Agricultural Response to Planning Assessment Report

BYLONG COAL PROJECT
Response to PAC Review Report

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AGRICULTURAL RESPONSE TO PLANNING ASSESSMENT COMMISSION

for

WorleyParsons Services Pty Limited

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1 INTRODUCTION

Scott Barnett and Associates Pty Limited (SBA) was commissioned by Hansen Bailey to prepare the Agricultural Impact Statement and related studies for the Bylong Coal Project (the Project) which is proposed by KEPCO Bylong Australia Pty Ltd (KEPCO). SBA prepared the Environmental Impact Statement (EIS) Agricultural Impact Statement (AIS) as well as the relevant technical responses to submissions as part of the Bylong Coal Project Response to Submissions (RTS). SBA also attended the Planning Assessment Commission (PAC) site visit to answer any questions relating to the agricultural impacts and management of the Project.

This report has been prepared to provide further clarification and certainty in relation to a number of agricultural related matters raised by the PAC in its Review Report for the Project. These matters generally include:

- Impact of mining on agricultural industries;
- Impact of Project on limited high quality agricultural land; and
- Co-existence of mining and agriculture.

2 OVERVIEW OF AGRICULTURAL ACTIVITIES TO BE IMPACTED BY THE PROJECT

2.1 SUMMARY OF AGRICULTURAL LAND WITHIN DISTURBANCE BOUNDARY AND BIODIVERSITY OFFSET AREAS

The Project is to be developed on approximately 6,958 hectares (ha) of land within the Project Boundary, with an area of 1,160 ha of direct surface disturbance within the Project Disturbance Boundary (PDB) plus a further 1,714 ha indirectly impacted within the Subsidence Study Area. Approximately 3,800 ha of native vegetation is proposed to be managed for its biodiversity values and accordingly is included within the Project's Biodiversity Offset Strategy (BOS), which encompasses a total area of 4,099 ha. Of the 4,099 ha included within the Project's BOS, 2,237 ha lies within the Project Boundary, while the balance (1,862 ha) lies outside the Project Boundary.

It is noted that there are approximately 120 ha of BSAL within the BOS which will continue to be available for agriculture and will be specifically excluded from the offsetting mechanism.

It is noted that not all land within the PDB will be lost to agriculture from the beginning of the Project, KEPCO will progressively release sections of land for mining operations during the early years of the Project, while some land within the PDB shall remain in production throughout the Project and beyond. Further, the progressive rehabilitation of the mined landform will enable significant portions of the land to be returned to agricultural production

during the life of the Project. The majority of the land within the Subsidence Study Area shall only be impacted indirectly and temporarily by subsidence related impacts. As a result, the capacity of agricultural land located within the Subsidence Study Area will continue to be classified as BSAL. The Project will also directly and temporarily impact approximately 241 ha of land within the Project Disturbance Boundary which will be rehabilitated back to its pre-mining land capability. This is discussed and quantified in Section 6 of this report.

The land within the Project Boundary and PDB is currently used primarily for beef cattle production. This is predominantly on native and semi-improved pastures with limited areas of improved pastures and fodder cropping. This is reflected in the limited areas of land classified as Class 3 Land and Soil Capability (LSC), which represents highly capable land, that is within the Project Boundary (1,957 ha of a total of 6,958 ha within the Project Boundary). Forty-seven percent of land within the Project Boundary (3,298 ha) is classed as low to very low capable land (Class 6 & 7), with the balance (1,703 ha) being moderate to moderate–low capability land (Class 4 & Class 5 LSC).

The area of BSAL to be directly impacted (423.1 ha) or managed as part of the BOS for the Project (287.8 ha) is approximately 711 ha. **Table 1** shows the total area of mapped BSAL within the various regions and the proportion of the Project's BSAL within these areas. This provides guidance to the limited impacts the Project will have on the total BSAL areas.

Table 1
BSAL Areas

	Area (Ha)	% that Project Represents
BSAL areas to be directly impacted or managed for Biodiversity values	711	
Bylong Valley Catchment	5,345	13.3%
Mid Western Regional Council LGA	29,780	2.4%
Narromine LGA	27,930	2.5%
Dubbo LGA	43,520	1.6%
Central West – Orana Region	520,900	0.1%
Upper Hunter Region	11,286	0.3%
Liverpool Plains - New England Region	1,525,462	<0.05%
NSW	2,800,000	<0.03%

The Project lies in the far south western corner of the Upper Hunter Equine Critical Industry Cluster (Equine CIC). No thoroughbred activities or related activities occur within the locality, with the last thoroughbred enterprise relocating to a more centralised location within the Equine

CIC in the Upper Hunter in 2012. A small Australian Stock Horse facility operated within the Project Boundary up until June 2016.

