC of the EIS). The hiring scenario is considered worst case as it reflects a constrained labour market.

2.1.4 Impact Management

Management measures are not discussed in detail in this report. Management measures are presented in **Sections 6 to 11** of EIS SIA (Appendix AC of the EIS), following the discussion of impacts. A summary of management measures is presented in Section 12.3 of the EIS SIA (Appendix AC of the EIS).

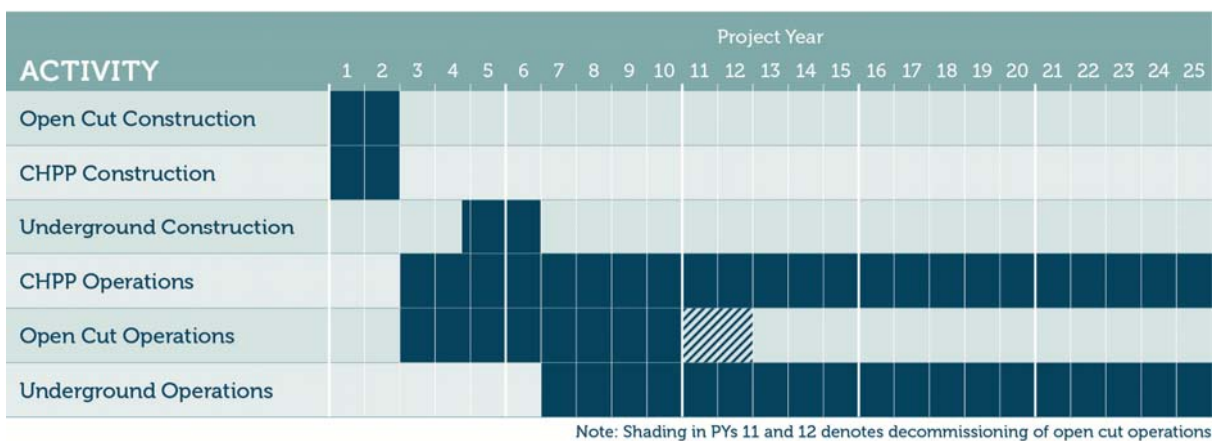
3 PROJECT SOCIO-ECONOMIC CHARACTERISTICS

3.1 PROJECT SCHEDULE

An indicative schedule for the construction, operations and decommissioning phases of the Project is presented in **Table 2**. This is the same schedule included as Table 8 of the EIS SIA (Appendix AC of the EIS). The EIS refers to Project Years (PYs), rather than calendar years, with PY 1 being the first year of construction. It should be noted that mining schedules are subject to continual revision based on changing mining conditions and timing could vary accordingly. The overall schedule is also subject to the necessary regulatory approvals being obtained by 2016 and construction commencing in 2017.

A full description of the Project phasing is provided in Section 4.1 of the EIS SIA (Appendix AC of the EIS).

Table 2
Indicative Project Schedule



3.2 WORKFORCE DEMAND

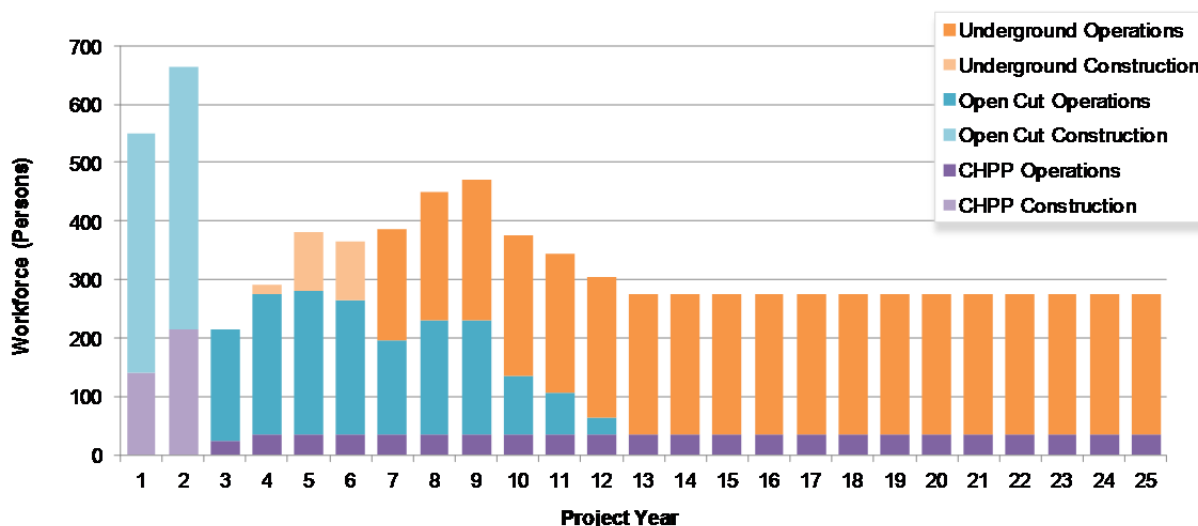
3.2.1 Project Workforce Numbers

Workforce numbers will vary across the different stages of the Project according to need. Figures presented in this section are based on initial Project workforce planning and are subject to change. All workforce numbers referenced are full-time equivalent positions.

The Construction Phase 1 workforce numbers included in the EIS have been revised down from a peak of 800 workers to a peak of 665 workers. The reduction in the Construction Phase 1 workforce is a result of further detailed planning which was conducted in relation to workforce arrangements and scheduling of construction activities. Detailed construction planning is occurring in parallel with the EIS assessment process. This detailed planning has informed the revised EIS workforce numbers. The duration of Construction Phase 1 remains at 24 months, consistent with the original EIS schedule.

Graph 1 illustrates the anticipated Project workforce by Project phase. Further detailed information is provided in the following sections.

Graph 1
 Revised Indicative Peak Workforce, by Project Phase^{1,2}

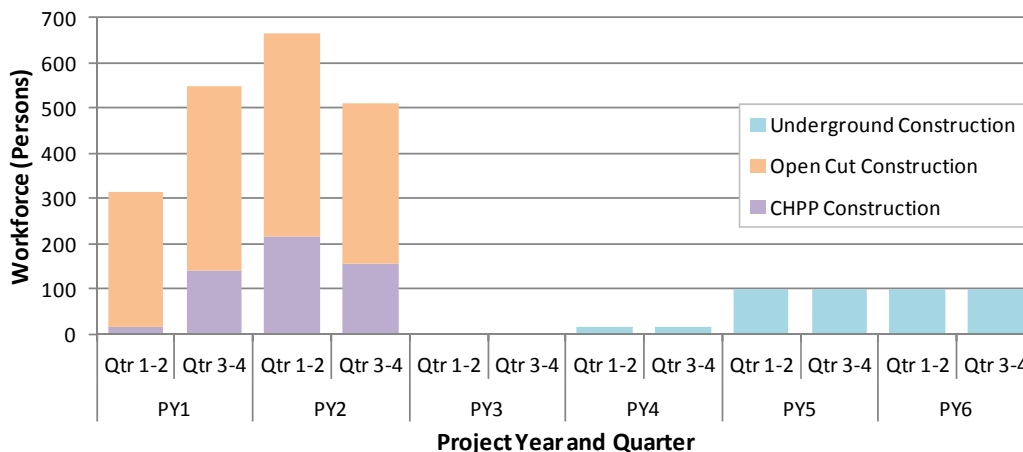


Notes:
 Annual underground operations workforce data was compiled and averaged PY9-PY25.
 The workforce presented in Graph 1 includes the workforce associated with the construction and operation of the WAF.

3.2.2 Construction Phase 1 Workforce

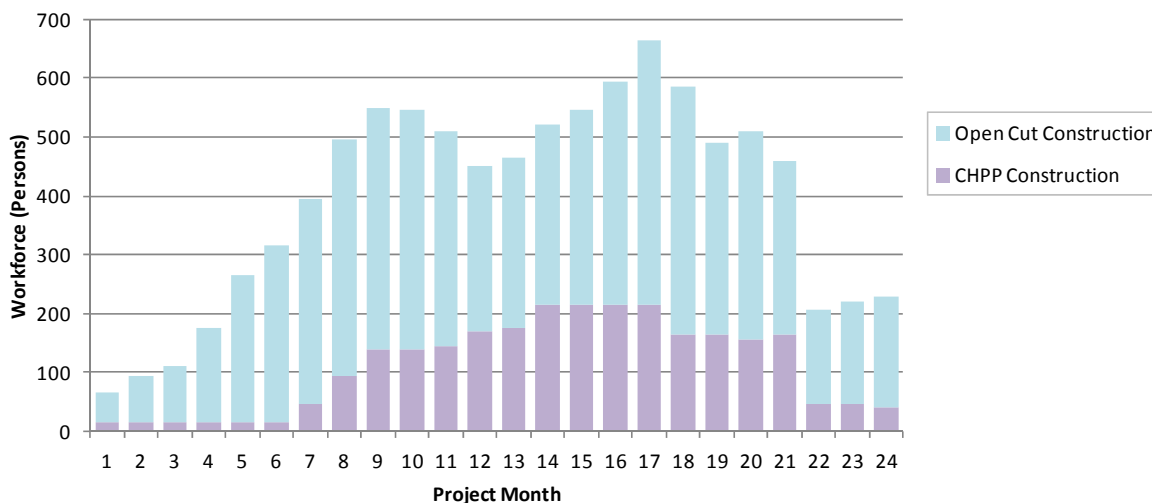
During each construction phase, the size of the workforce will rise and fall to adjust to the requirements of the Project. **Graph 2** presents the construction workforce for the Project by quarter. **Graph 2** includes the workforce associated with the construction and operation of the WAF.

Graph 2
Anticipated Peak Workforce – Construction Phase 1 and 2



Graph 3 presents the Construction Phase 1 workforce for the Project by month. The data presented in **Graph 3** includes the workforce associated with the construction and operation of the WAF.

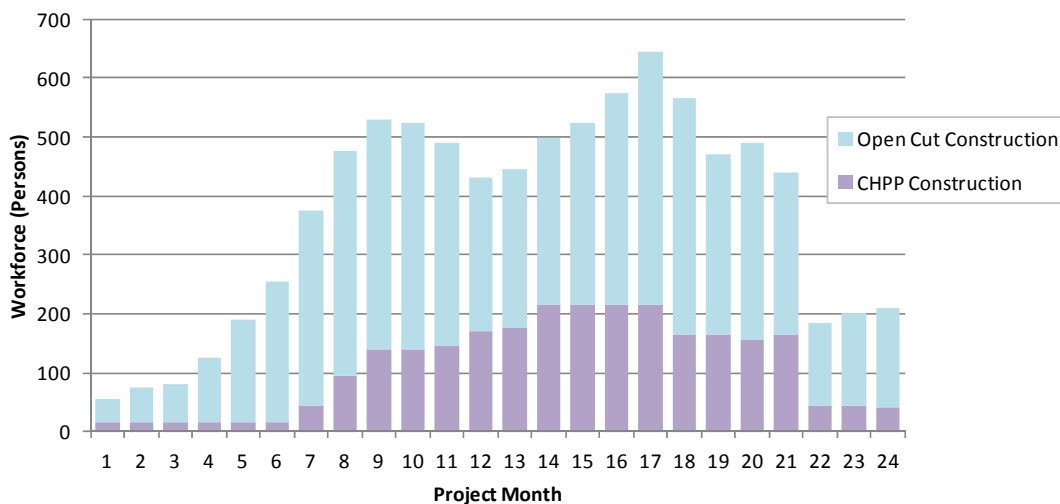
Graph 3
Revised Indicative Peak Workforce – Construction Phase 1



The peak construction workforce during Construction Phase 1 will be approximately 665 FTE (including workforce associated with the WAF) occurring during PY 2 Month 17. However, this peak is anticipated to last for only one month, as the construction phase for open cut mining areas and Coal Handling and Preparation Plant winds down and initial open cut development coal is produced. The peak workforce of 665 FTE includes 20 workers involved in the operation of the WAF.

Graph 4 presents the Construction Phase 1 workforce excluding the construction and operation of the WAF.

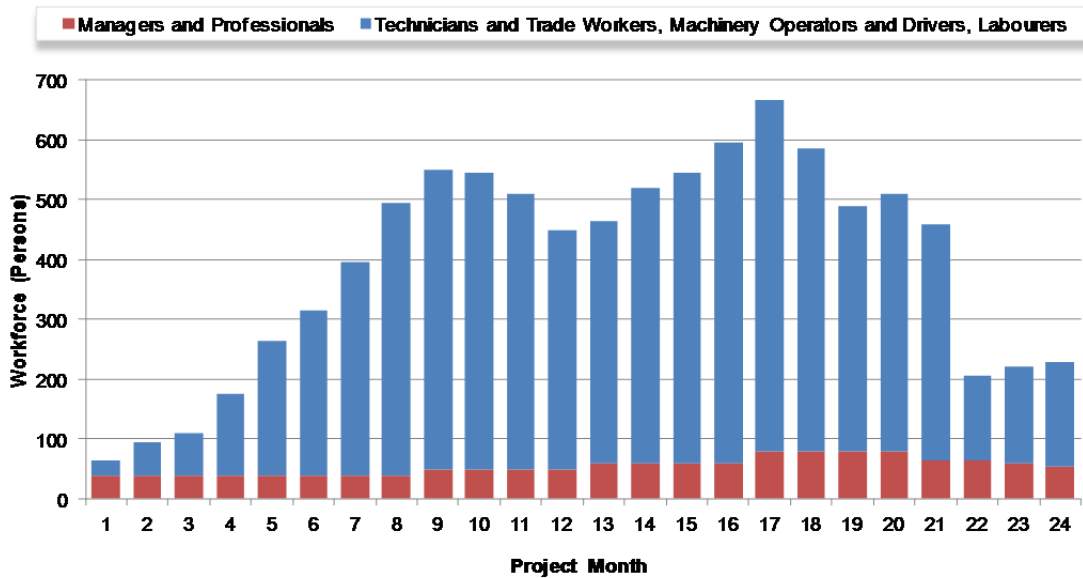
Graph 4
Revised Indicative Peak Workforce - Construction Phase 1 (No WAF)



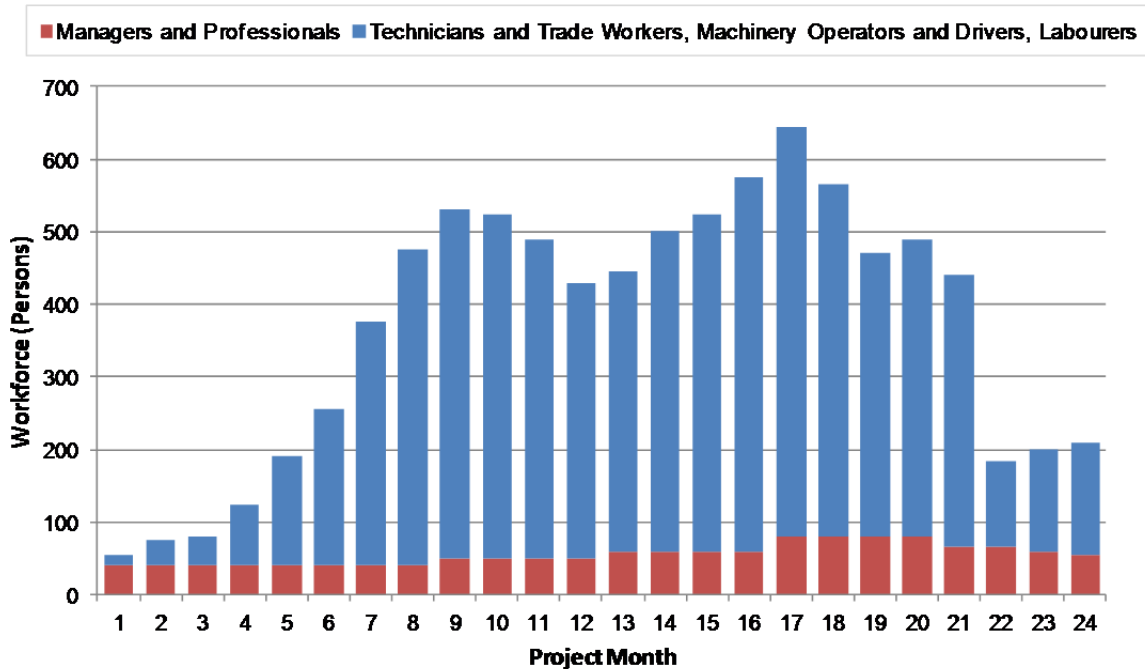
Workforce Occupation

The occupational requirements of the Construction Phase 1 workforce will vary according to the phases of mine development. The vocational characteristics of the Construction Phase 1 workforce are presented in **Graph 5**. The data presented in **Graph 5** includes the workforce associated with the construction and operation of the WAF. The data presented in **Graph 6** excludes this workforce.

Graph 5
Workforce Vocational Characteristics - Construction Phase 1 (WAF)



Graph 6
Workforce Vocational Characteristics - Construction Phase 1 (No WAF)



3.2.3 Operations Phase Workforce

The operations phase workforce remains unchanged from that presented in the EIS SIA (Appendix AC of the EIS).

3.3 WORKFORCE RECRUITMENT

3.3.1 Workforce Hiring Scenario

KEPCO has determined that the maximum permissible daily commute time from the Project site to a workers place of residence is to be no more than one hour for fatigue management reasons. During Construction Phase 1 and Construction Phase 2, workers will likely be employed on long shifts (around 12 hours). There are likely to be a number of health and safety implications, notably driver fatigue issues, if workers are spending more than 12 hours a day at work, in addition to spending two hours commuting to and from their place of residence.

A Local Hire (LH) is therefore defined as any person who resides within a one hour commute of the Project, which is here-in defined as the 'Local Area'. This assumption has not changed from the EIS.

A key assumption in defining the Local Area is that the remaining section of Wollar Road which is currently gravel sealed will be upgraded to bitumen seal before the end of PY 1. With this upgrade being completed, commute time between Mudgee and the Project is estimated to be approximately 45 minutes. The centres of Mudgee, Rylstone, Kandos, Denman and Sandy Hollow are located within the Local Area.

The predicted LH and non-local hire (NLH) ratios across all phases of the Project remain unchanged from EIS SIA (Appendix AC of the EIS). The following hiring ratios have been considered:

- The Construction Phase 1 workforce is predicted to comprise of approximately 10% LHs and 90% NLHs due to the size of the available labour force in the Local Area;
- The Construction Phase 2 workforce is predicted to be 100% NLHs due to the specialist and short-term nature of underground mine construction activities; and
- The Operations Phase workforce is predicted to be comprised of 15% local hires and 85% NLHs.

Table 3 shows the total number of estimated LHs and NLHs for key Project years by construction phase. The total number of LHs and NLHs in the Construction Phase 1 workforce is smaller than the numbers presented in the EIS due to the reduction in overall Construction Phase 1 workforce numbers.

Table 3
Total LHs and NLHs by Project Year - Construction Phases

Workforce Arrangements	PY1	PY2	PY5	PY6
LHs	55	67	0	0
NLHs	490	598	100	100
Total Workforce	545	665	100	100

Notes:

1. PY1 and PY2 Workforce data includes the workforce associated with the construction and operation of the WAF.

Table 4 shows the number of estimated LHs and NLHs by select months for Construction Phase 1 for the No WAF accommodation scenario.

Table 4
Total LHs and NLHs - Construction Phase 1 (No WAF)

Workforce Arrangements	Month 1	Month 6	Month 9	Month 13	Month 17	Month 20
Local Hire	6	26	53	45	65	49
NLHs	49	229	477	400	580	441
Total Workforce	55	255	530	445	645	490

3.4 WORKFORCE ACCOMMODATION

Following further consultation with the MWRC and the completion of additional accommodation studies, KEPCO has reconsidered the 'base case' accommodation scenario presented in the EIS SIA (Appendix AC of the EIS). KEPCO has developed a new preferred workforce accommodation approach for the Project.

KEPCO's preferred workforce accommodation strategy is to:

- Seek to accommodate Construction Phase 1 and Phase 2 workers within existing accommodation within a one hour commute of the Project site;
- Accommodate the Operations Phase workforce in existing accommodation within a one hour commute of the Project site; and
- Construct a temporary WAF at the commencement of Construction Phase 1, to be operational for the duration of Construction Phase 1 (2 years). The temporary WAF will then be planned to be decommissioned at the completion of Construction Phase 1 (~ start PY 3) if there is enough suitable and available accommodation in the MWRC LGA. KEPCO will update the Workforce Accommodation Study at the end of PY 2 in close consultation with MWRC and DP&E to confirm continuing use of WAF for PY 3

and PY 4. A further revision of the Workforce Accommodation Study will be undertaken in PY 4 to determine whether there is a requirement for the temporary WAF for the Construction Phase 2. KEPCO is yet to confirm the size of the temporary WAF, however based on the outcomes of the Workforce Accommodation Study (presented as an Appendix to the RTS) and the revised workforce numbers temporary WAF would be a nominal 300 beds.

The preferred accommodation approach for Construction Phase 1 workforce is a combination of:

- Short and long-term tourist accommodation options in the Local Area;
- Existing KEPCO owned housing in the Bylong Valley;
- Private rental housing in the Local Area; and
- Temporary WAF with a total nominal capacity of 300 beds.

3.4.1 Workforce Accommodation Facility

Under the revised workforce accommodation approach the WAF will operate for the duration of Construction Phase 1 (PY 1) (~ start of PY 3). At the completion of Construction Phase 1, the temporary WAF will be planned to be decommissioned, however supporting services (power, water and sewer) will remain in place until PY 4. Prior to the commencement of Construction Phase 2, KEPCO will conduct a further assessment of accommodation availability across the Local Area and determine in consultation with the MWRC and DP&E whether a WAF is required for Construction Phase 2. In the event that KEPCO determines a WAF is not required, the WAF infrastructure will be decommissioned and the area rehabilitated. Consistent with the EIS, some services, first aid room and some car parking capacity etc will be retained for the life of the Project. Where KEPCO determines a WAF is required, then the infrastructure will continue to be mobilised. The WAF will then be decommissioned at the end of Construction Phase 2. Consistent with the EIS, some services will be retained for the life of the Project.

It has been identified that the operation of the WAF is essential for the Construction Phase 1 workforce to provide the appropriate risk management strategy for ensuring suitable accommodation is available for the workforce throughout this critical phase of the Project.

4 HOUSING MARKET ANALYSIS

4.1 INTRODUCTION

This section provides an up-to-date analysis of housing market conditions in the Local Area. The analysis focuses predominantly on tourist accommodation and the private rental market as these are the markets that will be impacted by the workforce under the No WAF accommodation scenario.

The housing market analysis undertaken to inform the assessment of operation phase impacts presented in the EIS SIA (Appendix AC of the EIS) remains up-to-date. This is because the:

- Operations phase workforce remains unchanged from the numbers presented in the EIS SIA (Appendix AC of the EIS); and
- Base-case accommodation scenario assessed in the EIS SIA (Appendix AC of the EIS) and KEPCO's new preferred workforce accommodation arrangements assume all operations phase employees would be accommodated permanently in housing within the Local Area, and not in the WAF.

The analysis of tourist accommodation is informed through the findings of the Workforce Accommodation Survey (Presented as an Appendix to the RTS).

4.2 RENTAL ACCOMMODATION

This section focuses on rental market conditions in the key centres of Mudgee, Rylstone, Kandos and Denman in the Local Area. Despite being the closest village to the Project, Bylong and the Bylong Valley more broadly are not considered in detail in the following analysis of housing and accommodation due to its severely restricted growth potential, a consequence of its relative isolation, lack of services and suitably zoned land.

Statistical data presented below is supported by the findings of a survey of real estate agents and discussions with representatives of the MWRC.

4.2.1 Current Rental Availability

Table 5 shows the number of rental properties currently available within the Local Area. As at 27 November 2015, a total of 111 properties were available for long-term rental. A further 20 properties were available in Gulgong and six in Merriwa, immediately outside the defined Local Area. The majority of rental properties within the Local Area are located in Mudgee. The smaller settlements of Rylstone, Kandos, Denman and Sandy Hollow currently offer a limited supply of rental properties. There are very few furnished properties available for rent in the Local Area.

Of note is the number of rental properties currently available in Mudgee (as at November 2015): less than half of that available in April 2015 (refer Table 61, page 125 of the EIS SIA), highlighting the considerable fluctuation in the rental market and the impact of other projects occurring in the region.