There is approximately 700 ha of mapped Equine CIC within the PDB, representing approximately 0.27% of the total mapped Equine CIC in the Upper Hunter region. The rehabilitation within the Project Boundary is proposed to establish a range of soil profiles and land capabilities, including the creation of BSAL, and LSC classes 3, 4, 5, 6 and 7. In accordance with the rehabilitation plans for the Project, this area will be returned to an agricultural land use as soon as practicable. These rehabilitation goals reflect the use of this land by various agricultural enterprises, in particular cropping and grazing. These target outcomes are consistent with the potential for the rehabilitated land to be used for a variety of equine related businesses. The rehabilitated landform associated with the Project will therefore not be limited to equine related uses in regard to the physical landform, soil profile or pastures established on site.

The Biodiversity Offset Areas (BOAs) comprise approximately 584 ha of mapped Equine CIC. Approximately 69 ha of this will be retained for agricultural activities, leaving approximately 515 ha to be removed from agriculture and managed for biodiversity outcomes. As this area's physical structure/nature is not changing but vegetation cover is changing, the land continues to meet the relevant criteria to still be mapped as Equine CIC.

3 CO-EXISTENCE OF MINING AND AGRICULTURE

3.1 EXAMPLES OF MINING AND AGRICULTURE CO-EXISTING

Co-existence between the mining and agriculture industries has been occurring successfully in Australia over many years. Many mining companies have purchased agricultural land around their mining leases and have typically chosen to maintain the agriculture productivity of this land throughout the life of its neighbouring mining operations.

Ms Fiona Simpson, President of the National Farmers Federation recently stated:

"Miners, for the certainty, of their operations, do need, often, to buy up agricultural land to manage the impacts of the mining operation, to manage the dust, the noise, the light – all these things and they are required, actually to buy up neighbours and agricultural land. It depends, then, how they treat that agricultural land as to whether they keep it productive, and a professional farming operation, or whether though in fact it just becomes sort of an offset of their operation." (Lateline, 19 May 2017, ABC TV[1]).

[1] *http://www.abc.net.au/news/2017-06-02/mining-the-farm:-how-miners-turned-to-agriculture/8585934*

Mining companies have in the past used two methods to manage their non-mining agricultural land assets. They either manage the land themselves through a separate and specialised agricultural company/enterprise or lease/licence the land to proven professional operators.

Examples of mining companies who operate their own agricultural businesses include:

- Citic Pacific: Citic Pacific is the biggest integrated infrastructure development in Western Australia and the second largest greenfield project under construction (2014) in the Pilbara. As part of its project, Citic Pacific operates a pastoral lease in the Pilbara in northern Western Australia. The operation is an extensive cattle business, Mardie Beef, running 8,000 selectively bred cattle. It operates as a cattle station and under a different management system to the mine. The operation of the station is part of the mine approvals and agreements with local indigenous communities.[2]
- Rio Tinto: Rio Tinto holds six pastoral leases in the Pilbara region, covering 1,500,000 ha. It operates five of these leases itself, running approximately 24,000 head of cattle. On one of its leases, it is using excess water from mine dewatering to develop an irrigated hay enterprise, a first for the region. The target production is 25,000 tonnes per annum, of which 5,000 tonnes is earmarked for their own use to drought proof the property, with the balance being sold to other local pastoralists or exported to the Middle East.[3]
- Alcoa Australia: Alcoa Australia is a large integrated bauxite, alumina and aluminium smelting, rolling and recycling company operating in three Australian states. It also owns Alcoa Farmland, the largest agricultural landholder in the Peel region of Western Australia. The operation covering 19,000 ha has the largest beef breeding herd in south-west Western Australia, producing 2,000 t of beef annually. It also runs 10,000 sheep (seasonally) as well as cropping 400 ha annually and operating an aquaculture enterprise. The farmlands are run as a commercial enterprise with a turnover exceeding $2.5M. The business also works to further the growth and sustainability of the Western Australia agricultural sector by participating in research projects, extension activities, sharing skills and resources. Their Farmland Manager is also Chairperson (2014) of the Western Australia Beef Council.[4]
- New Hope Group: The New Hope Group is an Australian owned and operated diversified energy company. Amongst others it operates the Acland Open Cut Coal Mine on the Darling Downs of Queensland. In 2006, Acland Pastoral Company was established as a

[2] "Mining, agriculture and development: Bread from Stones? (2013) (Ed. A. Milligan) Proceedings of the Crawford Fund 19th Annual Conference, 26-27 August 2103, Perth, Western Australia.

[3] "Mining, agriculture and development: Bread from Stones? (2013) (Ed. A. Milligan) Proceedings of the Crawford Fund 19th Annual Conference, 26-27 August 2103, Perth, Western Australia.

[4] "Mining, agriculture and development: Bread from Stones? (2013) (Ed. A. Milligan) Proceedings of the Crawford Fund 19th Annual Conference, 26-27 August 2103, Perth, Western Australia.

farming, grazing and land management enterprise. Managing 10,000 ha, it runs a 2,000 head beef herd and crops 2,400 ha. The grazing land incorporates over 300 ha of rehabilitated mine land which is now supporting the productive beef enterprise. It also conducts, in conjunction with independent livestock consultants and a local university, scientific trials comparing livestock performance on rehabilitated land and non-mined comparable land.[5]

- Glencore Coal Assets Australia (GCAA): GCAA owns or leases agricultural land across NSW and Queensland which are associated with its operations and projects. The area exceeds 282,000 ha across and is used for a variety of agricultural enterprises including cropping, beef cattle grazing and premium wine grape vineyards. Most of the land is managed by GCAA's wholly owned subsidiary, Colinta Holdings. The vineyards (Broke/Fordwich area) are operated under lease by experience local vignerons. Colinta Holdings operates as an integrated business with breeding and finishing for various markets, which is determined by local pastoral land conditions and market access. At any one time, between 40,000 and 50,000 head of cattle are under management, with 5,000 head in NSW across the Hunter Valley, Mudgee, Lithgow and Tahmoor areas. NSW grazing systems incorporate, where applicable, irrigated grazing, which achieve daily liveweight gains in excess of 1kg per day.[6]

KEPCO is already employing a similar strategy to the above examples to manage its agricultural land assets acquired to facilitate the proposed mining development. KEPCO has engaged a full time Farm Manager to manage its agricultural assets and currently employs 8 full-time staff, who reside locally, to operate day-to-day business.

As of September 2017, 9,431 ha was under management, carrying 2,896 beef cattle made up of:

- 1,397 mixed sex weaners;
- 82 steers;
- 284 unmated heifers;
- 624 beef (heifers and cows);
- 503 calves at foot; and
- 6 bulls.

In the financial year 2016/17, the beef enterprise sold 1,079 head of cattle grossing more than $1.67 Million. As of December 2017, total land managed for agricultural purposes increased to 10,113ha.

[5] http://www.newhopegroup.com.au/content/projects/operations/agriculture

[6] http://www.glencore.com.au/en/publications/fact-sheets/FactsheetsGCAA/Land-Use-Agriculture-and-Vineyards.pdf

In addition to the beef cattle breeding and trading enterprises, a hay enterprise operates with approximately 80% of annual production sold off farm, with the balance being used on farm. In the 2016/17 hay season, approximately 1,024 t of hay was sold.

The gross income from agricultural production for 2016/17 was approximately $1.77M. This has been achieved while the business is expanding its land holdings, which includes resting land, upgrading infrastructure and "learning the lay of the land" in terms of understanding stock watering systems, land management issues as well as paddock layouts and operation. Management is taking a long-term approach as opposed to stocking new land immediately and dealing with issues as a "crisis management" approach.

A draft Farm Management Plan[7] has been developed in conjunction with an independent agricultural consultant. The draft FMP is designed to ensure the land is managed appropriately, taking into account the LSC of the property informing management decisions relating to stocking rates, enterprise mix and responses to seasonal conditions.

As per other successful agricultural operations owned and operated by mining companies (or their subsidiaries), KEPCO's agricultural undertaking is already well established and provides another example of how mining and agriculture can co-exist, and provides a high degree of certainty that the agricultural productivity of non-mine agricultural land is able to be maintained and improved throughout the life of the Project.

[7] Draft Farm Management Plan (SLR, 2017)

4 REVIEW OF THE VALUE OF AGRICULTURAL PRODUCTION RELATIVE TO REGIONAL CONTEXT INCLUDING COMPARISONS WITH CENTRAL WEST ORANA REGION, UPPER HUNTER AND RELEVANT LOCAL GOVERNMENT AREAS AS APPROPRIATE

4.1 CHANGES TO VALUE OF AGRICULTURAL PRODUCTION RELATIVE TO EIS AND RTS

The Agricultural Impact Statement(AIS) provided values of agricultural production within the Project Boundary, Project Disturbance Boundary and BOAs based on landholder interviews and the latest available NSW Department of Primary Industries (DPI) – Agriculture - Gross Margin Budgets (2012). These budgets were used as at the time of researching and writing of the AIS, as they provided the best unbiased estimate of production economics applicable to the Bylong Valley.

The value of agricultural production for the RTS (and this report) were updated by reference to the Meat and Livestock Australia's (MLA) Eastern Young Cattle Indicator (EYCI)[8]. The EYCI is the general benchmark of Australian cattle prices. The indicator is a seven-day rolling average produced daily by MLA's National Livestock Reporting Service (NLRS). The EYCI includes cattle prices for vealer and yearling heifers and steers, grade score C2 or C3, 200kg+ live weight from saleyards across NSW, QLD and VIC. The results include cattle purchased for slaughter, restocking or lot feeding and are expressed in cents per kilogram carcase (dressed) weight (c/kg cwt)[9].