In late 2015, Moolarben Coal Mine commenced a new construction phase. The majority of the construction workforce is understood to have been accommodated in Mudgee within private rental accommodation. The supply of rental accommodation recorded in November 2015 reflects the demand generated by the construction workforce associated with the Moolarben Mine.

Table 5
Snapshot of Rental Availability – November 2015

Property Type	No. Properties Available	Highest Rent (\$p/w)	Lowest Rent (\$p/w)
Mudgee¹			
All properties	62	900	150
1 bedroom unit/house	7	430	150
2 bedroom unit/house	11	500	170
3 bedroom house	26	750	225
4+ bedroom house	18	900	300
Furnished Properties	7	900	160
Rylstone and Kandos^{1 and 2}			
All properties	26 ¹	300	200
1 bedroom unit/house	2	170	120
2 bedroom unit/house	8	250	220
3 bedroom house	11	275	180
4+ bedroom house	5	300	200
Furnished Properties	0	0	0
Denman (pc 2328)¹			
All properties	15	340	145
1 bedroom unit/house	1	150	150
2 bedroom unit/house	9	250	145
3 bedroom house	4	340	205
4+ bedroom house	1	320	320
Furnished Properties	1	130	130
Merriwa, Gungah and Sandy Hollow¹			
All properties	6	320	230
1 bedroom unit/house	0	0	0
2 bedroom unit/house	1	230	230

Property Type	No. Properties Available	Highest Rent (\$p/w)	Lowest Rent (\$p/w)
3 bedroom house	5	320	230
4+ bedroom house	0	0	0
Furnished Properties	0	0	0

Source: www.realestate.com accessed Friday 27 November 2015 at 11:00am

Notes:

1. Mudgee Postcode (PC) 2850, Rylstone PC 2849, Kandos PC 2848, Denman PC 2328, Merriwa PC 2329, Gungahlin and Sandy Hollow PC 2333.
2. Majority in Kandos (n=20)

The findings of consultation conducted with real estate agents across the MWRC LGA in December 2015 identified:

- Steady and strong demand for rental properties in Mudgee and Rylstone and to a lesser extent Gulgong;
- Sustained demand for furnished properties in key centres such as Mudgee, Rylstone, and Gulgong;
- Ongoing demand from families for larger homes e.g. four bedrooms; and
- Low vacancy rates across rental properties in Mudgee and Rylstone.

Real estate agents were asked to describe the current rental market in Mudgee. Responses included:

- *“Property demand is high. Lots of enquiries for stock that is not available. Market is not as tight as 2012 but heading towards it”;*
- *“Strong and steady. Demand is high but there is supply to meet demand at the moment. Rents are cheaper due to workforce reductions 12 months ago”;*
- *“Things are moving, driven by Moolarben. Demand is high as people come into Christmas. [Properties only on the market] for two weeks at the moment.”*

Several real estate agents attribute the limited availability of rental stock in Mudgee to demand generated by expansion work at Moolarben Coal Mine.

The findings of consultation with Kandos and Rylstone real estate agents suggest a high demand for properties in Rylstone but significantly smaller demand in Kandos. According to one estate agent there are *“never enough properties in Rylstone to meet demand”*.

The market in Kandos has been heavily affected by the closure of Charbon Mine. Rental rates have dropped significantly over the past 12 months and the area is attracting lower socio-economic groups due to the favourable housing conditions.

Gulgong real estate agents indicated that the Gulgong housing market is very different to Mudgee. There is less tenancy turnover in the Gulgong housing market. The majority of tenants in Gulgong are seeking long-term rentals.

The Gulgong housing market was described by one survey respondent as “quite flat with rents reduced in the last 12 months to attract tenants”.

4.2.2 Rental Vacancy Rates

Table 6 presents rental vacancy rates for key locations (by postcode) for October 2015. This information is drawn from SQM Research and updates the information presented in Section 9.2.3 of the EIS SIA (Appendix AC of the EIS).

Table 6
Rental Vacancy Rates - November 2015

Location and Postcode	Vacancy Rate Oct 2015	Number of Vacant Properties Oct 2015	Trend
Mudgee 2850	4.20%	81	<ul style="list-style-type: none"> Vacancy rate has reduced from a high of almost 9% in January 2015 to a low of 4.2% in October 2015. The number of properties vacant and the vacancy rate remains significantly lower than rates in October 2014 and October 2013 but higher than October 2012. Whilst the number of vacant properties fluctuated during 2015 both the vacancy rate and the number of vacant properties show a steady reduction.
Rylstone 2849	1.20%	2	<ul style="list-style-type: none"> Similar trend to Mudgee. Vacancy rates and the number of properties vacant have reduced significantly since November 2014. Across the past four years, vacancy rates and the number of vacant properties reached a peak in November 2014 at approximately 10% (~20 properties).
Kandos 2848	5.00%	14	<ul style="list-style-type: none"> Across the last 4 years vacancy rates and the number of vacant properties has fluctuated. There has been a steady increase from a low of less than 3% in March 2014 to a peak in September 2015 of approximately 9% (22 properties). This is likely attributable to the closure of the nearby Charbon Mine.
Gulgong 2852	7.40%	27	<ul style="list-style-type: none"> Relatively high vacancy rate in comparison to the past 4 years. Very low vacancy rates occurred during July/August 2012 in parallel with growth in the mining industry. Vacancy rates have increased since 2012 peaking in April 2015 (~11% and 36 vacant properties).
Denman 2328	6.10%	22	<ul style="list-style-type: none"> Vacancy rates in Denman experienced a steady increase from 2012-2015 with a low of ~3%/7 properties in February 2012 to a peak of 10%/33 properties in August 2013 and a further peak of ~10%/33 properties in March 2014. Vacancy rates in Denman are likely to be adversely further affected by the slow-down in the mining industry and more recently reduced employment at Drayton South Mine.

Source: SQM Research 2015

4.2.3 Rental Costs

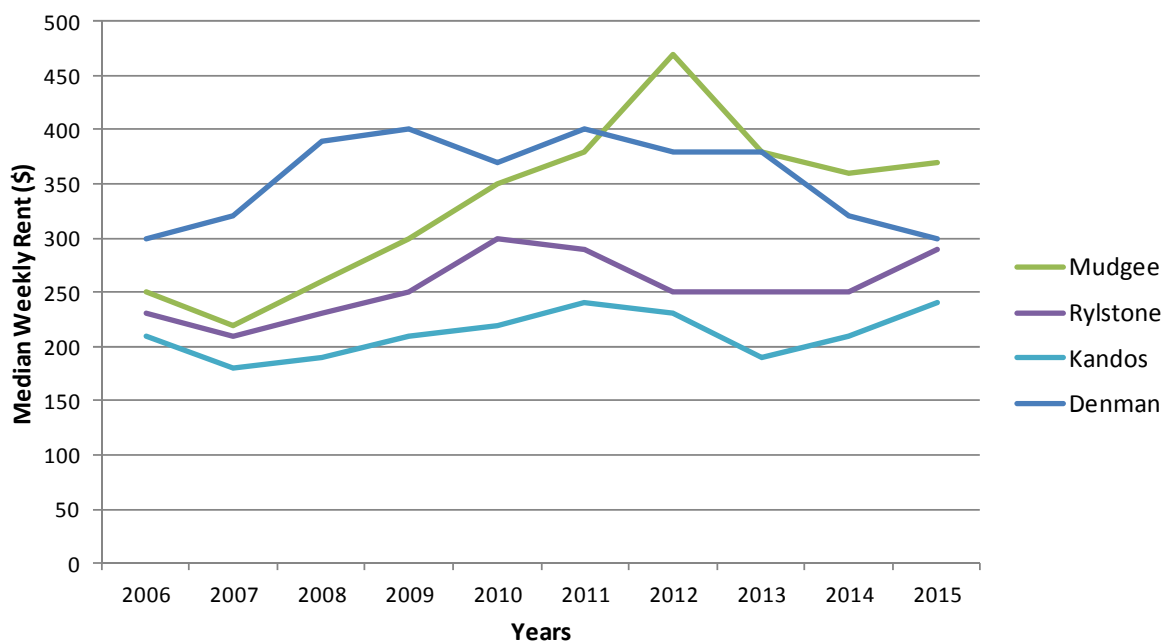
Table 7 and **Graph 7** present trends in median weekly rent for houses in the Local Area for the period 2006-2015 in the month of December (based on non-ABS suburb areas).

Table 7
Trends in Median Weekly House Rent - December 2006 - 2015

Year	Median Weekly Rent - House (\$)			
	Mudgee	Rylstone	Kandos	Denman
2006	250	230	210	300
2007	220	210	180	320
2008	260	230	190	390
2009	300	250	210	400
2010	350	300	220	370
2011	380	290	240	400
2012	470	250	230	380
2013	380	250	190	380
2014	360	250	210	320
2015	370	290	240	300

Source: RESIDEX 2016 a,b,c and d

Graph 7
Median Weekly House Rent - Local Area



Source: RESIDEX 2016a,b,c and d

Table 7 and **Graph 7** shows the median weekly rent for a house in Mudgee peaked at \$470 in 2012 in line with significant growth in the mining sector. With the recent contraction in the mining sector, the median weekly rent has reduced by \$100 to \$370 in December 2015. Denman has also experienced a decline in median weekly rent from a peak of \$400 in 2011 to the current low of \$300. The December 2015 figure is equivalent to the pre-mining boom figure of \$300 experienced in 2006.

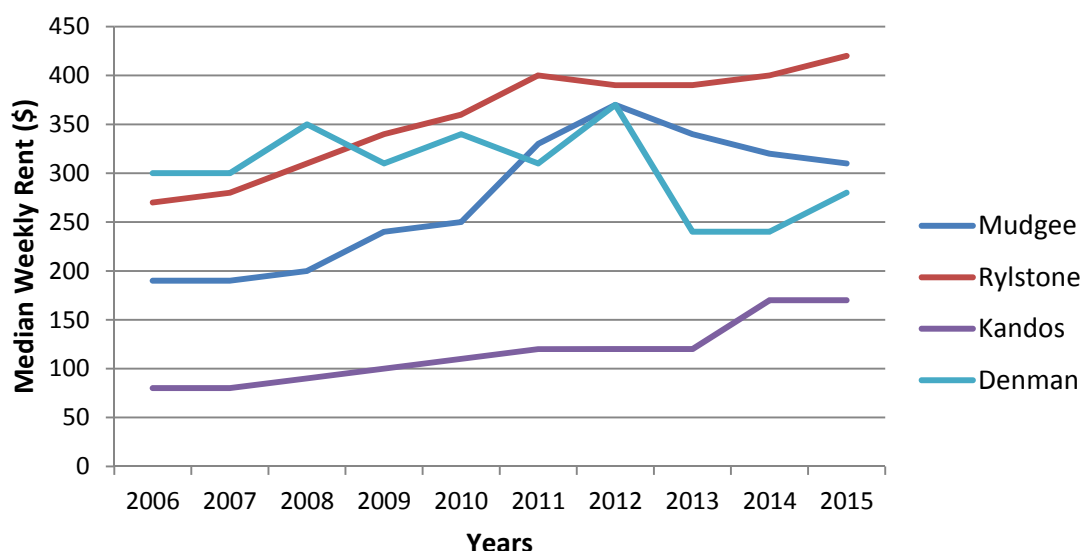
Graph 8 and **Graph 8** present trends in median weekly rent for units in the Local Area for the period 2006-2015 in the month of December (based on Non-ABS suburb areas).

Table 8
Trends in Weekly Unit Rent - December 2006 to December 2015

Year	Median Weekly Rent - Unit (\$)			
	Mudgee	Rylstone	Kandos	Denman
2006	190	270	80	300
2007	190	280	80	300
2008	200	310	90	350
2009	240	340	100	310
2010	250	360	110	340
2011	330	400	120	310
2012	370	390	120	370
2013	340	390	120	240
2014	320	400	170	240
2015	310	420	170	280

Source: RESIDEX 2016 a,b,c and d

Graph 8
Median Weekly Unit Rent - Local Area



Source: RESIDEX 2016 a,b,c and d

Median weekly rent for a unit in Mudgee peaked at \$370 in 2012 at the height of the mining boom before dropping to \$310 at the end of 2015. Median weekly rent for a unit in Rylstone has almost doubled over the last 10 years from \$270 in 2006 to \$420 in 2015. Kandos also experienced a sharp increase in median weekly rent between 2013 and 2014. The unit market in both Kandos and Rylstone is quite small, hence median prices may be heavily affected by the sale of one or two high priced properties. The jump in median price in Kandos is likely attributable to a new and modern unit complex coming on to the rental market. Denman experienced a significant drop in median weekly unit between December 2012 and December 2013, likely a result of the completion of construction phases associated with Hunter Valley mines.

4.2.4 Rental Market Volatility

Regional areas where mining has expanded generally operate a two-tier housing market. Part of the market is focused on high income, often temporary, resource workers; while the established population working in support industries or not employed must compete for properties at the lower end of the housing market (Housing Alliance, 2014). MWRC LGA has experienced great volatility in the rental market including periods of extremely low vacancy rates and waiting lists for access to rental housing. The housing market has responded quickly to the contraction and expansion of local mine workforces.

Anecdotal information collated during interviews to inform the EIS SIA (Appendix AC of the EIS) (MWRC 2014, pers. comm., 4 December 2014 and Barnardos 2015, pers. comm., 12 March 2015) suggests that lower socio-economic groups and residents on non-mining

incomes experienced significant difficulties accessing affordable housing during this period of sustained population growth.

The volatility in the private rental market is illustrated by the recent impact of the construction workforce associated with Moolarben Mine on the supply of private rental accommodation.

4.3 SHORT-TERM ACCOMMODATION

Short-term accommodation relates to those types of accommodation that are typically provided to visitors or tenants for a short period of time; for example motels, serviced apartments, bed and breakfast, self-contained homes, caravan and camping, although the length of tenancy in these forms of accommodation can often extend to lengthy stays, depending on accommodation availability, price and the personal circumstances of visitors.

The data presented in the following section is based on the findings of a survey of tourist accommodation in the Local Area, undertaken by Hansen Bailey in December 2015 to inform the Workforce Accommodation Study in the RTS (Presented as an Appendix to the RTS).

4.3.1 Supply of Short-Term Accommodation

Survey of Tourist Accommodation

In December 2015, Hansen Bailey conducted a telephone survey of tourist accommodation providers within the Local Area. Full details of the survey including the survey methodology are provided in the Workforce Accommodation Study (Presented as an Appendix to the RTS).

Table 9 presents the short-term accommodation establishments available within the Local Area based on the findings of the survey of tourist accommodation providers. **Table 10** presents the number of rooms by accommodation type available within the Local Area.

There are approximately 1,004 rooms³ of tourist accommodation located within 102 establishments within the Local Area. A further 14 tourist establishments with a total of 165 rooms are located in Gulgong and Merriwa immediately outside the Local Area.

³ A room is defined as a bedroom suitable for accommodating a single person. It includes a room in a motel or guesthouse, a bedroom in a holiday house, or a room in a caravan park cabin.

Table 9
Surveyed Accommodation Establishments within the Local Area

Location	Motel	Hotel	Caravan Park	Guest House	Holiday Houses	Serviced Apartments
Mudgee	8	8	3	14	33	5
Kandos	2	0	0	0	0	1
Rylstone	0	2	2	1	6	0
Lue	0	1	0	0	2	0
Ulan	0	1	0	0	1	0
Charbon	0	0	1	0	0	0
Bogee	0	0	0	1	0	0
Cooyal	0	1	0	0	0	0
Denman	2	2	1	0	0	1
Sandy Hollow	0	0	1	2	0	0
Total	12	15	8	18	42	7

Source: Hansen Bailey 2016

Table 10
Surveyed Accommodation Establishments in the Local Area

Location	Number of Rooms	Motel	Hotel (inc Luxury Hotel)	Caravan Park	Guest House	Holiday Houses	Serviced Apartments
Mudgee	740	194	208	99	55	153	31
Kandos	31	26	0	0	0	0	5
Rylstone	70	0	26	19	5	20	0
Lue	28	0	13	0	0	15	0
Ulan	10	0	6	0	0	4	0
Charbon	10	0	0	10	0	0	0
Bogee	3	0	0	0	3	0	0
Cooyal	9	0	9	0	0	0	0
Denman	83	33	12	33	0	0	5
Sandy Hollow	20	0	0	17	3	0	0
Total Rooms	1004	253	274	178	66	192	41

Source: Hansen Bailey 2016

The majority of tourist accommodation establishments are either hotel/motel or holiday houses and are located within the MWRC LGA. There are nine establishments located outside the MWRC LGA but within the Local Area. A total of 740 rooms are located within 71 tourist accommodation establishments in Mudgee.

A total of 411 rooms are located in fully self contained accommodation where there are full kitchen facilities available and generally no on-site catering in the form of a restaurant. The remaining rooms (593) are located in hotels, motels and guesthouses which generally offer a bed and breakfast service and limited private cooking facilities.

4.3.2 Occupancy Rates in Short-Term Accommodation

Occupancy information for established tourist accommodation is available through the Australian Bureau of Statistics (ABS). **Table 11** lists the accommodation statistics for establishments with 15 or more rooms in Mudgee and Mudgee West (MWRC LGA) for the period September 2014 to June 2015. As identified through the accommodation survey, there are also a number of smaller accommodation establishments in the MWRC LGA.

Table 11
Tourism Accommodation Statistics - Mudgee and Mudgee Region West

Qtr	No Of Establishments	No of Rooms	Bed Spaces	Room Occupancy Rate (%)	Room Nights Occupied
June 2015	10	276	801	63.9	16,047
March 2015	10	276	801	55.1	13,693
Dec 2014	10	276	801	64.7	16,434
Sept 2014	10	275	792	70.3	17,788

Source: ABS 2015a

Table 11 shows that the number of establishments, rooms and bed spaces in the MWRC LGA has remained relatively stable over the past 18 months. Occupancy rates have fluctuated significantly with low rates experienced in the March quarter 2015. The number of bed spaces is more than the number of rooms in each establishment as rooms frequently contain multiple beds.

Table 11 only relates to tourist establishments with 15 or more rooms. An indication of occupancy rates at other tourist accommodation establishments in the MWRC LGA can be drawn from the findings of the accommodation survey undertaken to inform the Workforce Accommodation Study (Presented as an Appendix to the RTS).

The findings of the accommodation survey suggest that short-term accommodation establishments located within the MWRC LGA generally have high occupancy rates (70-100%) by virtue of the diverse economy, notably the tourism industry.

Occupancy rates often peak across the winter months and when there are major events on in the MWRC LGA such as *A Day on the Green* (anytime between October-March), *Mudgee Small Farm Field Days* (mid July), *Mudgee Readers Festival* (Mid August), *Mudgee Show* (early March), and *Mudgee Wine Festival* (September). A number of participants in the accommodation survey cited fluctuating occupancy rates as the sector readjusted to the contraction in the mining industry. A number of participants also indicated occupancy rates had improved as a result of an intensive marketing campaign by the tourism industry in the region.

Many of the survey participants from Mudgee and Rylstone cited regular occupancy rates of between 80% and 100% depending on the events occurring in the region. Participants from Denman and Sandy Hollow indicated significantly lower occupancy rates (30%-40%) due to the contraction in the mining industry.

4.3.3 Tourism Visits to the Central Region

The MWRC LGA is located within the Central NSW Tourism Region. Time series data from the International and National Visitors Surveys (Destination NSW, 2016) indicates a 7.9% increase in total visitors (including overnights stays and daytrips) to Central NSW between 2014 and 2015 compared to 0.9% increase in NSW for the same period. Between 2014 and 2015, Central NSW experienced a 12.9% increase in total spend, compared to a 4.9% increase across NSW. It is notable that the number of domestic visitors to Central NSW declined by 3.9% between 2014 and 2015 and the number of overnight stays for business purposes declined by 6.5%. This can be attributed in part to the contraction in the mining industry as well as changes in servicing practices by government and non-government service providers e.g. health. Demand by domestic visitors for hotel, resort, motel or motor inn accommodation in the Central West declined by 3.1% between 2014 and 2015, whilst the use of caravan park accommodation increased slightly. The reduced demand for hotel, resort, motel or motor inn accommodation is associated with a corresponding reduction in the number of overnight stays for business purposes across the same period.

The growing number of visitors to the region is consistent with the feedback received from participants in the accommodation survey.

5 IMPACT ASSESSMENT

This section presents the predicted impacts associated with the No WAF accommodation scenario and the revised Construction Phase 1 workforce arrangements. The assessment of impacts focuses on the impacts associated with the construction phases of the Project.

5.1 HOUSING AND ACCOMMODATION

5.1.1 Overview

The following sections present and assess the predicted housing and accommodation impacts associated with the No WAF accommodation scenario. Further consideration of the three accommodation scenarios presented in the EIS SIA (Appendix AC of the EIS) is not warranted. This is because the revised peak Construction Phase 1 workforce numbers will result in only a small magnitude of change in the impacts described in the EIS SIA (Appendix AC of the EIS).

The Operations Phase housing demand and impact assessment presented in the EIS SIA is unaffected by the revised workforce numbers and the No WAF accommodation scenario. This is because the base-case accommodation scenario assessed in the EIS SIA assumed all Operations Phase workers would be accommodated in housing within the Local Area and not in a WAF.

5.1.2 Construction Phase 1 Accommodation Demand

This section describes the demand for accommodation within the Local Area predicted to be generated by the Project workforce during Construction Phase 1 under a No WAF accommodation scenario. Accommodation demand is presented for six specific months across the 24 month construction period. The six selected months are considered representative of the fluctuating workforce numbers during Construction Phase 1. The workforce numbers used in this assessment exclude the workforce associated with the construction and operations of the WAF. Table 4 shows the total workforce numbers for each of the selected months and the number of LHs and NLHs.

All LHs will be accommodated in their own housing and will therefore not generate additional demand for accommodation during Construction Phase 1. Hence, the following discussion considers the accommodation demand generated by NLHs only.

In determining the demand generated by the Project workforce consideration needs to be given to the different types of accommodation required for the workforce. The accommodation type is influenced by the length of time a worker is employed on the Project and their role on the Project.

Table 12 shows the number of workers employed during Construction Phase 1 for less than three months and the number of workers employed for more than three months, for the six select months.

The numbers in **Table 12** exclude all LHs. Predicted demand for accommodation during Construction Phase 1 has been calculated based on the employment arrangements described in **Table 12**.

Table 12
Construction Phase 1 Workforce - Duration of Employment

Duration of Employment	Month 1	Month 6	Month 9	Month 13	Month 17	Month 20
Less than three months	15	10	105	10	50	90
More than three months	34	219	372	390	530	351
Total NLHs in Workforce	49	229	477	400	580	441
Total Workforce	55	255	530	445	645	490

The following assumptions have been made about the type of accommodation required for the workforce based on the employment scenarios presented in **Table 12**:

- Any worker employed for less than three months would be accommodated within hotel, motel, or guesthouse accommodation. This accommodation generally provides for a room with private facilities and limited cooking facilities e.g. microwave. This accommodation is referred to herein as short-term accommodation;
- Any worker employed for more than three months would be accommodated in long-term accommodation defined as either:
 - Furnished (F) self-contained (SC) accommodation such as rental houses, holiday homes, self-contained cabins in caravan parks etc; or
 - Unfurnished (UF) SC private accommodation such as properties available on the private rental market e.g. through www.realestate.com;
- All workers are entitled to their own bedroom;
- Senior personnel and number of mid-ranked personnel will be accommodated in their own private (not shared) accommodation; and
- Technicians and trades workers will be accommodated in share houses.

•

Table 13 and **Graph 9** shows the number of rooms of accommodation required for Construction Phase 1 NLHs based on the accommodation assumptions described above. **Table 13** shows that long-term accommodation is likely to experience the greatest demand during Construction Phase 1.

Table 13
Construction Phase 1 - Accommodation Requirements (Rooms)

Accommodation Type	Month 1	Month 6	Month 9	Month 13	Month 17	Month 20
Short-term accommodation	15	10	105	10	50	90
Long-term accommodation	34	219	372	390	530	351
LHs in own accommodation	6	26	53	45	65	49
Total Workforce	55	255	530	445	645	490

Graph 9
Construction Phase 1 - Accommodation Requirements (Rooms)

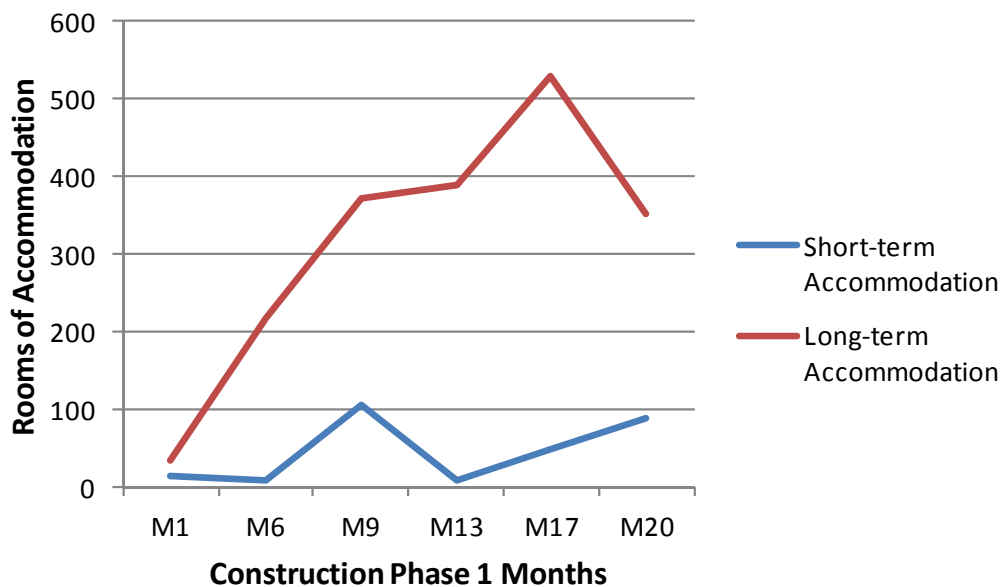


Table 14 shows the breakdown of the Construction Phase 1 workforce by vocation for all workers employed for longer than three months.

Table 14
Construction Phase 1 - Workforce Vocation - Long Stay Workers

Vocation	Month 1	Month 6	Month 9	Month 13	Month 17	Month 20
Technicians and Trades	4	189	332	340	460	281
Managers and Professionals	30	30	40	50	70	70
Total	34	219	372	390	530	351

Notes:

1. Excludes LHS's and workers employed for less than three months

Based on these assumptions, during the peak month of construction (Month 17):

- Machinery operators and drivers, trades and labourers will generate demand for 460 rooms in share accommodation; and
- Mid-ranked and senior personnel will generate demand for 70 rooms of accommodation. However, it should be noted that these personnel will not be accommodated in share households. Each worker will require their own private dwelling.

In addition to the direct demand for accommodation generated by the workforce a float of additional rooms, estimated at 10% of the NLH workforce, would need to be available for the Project to accommodate any unforeseen accommodation demands (**Table 15**).

Table 15
Construction Phase 1 - Accommodation Float

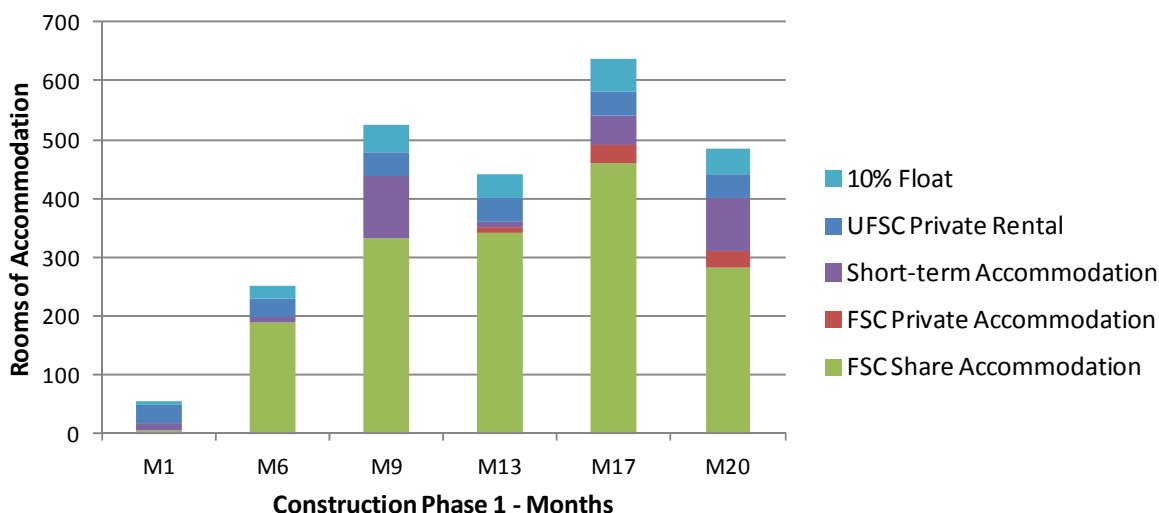
Accommodation Type	Rooms of Accommodation					
	Month 1	Month 6	Month 9	Month 13	Month 17	Month 20
Float (10% of NLH Workforce)	5	23	48	40	58	44

Table 16 and **Graph 10** summarise the total accommodation demand anticipated to be generated by the Construction Phase 1 NLH workforce.

Table 16
Construction Phase 1 - Accommodation Demand

Accommodation Type	Month 1	Month 6	Month 9	Month 13	Month 17	Month 20
Short-term accommodation (Rooms)	15	10	105	10	50	90
Long-term accommodation						
FSC shared accommodation (Rooms)	4	189	332	340	460	281
FSC private accommodation (Dwelling)				10	30	30
UFSC private accommodation (Dwelling)	30	30	40	40	40	40
10% accommodation float (Rooms)	5	23	48	40	58	44

Graph 10
Construction Phase 1 Workforce Accommodation Demand



At peak construction (Month 17) the workforce of 580 NLHs will require the following accommodation within the Local Area:

- 50 rooms in short-term accommodation;
- 460 rooms in FSC shared long-term accommodation;
- 30 dwellings of FSC private long-term accommodation;
- 40 dwellings of UFSC private long-term accommodation; and
- 58 rooms across all accommodation types as a float for workforce demand.

Table 17 shows the predicted demand for dwellings associated with Construction Phase 1. Dwelling numbers for FSC shared accommodation have been calculated based on an occupancy rate of three persons which is considered a reasonable rate when the number of bathrooms in any rental property is unknown.

**Table 17
 Construction Phase 1 - Dwelling Demand**

Accommodation Type	Total Dwellings					
	Month 1	Month 6	Month 9	Month 13	Month 17	Month 20
Long-term accommodation						
FSC shared accommodation	2	63	111	113	153	94
FSC private accommodation				10	30	30
UFSC private accommodation	30	30	40	40	40	40
10% accommodation float (Rooms)	5	23	48	40	58	44

5.1.3 Construction Phase 2 Accommodation Demand

This section describes the demand for accommodation within the Local Area predicted to be generated by the Project workforce during Construction Phase 2 under a No WAF accommodation scenario. Demand for accommodation during this phase will be less than Construction Phase 1 due to the significantly smaller workforce. The Construction Phase 2 workforce is anticipated to be 100% NLHs due to the technical nature of the work. The Construction Phase 2 workforce is presented in **Table 18**.

**Table 18
 Construction Phase 2 - Project Workforce**

Workforce	PY4	PY5	PY6
Construction Phase 2	25	100	100

All Construction Phase 2 workers will be employed for longer than three months and therefore can be accommodated in FSC accommodation within the Local Area, should there be adequate suitable accommodation supply. Assuming there are three workers sharing each property, a predicted 34 properties will be required to accommodate the workforce for the two year period.

5.1.4 Housing Demand as a Result of Flow-on Employment

Under the No WAF accommodation scenario, housing demands generated as a result of flow-on employment will be similar to that described in the EIS SIA (Appendix AC of the EIS). This is because the assessment of flow-on employment was based on average annual workforce numbers. Despite the reduction in Construction Phase 1 workforce numbers, there is little difference in the annual average workforce numbers (refer **Section 5.4**).

5.1.5 Housing and Accommodation Supply

This section describes the supply of housing and tourist accommodation within the Local Area for the workforce and identifies a number of limitations on the availability of this accommodation.

Accommodation Supply

Based on predicted accommodation demand described in **Section 5.1.2**, the Project workforce requires the following types of accommodation:

- Short-term accommodation consisting of motel, hotel and guesthouses; and
- Long-term accommodation consisting of FSC and UFSC accommodation provided through tourist accommodation and the private rental market.

The supply of these accommodation types within a one hour commute of the Project site has already been discussed in **Section 4.2** and **Section 4.3**. Within the Local Area there are approximately:

- 1,004⁴ rooms⁵ of short-term accommodation consisting of:
 - 593 rooms in short-term accommodation (hotels, motels and guesthouses); and
 - 411 rooms in FSC accommodation (holiday rentals, caravan parks and apartments);
- 13 houses in the Bylong Valley owned by KEPCO;
- 8⁶ FSC private rentals; and
- 103⁶ UFSC rental properties.

⁴ The Accommodation Study identified 1,169 units of accommodation including 145 in Gulgong and 20 in Merriwa. KEPCO has advised that the daily commute time between the Project site and Gulgong/Merriwa is too long for the locality to be considered as a source of accommodation.

⁵ A unit is defined as a room suitable for accommodating a single person. It includes a room in a motel, a bedroom in a house, or a room in a caravan park.

⁶ Number of UFSC and FSC private rentals taken from realestate.com.au accessed November 27 2015.

Availability of Accommodation for the Workforce

The availability of accommodation for the Construction Phase 1 is limited by:

- A willingness on behalf of the manager/owner of tourism accommodation to accommodate mine related workers;
- Existing and long standing accommodation bookings;
- Existing occupancy rates (already discussed in **Section 4.3.2**); and
- Cumulative accommodation demands of other projects.

Willingness to Accommodate Workers

Of the 1,004 rooms identified in the accommodation survey only 901 rooms are located within establishments where the owners are willing to provide accommodation to the workforce (refer to Workforce Accommodation Study presented as an Appendix to the RTS). The following key concerns were raised by participants in the accommodation survey (**Section 4.3**) who indicated some reservations in relation to providing accommodation for Project employees:

- Incompatibility of tourism and mining visitors. There is concern that the hours of employment for mine employees detract from the tourism experience desired by non-mining related visitors. For example some participants indicated that vehicle movements in the early hours of the morning disrupted the sleep of non-mining visitors. Other participants indicated that the need for shift workers to sleep during the day made it difficult to service accommodation and also placed restrictions on activities that non-mining visitors could undertake in proximity to accommodation. Further some participants indicated that their parking arrangements did not suite the accommodation of mining related vehicles (e.g. heights for vehicles with roll bars and lights).
- Cleaning costs - Concern was raised by a number of participants in relation to the expense involved in cleaning black coal dust from carpets and other soft furnishings.
- Behaviour - A number of participants indicated some concern in relation to:
 - The perceived potential for mine employees to engage in anti-social behaviour whilst staying at the accommodation, and the resulting impact this may have on the tourist experience afforded to other non-mining guests; and
 - The perceived lack of respect for private property exhibited by mine employees. This was of particular concern to participants who owned luxury accommodation establishments.

Existing Bookings

A number of participants in the Accommodation Survey indicated that they would prefer to retain at all times a number of rooms for regular guests, forward bookings and to maintain their tourism base. These survey participants were opposed to renting out all of their rooms long-term to the Project workforce.

Suitability of Accommodation

Not all tourist accommodation or private rental accommodation located within the Local Area is suitable as workforce accommodation. Not all establishments identified through the accommodation survey have laundry facilities or access to cooking facilities.

A number of the listed private rental properties are either of poor quality (particularly in Kandos) or are luxury end products with high rents, which are not suitable for the workforce. Further, a number of the rental properties and holiday homes identified have only one bathroom. KEPCO is seeking to ensure that the ratio of bathrooms to occupants is no more than 1:2.

5.1.6 Construction Phase 1 Impact Analysis

The following section describes the potential impacts of Construction Phase 1 on the supply of accommodation (short and long-term) within the Local Area based on the No WAF accommodation scenario and the revised Construction Phase 1 workforce arrangements.

The assessment is based on the accommodation demand described in **Section 5.1.2** and the findings of the Accommodation Study summarised in **Section 4.3**.

Impacts have been assessed using the two Sensitivity Assessment Scenarios described in **Table 19**, namely:

- Sensitivity Assessment 1 reflects a tight accommodation market in which local tourist accommodation is heavily utilised and there are low vacancy rates. It also assumed that the majority of private rental accommodation is utilised by the Project; and
- Sensitivity Assessment 2 reflects a softer tourist accommodation market in which local tourist accommodation is underutilised with corresponding low occupancy rates. It also assumed that not all of the private rental accommodation can be utilised by the Project.

Table 19
Construction Phase 1 - Sensitivity Assessment Scenarios

Sensitivity Assessment	Assumptions
Scenario 1	<ul style="list-style-type: none"> An annual average vacancy rate of 25% across identified tourist accommodation located within Mudgee and Rylstone. An annual average vacancy rate of 50% across identified tourist accommodation located in other areas of the MWRC LGA and those located outside the MWRC LGA. 90% of vacant, private rental accommodation is available for use by the workforce.
Scenario 2	<ul style="list-style-type: none"> An annual average vacancy rate of 40% across identified tourist accommodation located within Mudgee and Rylstone. An annual average vacancy rate of 70% across identified tourist accommodation located in other areas of the MWRC LGA and tourist accommodation located outside the MWRC LGA. 70% of vacant, private rental accommodation is available for use by the workforce.

Sensitivity Assessment 1

Supply of Rooms

Table 20 shows the supply of accommodation within the Local Area based on Sensitivity Assessment Scenario 1. The data contained in **Table 20** underpins the assessment presented in **Graph 11** and **Table 21**.

Table 20
Sensitivity Assessment 1 - Supply of Rooms

Accommodation Type	Number of Establishments	Estimated Occupancy
Short-term Accommodation (<3 months)		
Motel/Hotel/Guesthouse	75	166
Longer Term Accommodation (>3 months)		
KEPCO Housing	13	39 ¹
FSC private rental accommodation	7	21 ¹
UFSC private rental accommodation	93	235 ²
FSC Tourist Accommodation	39	102 ³
Total Occupancy Capacity		562

Notes:

1. Occupancy is calculated at 3 persons per household.

2. Based on one person per bedroom.

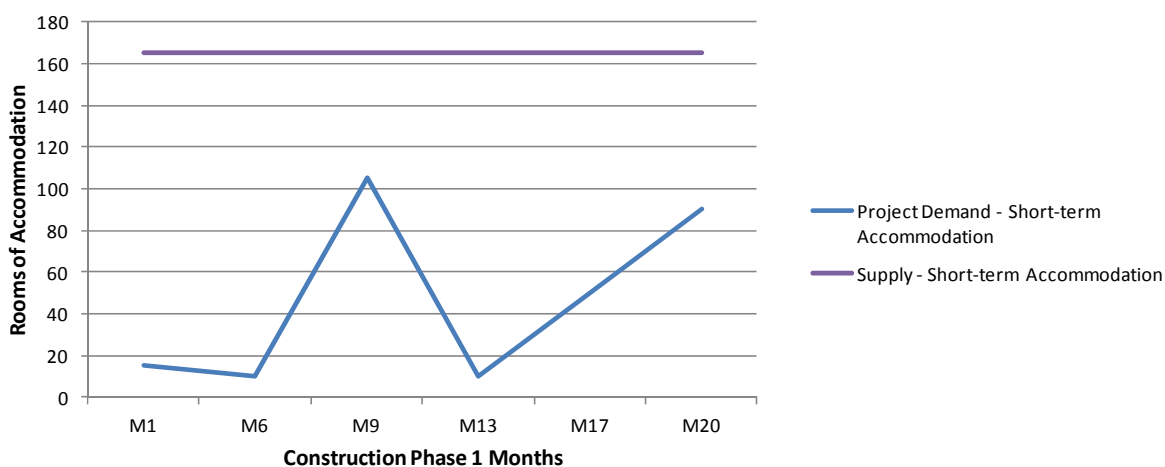
3. Occupancy is drawn from the findings of the accommodation survey.

Short-Term Accommodation

Graph 11 shows the Project related demand for short-term accommodation against the supply of short-term accommodation based on the occupancy rates presented for Sensitivity Assessment Scenario 1. **Graph 11** demonstrates ample short-term accommodation located within the Local Area to meet Project generated demands. There is an estimated surplus of 61 rooms of accommodation at peak demand in Month 9.

It should be noted that this assessment is based on average occupancy rates and does not consider the peak demands generated by the tourism industry. Feedback from accommodation establishments indicates that when events such as *A Day on the Green* or the *Small Farm Field Days* are held, occupancy rates are 100%. This would result in no available supply for the Project workforce, or alternatively a shortfall in accommodation for major tourism events in the MWRC LGA.

Graph 11
Demand for and Supply of Short-term Accommodation (Sensitivity Scenario 1)



Long-Term Accommodation

Table 21 summarises the impact of Project generated demand on the supply of the following accommodation within the Local Area, specifically:

- FSC tourist accommodation and private rental accommodation; and
- UFSC private rental accommodation.

Table 21
Sensitivity Assessment 1 - Long-term Accommodation

Accommodation Type	Month 1	Month 6	Month 9	Month 13	Month 17	Month 20
1. FSC share accom. (rooms)						
Demand (rooms)	4	189	332	340	460	281
Supply ¹ (rooms)	123	123	123	123	123	123
Surplus or Shortfall (rooms)	120	-82	-208	-216	-336	-157
2. FSC private accom. ²						
Demand (dwellings)				10	30	30
Supply³ (dwellings)				0	0	0
Surplus or Shortfall (dwellings) ⁴				-10	-30	-30
3. UFSC private accom. (dwellings)						
Demand (dwellings)	30	30	40	40	40	40
Supply (dwellings) ⁴	69	69	69	69	69	69
Surplus or Shortfall (dwellings)	39	39	29	29	29	29

Notes:

1. This is the number furnished, self contained tourist accommodation plus any furnished private rentals
2. This is dwellings as each applicable worker is entitled to their own dwelling.
3. Supply is 0 as the supply is the same as for furnished and self contained share accommodation.
4. The supply of dwellings is the sum of KEPCO housing (N=13) plus any housing available in Mudgee (N=56 under 90% occupancy scenario).

Table 21 shows:

- Between Month 6 and Month 20, Project induced demand for FSC share accommodation will outstrip available supply within the Local Area;
- At peak construction in Month 17 an additional 336 rooms of FSC share accommodation will be required. A further 30 FSC dwellings will also be required for Managers and Professional staff; and
- There is sufficient UFSC private rental accommodation available within Mudgee to accommodate Managers and Professionals associated with Construction Phase 1.

Although there is a surplus in the supply of rooms in short-term accommodation, these rooms are not considered appropriate for long-term employees due to the lack of cooking facilities and in a number of cases a lack of laundry facilities. The shortfall in the provision of FSC accommodation could be met through take-up of UFSC rental properties, however KEPCO would be responsible for furnishing these properties. There would be a significant cost attached to this.

Table 22 shows the extent to which the surplus of UFSC private accommodation addresses the shortfall in FSC accommodation for the workforce.

Table 22
Sensitivity Assessment 1 - Addressing the Shortfall

Accommodation Type	M1	M6	M9	M13	M17	M20
Shortfall in FSC share accommodation (rooms)	119	-67	-210	-218	-338	-159
Surplus of UFSC private accommodation within Local Area (dwellings)	76	76	66	66	66	66
Surplus UFSC accommodation less demand for FSC private accommodation (dwellings) ¹	76	76	66	56	36	36
Rooms available in surplus UFSC accommodation ²	227	227	197	167	107	107
Surplus UFSC less shortfall in FSC share accommodation (rooms)	346	161	-12	-50	-230	-51
Surplus UFSC less 10% float (rooms)	340	123	-65	-95	-295	-100
Additional Dwellings Required to address shortfall³	0	0	22	32	99	34

Notes

1. These dwellings are for Managers and Professionals from Month 13 who are entitled to their own dwelling.
2. The number of room is equal to the max occupancy. The occupancy rate has been calculated on a three persons/dwelling which is considered the max occupancy.
3. Assumes a max occupancy of three persons/dwelling

The following key findings from Sensitivity Assessment 1 can be drawn from **Table 22**:

- There is insufficient suitable accommodation available within the Local Area to accommodate the Construction Phase 1 workforce between Month 9 and Month 20, particularly at peak construction in Month 17. There is a shortfall of 295 beds (equivalent to 99 dwellings) at peak construction;
- The majority (90%) of private rental stock within Mudgee, Kandos and Rylstone would be taken up by the workforce leaving little available housing for lower socio-economic groups and non-mining professionals such as teachers, doctors etc; and
- The remaining shortfall in accommodation (particularly the 'float' rooms) could be met in part through short-term accommodation i.e. hotels, motels and guesthouses. However, there would still be some shortfall in Month 17 at peak construction.

Sensitivity Assessment 2

Sensitivity Assessment 2 reflects a softer tourist accommodation market with occupancy rates around 60% in Mudgee rather than 85% for Sensitivity Assessment 1. It also assumes only 70% of private rental properties are available to the Project workforce, rather than the 90% assumed for Sensitivity Assessment 1.

Supply of Accommodation

Table 23 shows the supply of accommodation within a one hour commute of the Project site based on Sensitivity Assessment 2. The data contained in **Table 23** underpins the assessment presented in **Graph 11**.

Table 23
Sensitivity Assessment 2 - Supply of Rooms

Accommodation Type	Number of Establishments	Estimated Occupancy
Short-Term Accommodation (<3 months)	39	255
Long-Term Accommodation (>3 months)		
KEPCO Housing	13 ¹	39 ¹
FSC private rental accommodation	6	18 ¹
UFSC private rental accommodation	72	183 ²
FSC Tourist Accommodation	39	155 ³
Total Occupancy Capacity		650

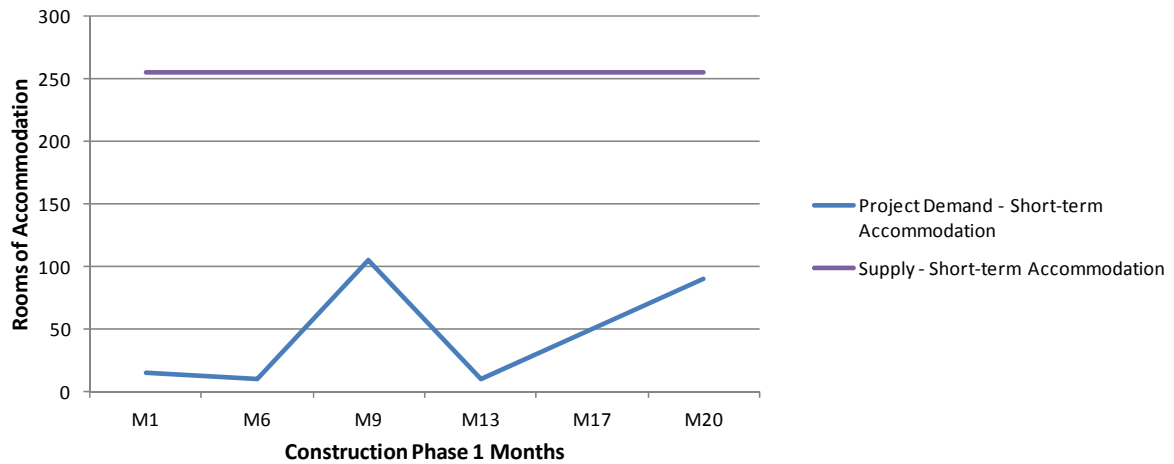
Notes:

1. Occupancy is calculated at a maximum of three persons/household.
2. Based on one person per bedroom.
3. Occupancy is drawn from the findings of the accommodation survey.

Short-Term Accommodation

The Project related demand for short-term accommodation and the supply of short-term accommodation based on the occupancy rates presented for Sensitivity Assessment Scenario 2 are shown in **Graph 12**. **Graph 12** demonstrates ample short-term accommodation located within a one hour commute of the Project site, with an estimated surplus of 150 rooms of accommodation at peak demand (Month 9).

Graph 12
Demand for and Supply of Short-Term Accommodation (Sensitivity Scenario 2)



Long-Term Accommodation

Table 24 summarises the impact of Project generated demand on the supply of long-term accommodation within a one hour commute of the Project site, specifically:

- FSC tourist accommodation and private rental accommodation; and
- UFSC private rental accommodation.