To quantify the growth in the EYCI, this site[10] was interrogated and the weighted weekly average of the EYCI was calculated for 4 periods:

- September – November 2012 (the 3 months preceding the publishing of the DPI gross margin budgets);
- February – April 2015 (the 3 months preceding the date of the AIS (Appendix X of the EIS);
- September – November 2015 (the 3 months preceding the receiving of submissions on the EIS made by the stakeholders); and
- August – October 2017 (the 3 months preceding this document).

[8] http://statistics.mla.com.au/Report/List

[9] http://www.mla.com.au/Prices-and-markets/About-the-National-Livestock-Reporting-Service/Eastern-Young-Cattle-Indicator

[10] http://www.mla.com.au/Prices-and-markets/About-the-National-Livestock-Reporting-Service/Eastern-Young-Cattle-Indicator

Table 2 summarises the growth in the EYCI over this period. It shows the absolute change and the relative change relative to the weighted EYCI for September – November 2012 (Base 100).

Table 2
Change in weighted average EYCI

Period	Weighted average EYCI c/kgDW	Index
September – November 2012	351.80	100
February – April 2015	437.67	124
September – November 2015	573.22	163
August – October 2017	543.67	155

The impact on this improvement on the value of the agricultural production from the Disturbance Boundary and BOAs was examined by adjusting the sale price (revenue) and purchase price (cost) where applicable for cattle in the NSW DPI gross margins, by the increase in the EYCI relative to the September – November 2012 (Base 100).

These are shown in **Table 3** below. It is noted as in the original AIS and subsequence RTS the Study Area includes BOA and PDB, but is not limited to these areas.

Table 3
Annual Gross Value of Agricultural Production and Annual Net Value of Agricultural Production Adjusted for Changing EYCI (cattle prices)

	NSW DPI GM Dec 2012 EYCI Sep – Nov 2012 weighted weekly average Index:100	EYCI Feb – Apr 2015 weighted weekly average Index 124	EYCI Sep – Nov 2015 weighted weekly average Index 163	EYCI Aug – Oct 2017 weighted weekly average Index 155
	$M	$M	$M	$M
EYCI (cents/kgcwt)	351.80	437.67	573.22	543.67
Study Area				
Gross Income	5.281	6.110	7.457	7.181
Variable Income	2.824	3.021	3.341	3.409
Gross Margin	2.475	3.089	4.116	3.772
Biodiversity Offset Area				
Gross Income	1.433	1.749	2.263	2.157
Variable Income	0.676	0.750	0.871	0.898
Gross Margin	0.757	0.989	1.392	1.260
Disturbance Boundary				
Gross Income	0.674	0.782	0.957	0.921
Variable Income	0.358	0.383	0.426	0.434
Gross Margin	0.318	0.399	0.531	0.487
Disturbance Boundary & Biodiversity Offset Area				
Gross Income	2.107	2.531	3.220	3.078
Variable Income	1.034	1.133	1.297	1.332
Gross Margin	1.075	1.383	1.923	1.747

As can be seen from the above table, even though there has been a significant increase in the value of agricultural output over the last five years based on improved market conditions (most of which has occurred over the initial three years), the market has marginally slipped over the last two years.

According to the Rural Bank's 2017Australian Cattle Annual Review[11] the easing of the EYCI is due to short term seasonal conditions (low rainfall leading to lower restocking demand) and medium-term influences including an increase Australian beef production of 1.4%, challenges in world markets from the USA and South American beef producing countries as well as exchange rate changes and correction to local basis against world prices.

5 VALUE OF AGRICULTURAL PRODUCTION RELATIVE TO CENTRAL WEST AND ORANA REGION, OTHER REGIONS AND LOCAL GOVERNMENT AREAS

The PAC Review Report references not only the Upper Hunter Strategic Regional Land Use Plan (DP&E 2012) (UH SRLUP), but also the Central West and Orana Regional Plan (DP&E 2017) (CW&O Regional Plan) which was released in June 2017. **Table 4** provides the Gross Value of Agricultural Production from the Project Area and the combined Disturbance Boundary and BOAs, as calculated above, in comparison with that of the areas of the UH SRLUP and CW&O Regional Plan. This is to provide a guide to the level of agricultural production from the Project Area that will be potentially impacted by the Project as a percentage of the broader regions. Furthermore, impacts within the disturbance boundary would be temporary at most, KEPCO's progressive rehabilitation schedule would result in previously disturbed land being available for rehabilitation (and agricultural capabilities) from Project Year 3 onwards.