Table 24
Sensitivity Assessment 2 - Long-Term Accommodation

Accommodation Type	Month 1	Month 6	Month 9	Month 13	Month 17	Month 20
1. FSC share accomm. (rooms)						
Project demand (rooms)	4	189	332	340	460	281
Regional supply ¹ (rooms)	173	173	173	173	173	173
Surplus or Shortfall (rooms)	169	-16	-159	-167	-287	-108
2. FSC private accomm. ²						
Project demand (dwellings)				10	30	30
Supply ³ (dwellings)				0	0	0
Surplus or Shortfall (dwellings) ⁴				-10	-30	-30
3. UFSC private accomm (dwellings)						
Project demand (dwellings)	30	30	40	40	40	40
Supply (dwellings) ⁴	56	56	56	56	56	56
Surplus or Shortfall (dwellings)	26	26	16	16	16	16

Notes:

1. This is the number of FSC tourist accommodation plus any available FSC private rentals
2. This is dwellings as each applicable worker is entitled to their own dwelling.
3. Supply is 0 as the supply is the same as for FSC share accommodation.
4. The supply of dwellings is the sum of KEPCO housing (N=13) plus any housing available in Mudgee (N=43 under 70% occupancy scenario).

Table 24 shows:

- Between Month 6 and Month 20, Project induced demand for FSC share accommodation will outstrip available supply within a one hour commute of the Project site;
- At peak construction in Month 17, an additional 287 rooms of FSC share accommodation will be required. A further 30 FSC dwellings will also be required for Managers and Professional staff; and
- There is sufficient UFSC private rental accommodation available within the Local Area to accommodate Managers and Professionals associated with Construction Phase 1.

Although there is a surplus of 150 rooms in short-term accommodation at peak demand (Month 9), these rooms are not considered appropriate for long-term employees due to the lack of cooking facilities and in a number of cases a lack of laundry facilities. The shortfall in the provision of FSC accommodation could however be met through take-up of UFSC rental properties, however KEPCO would be responsible for furnishing these properties at significant cost.

Table 25 shows the extent to which the surplus of UFSC private accommodation addresses the shortfall in FSC accommodation for the workforce.

Table 25
Sensitivity Assessment 2 - Addressing the Shortfall

Accommodation Type	M1	M6	M9	M13	M17	M20
Shortfall in FSC share accommodation (rooms)	169	-16	-159	-167	-287	-108
Surplus of UFSC private accommodation within Local Area (dwellings)	55	55	45	45	45	45
Surplus UFSC accommodation less demand for FSC private accommodation (dwellings) ¹	55	55	45	35	15	15
Rooms available in surplus UFSC accommodation ²	165	165	135	105	45	45
Surplus UFSC less shortfall in FSC share accommodation (rooms)	335	150	-23	-61	-241	-62
Surplus UFSC less 10% float (rooms)	329	121	-76	-106	-306	-111
Additional Dwellings Required to address shortfall³	0	0	25	35	102	37

Notes

1. These dwellings are for Managers and Professionals from Month 13 who are entitled to their own dwelling.
2. The number of room is equal to the max occupancy. The occupancy rate has been calculated on a 3 person/dwelling which is considered the max occupancy.
3. Assumes a max occupancy of 3 person/dwelling

The following key findings for Sensitivity Assessment 2 can be drawn from **Table 25**:

- There is insufficient suitable accommodation available within the Local Area to accommodate the Construction Phase 1 workforce between Month 9 and Month 20, particularly at peak construction in Month 17. There is a shortfall of 306 beds (equivalent to 102 dwellings) at peak construction (Month 17), which includes the 10% float;
- The majority (70%) of private rental stock within Mudgee, Kandos and Rylstone would be taken up by the workforce leaving little available housing for lower socio-economic groups and non-mining professionals such as teachers, doctors etc; and
- The remaining shortfall in accommodation (particularly the 'float' rooms) could be met in part through short-term accommodation i.e. hotels, motels and guesthouses. However there would still be some shortfall in Month 17 at peak construction.

Summary of Impacts to Housing Supply

The findings of the housing analysis suggest a high likelihood that the Project, under a No WAF accommodation scenario, will impact tourist and rental accommodation supply in the Local Area during the peak months of Construction Phase 1. Whilst the magnitude of the impact is different depending on the sensitivity assessment applied, the demand generated for long-term accommodation well exceeds the currently available supply of accommodation under both scenarios. It would require the vacancy rate in property rentals in Mudgee to more than double from the current ~4% to ~9% for sufficient FSC rooms to be available for the workforce. In late 2014 Mudgee experienced a five year high in property vacancy rates at around 9% (SQM Research 2016e).

The inclusion of a WAF in the Project would assist in managing the risk associated with the potential for the Project to adversely impact the local housing and tourist accommodation markets.

5.1.7 Construction Phase 2 Impact Analysis

This section describes the potential impacts of Construction Phase 2 on the supply of accommodation (short-term and long-term) within the Local Area. Given the size of the workforce associated with Construction Phase 2 a qualitative impact assessment has been conducted.

The majority of the workforce associated with Construction Phase 2 will be skilled trades and labourers. The majority of these workers will be employed for the full duration of Construction Phase 2. Given the short duration of Construction Phase 2 these workers will ideally be accommodated in FSC accommodation. The pool of FSC accommodation available is restricted to tourist accommodation and private rental accommodation.

At the peak of Construction Phase 2, an estimated 100 rooms of long-term accommodation will be required for the workforce (**Section 5.1.2**). At an average occupancy rate of three persons per dwelling this is equivalent to 34 houses. An additional 10 beds of short-term accommodation will also be required at peak construction for an accommodation float.

Applying the assumptions used in Sensitivity Assessment 1 (**Table 19**) and the supply of accommodation described in **Table 20**, there will be adequate rooms available to accommodate the peak workforce associated with Construction Phase 2. However, it should be noted that the 13 KEPCO houses that were available for use during Construction Phase 1 are likely to have been reallocated to the Open-Cut Operations Phase workforce and hence will no longer be available for use.

As Sensitivity Assessment 2 assumes a softer accommodation market than Sensitivity Assessment 1 and hence greater availability of rooms, it can be assumed that there would be ample accommodation capacity in the Local Area for the Construction Phase 2 workforce.

This assessment does not take into consideration the varying occupancy rates that are likely to occur across the Local Area as a result of key regional events. It is highly likely that at some point during Construction Phase 2 key regional events will generate a significant increase in demand for all forms of tourist accommodation.

5.1.8 Other Housing Market Impacts

Under the No WAF accommodation scenario the Project has the potential to adversely impact the supply of rental accommodation in the Local Area. In addition, the Project has the potential to reduce housing diversity. This is because the accommodation demanded by the majority of workforce is FSC accommodation. Contracting companies involved in Construction Phase 1 will have a preference for renting large three or four bedroom homes for their workforces. Managers and professional staff are likely to seek smaller one bedroom properties. Real estate agents in the Local Area have confirmed that larger properties with three or more bedrooms experience the highest demand from incoming families to the region. In addition there is a limited supply of smaller one bedroom properties and these properties also experience significant demand.

Under the No WAF accommodation scenario the Project is likely to draw on the housing resources available in Kandos. Real estate agents from Kandos highlighted the attractiveness of housing in Kandos to lower socio-economic individuals and families. This is due to the significantly lower property rents. Interviews conducted with Barnardos in 2015 to inform the EIS SIA (Appendix AC of the EIS) highlighted critical issues around the supply of affordable housing and crisis housing in the region. The Project has the potential to impact the supply of affordable housing and crisis housing in Kandos and also Mudgee.

Housing prices (sale and rent) are typically a function of supply and demand (Department of State Development (DSD) 2015). Limited and costly housing creates barriers to attracting and retaining workers across all industries (Commonwealth of Australia 2013, DSD 2015).

Given the limited supply of rental accommodation in the Local Area, the increase in demand for accommodation generated by the Project may result in increased rental prices. Investors will likely seek to capitalise on the increased demand by increasing property rents. Increased rental rates across the Local Area, particularly Mudgee and Kandos will reduce housing accessibility for lower-socio-economic groups.

There may also be cumulative housing impacts associated with the accommodation demand generated by the Project and the Wilpinjong Extension Project. This issue is discussed in **Section 6.3.2**.

5.1.9 Impacts on Tourist Accommodation

The potential impact of the Project on the supply of tourist accommodation in the region is quantified in **Section 5.1.6**. The impact assessment indicates a sufficient supply of short-term accommodation in the Local Area for workers employed on a short-term basis during Construction Phase 1. Under both sensitivity assessments there is a reasonable supply of short-term accommodation (hotels, motels and guesthouses) remaining once all short-term Project workers are accommodated. However, the peak demand for short-term accommodation will occur in Month 6. Assuming construction commences at the beginning of 2017, the peak demand will fall in the winter months, coinciding with peak demand for accommodation by tourists to the region. The Project will be competing with the tourism industry for short-term accommodation during this period.

The assessment identifies a shortfall in the supply of FSC accommodation across the peak construction months. Tourist accommodation in the form of apartments, caravan park villas and holiday rentals make up the majority of FSC accommodation available in the Local Area. The peak Project demand for FSC accommodation is also likely to align with winter/spring.

Many participants in the Accommodation Survey indicated that their establishments were 100% booked during key regional events such as *A Day on the Green* or *Mudgee Small Farm Field Days*. Further participants indicated a number of forward bookings (in excess of a year) for key events such as weddings. Many participants indicated their establishments were booked out for the majority of weekends across the winter months.

It is almost certain that a significant proportion of the Construction Phase 1 workforce will be seeking accommodation in the Local Area during peak tourist season in the MWRC LGA. Given the significant Project workforce accommodation demands and the supply of suitable accommodation in the Local Area, there is a high likelihood that the Project will adversely impact the supply of tourist accommodation in the Local Area. The direct consequence of this for the tourism industry is likely to be a reduction in anticipated visitor numbers to regional events due to the inability of tourists to secure overnight stays in the Local Area.

KEPCO will require workforce accommodation for up to seven days a week, 365 days of the year for the duration of Construction Phase 1. KEPCO must avoid the implication of delaying construction as a result of not being able to accommodate its workforce when accommodation availability is affected by low vacancy rates and/or key regional tourism events such as *A Day on the Green*.

During Construction Phase 1 the Project will severely constrain the supply of accommodation available in the Local Area across the 24 month construction period. This may result in reduced tourism visitors to the region and long-term change in tourism visitor patterns at a time when the tourism industry should be reaping the rewards of a successful marketing campaign. Further, Project demands for accommodation will limit accommodation available for visiting medical specialists, education practitioners and other non-mining sector workers. It may also push up overnight stay rates in tourist accommodation as a result of demand and supply factors (refer **Section 5.3**).

5.1.10 Impacts on Land Supply In MWRC LGA

Under the No WAF accommodation scenario there is a small potential for Construction Phase 1 to generate additional demand for residential land in the MWRC LGA. This is because investors may seek to capitalise on the opportunities offered by the Project and seek to develop additional housing supply for the workforce. Given the short-term nature of Construction Phase 1 together with the existing supply of rental accommodation, any demand for land generated indirectly by Construction Phase 1 is unlikely to have an impact on current land supply in Mudgee and the broader MWRC LGA.

5.2 POPULATION AND DEMOGRAPHICS

5.2.1 Construction Phase Population Impacts

Construction Phase 1

This revised SIA assesses the impact of the peak construction workforce of 665 FTE workers in PY 2.

To understand the potential worst case scenario for population change the following assumptions have been made:

- 10% of the workforce associated with Construction Phase 1 will be LHs residing within the Local Area;
- 90% will be NLHs; and
- Due to the short-term nature of the construction phase, the families of the NLH workforce will not relocate with the worker.

The following sections describe the potential population impacts associated with both the No WAF accommodation scenario and the 'WAF Scenario' based on the revised workforce arrangements.

No WAF accommodation scenario

The percentage population change predicted to occur in the MWRC LGA as a result of the peak construction phase workforce is 2.5% (**Table 26**). This assumes all workers reside within the MWRC LGA. As there are a number of short-term accommodation options available in Denman and Sandy Hollow, it is likely that a portion of the Construction Phase 1 workforce will reside outside of the MWRC LGA.

Table 26
Population Change - Peak Construction Phase Workforce

Location	ERP ¹ (2013)	Estimated Peak Workforce	Estimated Peak Workforce - NLHs	Percentage Change from NLHs
MWRC LGA	23,843	645 ²	598 ²	2.5
Mudgee SA2	11,421	645 ²	479 ³	4.2

Notes:

1. ERP - Estimated Resident Population
2. Excludes the workforce associated with the WAF operation
3. Assumes 80% of NLHs reside in Mudgee.

Using the average workforce of 369 FTE persons for Construction Phase 1, the anticipated population increase in the MWRC LGA is less than 2% (**Table 27**).

Table 27
Population Change - Annual Average Workforce - Construction Phase 1

Location	ERP (2013)	Estimated Average Workforce	Estimated Annual Average Workforce - NLHs	Percentage Change from NLHs
MWRC LGA	23,843	369	332	1.4
Mudgee SA2	11,421	369	266	2.3

An estimated 39 workers are anticipated to reside in the Bylong Valley in KEPCO owned housing for the duration of Construction Phase 1 under the No WAF accommodation scenario. Based on an estimated population of 100⁷, the Bylong Valley is predicted to experience a temporary increase in population of 39% during Construction Phase 1.

WAF Scenario

Construction Phase 1 is predicted to result in a temporary and small increase in the existing population of the Project Area (Bylong Valley) where a WAF is provided for the workforce. This is because the majority of NLHs associated with Construction Phase 1 (332 on average and 598⁸ at peak) will reside in a combination of the WAF which is proposed to be located to the immediate north of Bylong Village, and KEPCO owned accommodation in the Bylong Valley. Whilst this impact is predicted to be temporary (for a period of 24 months), the population change does have the potential to give rise to temporary and short-term social changes in the Bylong Valley. These social changes include a temporary demographic shift in population. These issues have already been discussed in Section 10 of the EIS SIA (Appendix AC of the EIS).

The predicted population impact in the Sub-Regional Study Area associated with the WAF scenario is the same as the No WAF accommodation scenario as all NLHs will reside within the Sub-Regional Study Area.

Summary

Under the WAF scenario Bylong Valley would almost certainly experience a temporary and significant increase in population, with a discernible shift in gender balance as a result of the predominantly male workforce residing in the WAF. The temporary impacts to the Bylong Valley from the inclusion of a WAF, as described in the EIS SIA (Appendix AC of the EIS) will not be experienced under the No WAF accommodation scenario.

⁷ The population of Bylong Valley was estimated in the SIA (Appendix AC of the EIS) as 100 people. This estimate is based on ABS mesh block counts from the 2011 ABS Census.

⁸ Based on the 665 workforce which includes the workers associated with WAF construction.

5.2.2 Operations Phase Population Impacts

Operation phase population impacts were presented in the EIS SIA (Appendix AC of the EIS). The revised workforce numbers presented in **Section 3.2** do not affect the operations phase. No further assessment of Operations Phase population impacts is necessary.

5.2.3 Population as a result of Flow-On Employment

Under the No WAF accommodation scenario, population growth generated as a result of flow-on employment will be similar to that described in the EIS SIA (Appendix AC of the EIS). This is because the assessment of flow-on employment was based on average annual workforce numbers. Despite the reduction in Construction Phase 1 workforce numbers, there is little difference in the annual average workforce numbers (refer **Section 5.4**).

5.3 ECONOMIC VITALITY

This section briefly describes the socio-economic impacts of the Project on the LGA economy under the No WAF accommodation scenario and for the revised Construction Phase 1 workforce numbers.

5.3.1 Direct and Indirect Economic Impacts

No WAF Accommodation Scenario

In the Benefit Cost Analysis (BCA) framework in the Economics Impact Assessment (Appendix AE of the EIS), the provision of the WAF represents a capital and operating cost to KEPCO. A reduction to these costs would increase the net production benefits of the Project to Australia and NSW.

However, there is a question over whether there is sufficient capacity in the short-term and long-term accommodation market to meet the requirements of the Project. A capacity shortfall would result in economic costs on tourism and other activities and may result in significant accommodation price rises.

Reliance on accommodation in Mudgee and Rylstone would also substantially increase travel times for workers with resultant economic, health and safety costs associated with increased:

- Vehicle operating costs;
- Travel times;
- Accident costs; and
- Road maintenance costs.

From a regional economic impact perspective, assuming no capacity shortfalls, the provision of workers accommodation by existing accommodation providers would result in:

- A minor reduction in economic activity during the construction phases of the Project; and
- A redistribution of direct economic activity during the operation phase of the Project from the WAF to existing accommodation providers.

Capacity shortfalls would see the additional economic activity to existing accommodation providers and their suppliers, offset by reductions in economic activity from displaced tourism and other activities.

Reduced Construction Phase 1 Workforce

In the EIS SIA, economic benefits were calculated based on average workforce numbers rather than peak workforce numbers. The annual average FTE construction workforce for PY 1 and PY 2 was estimated at 344 and 466 people respectively.

Based on the revised Construction Phase 1 workforce numbers, the annual average FTE construction workforce for PY1 and PY2 is estimated at 331 and 458 people respectively. Given the very small magnitude of change between the original workforce numbers and the revised numbers, any change in direct and indirect economic benefits at the local, regional and state level is anticipated to be minor.

Operations Phase Impacts

The Project's economic contribution to the MWRC LGA is discussed in Section 7.3 of the EIS SIA (Appendix AC of the EIS). Changes to the Construction Phase 1 workforce have no influence on the economic impacts of the operations phase. The No WAF accommodation scenario is not relevant to the consideration of Operations Phase impacts. This is because the base case accommodation scenario assumes all workers associated with the Operation Phase are accommodated as local residents in the MWRC LGA and not in a WAF.

5.4 LABOUR MARKET DYNAMICS

This section describes the impacts of the No WAF accommodation scenario and the revised Construction Phase 1 workforce on labour market dynamics.

5.4.1 Employment Generation

The Project is predicted to generate the following new employment opportunities in the MWRC LGA based on the revised workforce numbers:

- 665 FTE positions at peak construction (Month 17) for the development of the open cut mine and associated infrastructure, 645 FTE positions at peak construction excluding the WAF workforce;

- 100 FTE positions during Construction Phase 2 for the development of the underground mine (PY4 – PY6); and
- 470 FTE positions during peak operations (PY9) (dual operations) including 275 FTE positions associated with the underground only operations (PY13 to PY25).

Flow-on employment is described in Section 8.3.1 of the EIS SIA (Appendix AC of the EIS). As discussed in **Section 5.3.1**, the economic benefits presented in the EIS SIA (Appendix AC of the EIS) were calculated based on average workforce numbers rather than peak workforce numbers. Given the minor difference in the original average workforce numbers for Construction Phase 1 and the revised workforce numbers, it is unlikely that there would be any significant deviation from the flow-on employment opportunities presented in the EIS SIA (Appendix AC of the EIS) for the original workforce numbers.

The potential direct and indirect employment benefits of the Project remain significant for the MWRC LGA despite the reduction in Construction Phase 1 workforce.

5.4.2 Other Labour Market Impacts

The EIS SIA (Appendix AC of the EIS) described the potential positive and negative impacts of the Project on:

- Labour force size;
- Labour supply;
- Labour draw;
- Youth unemployment; and
- Labour force qualifications.

For the most part, the impacts described in the EIS SIA (Appendix AC of the EIS) remain valid despite changing workforce numbers and the exclusion of the WAF from the Project. The Project local hire arrangements have not changed, however it is likely that the pool of available labour in the Local Area has increased with further contraction in the regional mining industry. The reduced Construction Phase 1 workforce numbers combined with increase labour supply will reduce the magnitude of the labour draw impacts originally anticipated.

5.5 COMMUNITY LIVEABILITY

Community liveability impacts associated with the Project were described in Section 10 of the EIS SIA (Appendix AC of the EIS).

The following discussion considers the potential impacts of the No WAF accommodation scenario on community liveability. The discussion focuses predominantly on Bylong Valley

as the closest community to the Project and the community most affected by the inclusion or exclusion of a WAF from the Project.

The comments and information referenced in the following sections are not assumed to represent the opinions and perceptions of the whole community. Rather, they provide a snapshot of the range of current interests and concerns of the community as derived from the SIA interviews (Section 3 of the EIS SIA) and the findings of EIS Consultation (Section 3 of the EIS).

Cumulative impacts on community liveability are described in **Section 6**.

In the following discussion, community liveability refers to the environmental and social quality of an area as perceived by residents, employees and visitors. This includes accessibility, safety and health, local environmental conditions and the quality of social interactions.

5.5.1 Bylong Valley

No WAF accommodation scenario

The exclusion of a WAF from the Project has the potential to deliver some positive benefits for Bylong Village and the broader Bylong Valley. In the absence of the WAF (and the associated influx of population), the risk of Project induced significant population and demographic change within the Bylong community is unlikely. Evidence in other mining communities e.g. Dysart, Nebo, Coppabella and Moranbah suggests a noticeable shift in population demography with the introduction of temporary mining workforces.

It is acknowledged that KEPCO seeks to encourage the longer term operations phase workers and their families to relocate to the Bylong Valley, drawing additional population to the rural area. Unlike the temporary population associated with the WAF, the workers and their families who relocate permanently to the Bylong Valley are likely to be more willing to socially invest in the local community. Hence their addition to the community is considered positive.

In the absence of the WAF, there is less potential for workers to engage in antisocial behaviour in the Bylong Village and a corresponding lower risk of impact to the social amenity of the Bylong Village. Evidence in other mining communities e.g. Moranbah, suggests some residents are concerned for the potential of antisocial behaviour by transient resident workers, noting personal safety as one aspect of concern.

The negative impacts of the No WAF accommodation scenario for the Bylong Valley relate predominantly to an increase in vehicle traffic on the local road network. Under the No WAF accommodation scenario, the construction workforce will commute on a daily basis from their place of residence within the Local Area to the Project site. The anticipated increase in traffic on the local road network is described in **Section 6.3.6**. The predicted increase in vehicle

traffic has the potential to adversely impact rural amenity, and community health and wellbeing primarily through reduced road safety conditions.

WAF Scenario

For the Bylong Valley, the negative impacts associated with the inclusion of a WAF in the Project relate primarily to the introduction of a sizeable and temporary resident population in proximity to Bylong Village and the associated changes to population, demography, social cohesion and rural amenity.

KEPCO's preferred accommodation strategy for the construction workforce to be accommodated in a combination of:

- Short and long-term tourist accommodation options in the Local Area;
- Existing KEPCO owned housing in the Bylong Valley;
- Private rental housing in the Local Area; and
- Temporary on site WAF with a nominal capacity of 300 rooms.

Some residents of the Bylong Valley who participated in the EIS SIA consultation identified concern in relation to the proximity of the WAF to Bylong Village. These concerns related to the perceived visual impacts of the WAF, as well as perceived changes in rural amenity. A number of residents indicated that the WAF may challenge their rural identity. Amenity impacts related to the increase in population, the prevalence of males in the population and the potential for anti-social behaviour from the workforce impacting Bylong Village. Some residents were concerned in relation to the influx of temporary residents who have little connection with the rural area or the existing residents.

It could be expected that the Project construction workforce will generally have limited direct links or affinity to the existing Bylong community. The proximity of the Bylong General Store to the WAF suggests that residents of the WAF may frequent Bylong Village in order to access the Bylong General Store. Any interaction between the workforce and the local community is likely to occur at this venue. WAF residents are not anticipated to access sporting facilities in Bylong Village, unless the Bylong Valley community decides to capitalise on the presence of the workforce and develop sporting events at the Bylong Village sporting grounds that the workforce can participate in e.g. tennis competitions. However, the duration of the shift hours for both construction phases will likely limit the capacity of the workforce to participate in community activities.

5.5.2 Broader Local Area

No WAF accommodation scenario

The absence of a WAF in the Project will have a range of benefits for community liveability in the broader Local Area. These benefits relate primarily to the influx of a temporary

population. Although, it should be noted that it is the longer term operational workforces and the economic benefits they provide that have the greatest impact on community liveability and long-term social sustainability. The preferred accommodation scenario for the Project assumes the operations phase workforce resides as permanent residents in the Local Area.

The temporary influx of population associated with the Project construction phases will increase the social capital in the Local Area, particularly Mudgee and the smaller centre of Kandos. The influx of population will increase opportunities for the development of new relationships fostered through employee involvement in local events, sporting activities or in voluntary roles in the community. The incoming population may bring new knowledge and skills to the area, albeit temporarily. The long work hours together with the daily commute will restrict the extent to which the Project workforce will become involved in the local community. Construction Phase shift rotations will also impact on the ability of workers to involve themselves in community groups or recreation and sporting activities.

These positive benefits are offset by a number of adverse impacts including:

- Reduced road safety from increased traffic volumes on local road networks;
- Potential changes in residential amenity from workforce housing arrangements;
- Temporary changes in character of Mudgee from the influx of the temporary mining workforce;
- Reduced patronage at tourist events across the MWRC LGA due to the inability of visitors to secure suitable accommodation; and
- Increased demand for medical services e.g. General Practitioners (GPs) and dentists and reduced accessibility to these services for existing local residents.

Community and employee health and wellbeing is discussed in **Section 5.5.3**.

During EIS consultation in 2014 the MWRC and residents of Mudgee identified a number of impacts associated with the mining boom that reduced residential amenity in Mudgee. These included:

- Mine-employee vehicle movements during the early hours of the morning and late evening;
- Excessive numbers of vehicles parked outside houses and on footpaths in residential areas as a result of multiple mine-workers sharing accommodation;
- Significantly increased vehicle traffic at key exits and entrances to Mudgee during shift changeover time; and
- Increasing presence of 'fluro' work shirts in the streets of Mudgee, despite the assistance of the existing mines enforcing a 'no fluro' dress code in town.

During Construction Phase 1 under the no WAF accommodation scenario similar impacts are likely to occur again in Mudgee, particularly if the Wilpinjong Extension Project occurs at the same time. KEPCO is seeking to encourage a 'no fluro' dress code amongst the workforce when workers are within towns and villages of the MWRC LGA.

In addition, the heavy reliance on tourist accommodation by the Construction Phase 1 workforce may impact the supply of accommodation for key regional events and smaller local events as well as for visiting specialist services. There is a small risk that a lack of available accommodation for tourists could impact on the range of events planned for the duration of Construction Phase 1. In circumstances where the availability of short-term accommodation becomes limited and subsequently pushes up overnight accommodation rates, some visiting specialists may choose not to visit the region or limit the number of visits they make.

WAF Scenario

The inclusion of a WAF in the Project has few negative impacts on community liveability in the boarder Local Area. There is minimal difference in economic spend between the WAF Scenario and the No WAF accommodation scenario (**Section 5.3.1**). The positive impacts relate primarily to the availability of short-term accommodation in the Local Area for the non-mining sector (particularly the tourism sector) and the reduction in vehicle traffic on the local road network.

5.5.3 Health and Wellbeing

The absence of a WAF for the Project delivers mixed health and wellbeing outcomes for the community and employees.

Unlike the operations phase workforce, the majority of workers associated with the Project construction phases will be employed for less than two years. Given the duration of employment the vast majority of these workers are unlikely to relocate with their families to the Local Area, particularly given the current contraction in the mining industry and the likelihood of any further mining construction jobs within the Local Area. Hence the construction phase workforce will reside only temporarily in the Local Area for the duration of each Project construction phase. It is likely that many workers will return home to their place of residence at the end of block shift periods. This is particularly likely given that much of the Construction Phase 1 workforce is anticipated to be drawn from the Hunter Valley and Newcastle areas.

Employee Health and Wellbeing

KEPCO proposes to accommodate only the Construction Phase workforces in the WAF (as described within Section 3.11 of the EIS). The operations phase workforce will be accommodated in existing accommodation within the Local Area, assuming there is suitable available accommodation. Subsequently any discussion in relation to social and psychological impacts of the WAF is relevant only to the construction phase workforce (and potentially only for Construction Phase 1). Further, studies (WALA 2015, Commonwealth of

Australia [COA] 2013, Infrastructure Planning and Natural Resources Committee [IPNRC] 2015) indicate that commuting arrangements (long-distance commuting) of the workforce and associated rosters can be drivers of potential social and psychological impacts amongst workers, not solely the manner in which workers are accommodated. Although there is evidence (WALA 2015) to suggest that WAF accommodation arrangements reinforce the social and psychological impacts of these commuting arrangements.

The term long-distance commuting is used to refer to a set of work arrangements for resource operations that are typically located at a distance from other existing communities. Long-distance commuting can involve fly-in, fly-out (FIFO), drive-in, drive-out (DIDO) and bus-in, bus-out (BIBO) practices or a combination of these.

Long-distance commuting practices have become prevalent across the resource sector for a number of reasons including:

- The remote location of some resource operations;
- Availability of local labour (local hires), particularly during construction phases;
- Limited skilled labour availability within the proximity to the resource project; and
- Preference for many employees and their families to live in areas with greater amenities or where they have existing social and family networks (IPNRC, 2015).

The EIS SIA (Appendix AC of the EIS) has already demonstrated that it is not possible to recruit all Construction Phase 1 workers from within the Local Area primarily due to the size of the labour pool, competition from other resource projects (e.g. Wilpinjong Expansion Project) and skilled labour availability in Local Area (refer to Appendix AC of the EIS). The duration of employment for construction phase workers varies from less than three months to more than 12 months. However, with the exception of senior employees the majority of construction phase workers will be employed for approximately 12 months. The duration of employment together with a lack of any significant future employment opportunities related to construction projects in the region means that the majority of construction workers are unlikely to move permanently to the Local Area for the construction phase of the Project. The proximity of the Project to the Hunter Valley and Newcastle areas suggests many non-local hires may be drawn from these areas. It is therefore likely that the majority of construction phase non-local hires will undertake a commute of between one and a half hours and four hours at the start of each block shift rotation during the construction phases.

Over the past three years, a significant body of research has been amassed in relation to the impacts of long-distance commuting on workers and communities, and the associated influence of worker accommodation arrangements on the magnitude of these impacts.

Significant research includes:

- *House of Representatives Standing Committee on Regional Australia Inquiry into Fly-in, fly-out and drive-in, drive-out workforce practices in Regional Australia* (COA 2013);
- *Western Australia Legislative Assembly (WALA) Inquiry into the impact of FIFO work practices on mental health* (WALA 2015);
- *Queensland Parliamentary Committees Inquiry into fly-in, fly-out and other long distance commuting work practices in regional Queensland* (IPNR] 2015); and
- Queensland Ministerial Inquiry into FIFO (DSD 2015).

Based on the body of research available, the factors likely to affect the mental health and wellbeing of employees and their families involved in long-distance commuting jobs include:

- Shift roster arrangements;
- Workforce accommodation arrangements;
- Accommodation arrangements offered within WAFs;
- Location and design of WAFs; and
- Policies and practices of the proponent.

Long-distance commuting and extended and frequent periods away from home can put pressure on family relationships and employee mental health (COA 2013, IPNRC 2015, DSD 2015, WALA 2015). Long-distance commuting activities take individuals away from their regular home activities, isolating them from family and other social supports. Research conducted by the COA (2013) found that informal social controls as well as the lack of sense of belonging to a community can have negative impacts on the well-being of workers involved in long-distance commuting. The key findings of the WALA inquiry (2015) into mental health (WALA 2015), was “*the typical FIFO resource worker comes from the highest risk demographic (male aged 18 – 44) for mental illness and suicide.*”

However, the absence of a WAF in the Project does not resolve these issues. Construction phase workers will be required to reside within existing accommodation in the Local Area. However, it is likely that they will return home to their place of residence at the conclusion of each block shift period, in the same way they would if accommodated in a WAF. The same issues around social isolation, family pressures and mental health remain relevant.

The construction workforce will be engaged in long shifts (approximately 12 hours). At the end of these shifts and in the absence of a WAF workers will be required to drive between 30 minutes and one hour to their temporary place of residence in the Local Area.

They will then be required to find a meal for themselves, before sleeping in readiness for the next shift.

For the majority of workers (i.e. accommodated within the Local Area) a minimum of 14 hours would pass between leaving their place of residence for work and returning at the end of shift.

Reliance on accommodation in the Local Area by the construction workforce would substantially increase travel times for workers with resultant economic, health and safety costs.

In responding to the Federal FIFO Inquiry (pp 56 COA 2013) BHP Billiton noted that

“.....people who work 12-hour shifts are not too boisterous post the 12-hour shifts. They go in there, they have their meals and they tend to want to sleep and be ready for the next days shift, especially when they are working those long rosters,.....”

KEPCO understands the concerns of the MWRC and other stakeholders in relation to the health and wellbeing of the workforce as is demonstrated by KEPCO’s commitment to accommodate the operations phase workforce as permanent residents in the Local Area. However, given the distance of the Project site from Mudgee and the duration of workforce employment on the construction phase, KEPCO strongly considers that a WAF at the Project site would improve health and wellbeing outcomes for the construction phase workforce.

Community Health and Wellbeing

Of the four workforce accommodation scenarios under consideration (**Section 3.4**), the No WAF accommodation scenario is likely to have the greatest tangible impact on community health and wellbeing. This is because the No WAF accommodation scenario gives rise to a significantly higher volume of daily traffic on the road network in the Local Area than the WAF scenario.

Under all four accommodation scenarios the workforce will be required to commute to the Project site. However, under the No WAF accommodation scenario the workforce will commute on a daily basis to the Project site. Under the WAF scenario the workforce will commute to the Project site for the commencement of each block shift period. Once on site the workforce will remain at the WAF for the duration of their block shift and will be transported to the Project site in buses.

Traffic Volumes and Road Safety

Speed and fatigue are common crash risk factors across NSW and are possible factors in the crash data assessed. This is particularly true for miners who tend to work long shifts (12 hour) and many travel up to an hour from home to attend their shift, where private vehicle travel is the only viable mode (Parsons Brinckerhoff [PB], 2016). Speed and fatigue management strategies are a key part of minimising the risk of crashes and thus the impact of mine traffic on the local road network. The No WAF accommodation scenario will result in a significantly higher volume of Project traffic using the local road network.

Subsequently, the risk of speed and fatigue related crashes on the local road network may increase as a result of the addition of the Project workforce and in the absence of a WAF at the Project site. After a long period of 12 hour shifts, workers are keen to get home as quickly as possible. Evidence reported by the Isaac Regional Council (IRC) to the Federal FIFO inquiry (pp 57 COA 2013) included a “*significant number of fatigue and congestion-related incidents on the highway [Peak Downs Highway] and an increasing number of traffic fatalities.*” The IRC LGA has a large number of operating coal mines, a significant sized non-resident population and numerous WAFs.

Increased traffic volumes are also anticipated at key intersections in the Local Area due to Project traffic associated with the No WAF accommodation scenario. Increased vehicle movements are anticipated along Ulan Road and Wollar Road and intersections along these roads as workers commute between the Project and Mudgee.

Discussions with MWRC representatives (MWRC 2014, pers. comm., 4 December) highlighted a growing concern within the Mudgee community in relation to road safety. Specifically, there is a perception that the risk of accidents on local road networks such as Ulan Road, Wollar Road, Lue Road and Bylong Valley Way are increasing due to a perceived combination of increased mine related traffic and the potential prevalence of fatigue amongst mine employees.

School Bus Routes

School buses were operating to Bylong Upper Public School. The service was suspended when the NSW DEC decided to close the school permanently in 2015 as a result of decreasing enrolments over a number of years.

School buses do not currently operate to Wollar Public School (less than 10 students enrolled) and Lue Public School (less than 25 students enrolled).

Ogden’s’ Coaches provides a school bus service from Wollar, leaving the town at 7.35 am for travel to schools within Mudgee and returning to Wollar at 4.40pm. Ogden’s’ Coaches provides a school bus service from Lue, leaving the town at 7.55 am for travel to schools within Mudgee and returning to Lue at 4.20 pm.

The timing of these two school bus routes do not coincide with the anticipated staff travel prior to or post shift start (7.00 am or 7.00 pm) or end times (7.00 am or 7.00 pm) under the No WAF accommodation scenario.

It is therefore unlikely that the Project, under the No WAF accommodation scenario, would impact school bus routes in the Local Area.

5.6 COMMUNITY INFRASTRUCTURE ACCESSIBILITY

This section describes the likely impacts of the No WAF accommodation scenario on a range of community infrastructure and services located in the MWRC LGA. The impacts described relate specifically to the Construction Phase 1 workforce.

The main drivers of potential Project impacts on community infrastructure and services are changes in employment and population and the spatial location of these changes. Potential population changes arising from the No WAF accommodation scenario have been discussed previously (**Section 3.2**).

At peak construction under a No WAF accommodation scenario there is potential for 580 NLHs to move into the Local Area. The vast majority of these NLHs are unlikely to bring their families with them due to the short-term nature of their employment and the current absence of any future similar employment opportunities in the region. Following an analysis of service provision in the Bylong Valley, Mudgee, Rylstone and Kandos, discussions with service providers and the findings of SIA consultation, Project induced population growth in the MWRC LGA during Construction Phase 1 is predicted to impact service demand and supply in the following key areas:

- Health services; and
- Emergency services.

The vast majority of potential Project impacts to community services and facilities are associated with the Operations Phase workforce and are cumulative in nature. These impacts have already been described in Section 11.3 of the EIS SIA (Appendix AC of the EIS).

5.6.1 Bylong Valley

No discernible impacts to community infrastructure and services located in the Bylong Valley are predicted to occur as a result of the No WAF accommodation scenario. Impacts associated with the Project have already been discussed in Section 11.3 of the EIS SIA (Appendix AC of the EIS).

Under both the No WAF and WAF scenario's a portion of the Project workforce will be accommodated in KEPCO housing in the Bylong Valley. The service demands generated by these workers would be the same under the two scenarios, and has already been discussed in Section 11.3 of the EIS SIA (Appendix AC of the EIS).

5.6.2 Broader Local Area

Health Services

In the absence of a WAF, the majority of the Construction Phase workforce is likely to reside in Mudgee. The influx of 580 workers at peak construction will generate additional demand for a range of health services across the Local Area. Not only is it likely that the construction workforce will increase demand for health services but it may also restrict access to these services for local residents.

Considerable evidence was presented in the Federal FIFO inquiry and in the Queensland Parliamentary and Ministerial Inquiries in relation to the impact of temporary workforces on the provision of health services.

During these Inquiries a number of LGAs across Australia e.g. Isaac Regional Council in QLD, Shire of Yilgarn in WA reported long waiting times and significant additional workload burdens placed on doctors as a result of temporary worker populations. COA (2013) reports that *the increasing workload burden on doctors is impacting on doctor-patient relationships, and there were some implications made that medical staff did not have the capacity to proactively manage the health of residents.* As an example, during the Federal Inquiry (pp 61 COA 2013) Moranbah Medical reported 35% of all patient presentations over the course of a month identifying their place of usual residence as a place other than Moranbah.

Specific services within the Local Area likely to experience demand from the workforce include:

- Emergency services at the Mudgee hospital;
- Outpatient services;
- General Practitioner (GP) services; and
- Allied health services such as physiotherapists.

The supply of health services in the Local Area and the key issues in health service provision are described in Section 11.2.4 of the EIS SIA (Appendix AC of the EIS). Key findings of this assessment include:

- Limitations on access to private GPs across the Local Area. The attraction and retainment of GPs in rural areas of Australia is an ongoing issue for health service providers;
- Lack of visiting medical specialist and allied health services;
- Inadequate psychiatry and mental health services;
- Accessibility and affordability of health services; and
- Severe lack of allied health particularly speech therapist, occupational therapists, dieticians, social workers and psychologists;

Emergency Services

The provision of emergency services in the Local Area is described in Section 11.2.5 of the EIS SIA (Appendix AC of the EIS).

The No WAF accommodation scenario has the potential to generate additional demand for emergency services in the Local Area. The following impacts may be experienced by the NSW Police and NSW Ambulance services as a result of the No WAF accommodation scenario:

- Project induced population growth (albeit temporary) together with cumulative population growth will increase demand for police and ambulance resources across the Local Area; and

- During both construction phases a combination of increased road usage and potential driver fatigue may increase the risk of accidents on the local road network increasing demands on emergency service providers.

The potential for reduced road safety under the No WAF accommodation scenario has already been discussed in **Section 5.5.3**.

Neither the NSW Police nor the Ambulance Service of NSW indicated any servicing concerns in relation to the Project induced population growth in Mudgee during the Operations Phase. It is therefore unlikely that these emergency service providers will experience difficulties servicing any demand generated by the Construction Phase 1 workforce.

The operation of the WAF may increase demand on the Rylstone Police service given there is no emergency service based in Bylong (aside from RFS). The travel time between Rylstone and Bylong would result in the removal of one or more police officers for several hours from the Rylstone Police station to respond to an issue at the WAF.

Project generated demands on local emergency service providers are predicted to be smaller under the WAF scenario than the No WAF accommodation scenario. This is because under the WAF scenario, the workforce will be accommodated in a single purpose built facility and a private security service will be employed to manage security at the site.

In addition there is a lower likelihood of Project related road incidents on the local road network under the WAF scenario due to a reduction in Project related vehicles on the local road network.

5.7 SUMMARY OF IMPACTS

Table 28 summarises the findings of the impact assessment and describes the likely potential social impacts and benefits for the Bylong Valley and the Sub-Regional Study Area (MWRC LGA)

Table 28
Summary of Social Impacts of No WAF Accommodation Scenario

Project Phase	Impacts and Opportunities	Project Area	Sub Regional Area
Population and Demography			
Construction Phase 1	Influx of temporary resident population	Any temporary population increase associated with the construction workforce would be limited to workers accommodated in KEPCO owned housing. There would be no discernible impacts associated with the temporary population increase.	Temporary population increase in Mudgee of 4.2% at peak and 2.3% on the average workforce. Minor discernible effects on demographic characteristics such as gender balance likely as a result of temporary population increase.
Construction Phase 2	Influx of temporary resident population	There would be no discernible impacts associated with the temporary population increase.	There would be no discernible impacts associated with the temporary population increase.
Housing and Accommodation			
Construction Phase 1	NLHs will require up to 530 rooms of long-term accommodation at peak construction (Month 27) and up to 105 rooms of short-term accommodation in Month 9	Thirteen KEPCO houses in the Bylong Valley will be utilized by the Project workforce.	The majority of long-term accommodation available in the MWRC LGA is tourist accommodation. At peak construction it is highly likely that Project accommodation demands will exceed the supply of long-term accommodation in the Local Area. Whilst the business is likely to be welcomed by the majority of accommodation providers, the supply of accommodation available to the non-mining sector will be significantly reduced.
Construction Phase 1	Limited availability of short-term accommodation in the Local Area for non Project related visitors	NA	Project accommodation demands at peak construction will significantly reduce the supply of accommodation to the non-mining sector.

Project Phase	Impacts and Opportunities	Project Area	Sub Regional Area
			This may have a direct impact on tourism and visitor numbers, especially at key tourism events such as A Day on the Green and the Mudgee Small Farm Field Days. It may also adversely impact the supply of visiting specialist services to the Local Area.
Construction Phase 1	Increase in nightly rates (\$) at tourist accommodation establishments within the Local Area	NA	Sustained demand for accommodation by the Project workforce may push up nightly rates at tourist accommodation establishments in the local area. This may make accommodation in the Local Area less attractive to the non-mining sector and may impact the supply of affordable housing for lower income groups. Potential visitors to the region may redirect their interest to other regions.
Construction Phase 1	Potential increases in property rental costs in the Local Area due to Project induced demand during Construction Phase 1	Accommodation demands associated with the construction workforce are not anticipated to impact (either positive or negative) housing access in the Bylong Valley.	Based on the findings of the workforce accommodation study, there is currently insufficient rental stock in the Local Area to meet the accommodation demands of the Project. Sustained demand coupled with limited supply may result in inflated rental rates in Mudgee and possibly Kandos. This will impact the availability of rental accommodation for lower-socio economic groups and non-mining employees. There may be a potential increase in the demand for social housing due to the displacement of lower socio-economic groups out of the housing market in Mudgee.
Construction Phase 2	NLHs will require up to 100 rooms of long-term accommodation in the Local Area	NA	Based on the findings of the Workforce Accommodation Study there is sufficient short-term accommodation available in the Local Area for the Project workforce. However fluctuations in occupancy rates, particularly during key regional events will constrain availability for the Project workforce, or alternatively, the Project may result in reduced tourism visitors to the region and long-term change in tourism visitor patterns

Project Phase	Impacts and Opportunities	Project Area	Sub Regional Area
Labour Market Dynamics			
Construction Phase 1 and Construction Phase 2	The Project will generate 645 FTE positions at Peak Construction and 458 FTE annual average positions in PY2.	Discernible impacts on the labour market in the Bylong Valley are not expected as a result of the Project	The provision of employment opportunities for existing residents of the Local Area would be welcomed. Up to 20 local employment opportunities would be lost as a result of the No WAF accommodation scenario.
Economic Vitality			
Construction Phase 1	Significant economic benefits at the regional and state level.	Benefits will accrue indirectly to the Bylong Valley through spend associated with the Voluntary Planning Agreement.	The total average annual impact of the peak year of construction (PY2) on the economy of the MWRC LGA is estimated at up to: <ul style="list-style-type: none"> • \$297 M in annual direct and indirect regional output or business turnover; • \$104 M in annual direct and indirect regional value added; • \$55 M in annual direct and indirect household income; and • 863 direct and indirect jobs.
Construction Phase 1	Loss of tourism revenue	NA	Project workforce accommodation arrangements may limit the availability of accommodation for tourists to the region. This may have spin off impacts on attendance rates at key events and tourism spend in the Local Area, and influence long-term change in tourism visitor patterns

Project Phase	Impacts and Opportunities	Project Area	Sub Regional Area
Construction Phase 1 and Construction Phase 2	Increased local spend	The absence of the WAF is unlikely to change the anticipated Project local spend patterns described in the SIA (Appendix AC of the EIS) for the Bylong Valley.	The absence of the WAF is unlikely to change the anticipated Project local spend patterns described in the SIA (Appendix AC of the EIS) for the Bylong Valley.
Community Liveability			
Construction Phase 1 and Construction Phase 2	Changes in social amenity	<p>In the absence of a WAF there is less potential for workers to engage in antisocial behaviour in Bylong Village and a corresponding lower risk of impact to the social amenity of the Bylong Village.</p> <p>The predicted increase in vehicle traffic has the potential to adversely impact rural amenity, and community health and wellbeing primarily through reduced road safety conditions.</p>	<p>The absence of a WAF in the Project will have a range of benefits for community liveability in the broader Local Area. The temporary influx of population associated with the Project construction phases will increase the social capital in the Local Area. The influx of population will increase opportunities for the development of new relationships fostered through employee involvement in local events, sporting activities or in voluntary roles in the community. The incoming population may bring new knowledge and skills to the area, albeit temporarily.</p> <p>However these positive benefits are offset by a number of adverse impacts including:</p> <ul style="list-style-type: none"> • Reduced road safety from increased traffic volumes on local road networks; • Potential changes in residential amenity from workforce housing arrangements; • Temporary changes in character of Mudgee from the influx of the temporary mining workforce.
Construction Phase 1	Access to regional cultural events.	NA	A heavy reliance on existing tourist accommodation by the workforce may impact the supply of tourist accommodation for key regional events and smaller local events as well as for visiting specialist services. There is a small risk that a lack of availability in short-term

Project Phase	Impacts and Opportunities	Project Area	Sub Regional Area
			accommodation could impact on the range of cultural events planned across the Local Area for the duration of Construction Phase 1. This would have a direct impact on community liveability as valued local or regional events may be postponed to a more suitable time outside of Construction Phase 1 schedule.
Construction Phase 1 and Construction Phase 2	Opportunity for employees to live locally with their family	Construction workers have the opportunity to bring their families to the Bylong Valley for the duration of the construction phase. This in turn will benefit social sustainability in the Bylong Valley	Construction workers have the opportunity to bring their families to MWRC LGA for the duration of the construction phase. The Project induced population associated with this would support improvements in social capital across the Local Area, increase the labour pool and contribute new skills to the region.
Employee Health and Wellbeing			
Construction Phase 1 and Construction Phase 2	Increased commuting distance between place of residence and the Project site.	Employees accommodated in KEPCO housing have the benefit of a short commute to their place of residence following the completion of each shift. This supports the health and wellbeing of the workforce.	Employees accommodated within the Local Area may be required to undertake a daily commute of up to one hour in each direction with resultant economic, health and safety costs associated with: <ul style="list-style-type: none"> • Increased vehicle operating costs; • Increase travel times; • Increased accident costs; and • Increased road maintenance costs. Long work hours together with the daily commute will restrict the extent to which workers will become involved in their local community. Construction Phase shift rotations will also impact on the ability of workers to involve themselves in community groups or recreation and sporting activities.
Community Health and Wellbeing			

Project Phase	Impacts and Opportunities	Project Area	Sub Regional Area
Construction Phase 1 and Construction Phase 2	Increased traffic on local road network	Bylong Valley Way and Wollar Road are likely to experience a discernible increase in daily traffic volumes during shift change over times. The combination of speed and driver fatigue may result in an increase in the number of incidents on the local road network. There are no school bus routes anticipated to be impacted by the increased traffic during shift change over.	There will be a discernible increase in traffic volumes on Wollar Road and Ulan Road. The risk of Project related traffic incidents on the local road network will increase under the No WAF accommodation scenario. After a long period of 12 hour shifts, workers are often keen to get home as quickly as possible. There are no school bus routes anticipated to be impacted by the increased traffic during shift change over.
Construction Phase 1 and Construction Phase 2	Reduced access to visiting specialists	There is a risk that the Project will severely limit the availability of short-term accommodation across the Local Area and subsequently push up overnight accommodation rates. As a result of increased accommodation costs some visiting specialists may choose not to visit the region or limit the number of visits they make.	
Community Infrastructure and Services			
Construction Phase 1 and Phase 2	Potential increase in demand for emergency services	There are no discernible impacts to community infrastructure and services located in the Bylong Valley predicted to occur as a result of the No WAF accommodation scenario. Potential impacts associated with the Project have already been discussed in the EIS SIA (Appendix AC to the EIS).	The following impacts may be experienced by the NSW Police and NSW Ambulance services: <ul style="list-style-type: none"> • Project induced population growth (albeit temporary) together with cumulative population growth will increase demand for police and ambulance resources across the Local Area. • During both construction phases a combination of increased road usage and driver fatigue may increase the risk of accidents on the local road network increasing demands on emergency service providers.
Construction Phase 1	Potential increase in demand for health services	The influx of 580 workers at peak construction has the potential to generate additional demand for a range of health services across the Local Area. Not only is it likely that the construction workforce will	

Project Phase	Impacts and Opportunities	Project Area	Sub Regional Area
			<p>increase demand for health services but it may also restrict access to these services for local residents.</p> <p>Specific services within the Local Area likely to experience demand from the workforce include:</p> <ul style="list-style-type: none"> • Emergency services at the Mudgee hospital; • Outpatient services; • General Practitioner (GP) services; and • Allied health services such as physiotherapists.