Based on the ABS Agricultural Census 2010/11[12], the gross value of agricultural production within the Disturbance Boundary and BOAs (largest estimate of the area to be potentially impacted by the Project) is relatively small when compared to the Mid-Western Regional Council (MWRC) Local Government Area (LGA) (2.5%), the LGAs of the UH SRLUP (0.8%) and the Central West Orana Region (0.1%). The 2010/11 Agricultural Census has been utilised as it was also used in the CW&O Regional Plan and is conservative for comparative purposes. Similarly, the gross value of agricultural production from the Disturbance Boundary and BOAs represents only 0.02% of NSW gross value of agricultural production and 0.005% of Australia's gross value of agricultural production.

Of note is the relative value of agricultural production provided by other areas referenced by the PAC Review Report and the CW&O Regional Plan. As shown in **Table 4**, the gross value of agriculture production within the Disturbance Boundary and BOAs compared to the

[11] https://www.ruralbank.com.au/assets/responsive/pdf/publications/cattle-review-17.pdf

[12] http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/7503.02010-11?OpenDocument

Narromine LGA and Dubbo Region LGA (both within the Central West and Orana Region) is 1.0% and 1.5% respectively.

As stated in the CW&O Regional Plan, the NSW government's regional mapping of BSAL (last updated in 2014) identifies agricultural land in the region that is significant to the State. This regional mapping identified 520,900 ha of BSAL within the Central West and Orana Region and 29,780 ha within the MWRC LGA. The 711 ha of BSAL that is assessed to be directly and indirectly impacted or managed for biodiversity values by the Project represents 2.3% of mapped BSAL within the MWRC LGA and 0.1% of BSAL within the Central West and Orana Region.

All the above indicates that the Project will not significantly impact on the agricultural resources, industries and their development within the MWRC LGA and the more extensive Central West and Orana Region.

Table 4
Comparison of Gross Value of Agricultural Production ($M)

	Project Area*	Disturbance Boundary & Biodiversity Areas*	Mid Western Regional Council LGA#	Central West and Orana#	Narromine LGA#	Dubbo Regional LGA#	Upper Hunter SRLUP Area#	NSW#	Australia#
Beef Cattle	5.5	1.9	30.4	295.4	9.8	25.6	125.3	1,616.1	7,823.8
Total Livestock	5.5	1.9	65.2	822.6	35.8	84.9	218.4	4,635.4	20,972.4
Crops	1.6	0.2	17.4	1,357.1	184.2	52.7	37.2	7,078.6	25,047.7
Total Ag Production	7.2	2.1	82.5	2,719.3	220.0	137.6	255.8	11,714.0	46,020.1
Percentage Disturbance Boundary & Biodiversity Offset Areas to Total Production	29.2%	100%	2.5%	0.1%	1.0%	1.5%	0.8%	0.02%	0.005%

* Based on 2012 DPI Gross Margin Budgets

From ABS 2010/11 Agricultural Census

6 REVIEW OF CHANGES TO VALUE OF AGRICULTURAL PRODUCTION FOREGONE OVER TIME

6.1 CHANGES TO VALUE OF AGRICULTURAL PRODUCTION BASED ON MINE PLAN, REHABILITATION PLAN AND LAND MANAGED FOR BIODIVERSITY OFFSETS

The AIS for the Project (Appendix X, EIS) originally provided an estimation of the annual value of agricultural production foregone due to the Project based on:

- The annual value of agricultural production for land within the Project Disturbance Boundary;
- The annual value of agricultural production for land within the BOAs; and
- Value of agriculture production foregone from the maximum bore field water requirements by the Project, assuming the water was removed from agricultural use.

The estimate was $2.664 M per annum and was considered a conservative estimation (using conservative assumptions) based on all of the land and water resources being removed from agricultural production at the commencement of the Project. For NPV calculations it was assumed the production was lost in perpetuity (i.e. not returned to agriculture post rehabilitation).

As mentioned in **Section 2.1**, land will be progressively removed from agricultural production as these areas are required for mine development and then significant areas returned back to agriculture following mine rehabilitation. It is further noted, not all land within the areas designated for Biodiversity Areas is to be removed from agricultural production, with some land to be portioned out of the offset mechanism to be available for ongoing agricultural use.

A further, more refined estimation of the value of lost agricultural production has now been calculated in this Report based on:

- Progressive removal of land within the Disturbance Boundary as indicated by the proposed mine plan within the EIS;
- Progressive reintroduction of rehabilitated land back into agricultural production based on the rehabilitation plan and the mine plan (having consideration for safe access to rehabilitated areas) within the EIS;
- Only land within the BOAs to be retained for its biodiversity values has been withdrawn from agricultural production from day one and into perpetuity[13]; and
- Bore field water requirements as detailed within the mine plan within the EIS.

[13] Note: This is still conservative because some offsets land will be utilised for low frequency cattle grazing during initial years of the project.

The same production levels were used for each Agricultural Domain consistent with what was utilised in the AIS.