6 CUMULATIVE IMPACT ASSESSMENT

This section presents the potential cumulative impacts and effects associated with the No WAF accommodation scenario. It also expands upon the cumulative impacts described in the EIS SIA (Appendix AC of the EIS).

6.1 OVERVIEW

All impacts have a cumulative dimension. It is therefore necessary to consider how individual Project impacts overlap or interact with other impacts being experienced by communities in the Local Area. Understanding and analysing the cumulative dimensions of an impact requires consideration of the various activities occurring within the area of interest. Vanclay et al (2015) suggests that *“Impacts may aggregate and interact as a result of actions within and between projects, and from past and future activities.”*

It is the current and future activities associated with the existing and proposed mining projects in the SIA study area that have the greatest influence over whether a Project impact has a cumulative dimension. There are also natural processes occurring in the Study Area which interact with predicted Project impacts to produce cumulative impacts.

6.2 CUMULATIVE ACTIVITIES

6.2.1 Existing and Proposed Mining Activities

The Project’s cumulative social impacts are largely a result from the actions of multiple stakeholders. There are a number of new mine expansions and projects proposed in the MWRC LGA, which when considered together have the potential to result in cumulative impacts to the Project Area and the broader Sub-Regional Area. The anticipated timing and personnel requirements for projects approved and projects in the advanced approval stages within the MWRC LGA is presented in **Table 29**.

Table 29
Proposed Timing of Mining Projects in the MWRC LGA

Mine	Development Type	Status	Estimated Start Date	Nearest Centre	Distance From Project	Peak Operations Workforce
Moolarben	Mine Expansion ¹	Under construction	2015	Ulan	53 km	450 ²
Wilpinjong	Coal mine Expansion ³	EIS on Exhibition	2017	Wollar	38 km	623 ⁴
Bowdens Silver Mine	New silver mine	SEARs Issued	2016+	Lue	67 km	200
Bylong East Duplication	Rail network duplication and reconfiguration	SEARs Issued	2016+	Bylong	Adjacent	Unknown

Source: HillPDA 2014, NSW Department of Planning and Infrastructure (DP&I) 2014

Notes:

1. Moolarben Stage 2 which received State approval in February 2015.

2. Total of mine workforce (existing and additional).

3. Wilpinjong Expansion Project (WEP).

4. Peabody Energy (2015).

6.2.2 Project Specific Activities

There are Project activities that when considered together have the potential to produce cumulative social impacts in the Bylong Valley and the Sub-Regional Study Area. These activities include:

- Use of a NLH workforce;
- Shift rosters;
- Workforce accommodation strategy;
- Property acquisition activities; and
- Project approvals process and associated uncertainty.

6.2.3 Other Processes

The following additional processes occurring in the SIA Study Area have the potential to interact with Project activities and result in cumulative impacts:

- Natural Process:
 - Rural population decline and national trend in population shift to regional centres; and
 - Changing economic dynamics of rural land practices.

- Regional Processes
 - Popularity of the region as a tourist destination.

6.3 CUMULATIVE IMPACTS

The social impacts that are associated with the Project under the No WAF Accommodation Scenario and have the potential to have a cumulative dimension are presented in **Table 30**. **Table 30** also describes the likely cumulative effects of these cumulative social impacts and identifies the primary causal factors. Cumulative impacts and effects are described in the sections following **Table 30**.

Table 30
Summary of Cumulative Social Impacts and Effects of the No WAF Scenario

Cumulative Impact	Potential Cumulative Effects		Cumulative Activities
	Bylong Valley/Rural Area	Sub-Regional Area	
Temporary population growth during all construction phases	No cumulative impacts	<ul style="list-style-type: none"> • Temporary increased demand for community services and facilities in Mudgee during Construction Phase 1 • Temporary changes in residential amenity in Mudgee during Construction Phase 1 	<ul style="list-style-type: none"> • Other mining operations and projects • Project workforce hiring arrangements and accommodation strategy
Permanent population growth during Operations Phase	No cumulative impacts	<ul style="list-style-type: none"> • Increase in demand for community services and facilities across the Local Area, in particular Mudgee 	<ul style="list-style-type: none"> • Other mining projects • Natural population growth • Project workforce hiring arrangements and accommodation strategy
Population decline in the Bylong Valley	<ul style="list-style-type: none"> • Reduced demand for services and facilities with loss of some services and facilities • Loss of valued social capital • Changes in sense of community • Commutative reduction in social sustainability 	NA	<ul style="list-style-type: none"> • Property acquisition activities of the Project • Natural processes of rural decline • Other mining Projects e.g. Mt Penny
Population decline in the Rural Area	<ul style="list-style-type: none"> • Reduced demand for services and facilities with loss of some services e.g Wollar Rural Fire Brigade • Reduced economic viability in commercial establishments e.g Wollar General Store 	NA	<ul style="list-style-type: none"> • Historical presence of multiple mining operations and potential projects • Property acquisition activities of Project and other mining

Cumulative Impact	Potential Cumulative Effects		Cumulative Activities
	Bylong Valley/Rural Area	Sub-Regional Area	
	<ul style="list-style-type: none"> Potential loss of services and facilities into the future as a result of service rationalisation Loss of valued social capital across the Rural Area 		<ul style="list-style-type: none"> projects Natural processes
Increased demand for short-term and long-term accommodation in the Local Area during Construction Phase 1.	<ul style="list-style-type: none"> No cumulative impacts 	<ul style="list-style-type: none"> Increase in property rental prices Increase in overnight rates in short-term tourism accommodation Reduced availability of short-term accommodation in the Local Area for non Project related visitors 	<ul style="list-style-type: none"> Workforce accommodation strategies of the Project and other mining operations in the Local Area
Cumulative increase in mine related vehicles on the local road network during construction phases	<ul style="list-style-type: none"> Reduced road safety along Bylong Valley Way for residents, workers and visitors to the region 	<ul style="list-style-type: none"> Reduced road safety on Wollar Road and Ulan Road for residents, workers and visitors to the region 	<ul style="list-style-type: none"> Project workforce hiring arrangements and accommodation strategy Other mining operations and projects Tourism
Changes in character and amenity of the Rural Area	<ul style="list-style-type: none"> Further loss of population as existing residents depart unhappy with the changing amenity Loss of identity as rural land use transitions to include mining landscapes. 	<ul style="list-style-type: none"> Reduction in the attractiveness of the Rural Area to tourists with resulting changes in tourist visitation rates. 	<ul style="list-style-type: none"> Project and other mining operations and projects in the Local Area
Uncertainty around future aspirations	<ul style="list-style-type: none"> Increased stress and anxiety in residents leading to long-term health and wellbeing issues Stagnation of rural business as residents seek greater certainty in Project and related impacts Loss of population as local residents depart, 	<ul style="list-style-type: none"> Not a cumulative impact 	<ul style="list-style-type: none"> Project approvals schedule Project property acquisition strategy Changing economic dynamics of rural industry

Cumulative Impact	Potential Cumulative Effects		Cumulative Activities
	Bylong Valley/Rural Area	Sub-Regional Area	
	unable to accommodate uncertainty in their life.		

6.3.1 Population Change

This section discusses the cumulative population impacts associated with the Project under the No WAF accommodation scenario and the other three accommodation scenarios presented in the EIS SIA (Appendix AC of the EIS). Importantly this section also addresses the concerns raised by stakeholders during the public exhibition phase of the Project in relation to cumulative population decline in the rural area around Bylong and Wollar.

Cumulative Population Growth

Table 29 presents the projects within the MWRC LGA that have been considered in the prediction and assessment of cumulative impacts. Cumulative population growth has been discussed in Section 6.3.8 of the EIS SIA (Appendix AC of the EIS). The size of the predicted cumulative population growth is also described in Section 6.3.8 of the EIS SIA (Appendix AC of the EIS). Table 38 of the EIS SIA (Appendix AC of the EIS) demonstrates that cumulative population growth associated with the mining and resources sector in the MWRC LGA will be significantly greater than the population impacts of the Project alone.

The cumulative population impacts described in EIS SIA (Appendix AC of the EIS) for Construction Phase 1 under the three accommodation scenarios is the same as for the No WAF accommodation scenario. This is because the workforce associated with Construction Phase 1 was always residing in the MWRC LGA, albeit within a WAF.

The reduced workforce associated with Construction Phase 1 means that the contribution of the Project to cumulative population growth across the MWRC LGA will be slightly smaller in PY 1 and PY 2 than described in the EIS SIA (Appendix AC of the EIS). However, the use of local accommodation options means that the Project during Construction Phase 1 is likely to result in a temporary increase in the population of Mudgee, as the majority of the workforces are likely to reside here during Construction Phase 1.

Cumulative Population Decline

Population decline in the rural area surrounding Bylong Valley, Wollar and Ulan is a result of a combination of an aging population, historical population change, exploration and mining activity (including the Project) and a national trend in rural population decline. The issue of national trends was presented in Section 6.2.3 of the EIS SIA (Appendix AC of the EIS).

Mining activity has resulted in significant population change across these rural communities as demonstrated through a review of population trends, school enrolments and anecdotal information. This population change is a result of the cumulative property acquisition activities of multiple mining operations. Population decline across the communities of Wollar, Ulan and to a lesser extent Bylong has been the primary driver of social changes in these communities.

The following section attempts to quantify the cumulative population decline experienced to date across the Rural Area that encompasses Bylong Valley, Wollar and Ulan.

The Rural Area is defined using the Australia Bureau of Statistics (ABS) geographical areas of Breakfast Creek State Suburb (SS) and Wollar SS. The Breakfast Creek SS includes the Bylong Village. The Wollar SS includes the villages of Wollar and Ulan.

Evidence from recent consultation conducted with residents of Bylong Valley and Wollar (Section 6.2.3 of Appendix AC of the EIS and Section 2.2.1 of Peabody Energy 2015) highlights the considerable fluctuation in the population of the Rural Area of the past 20 years. Section 6.2.3 of the EIS SIA (Appendix AC of the EIS) lists the perceived drivers of historical population decline in the Bylong Valley as identified by participants in SIA Consultation for the Project. These participants were all existing Bylong Valley residents, a number of whom were long-term residents. Key drivers of population decline include:

- Consolidation of small landholdings into single large landholdings with a Property Manager, resulting in the loss of families (landholders) and farm hands;
- Challenging economic conditions particularly in the agricultural industry resulting in changing property management dynamics and a decrease in demand for farm labour;
- Changing family dynamics and associated lifestyle needs e.g. families with teenagers departing Bylong Valley in search of secondary schooling options;
- The completion of the construction phase of Sandy Hollow to Gulgong Railway line; and
- A general trend of population decline across rural Australia.

Similar issues were identified by the Wollar community during consultation conducted for the Wilpinjong Mine Expansion and reported in Peabody Energy (2015).

Participants in the SIA consultation suggested the rate of population decline in the area surrounding the Project has increased in the past two years as a result of the KEPCO's property acquisition activities. In the Bylong Valley this increased rate of population decline has had a cumulative impact on the sense of community in the Bylong Valley. Anecdotal evidence suggests a similar situation in Wollar as a result of property acquisition activities associated with the operation of the Wilpinjong Mine.

ABS data does not provide population trend data at a consistent geographic level suitable for interpreting population decline in small rural communities. It is therefore difficult to quantify the population change in the Bylong Valley and Wollar and determine what if any impact cumulative mining activity has had on population. The best available data is presented in **Table 31**. Comparable data is available for the 2001 to 2006 ABS Census periods for the Wollar SS and the Breakfast Creek SS. 2011 ABS Census data is generally not comparable to earlier years, however it is included in **Table 31**. It is not possible to provide specific data for Ulan. The township of Ulan forms part of the Wollar SS.

Table 31
Population Trends in the Surrounding Area

Census Area	2001		2006		2011		Change (%)	Change (%)
	Pop	No Families	Pop	No Families	Pop	No Families	01-06	01-11
Wollar SS	327	100	304	84	260	62	-7%	-20.5%
Breakfast Creek SS	247	74	230	69	273	82	-7%	Not comparable

Source: ABS Census Data 2016a,b,c

Notes:

1. 2001 data for Wollar SS is generated by adding together population data for Collection District (CD) 1032606 and CD1032602. The 2001 and 2006 geographic ABS Census areas are comparable. The 2011 Census area of Wollar SS is larger than the 2006 Wollar SS: 962.6 km² compared to 794.5 km².
2. 2001 data for Breakfast Creek SS is drawn from CD1142501. The 2001 and 2006 geographic ABS areas are comparable. The 2006 and 2011 ABS Census areas are not comparable. The 2011 Breakfast Creek SS at 1046.7km² is much larger than the 2006 Breakfast Creek SS at 477.1 km².

Notable trends evident in **Table 31** include:

- Population decline of 7% in both the Wollar SS and Breakfast Creek SS in the period 2001-2006;
- Decline in the number of families in both the Wollar SS and Breakfast Creek SS between 2001-2006;
- Significant population decline (14.5%) between 2006 and 2011 in the Wollar SS, this is despite the 2011 Wollar SS including a substantially larger area of land; and
- Population decline of 7.5% across the combined area of Wollar SS and Breakfast Creek SS between the period 2001 and 2006.

Both the 2006 and 2011 Wollar SS areas include land affected by the Ulan Mining Complex, the Moolarben Mine and the Wilpinjong Mine. The population decline experienced in Wollar SS between 2001 and 2006 is unlikely to be a result of cumulative mining expansion in the area. Until 2006 the Ulan Mining Complex was the only operating mine in the Rural Area. Expansion of the Ulan Mining Complex is understood to have involved property acquisitions that are likely to have resulted in a loss of local residents (reflected in the 7% decline between 2001 and 2006). The majority of property acquisition activities associated with the Wilpinjong Mine did not commence until around 2006 (Peabody Energy 2015). Property acquisition associated with the Moolarben Mines is also understood to have occurred post 2006.

The population decline (14.5%) experienced in Wollar SS between 2006 and 2011 is predicted to be the result of cumulative mining activity with the construction of Wilpinjong Mine and Moolarben Mine during this period, and the associated property acquisition activities. This population decline of 14.5% is more than double the preceding ABS Census period. One visible impact of this population decline is the reduced enrolments at Wollar Public School (**Table 32**) and a gradual decline in enrolments at the Ulan Public School. Other impacts include a reduction in local services notably rates of volunteerism at the Wollar Rural Bushfire Service (Peabody Energy 2015). Anecdotal evidence also suggests there has been a significant reduction in turnover at the Wollar shop.

There is little potential for any significant population growth in Wollar into the future (Peabody Energy 2015)

Peabody Energy (pp 71 2015) states:

Wollar's character values and amenities have been reduced by PEA's property purchases, and remaining residents noted that the village offers a less attractive appearance and less amenity than it did ten years ago. Also, people seeking a quiet rural lifestyle are less likely to move to an area with existing cumulative impacts from mining operations.

Table 32
School Enrolment Numbers

Census Area	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Wollar Public School	20	17	9	9	16	9	6	5	5	8
Bylong Upper Public School	9	8	10	8	7	5	4	5	6	0
Ulan Public School	32	29	20	27	22	14	12	18	17	15

Source: NSW Department of Education and Communities (NSW DEC) 2012, 2015

Population decline in the Breakfast Creek SS is more difficult to quantify than in the Wollar SS due to changing ABS geographic areas. The 2006 Breakfast Creek SS does not include the majority of land affected by the Project. It does however include land affected by the Mt Penny Project. The 2011 Breakfast Creek SS includes land potentially affected by both the Project and the former Mt Penny Project.

The population increase in the Breakfast Creek SS between 2006 and 2011 is attributed to an increase in the geographic size of the Breakfast Creek SS between 2006 and 2011 and the inclusion of previously excluded areas to the east of Bylong Valley Way rather than growth in the population of the 2006 Breakfast Creek SS.

Property acquisition activities for the Mt Penny Project are understood to have occurred between 2006 and 2011. These property sales are likely to have adversely affected the 2011 ABS Census population of Breakfast Creek SS, however it is not reflected in the ABS data due to the geographic boundary changes. It is also not possible to accurately determine the net number of people who moved out of Breakfast Creek SS as a result of the former Mt Penny Project. Anecdotal evidence suggests property acquisition associated with the former Mt Penny Project did result in a net reduction in the number of people residing on the purchased properties.

The majority of property acquisition activities associated with the Project have occurred post the 2011 ABS Census (conducted 9 August, 2011) and will ultimately be reflected in the 2016 ABS Census scheduled for August 2016. One of the first property acquisitions by KEPCO was Bylong Station, purchased in February 2011 followed by Harley Hill and Glenview which were purchased in June 2011. Between 2011 and April 2015 property acquisition activities associated with the Project have resulted in a net population loss of ten people in the Bylong Valley (Section 6.3.5 of the EIS SIA).

Since April 2015, eight people have vacated the Bylong Valley area as a result of the Project. A further 13 residents are anticipated to be required to move off land affected by the Project prior to the commencement of Construction Phase 1.

Predicted population decline between 2011 and 2016 is estimated at 31 people or 11.3%. This rate of decline is significant and higher than the rate recorded for the Breakfast Creek SS prior to the introduction of mining.

Determining the cumulative population decline across the Rural Area is problematic due to changing ABS geographic boundaries. However, it can be estimated that between 2006 and the end of 2016 a minimum of 75 people (31 from Bylong and 44 from Wollar) will have been displaced from the Rural Area as a result of mining. This is equal to a decline of approximately 14% on the 2006 population of the combined area. These numbers should be treated with caution however as it is likely there have been additional non-mining related population movements in and out of the combined area over the same period.

Table 33 shows comparable population data for a number of NSW rural agricultural communities, that are currently unaffected by mining. This data is presented to demonstrate that the population decline experienced in the Rural Area pre-mining is not dissimilar to the rate of population change occurring in other non-mining communities. Comparable data is available for the 2001 to 2006 ABS Census periods for the Urban Centre/Localities (UCL) of Trangie, Condobolin, Cowra, Walgett and Deniliquin. The area of land included in all subject UCL's for the 2011 ABS Census period is larger than in earlier years with the exception of Deniliquin which is smaller.

Table 33
Population Trends in the Other Rural Communities

Census Area	2001		2006		2011		Change (%)	Change (%)
	Pop	Families	Pop	Families	Pop	Families	01-06	01-11
Trangie UCL	940	237	867	221	849	215	-7.7	-9.7
Condobolin UCL	3,050	751	2,847	715	2,755	706	-6.7	-9.7
Cowra UCL	8,691	2,293	8,430	2,244	8,107	2,035	-3.0	-6.7
Walgett UCL	1,821	435	1,735	385	1,625	390	-4.7	-10.7
Deniliquin UCL	7,781	2,076	7,431	1,967	6,441	1,695	-4.5	-17.2

Source: ABS Census Data 2016a,b,c

All communities of interest show a declining resident population between 2001 and 2006. Both Trangie and Condobolin UCLs show similar rates of decline between 2001 and 2006 to Wollar SS and Breakfast Creek SS.

School enrolment trends also offer some insight into population trends of small communities. School enrolments from 2006-2015 for Bylong Upper, Wollar and Ulan Public Schools (**Table 32**) show a steady decline in enrolment numbers. Enrolments at Wollar Public School declined by 60% between 2006 and 2015, matched by a 53% decline at Ulan Public School and a 100% decline at Bylong Upper Public School. The gradual reduction in enrolments at both Wollar Public School and Ulan Public School have been reported to be impacted by property acquisition for the surrounding mining operations. Enrolment numbers at Bylong Upper Public School have remained low across the timeline presented in **Table 32**, despite the absence of any significant mining activity in the Bylong Valley until 2011.

Rural population decline impacted by cumulative mining activity is likely to continue into the immediate future. The Wilpinjong Extension Project may require additional property purchases in the Wollar SS contributing to further decline in the population of the Rural Area (Peabody 2015). In the Bylong Valley, 13 existing residents will be required to move off land affected by the Project prior to the commencement of Construction Phase 1 (these movements are already considered in the predicted 14% decline in Rural Area population). In the case of the Bylong Valley, KEPCO is seeking to offset population loss by encouraging members of the Project workforce to relocate to the Bylong Valley and reside in one of the thirteen residences owned by KEPCO. KEPCO already has nine e houses occupied with farm hands, the Farm Manager and contractors.

6.3.2 Cumulative Housing Impacts

Cumulative impacts on housing and accommodation were discussed in the EIS SIA (Appendix AC of the EIS). The following discussion considers the cumulative housing and accommodation impacts associated with the Project under the No WAF accommodation scenario. These impacts relate specifically to Construction Phase 1.

The housing and accommodation impacts described in **Section 5.1.5** have the potential to become cumulative impacts as a result of a combination of:

- Project workforce accommodation demands;
- The workforce accommodation demands of other mining projects in the MWRC LGA (**Table 29**); and
- Short-term tourist accommodation demands associated with regional tourism events such as *Mudgee Small Farm Field Days*.

Based on the information presented in **Table 29**, the Wilpinjong Mine has the greatest potential to impact housing and accommodation supply across the MWRC LGA at the same time as the Project Construction Phase 1.

Subject to approval, the construction phase of the Wilpinjong Expansion Project is due to commence in 2017, with a peak construction workforce of 100 workers (Peabody Energy 2015). An average of 40 additional operational jobs would be available at Wilpinjong Mine between 2018 and 2023 following the completion of the Wilpinjong Expansion Project (Peabody Energy 2015). Based on these figures, both the Project and the Wilpinjong Expansion Project will be seeking accommodation for construction and operation workforces over similar timeframes.

It is understood that the construction workforce associated with the Wilpinjong Expansion Project will be accommodated in temporary accommodation and local housing stock in the MWRC LGA, most likely in Mudgee (Peabody Energy 2015). Peabody Energy (2015) predicts that 50% (N=50) of construction workers may require accommodation while on roster with 50% of these workers accommodated in hotels, motels or cabins and 50% accommodated in rental accommodation. Whilst the construction numbers for the Wilpinjong Extension Project appear quite small it is equivalent to 10 rental houses (at approximately three people per house) and 25 temporary accommodation beds.