Appendix 1 outlines the changes in value of agricultural production based on the progressive removal and return to agricultural land and water over the 27 year period. This allows for an extra two years for the final void to return to agricultural production after rehabilitation.

Appendix 2 and **Appendix 3** outlines the progressive gross value of production and net value of production due to the removal of agricultural land and water over the 27 year period.

The annual average loss of gross value of production over the 27 year period is $1.871 M with $1.686 M remaining lost to agriculture as a result of agricultural production no longer being carried out in the areas managed for biodiversity ($1.613 M) and non-rehabilitated infrastructure areas ($0.073 M). The NPV (7% discount value) in perpetuity is $26.9 M.

The annual average loss of net value of production over the 27 year period is $0.887 M with $0.799 M remaining lost to agriculture as a result of agricultural production no longer being carried out in the areas managed for biodiversity ($0.748 M) and non-rehabilitated infrastructure areas ($0.051 M). The NPV (7% discount value) in perpetuity is $12.6 M.

The NPV cited in the AIS, based on the previously described conservative methodology, was $35.1M for the gross value of agricultural production foregone and $15.9M for the net value of agriculture production foregone.

The average gross value of agricultural production foregone represents (based on the 2010/11 ABS Agricultural Census[14]):

- 2.3% of Gross Value of agricultural production of the MWRC LGA ($82.5 M);
- 0.1% of Gross Value of agricultural production of the Central West and Orana Region ($2,179.3 M);
- <0.02% of Gross Value of agricultural production of NSW ($11,714.0 M); and
- <0.005% of Gross Value of agricultural production of Australia ($46,020.1 M).

As discussed in Section 3.1 above, KEPCO is actively managing its agricultural lands assets acquired as part of the proposed mining development, through appointment of a Farm Manager.

[14] http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/7503.02010-11?OpenDocument

As of September 2017, 9,431 hectares was under management, carrying 2,896 beef cattle. In the financial year 2016/17 the beef enterprise sold 1,079 head grossing $1,673 M.

There was also approximately 516 tonnes of hay sold off farm for a gross income of $92,944. Relative to 2015/16 the value of hay sale increased 75%, value of beef sales increased 279% while the area under management only increased by 2.4%, number of cattle increased 44.7% and (DSE –Dry Sheep Equivalents – measure of stock rate) increased 23.4%.

7 CONFIRMATION OF EIS COMMENTS RELATING TO 451 HA OF ARABLE LAND WITHIN THE DISTURBANCE BOUNDARY

The AIS (Appendix X) identified 451 ha within the Disturbance Boundary as Agricultural domain A. This was defined as: *Arable land- Land suitable for high impact land uses such as cropping including; irrigated cropping; fodder cropping; and improved pastures for grazing. Careful management of limitations is still required for intensive cropping and grazing to avoid environmental degradation.*

Whilst this 415 ha of land within the Disturbance Boundary is classed as Arable land, the majority of this land has not been utilised for cropping for some time (current land use is grazing). As detailed to the author by the previous land manager during preparation of the AIS, approximately 20 years ago the majority of this 451 ha was pastured improved. It has since been used for extensive grazing. There was a small area, approximately 40 ha that was used for fodder cropping with irrigation by a centre pivot, however this was dismantled some time ago by the previous landowners prior to KEPCO's entrance into the Bylong Valley in 2011.

In addition to this irrigation, the previous landowner/manager had a further 200 ha under irrigation outside the Disturbance Boundary. These areas were used for hay production with the hay sold to beef producers in the central west, dairy farmers on the North Coast, local feed mills and the Sydney horse market.

This area will be rehabilitated as per the mine rehabilitation plan with 227 ha being returned to Class 3 LSC, being suitable for arable farming, fodder cropping and intense pasture management. The balance shall be Class 4 & 5 LSC suitable for extensive grazing and pasture improvement. As such the land will be suitable for productive agriculture reflective of its use prior to acquisition by KEPCO.

8 CONCLUSION

Bylong Valley does contain high quality agricultural land, including some areas impacted within the Disturbance Boundary and the Areas Managed for Biodiversity purposes. In its Review Report the PAC notes the release of the CW & O Regional Plan 2036 and the importance of agriculture to the regional economy. As quoted by the PAC the plan identifies that highly productive agricultural land:

> "requires ready access to water, high quality soils and suitable climates. While the total area of land available for agricultural is large, comparatively few locations have access to all these characteristics."

As shown in **Section 2**, 711 ha of mapped BSAL is to be directly impacted or managed for Biodiversity values and is considered to be a relatively small area when compared to the mapped BSAL within the CWRC LGA (2.4%), other regions such as the Upper Hunter (0.3%), Liverpool Plains – New England Region (<0.05%), Dubbo Regional LGA (1.6%), Narromine LGA (2.5%), the CW&O Region as a whole (0.1%) and NSW (0.03%).

Similarly, the mapped Equine CIC within the Disturbance Areas represents only 0.27% of the total mapped Equine CIC in the Upper Hunter Region. Rehabilitation of these areas will commence in Year 3 of the project with an operational objective to return disturbed land to a pre-operational landform compatible with LSC criteria for equine management. The 515 ha of mapped Equine CIC that will be managed for Biodiversity outcomes will retain all characteristics to meet the relevant criteria to still be classified as Equine CIC.

Section 3 outlines a number of examples where mining and agriculture have not only co-existed but agriculture has continued to prosper and become a valuable resource for the local agricultural industry. The examples highlighted reflect a model where the management of the agricultural land/company has been under the ownership of the mining company, a model similar to that currently being utilised by KEPCO. KEPCO's success under this model is further reiterated by production figures for FY17, demonstrating the agricultural productivity of the land is at least on par with the previous landholders with future forecasting continuing to eye improvement.

Review of the value of lost agricultural production due to the operation of the mine has been further refined. The model adopted uses the same methodology used in the AIS of the EIS and the RTS, but is based on more contemporary cattle prices relative to the AIS. However, instead of modelling that all agriculture impacted is foregone on day one of Project commencement and lost in perpetuity, modelling now reflects a realistic and the progressive release of land mining operations and its return to agricultural production following rehabilitation within the

Disturbance Area. A conservative approach has been adopted, that does not assume all comes back into production until Project Year 27.
Revised modelling undertaken for this Report also includes only land removed from agricultural production within the Biodiversity Areas (removed from day one and in perpetuity). This revised modelling reduced the average loss of gross value agriculture production to $1.871 M per annum over the 27 years compared to $2.664 M. Of the $1.871 M, $1.686 M was due to land being removed from agricultural production within the Biodiversity Areas. Only $0.073 M per annum is lost on land used for infrastructure and not rehabilitated at the end of the Project. The average gross value of agricultural production foregone represents (based on the 2010/11 ABS Agricultural Census15):

- 2.3% of Gross Value of agricultural production of the MWRC LGA ($82.5 M);
- 0.1% of Gross Value of agricultural production of the Central West and Orana Region ($2,179.3 M);
- <0.02% of Gross Value of agricultural production of NSW ($11,714.0 M); and
- <0.005% of Gross Value of agricultural production of Australia ($46,020.1 M).

The annual average loss of net value of production over the 27 year period is $0.887 M with $0.799 M remaining lost to agriculture as a result of agricultural production no longer being carried out in the areas managed for biodiversity ($0.748 M) and non-rehabilitated infrastructure areas ($0.051 M).

The NPV (7% discount value) in perpetuity of the gross value of production is $26.9 M, compared to $35.1 M in the AIS. The NPV (7% discount value) in perpetuity of the net value of production is $12.6 M, compared to $15.9 M in the AIS.

The above helps illustrate the limited ongoing impact the Project will have on agricultural productivity relative to MWRC LGA, the region, NSW and Australia. The long-term goals of agricultural sector as identified within the CW & O Regional Plan 2036 will not be impacted by the Project progressing.

[15] http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/7503.02010-11?OpenDocument

Appendx 1

Progressive resources removed from and returned to agriculture

Domain	Gross Value $/ha	Net Value $/Ha	Domain Dist Bound	Ha
A	$ 1,046.71	$ 480.92	A	451
B	$ 236.95	$ 115.81	B	694
C	$ 66.59	$ 28.71	C	15
D	$ -	$ -	D	0
				1,160

Gross Value of Water/Ml	
Gross Value	$ 415
Net Value	$101

PY	Disturbed area (Ha)					Biodiversity (Ha)					Irrigation Water used (ML)
	A	B	C	D	Total	A	B	C	D	Total	
1	6	168	-	-	174	1,158	1,318	1,324	-	3,800	-
2	6	168	-	-	174	1,158	1,318	1,324	-	3,800	-
3	129	310	-	-	439	1,158	1,318	1,324	-	3,800	990
4	129	310	-	-	439	1,158	1,318	1,324	-	3,800	990
5	248	532	15	-	795	1,158	1,318	1,324	-	3,800	990
6	248	532	15	-	795	1,158	1,318	1,324	-	3,800	990
7	229	520	(19)	-	730	1,158	1,318	1,324	-	3,800	500
8	229	520	(19)	-	730	1,158	1,318	1,324	-	3,800	500
9	229	490	(19)	-	700	1,158	1,318	1,324	-	3,800	500
10	229	490	(19)	-	700	1,158	1,318	1,324	-	3,800	500
11	40	296	(19)	-	317	1,158	1,318	1,324	-	3,800	-
12	40	296	(19)	-	317	1,158	1,318	1,324	-	3,800	-
13	40	296	(19)	-	317	1,158	1,318	1,324	-	3,800	-
14	40	296	(19)	-	317	1,158	1,318	1,324	-	3,800	-
15	40	296	(19)	-	317	1,158	1,318	1,324	-	3,800	-
16	40	296	(19)	-	317	1,158	1,318	1,324	-	3,800	-
17	40	296	(19)	-	317	1,158	1,318	1,324	-	3,800	-
18	40	296	(19)	-	317	1,158	1,318	1,324	-	3,800	-
19	40	296	(19)	-	317	1,158	1,318	1,324	-	3,800	-
20	40	296	(19)	-	317	1,158	1,318	1,324	-	3,800	-
21	40	296	(19)	-	317	1,158	1,318	1,324	-	3,800	-
22	40	296	(19)	-	317	1,158	1,318	1,324	-	3,800	-
23	40	296	(19)	-	317	1,158	1,318	1,324	-	3,800	-
24	40	296	(19)	-	317	1,158	1,318	1,324	-	3,800	-
25	40	296	(19)	-	317	1,158	1,318	1,324	-	3,800	-
26	40	141	(19)	(162)	-	1,158	1,318	1,324	-	3,800	-
27	40	141	(19)	(162)	-	1,158	1,318	1,324	-	3,800	-