Despite the relatively small workforce associated with the Wilpinjong Expansion Project, the combination of the Wilpinjong Expansion Project demands and the significant accommodation demands generated by the Project workforce associated with Construction Phase 1 means there may be cumulative impacts on short-term accommodation in the Local Area at peak periods during 2017 and 2018.

Cumulative impacts have the potential to aggregate further as a result of additional demands generated by regional tourist events such as *A Day on the Green*. There is a high risk that in 2017 and 2018 demand for tourist accommodation across the MWRC LGA will outstrip supply. KEPCO must avoid the implication of delaying construction as a result of not being able to accommodate its workforce when accommodation availability is affected by low vacancy rates and/or key regional tourism events such as *A Day on the Green*. In the event that the Project secures tourist accommodation ahead of tourists, then regional tourism will be impacted. Alternatively there could be significant impacts to the Project in the event that visitors to the region secure available accommodation ahead of the Project. There would be significant implications for the organisers of the *Mudgee Small Farm Field Days* if participants are unable to secure accommodation.

6.3.3 Cumulative Impacts to Infrastructure and Services in Mudgee

As Construction Phase 1 will coincide with the construction phase of the Wilpinjong Expansion Project, there is likely to be a cumulative but temporary increase in population in Mudgee. The short-term nature of the construction phases means that the effects of this cumulative population increase will largely be positive and related to local spend. However there is likely to be some temporary increase in demand for a range of facilities and services, predominantly health and medical services, specifically general practitioner services.

6.3.4 Population Decline in the Rural Area

Population decline across the communities of Wollar, Ulan and to a lesser extent Bylong has been the primary driver of social changes in these communities. The impacts arising from these social changes include:

- Loss of existing community infrastructure and services;
- Loss of local business spending;
- Adverse changes in local participation, community empowerment;
- Disruption to social activities;
- Changes in social capital and loss of community identity; and
- Loss of social sustainability.

Based on the findings of the EIS SIA interviews conducted with Bylong residents, historical population decline across the Bylong Valley has resulted in a reduction in social capital, reduced involvement in community events and a reduction in the number of events. A number of participants in EIS SIA interviews suggested the cumulative impact of these changes was a reduced sense of community in the Bylong Valley.

Within the Bylong Valley property acquisition activities associated with the Project have contributed to population change (decline) in the Bylong Valley.

In isolation, these impacts have had a moderate impact on the communities of the Rural Area. When considered cumulatively, there is evidence to suggest the impact may be significant. However this impact has been unevenly distributed with the township of Wollar experiencing the most discernible impacts to date.

6.3.5 Cumulative Impacts to Infrastructure and Services

Gradual population decline across the Rural Area has resulted in reduced accessibility to community infrastructure and services, notably:

- Education services - primary schools; and
- Emergency services - Rural Fire Services.

Cumulative Impacts on Education Services

Population decline across the Rural Area has resulted in a reduction in the number of families residing in the Local Area and a corresponding reduction in school enrolments. Bylong Upper Public School was closed in 2015 and Wollar Public School is understood to be under review by the NSW DEC due to a reduction in enrolments. It is understood one child from the Bylong Valley transferred from Upper Bylong Public School to Wollar Public School for the 2016 school year. Whilst the loss of Bylong Upper Public School has resulted in a minor increase in enrolments at Wollar, stakeholders remain concerned that further cumulative population decline across rural areas of the MWRC LGA may result in rationalisation and consolidation of existing education services in future years with resulting impacts on accessibility for existing residents. Families generally require ready access to education facilities. The presence of a primary school in a community makes the locality attractive to families.

The recent closure of Bylong Upper Public School follows a trend of closures in small rural communities experiencing small school enrolment numbers. The long-term sustainability of small primary schools across NSW is an issue currently being considered by the NSW DEC. The reduction in education services in the Bylong Valley is a result of population decline which has been driven by historical processes, cumulative mining activity and a national trend in rural population decline. A decline in enrolment numbers at Bylong Upper Public School is also the result of an aging population in the Bylong Valley and a desire by some people to send their children to larger schools in Rylstone, Kandos or Mudgee.

It should be noted that KEPCO has always maintained a position of relocation rather than closure of Bylong Upper Public School. The decision to close the school was a decision made by the NSW DEC following a review of both current enrolment number but also the potential for future enrolments.

In the event that ongoing population decline across the Rural Area forces the closure of Wollar Public School, Ulan Public School will remain the only small community school in the north eastern area of the MWRC LGA. It is likely that existing residents of the Rural Area will be required to access education services in Gulgong, Mudgee or Rylstone and Kandos.

Cumulative Impacts on Emergency Services

The following section discusses the cumulative impact of population decline on emergency service delivery in the Rural Area.

Population decline across the Rural Area has resulted in fewer people available to participate in volunteer activities such as the rural fire service. This is evident in the decline in volunteer numbers at the Bylong Rural Fire Service and at the Wollar Rural Fire Brigade. The Wollar service has merged with the Cook's Gap RFS in order to secure a long-term service for the Wollar area. Stakeholders are concerned about the impacts on the Rural Area in the event the Bylong Rural Fire Service ceases to operate. Stakeholders are concerned that the loss of both the Wollar and Bylong services could result in a significant health and safety risk for remaining landholders.

KEPCO acknowledges that a natural population decline in Bylong, together with an aging population and the Project's property acquisition process has resulted in a reduction in capacity at the Bylong Rural Fire Service. There is potential for further rationalisation of rural fire services across the Rural Area as a result of cumulative population decline. However, KEPCO and a number of other mine proponents in the MWRC LGA (e.g. Peabody Energy at Wilpinjong Mine) have either committed to or are currently engaged in activities that seek to support the existing emergency service operations. Activities include funding necessary equipment and/or supporting employees in volunteer roles to ensure services can continue to operate effectively.

Peabody Energy has established a working protocol with the Cooks Gap RFS (which includes former members of the Wollar RFS) to respond to fire incidents at the Wilpinjong Mine site and in the local area (Peabody Energy 2015). Table 82 of the EIS SIA (Appendix AC of the EIS) describes the commitments made by KEPCO to manage predicted Project impacts and cumulative impacts on emergency services.

Changes in Social Sustainability

The findings of consultation conducted with residents of the Bylong Valley to inform the EIS together with information presented in Peabody Energy (2015) suggest historical population decline and the growth in mining activity (including exploration) has resulted in a loss of social capital across the Rural Area. There is a perception by residents of Wollar and the Bylong Valley that the social sustainability of the Rural Area is threatened by the cumulative impacts of mining activity.

Social sustainability occurs when the formal and informal processes; systems; structures; and relationships actively support the capacity of current and future generations to create healthy and liveable communities. Socially sustainable communities are equitable, diverse, connected and democratic and provide a good quality of life (McKenzie 2004). Elliot Whiteing in Peabody Energy (2015) suggests social sustainability is affected by population size and composition, and by adequacy of key resources such as locally relevant skills, community networks and housing.

Peabody Energy (pp70 2015) suggests that Wollar village's sustainability is currently marginal, because there are insufficient community resources (such as social networks and community events) to sustain social structures (such as the Community Hall) and provide practical support to community members). Peabody Energy (2015) also suggests that the current social sustainability of Wollar is a result of the declining population which in turn is a result of property acquisition associated with the Wilpinjong Mine.

In the context of the Bylong Valley, there is potential for the following Project related activities to result in adverse cumulative impacts on social sustainability:

- Property acquisition activities and the associated displacement of population;
- Construction and operation of the WAF and associated temporary population influx and demographic changes; and
- Project construction and operation and the resulting changes to the character, amenity and identity of the village of Bylong.

However, there is also the potential for the following Project related activities which together may have a positive cumulative impact on social sustainability:

- Use of KEPCO owned housing in the Bylong Valley to accommodate the Project workforce. This will draw population to the Bylong Valley and offset the population lost through Project related property acquisition;
- Implementation of social investment programs to support improvements in social capital;
- Employee education and training initiatives which develop human capital (skills, employment and training);
- Road upgrades in the Local Area that improve accessibility to nearby centres and improve emergency access; and
- Employment and economic investment initiatives that enable local people to be employed on the Project or deliver services through the local procurement program.

There is anecdotal evidence to suggest the population of Bylong Valley has fluctuated historically and that population decline commenced prior to the introduction of mineral exploration into the area (refer Section 6.2.3 of the EIS SIA (Appendix AC of the EIS)). There is also evidence to suggest that levels of social sustainability in Bylong Valley have fluctuated in line with the changing population. For example AECOM (2015) in the Historic Heritage impact Assessment (Appendix T of the EIS) notes the historical existence of numerous schools across the Bylong Valley. Consultation with Bylong Valley residents to inform the SIA and Heritage Assessment for the EIS highlighted the range of activities and events that occurred in the Bylong Valley in the late 80's and early 90's and note the absence of such events now. The findings of the EIS SIA interviews conducted with residents of the Bylong Valley suggest changing community structures and relationships dating back more than 10 years. In more recent times adverse changes in social sustainability are evident in the suspension of the Mouses Races in 2014, reduced rates of volunteerism at the Bylong Rural Fire Service and the recent closure of the Bylong Upper Public School.

It remains to be seen as to what extent the closure of Bylong Upper Public School affects social sustainability in the Bylong Valley. The closure of Bylong Upper Public School may make the area less attractive as a residential location for families. The closure of the school may reduce opportunities to build social capital in the Bylong Valley. Schools can be effective at providing information and creating a sense of social connectedness and resilience in families and young people, particularly in rural communities.

Property acquisition associated with the Project will result in a loss of existing residents from the Bylong Valley. It is likely that some loss of relationships has occurred between residents of different communities as existing residents of the Rural Area depart in the wake of property acquisition activities. Cumulative population loss across the Rural Area is likely to speed up the rate of adverse change in social sustainability, particularly if this population decline results in a contraction in services such as education (e.g. Wollar Public School) and commercial (Wollar Store and post office).

KEPCO is seeking to encourage mine employees to relocate to the Bylong Valley and take up residence in a number of houses already owned by KEPCO. Many of these houses are located in areas that will be largely unaffected by mining operations. It is acknowledged that some employees with families will not be interested in residing in proximity to an operating mine. Despite this, as underground mining progresses and the open cut mining area is rehabilitated the Bylong Valley is likely to be attractive to employees as a residential location, particularly given the considerable daily commute time from the Project site to Mudgee (almost one hour). There are examples of other mining operations where mine owned housing located in proximity to an operating mine are occupied by senior personnel associated with mine operations. Examples in NSW include Bengalla Mine, Boggabri Mine and Mt Arthur.

6.3.6 Cumulative Traffic Impacts

In response to the submissions received during the public exhibition process, Parsons Brinckerhoff has prepared a revised Traffic and Transport Impact Assessment (presented as an Appendix to the RTS). This report has considered a much wider study area for the impact assessment. The Project will result in additional traffic movements on the local and regional road network. Refer to the revised Traffic and Transport Impact Assessment for more information on cumulative traffic impacts.

6.3.7 Cumulative Impacts on Rural Character and Amenity

Section 10.3.1 of the EIS SIA (Appendix AC of the EIS) discusses changes in character and rural amenity associated with the Project. The following section discusses the cumulative impact of mining on the character and amenity of the Bylong Valley and the broader Rural Area.

Mining has existed in areas to the north east of Mudgee since the early 1920's with the operation of Ulan No1 Colliery (Glencore 2016). The commencement of the Wilpinjong Coal Mine in 2006 and Moolarben Coal Mine in 2007 marked the start of a gradual process of change in the character of the Rural Area, particularly in Ulan and Wollar.

Not only has the area transitioned from a solely rural environment to also including an industrial landscape, there has been an increase in traffic volumes on the local road network, the introduction of a significant working population of a predominantly male demographic, and an increase in mine vehicles.

The Bylong Valley has remained largely unaffected by these changes, attributable to the topography of the Bylong Valley and an absence of any direct line of sight with the existing mining operations at Wollar. The Sandy Hollow to Gulgong Railway line which passes through the Bylong Valley is one of only a few mining related elements in the landscape of the Bylong Valley.

Reduced amenity may occur in a small area of the Bylong Valley (less than 2%) as a result of the open cut mining elements of the Project, the potential operation of a WAF in Bylong, the traffic generated by the workforce and the introduction of mine vehicles. These issues have already been discussed in Section 10.3.1 of the EIS SIA (Appendix AC of the EIS).

The magnitude of the change in rural character and amenity of the Bylong Valley is predicted to be less than that at nearby Wollar due to the short-term life of the open cut operation associated with the Project (i.e. approximately 8 years) and the life of the WAF (maximum 6 years) and the fact that less than 2% of the Bylong Valley will be affected by the mine. Open cut mining is proposed to be undertaken for less than nine years in the Bylong Valley and will be followed by a period of rehabilitation. The WAF is proposed to operate for an initial term of only two years, associated with Construction Phase 1. Once this phase is completed the WAF may be demobilised depending on accommodation availability in the Local Area.

6.3.8 Cumulative Impacts to the Tourism Industry

The following cumulative social impacts have the potential to result in cumulative effects on the Tourism industry in the Local Area:

- Increased demand for tourist accommodation in the Local Area;
- Increased traffic on the road network in the Local Area;
- Changes to rural character and amenity;
- Access to affordable housing for industry staff who are unable to pay inflated rental prices; and
- Increased traffic and reduced road safety on road networks in the Local Area.

Tourism Research Australia (in COA 2013) found during the mining boom that flights and accommodation were being ‘crowded out’ by business and employment use. Under the No WAF accommodation scenario, there is a high likelihood that Project workforce accommodation demands during Construction Phase 1 will “crowd out” accommodation options for the tourism sector. This is most likely to occur during the winter months, when tourism in the MWRC LGA is understood to peak. The consequences of this crowding out are likely to be severe, with tourists unable to access suitable accommodation for the duration of the construction phase and a corresponding decline in attendance at regional events during this period.

The Mudgee region is an attractive driving destination for tourism. Bylong Valley Way that runs through the Bylong Valley, and connects the Golden Highway near Sandy Hollow to the Castlereagh Highway near Ilford is a popular tourist driving route. Under the No WAF accommodation scenario, the Bylong Valley Way is likely to experience an increase in daily traffic volumes. The combination of speed, fatigue and an increase in traffic has the potential to reduce road safety for employees and other road users including tourists (Parsons Brinckerhoff 2016). Further, existing cumulative impacts associated with the presence of multiple mining activities in the Local Area has impacted rural character and amenity. Further changes to rural character and amenity are anticipated as a result of the Project. One potential cumulative effect associated with the changing rural character and amenity is a reduction in the attractiveness of the Rural Area to tourists.

During the Federal FIFO Inquiry (COA 2013), the Queensland Government raised concerns about road safety and tourism objectives:

Extra road traffic generated by DIDO workers has the potential to increase traffic and reduce safety on the road networks in regional areas, making them less attractive for the self-drive touring market. The safety, reliability and efficiency of Queensland’s road network has direct impacts on Queensland’s tourism industry

because of the regionalised nature of our population centres and tourist attractions/destinations⁹.

6.4 SUMMARY OF IMPACTS

Table 34 summarises the findings of the cumulative social impact assessment and describes the relevance of the cumulative social impacts and benefits of the Project for the Bylong Valley and associated Rural Area, and the Sub-Regional Study Area (MWRC LGA). The assessment is based on the revised workforce arrangements and the No WAF accommodation scenario.

The No WAF accommodation scenario is unlikely to have any significant influence on cumulative social impacts associated with the operations phase. This is because the base case accommodation scenario assessed in the EIS SIA (Appendix AC of the EIS) assumed that the operations phase workforce would be accommodated as permanent residents in the Local Area. However, where relevant cumulative social impacts associated with the Operations Phase have been included in **Table 34**.

⁹ Queensland Government , Submission 109, p.13-14 in COA 2013

Table 34
Summary of Potential Cumulative Social Impacts and Effects

Potential Cumulative Impacts and Effects	Bylong Valley and the Rural Area	Sub Regional-Area
Temporary population growth during construction phases		
Increased demand for community services and facilities	No cumulative impacts.	Temporary increase in demand for a range of services across the Local Area, specifically health services and emergency services. Additional demands generated for allied health services. Increased demand likely to be most discernible in Mudgee due to the geographical distribution of the Project workforce. Increased demand in Mudgee has the potential to reduce access for existing residents to GP services and allied health services in Mudgee.
Permanent population growth during Operations Phase		
Increased demand for community services and facilities	No cumulative impacts anticipated.	Specific services and facilities in Mudgee will experience an increase in demand. Education services, health services and children’s services are likely to experience the highest demands. The DEC has advised that the projected growth in school age population in Mudgee can be accommodated within the normal expansion of services. The combination of project induced demand for health services and existing servicing issues in Mudgee is likely to further reduce existing resident access to health services.

Potential Cumulative Impacts and Effects	Bylong Valley and the Rural Area	Sub Regional-Area
Population decline in the Bylong Valley		
Loss of infrastructure and services as a result of reduced demand	To date the cumulative impact of natural population decline and project related property acquisition activities has resulted in the closure of Bylong Upper Public School and a reduction in volunteers at the Bylong RFS. Further consolidation of RFS services may result in the loss of the local RSF service and a corresponding increase in health and safety risk to the community.	No cumulative impacts identified.
Loss of valued social capital	Population decline in the Bylong Valley has resulted in reduced social capital, specifically the loss of skills and knowledge as residents have departed and the loss of key infrastructure such as the Bylong Upper Public School. KEPCO is seeking to encourage mine employees to relocate to the Bylong Valley and take up residence in a number of houses already owned by KEPCO. This will assist in restoring lost social capital.	No cumulative impacts identified
Population decline in the Rural Area		
Reduced demand for services and facilities	Reduced demand for some services and facilities across the Rural area may result in further consolidation of services as their viability is challenged. This in turn will reduce service accessibility for existing rural residents. In the case of commercial establishments, reduced local spend may impact on the economic viability of establishments. Gradual population decline across the Rural Area has resulted in the loss of specific community infrastructure and services, notably: <ul style="list-style-type: none"> • Bylong Upper Public School; and • Wollar RFS. 	Population decline across the Rural Area and the associated loss of services and infrastructure e.g. schools will impact demand for services in other areas of the MWRC LGA e.g. Mudgee. The increase in demand is unlikely to be discernible and can be met within the natural growth in service provision.

Potential Cumulative Impacts and Effects	Bylong Valley and the Rural Area	Sub Regional-Area
	<p>There is concern that further population decline across rural areas of the MWRC LGA, contributed to by the cumulative impacts of mining, may result in the future rationalisation and consolidation of existing education services across the Rural Area with resulting cumulative effects on service accessibility for existing residents.</p> <p>There are also concerns in relation to the cumulative effects associated with the potential loss of Bylong RFS and the recent consolidation of RFS services in Wollar. Potential cumulative effects include reduced response times to both traffic incidents and bushfire emergencies with resulting changes in community health and wellbeing.</p>	
Loss of valued social capital	The loss of population and inherent skills and knowledge, combined with the potential loss of key services may lead to a further decline in long-term social sustainability of the Rural Area.	No discernible cumulative impacts to the Sub-Regional Area.
Reduction in social sustainability.	<p>In isolation the cumulative effects described above have had a moderate impact to date on the communities of the Rural Area. When considered together however there is evidence to suggest the cumulative effect is also discernible, however it has been unevenly distributed across the Rural Area, with the township of Wollar appearing to have experienced the most significant impacts to date based on Peabody Energy (2015).</p> <p>The cumulative effects of population decline in the Rural Area are currently having an impact on long-term social sustainability of the individual communities of Wollar, Ulan and Bylong.</p>	No discernible cumulative impacts to the Sub-Regional Area.

Potential Cumulative Impacts and Effects	Bylong Valley and the Rural Area	Sub Regional-Area
Increased demand for short-term and long-term accommodation in the Local Area during Construction Phase 1.		
Increase in property rental prices	No cumulative impacts identified.	<p>Cumulative effects on the short-term accommodation market are likely as a result of the combination of Project accommodation demands at peak construction and the accommodation demands of the Wilpinjong Extension Project. There is a high likelihood that the cumulative impact of these projects will significantly reduce the supply of short-term and long-term accommodation to the non-mining sector. This may have a direct impact on visitor numbers at key tourism events such as <i>A Day on the Green</i> and the <i>Mudgee Small Farm Field Days</i>. It may also adversely impact the supply of visiting specialist services to the Local Area.</p> <p>Project accommodation demands at peak construction combined with the accommodation demands of the Wilpinjong Extension Project may result in inflation of property rental rates in Mudgee and possibly Kandos.</p> <p>This will impact the availability of rental accommodation for lower-socio economic groups and non-mining employees. There may be a potential increase in the demand for social housing due to the displacement of lower socio-economic groups out of the housing market in Mudgee.</p>
Increase in overnight rates in short-term tourism accommodation	No cumulative impacts identified.	<p>There is potential for cumulative impacts to affect the price of accommodation in tourist establishments within the Local Area, notably Mudgee as a result of the combined accommodation demands of the Project and the Wilpinjong Extension Project. This may make accommodation in the Local Area, particularly Mudgee less attractive to the non-mining sector.</p> <p>Potential visitors to the region may redirect their interest to</p>

Potential Cumulative Impacts and Effects	Bylong Valley and the Rural Area	Sub Regional-Area
		other regions.
Reduced availability of short-term accommodation in the Local Area for non Project related visitors	No cumulative impacts identified.	During Construction Phase 1 there is a high likelihood that the combination of Project workforce accommodation demands and the accommodation demands of the Wilpinjong Extension Project will “crowd out” accommodation options for the tourism sector. This is most likely to occur during the winter months, when tourism in the MWRC LGA is understood to peak. The potential consequences of this crowding out are likely to be high with tourists unable to access suitable accommodation for the duration of the construction phase and a corresponding decline in attendance at regional events and tourist spend during this period.
Cumulative increase in mine related vehicles on the local road network during construction phases		
Reduced road safety	The addition of Project related traffic on the local road network together with the combination of speed and driver fatigue has the potential to reduce road safety for workers, visitors and existing residents on the Wollar Road and Ulan Road.	The addition of Project related traffic on the local road network together with the combination of speed and driver fatigue has the potential to reduce road safety for workers, visitors and existing residents on Wollar Road and Ulan Road.
Changes in character and amenity of the Rural Area		
Further loss of population as existing residents depart unhappy with the changing amenity	There are likely to be further departures from the Bylong Valley and the broader Rural Area as a result of changing rural character and amenity.	No cumulative impacts
Loss of identity as rural land use transitions to include mining landscapes.	The identity of the communities of Wollar and Bylong is strongly linked to the agricultural land uses prevalent in the Rural Area. The transition from a solely rural landscape, to a landscape that includes a mining landscape has the potential to challenge the rural identity of the communities and may result in the further departure of	No cumulative impacts

Potential Cumulative Impacts and Effects	Bylong Valley and the Rural Area	Sub Regional-Area
	residents from the Rural Area.	
Uncertainty around future aspirations		
Increased stress and anxiety in residents, potentially contributing to long-term health and wellbeing issues	A number of existing residents of the Bylong Valley have reported that they are experiencing moderate levels of stress and anxiety as a result of the uncertainty around the Project. Stress and anxiety is likely to be influenced by the combination of the Project property acquisition process and the timeframe for the Project approvals process.	No cumulative impacts identified.
Stagnation of rural business as residents seek greater certainty in Project and related impacts	The findings of SIA consultation conducted with residents of the Bylong Valley indicate that existing residents are hesitant to invest in their properties in the absence of greater certainty around the Project progressing, the extent of potential impacts and the Project property acquisition process.	No cumulative impacts identified
Population decline	Further reduction in resident population in the Rural Area due to the departure of residents who are unable to accommodate uncertainty in their life.	No cumulative impacts identified.

7 MITIGATION AND MANAGEMENT

KEPCO has already identified a number of management commitments to respond to the potential social and cumulative social impacts associated with the Project. These commitments are described in the EIS SIA (Appendix AC of the EIS). This section describes the primary management tools and the additional actions proposed to manage or mitigate the specific impacts associated with the No WAF accommodation scenario.

7.1 EXISTING COMMITMENTS

7.1.1 Voluntary Planning Agreement

KEPCO has negotiated a VPA with the MWRC including:

- \$2.75 M contribution consisting of an initial payment of \$1.5 M upon granting of Development Consent and KEPCO's approval to proceed, and a further \$1.25 M (to be CPI adjusted post 1 July 2017) at the commencement of open cut operation; and
- A payment of \$0.05 (to be CPI adjusted post 1 July 2017) per railed tonne of coal for the life of the Project, toward a Community Investment Fund.

7.1.2 Interim Community Investment Fund

KEPCO established an Interim Community Investment Fund in 2015. This Fund will continue to operate to the commencement of the Project Construction Phase, at which point in time the VPA will commence. Similar to the Corporate Sponsorship-Donations Fund, investments under the Interim Community Investment Fund will be guided by the key priorities identified through the Community Needs Assessment.

KEPCO is currently undertaking a Community Needs Assessment (CNA) to define the community's needs and KEPCO's values and principles regarding community investment. The purpose of the CNA is to provide an information and decision-making platform for KEPCO to facilitate:

- Defining contextually-relevant investment priority / focus areas.
- Identifying what type of community development initiatives are likely to be supported by local and regional communities (individuals, government and the private sector).
- Identifying potential community and government partners to implement some and relevant community development initiatives.

The CNA will expand on the findings of the Project's Social Impact Assessment and MWRC's Community Plan, to identify strategic investment opportunities for the Project in close consultation with MWRC and local community groups. The CNA will be updated annually and the outcomes of the assessment will inform the Project's investment strategy until 2017 or until the Voluntary Planning Agreement (VPA) is initiated.

The assessment will set out the nature and scale of investment, in line with community expectations, and will also describe any capacity building initiatives that may need to take place ahead of implementation. KEPCO will discuss the CNA outcomes with MWRC to assist in the ongoing monitoring and refinement of priority community investment areas.

7.1.3 Corporate Sponsorship and Donations Fund

KEPCO has established a Corporate SD Fund for the Project. The Corporate SD Fund will support small-scale investment across the MWRC LGA and will operate for the life of the Project. Investments under the Corporate SD Fund will be guided by the key priorities identified through the Community Needs Assessment to be conducted by KEPCO.

7.1.4 Social Impact Management Plan

A SIMP will be prepared for the Project following granting of Development Consent. The SIMP will guide implementation of the management strategies and actions described in the SIA and will also detail responsibilities, timing, performance indicators and targets and a regime for monitoring potential impacts.

7.2 ADDITIONAL MANAGEMENT COMMITMENTS

7.2.1 Revised Workforce Accommodation Strategy

Discussions with MWRC have confirmed their desire that all available rental accommodation in the MWRC LGA should be relied upon to house the construction workforce prior to accommodating construction employees at the mine site in a WAF. KEPCO is continually listening and working with MWRC's expectation to maximise local economic stimulus flowing from the Project to the MWRC LGA. This is demonstrated by KEPCO's commitment that it will encourage its permanent workforce to be accommodated as permanent residents within Mudgee and its surrounds (the Local Area) and the development of a Local Content Plan for the Project.

To meet MWRC's expectation, KEPCO conducted a Workforce Accommodation Study in late 2015 to gain an understanding of the available capacity of accommodation within the MWRC LGA. The findings of the Workforce Accommodation Study have informed the assessment of the No WAF accommodation scenario. This assessment has identified that there is unlikely to be a sufficient supply of suitable accommodation within the Local Area to house the entire construction workforce during the peak period of construction and this will result in adverse effects on the mine construction schedule.

KEPCO now proposes to seek approval for a temporary WAF for the workers who are unable to be accommodated in the Local Area or where it is necessary for the completion of their work that they reside in immediate proximity to the Project site.

KEPCO is currently initiating the tender process seeking contractors to build the mine. Once these expressions of interest are received over the next several months, more accurate required construction employee numbers will be available.

Based on the current forecast and dependant on the results of the tender process, a peak construction workforce of 665 FTE employees is likely to be required, this would equate to the requirement for a temporary WAF of 300 beds as a minimum. Based on the results of this tender process the size of the temporary WAF will be adjusted accordingly.

KEPCO's preferred approach is operate the nominal 300 bed temporary WAF for Construction Phase 1 (PY 1 and PY 2) using the WAF as a risk mitigation measures against identified shortfall of accommodation in the Local Area. The temporary WAF will then be decommissioned at the completion of construction phase 1 (~ start PY 3) if there is enough available housing in MWRC LGA for the Project workforce.

KEPCO will update the Workforce Accommodation Study at the end of PY 2 in close consultation with MWRC and DP&E to confirm the continuing use of the temporary WAF for PY 3 and PY 4. It is proposed that the supporting services to the temporary WAF such as power reticulation, water supply and sewage facilities, etc. will remain in place until PY 4. At this time, prior to the commencement of Construction Phase 2 (i.e. approx. end of PY 4), KEPCO proposes to commission a new Workforce Accommodation Study (similar to the recent surveys). This survey would confirm whether at that time there is suitable and available accommodation in the Local Area to accommodate the Construction Phase 2 workforce over and above the Operations Phase workforce who will be living in the LGA, for this two year construction period. This Workforce Accommodation Study will be undertaken in close consultation with MWRC and DP&E to determine whether there is a requirement for the temporary WAF for this second construction phase.

This preferred approach addresses the potential social and cumulative social impacts associated with the No WAF accommodation scenario and seeks to manage the risks associated with suitable accommodation not been available for the Project workforce during peak construction periods.

7.2.2 Employee Health and Wellbeing

KEPCO acknowledges the concerns of stakeholders in relation to the potential health and wellbeing of employees subject to long-distance commuting arrangements, regardless of their accommodation arrangements. KEPCO is willing to implement the following additional measures to reduce the risk of health and wellbeing issues in the workforce.

- Establishment of key policies around mental health to manage health and wellbeing issues arising in the workplace;
- Focus on managing mental health and wellbeing within the workplace rather than trying to screen for and recruit workers able to withstand the challenges of a long distance commuting role;
- Ensuring construction management personnel and supervisors are trained in managing mental health problems amongst colleagues and workers, this includes providing support to workers on site;

- Supporting the establishment of peer based support programs such as Mates in Construction on site to assist in breaking down stigma related to mental health issues;
- Ensuring construction workers and their families are informed of available mental health literature and support programs relevant to long-distance commuting practices; and
- Encouraging a workplace culture that is supportive of good mental health and wellbeing.

In regards to the inclusion of the WAF in the Project, KEPCO makes the following additional commitments:

- Inclusion of high quality, reliable and accessible communications technology in the WAF;
- Further consideration of the workforce control measures to be applied at the WAF in an effort to ensure such controls do not adversely impact workforce health and wellbeing. Particular consideration will be given to controls applied when workers are off-shift and residing in the WAF;
- Commitment to not using 'motelling' practices in the accommodation of the construction workforce; and
- Where possible, incorporate improved linkages into the Bylong community from the WAF to reduce the highly regulated nature of WAFs and enable greater interaction between the community and workers.

KEPCO strongly believes the inclusion of a WAF in the Project in combination with workforce accommodation in the Local Area will deliver better health and wellbeing outcomes for both employees and the broader community.

7.2.3 Cumulative Impact Management

Since the Project's cumulative social impacts are typically a result from the actions of multiple stakeholders, the responsibility for their management is collective and requires KEPCO to undertake individual actions in order to eliminate or minimise the individual contribution of the Project (IFC 2013). Population decline and loss of rural character and amenity are the result of cumulative mining activity that already exists in the Rural Area, as well as natural population decline. Management actions by other mining companies in the Rural Area may therefore be necessary in order to prevent further unacceptable cumulative impacts.

In addition to existing management commitments, KEPCO makes the following additional commitments described in **Table 35** to address the potential cumulative social impacts associated with the Project.

Table 35
Additional Management Actions to address Potential Cumulative Social Impacts

Impact	SIA Study Area	Commitment
Changes in character and amenity	Bylong Valley	Reduce the size of the proposed WAF to reflect the provision of accommodation for the workforce in the Local Area
Increased demand for short-term and long-term accommodation during Construction Phase 1	Sub Regional Study Area	Establish a temporary WAF (nominal 300 bed) at the Project site for Construction Phase 1 (PY 1 and PY 2). Use the WAF as a risk mitigation measure against for identified shortfall of accommodation in the Local Area.
Cumulative increase in mine related vehicles on the local road network during construction phases	Bylong Valley and Sub-Regional Study Area	Establish a temporary WAF (nominal 300 bed) at the Project site for Construction Phase 1 (PY 1 and PY 2). This will reduce daily project related traffic flows on the local road network during peak construction.

8 CONCLUSION

This revised SIA has been informed by a thorough examination of relevant qualitative and quantitative data, as well as a tailored consultation process designed to incorporate and consider stakeholder responses to the Project. The revised SIA has assessed the impacts of a fourth workforce accommodation scenario (the No WAF accommodation scenario) on the Project Area (Bylong Valley) and the Sub Regional Area (MWRC LGA).

KEPCO proposes the construction and operation of a combined open cut and underground mine in the Bylong Valley. The Project will have a peak workforce of 665¹⁰ FTE during Construction, 470 FTE during dual operations (when open cut and underground mining occur simultaneously) and 275 FTE during the underground only operation.

The revised SIA has assessed the impacts of Accommodation Scenario 4 based on the following workforce hiring assumptions:

- Construction Phase - 10% of the workforce will be local hires and 90% NLHs; and
- Operations Phase - 15% of the workforce will be local hires and 85% will be NLHs.

The Project is located in the Bylong Valley, near the small village of Bylong in the MWRC LGA. The Project site is located approximately one hour from Mudgee along Wollar Road. The MWRC has secured Resources for Regions funding from the State government for an upgrade to Wollar Road between Bylong Valley Way and the township of Wollar. The upgrade of Wollar Road will reduce the travel time between the Project Boundary and Mudgee to less than one hour.

Bylong retains its character as a rural village and the Bylong General Store forms the 'heart' of the main village area. The Bylong Valley has an estimated population of 100 people, with seven people currently residing in the village of Bylong. Bylong Valley Way runs through the Bylong Valley, and connects the Golden Highway near Sandy Hollow to the Castlereagh Highway near Ilford. There is no history of coal mining being undertaken in the Bylong Valley, however coal exploration has been occurring in the Bylong Valley for more than 30 years. The existing Wilpinjong coal mine is located near the township of Wollar, approximately 35 km (35 minutes drive) to the north west of the Project along Wollar Road. Moolarben Coal Mine and the Ulan Mining Complex are located 52 km to the north west of the Project near the township of Ulan.

Coal mining is a key industry in NSW and in the MWRC LGA. In 2011, the mining sector was the largest employer in the MWRC LGA and accounted for almost 50% of economic output in the MWRC LGA.

¹⁰ Including the workforce associated with the operation of the WAF.

The NSW Minerals Council recently released the Industry Economic Impact Statement 2014-2015 (NSW Minerals Council 2016). In the 2014/2015 financial year, the mining industry:

- Contributed \$678 M in direct spending throughout the Central West, of which \$281 M (41%) occurred in the MWRC LGA;
- Employed 1,326 residents of the MWRC LGA and contributed \$179 M in salaries; and
- Contributed to the MWRC LGA \$102 M in business purchases and community contributions.

Expansion in the mining sector has driven significant population growth across the MWRC LGA between 2012 and 2014, particularly in Mudgee. Household incomes have risen substantially as has the number of families living in Mudgee (HillPDA, 2014). The development of the mining industry in the MWRC LGA has provided the LGA with income, investment employment and infrastructure. Over the past 18 months however, contraction in the coal mining industry (a national trend) has resulted in reduced direct economic expenditure and employment in the MWRC LGA. The impact to the MWRC LGA from the recent contraction in the mining industry includes:

- A reduction in direct spending of \$39.4 M between the 2013-2014 and 2014-2015 financial years;
- The loss of 108 jobs in the industry between 2013-2014 and 2014-2015; and
- Reduction in business purchases and community contributions from \$150.2 M in 2013-2014 to \$102 M in 2014-2015.

The impact of this contraction is significant not only in economic terms but also in terms of the demand, supply and maintenance of physical and social infrastructure across the MWRC LGA and social sustainability in the smaller rural communities.

The Project will make a significant economic injection into the MWRC economy with or without the operation of the WAF. Specifically the MWRC LGA will likely benefit from the Project through:

- Investment in community infrastructure and services, made possible through the Project VPA and supplemented with funding from KEPCO's Corporate SD Fund;
- Direct and indirect employment generation. During dual operations (PY 9) the Project is anticipated to generate demand for 470 FTE direct jobs and 521 indirect jobs in the MWRC LGA;
- Direct and indirect population growth. By PY 3, the Project has the potential to attract up to 460 new residents to the MWRC LGA, of which up to approximately 415 are anticipated to reside in Mudgee. Between PY 3 and PY 9, a further approximate 540 people could potentially relocate to the MWRC LGA, of which up to approximately 490 are predicted to reside in Mudgee;

- Significant economic benefits during construction. The total average annual impact of the peak year of construction (PY 2) on the economy of the MWRC LGA is estimated at up to:
 - \$297 M in annual direct and indirect regional output or business turnover;
 - \$104 M in annual direct and indirect regional value added; and
 - \$55 M in annual direct and indirect household income.
- Significant economic benefits during operations. The Project is estimated to make up to the following total average annual contribution to the NSW economy for 23 years:
 - \$624 M in annual direct and indirect regional output or business turnover;
 - \$378 M in annual direct and indirect regional value added; and
 - \$72 M in annual direct and indirect household income.
- Improved local business opportunities associated with Project related procurement;
- The potential for increased business viability, profitability and capability; and
- Investment in training and skills development by the Project, particularly in the youth sector.

KEPCO requires a secure and consistent supply of accommodation that suits the different needs of the workforce. Whilst the supply of both short-term and long-term accommodation options across the MWRC LGA are extensive, current occupancy rates are reasonable and fluctuate both seasonally and when key regional events occur such as *A Day on the Green* or the *Mudgee Small Farm Field Days*. KEPCO must avoid the implication of delaying construction as a result of not being able to accommodate its workforce when accommodation availability is affected by low vacancy rates and/or key regional tourism events.

Conversely tourism operators in the MWRC LGA cannot defer key regional events such as the *Mudgee Small Farm Field Days* in order to enable KEPCO to secure suitable accommodation for the workforce. The inclusion of a WAF is a risk management strategy for the Project in the event that an adequate supply of suitable accommodation cannot be secured during the peak periods of Construction Phase 1. The WAF will provide accommodation for the construction workforce for the Project in the event that:

- The supply of short-term accommodation is adversely affected by regional tourism events e.g. *A Day on the Green*;
- The supply of accommodation is impacted by the high number of existing weekend bookings;
- Cumulative demands from other projects e.g. Wilpinjong Expansion Project impact all forms of short and long-term accommodation; or

- The supply of SC private rental accommodation is limited.

Discussions with MWRC have confirmed their desire that all available rental accommodation in the MWRC LGA should be relied upon to house the construction workforce prior to accommodating construction employees at the mine site in a WAF.

KEPCO is continually listening and working with MWRC's expectation to maximise local economic stimulus flowing from the Project to the LGA. This is demonstrated by KEPCO's commitment that it will encourage its permanent workforce to be accommodated as permanent residents within Mudgee and its surrounds (the Local Area).

To meet MWRC's expectation, KEPCO conducted an Workforce Accommodation Study in late 2015 to gain an understanding of the available capacity of accommodation within the MWRC LGA. The Workforce Accommodation Study has identified that there is unlikely to be a sufficient supply of suitable accommodation within the Local Area to house the entire construction workforce during the peak period of construction and this will result in adverse effects on the mine construction schedule.

Therefore, KEPCO now proposes to seek approval for a temporary WAF for the workers who are unable to be accommodated in the Local Area or where it is necessary for the completion of their work that they reside in immediate proximity to the Project site.

KEPCO is currently proceeding with the tender process seeking construction companies to build the mine through WorleyParsons. KEPCO will have additional clarity of forecast workforce / accommodation requirements in the next few months, once the contract for the construction of the Project is awarded.

Based on the current forecast and dependant on the results of the tender process, a peak construction workforce of 665 FTE employees is likely to be required, this would equate to the requirement for a temporary WAF of 300 beds as a minimum. Based on the results of this tender process the size of the temporary WAF will be adjusted accordingly.

KEPCO's preferred approach is operate the nominal 300 bed temporary WAF for Construction Phase 1 (PY 1 and PY 2) using the WAF as a risk mitigation measure against the identified shortfall of accommodation in the Local Area. The temporary WAF will then planned to be decommissioned at the completion of construction phase 1 (~ start PY 3) if there is enough available housing in MWRC LGA for the Project workforce.

KEPCO will update the Workforce Accommodation Study at the end of PY 2 in close consultation with MWRC and DP&E to determine the continuing use of the temporary WAF for PY 3 and PY 4. It is proposed that the supporting services to the temporary WAF such as power reticulation, water supply and sewage facilities, etc. will remain in place until PY 4.

At this time, prior to the commencement of Construction Phase 2 (i.e. approx. end of PY 4), KEPCO proposes to commission a new Workforce Accommodation Study (similar to the recent surveys). This survey would determine whether at that time there is suitable and available accommodation in the Local Area to accommodate the Construction Phase 2 workforce over and above the Operations Phase workforce who will be living in the LGA, for this two year construction period. This Workforce Accommodation Study will be undertaken in close consultation with MWRC and DP&E to determine whether there is a requirement for the temporary WAF for this second construction phase.

This preferred approach addresses the potential social and cumulative social impacts associated with the No WAF accommodation scenario and seeks to manage the risks associated with suitable accommodation not been available for the Project workforce during peak construction periods.

A range of impacts and benefits may be experienced by Project employees and residents of the Bylong Valley and communities of the Sub-Regional Study Area in the absence of a WAF. Benefits include:

- A temporary increase in resident population of Mudgee and the broader Local Area;
- Significantly reduced potential for any temporary change in population and demography of the Bylong Valley population;
- Potential for a minor increase in local spend in communities of the Local Area where the workforce will reside;
- Project induced population growth in Mudgee and smaller settlements will result in temporary changes in social capital e.g. potential increase in the pool of volunteers, addition of new skills to the community;
- Potential for some construction workers to choose to relocate to the Local Area with their families for the duration of the construction phases;
- Potential for construction workers to choose to relocate permanently with their families to the MWRC LGA once they have had an opportunity to experience the lifestyle available;
- Improved average occupancy rates across tourism accommodation establishments in the Local Area with the potential for above average annual revenue for accommodation operators; and
- Significantly reduced risk of the social amenity of Bylong Village being adversely affected by any workforce anti-social behaviour.

Potential impacts associated with Accommodation Scenario 4 include:

- A temporary and moderate (4.0%) increase in resident population of Mudgee;
- Reduced accessibility for the non-mining sector to long-term rental accommodation in key communities of the Local Area e.g. Mudgee;
- Increased property rents in key communities of the Local Area e.g. Mudgee with a corresponding impact on housing affordability for the non-mining sector and lower-socio-economic groups;
- A discernible, but temporary increase in demand for community facilities and services in the Local Area, particularly health services in Mudgee;
- Reduced accessibility to short-term accommodation options across the Local Area for visitors to the region;
- Reduced accessibility for residents of the Local Area to health services as a result of the temporary increase in resident population, particularly in Mudgee;
- Reduced health and wellbeing outcomes for the majority of Construction Phase NLH workforce due to a combination of shift length and daily commuting times to the Project site;
- Reduced health and wellbeing outcomes for residents, tourists and workers in the Bylong Valley and the Local Area due to the addition of Project traffic on the local road network and the associated potential increase in traffic related incidents; and
- Potential increase in demand for emergency services as a result of temporary resident population growth and the combination of increased road usage and driver fatigue.

The findings of the further assessment undertaken indicate little if any change in economic benefits accruing to the MWRC LGA in the absence of a WAF for the Project.

The EIS SIA (Appendix AC of the EIS) presents a suite of strategies designed to mitigate or manage the potential negative impacts of the Project and enhance the opportunities it presents. These key strategies include:

- Conceptual agreement with MWRC over a VPA and ongoing discussions with MWRC regarding associated road maintenance contributions;
- Establishment of a Corporate SD Fund, and an Interim Community Investment Fund that will operate until the VPA commences;
- Preparation and implementation of a Local Content Plan and Indigenous Participation Plan;
- Preparation of a SIMP;
- Conduct of a Mine Closure SIA five years prior to scheduled mine closure; and

Implementation of a comprehensive stakeholder engagement plan for the construction and operation phases of the Project.

* * *

for

HANSEN BAILEY



Bronwyn Pressland
Principal Social Planner



James Bailey
Director

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Figures



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Sub Regional Study Area

FIGURE 2



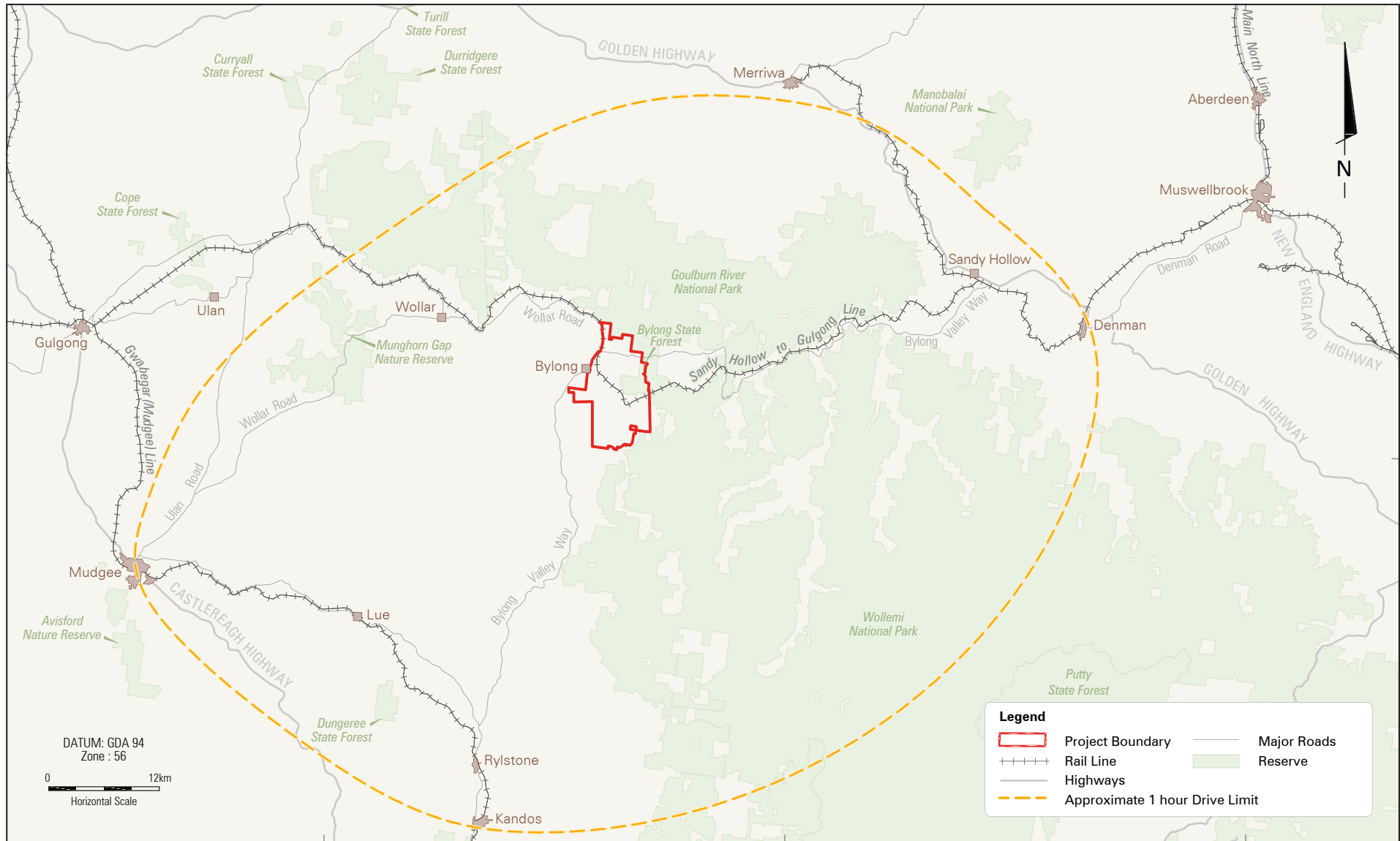


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Regional Study Area

FIGURE 3



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