Appendix 2

Progressive gross value of production removed from and returned to agriculture

Domain	$/ha	Domain Dist Bound	Ha
A	1046.7123	A	451
B	236.950579	B	694
C	66.5896095	C	15
D	0	D	0

Value of Water/Ml	$/ML
Gross Value	$ 415
Net Value	$101

PY	Disturbed area ($)					Biodiversity ($)					Irrigation Water used ($)	Total value foregone
	A	B	C	D	Total	A	B	C	D	Total		
1	$ 6,280	$ 39,808	$ -	$ -	$ 46,088	$ 1,212,093	$ 312,301	$ 88,165	$ -	$ 1,612,558	$ -	$ 1,658,646
2	$ 6,280	$ 39,808	$ -	$ -	$ 46,088	$ 1,212,093	$ 312,301	$ 88,165	$ -	$ 1,612,558	$ -	$ 1,658,646
3	$ 135,026	$ 73,455	$ -	$ -	$ 208,481	$ 1,212,093	$ 312,301	$ 88,165	$ -	$ 1,612,558	$ 410,562	$ 2,231,601
4	$ 135,026	$ 73,455	$ -	$ -	$ 208,481	$ 1,212,093	$ 312,301	$ 88,165	$ -	$ 1,612,558	$ 410,562	$ 2,231,601
5	$ 259,585	$ 126,058	$ 999	$ -	$ 386,641	$ 1,212,093	$ 312,301	$ 88,165	$ -	$ 1,612,558	$ 410,562	$ 2,409,761
6	$ 259,585	$ 126,058	$ 999	$ -	$ 386,641	$ 1,212,093	$ 312,301	$ 88,165	$ -	$ 1,612,558	$ 410,562	$ 2,409,761
7	$ 239,697	$ 123,214	$ (1,265)	$ -	$ 361,646	$ 1,212,093	$ 312,301	$ 88,165	$ -	$ 1,612,558	$ 207,355	$ 2,181,559
8	$ 239,697	$ 123,214	$ (1,265)	$ -	$ 361,646	$ 1,212,093	$ 312,301	$ 88,165	$ -	$ 1,612,558	$ 207,355	$ 2,181,559
9	$ 239,697	$ 116,106	$ (1,265)	$ -	$ 354,538	$ 1,212,093	$ 312,301	$ 88,165	$ -	$ 1,612,558	$ 207,355	$ 2,174,451
10	$ 239,697	$ 116,106	$ (1,265)	$ -	$ 354,538	$ 1,212,093	$ 312,301	$ 88,165	$ -	$ 1,612,558	$ 207,355	$ 2,174,451
11	$ 41,868	$ 70,137	$ (1,265)	$ -	$ 110,741	$ 1,212,093	$ 312,301	$ 88,165	$ -	$ 1,612,558	$ -	$ 1,723,299
12	$ 41,868	$ 70,137	$ (1,265)	$ -	$ 110,741	$ 1,212,093	$ 312,301	$ 88,165	$ -	$ 1,612,558	$ -	$ 1,723,299
13	$ 41,868	$ 70,137	$ (1,265)	$ -	$ 110,741	$ 1,212,093	$ 312,301	$ 88,165	$ -	$ 1,612,558	$ -	$ 1,723,299
14	$ 41,868	$ 70,137	$ (1,265)	$ -	$ 110,741	$ 1,212,093	$ 312,301	$ 88,165	$ -	$ 1,612,558	$ -	$ 1,723,299
15	$ 41,868	$ 70,137	$ (1,265)	$ -	$ 110,741	$ 1,212,093	$ 312,301	$ 88,165	$ -	$ 1,612,558	$ -	$ 1,723,299
16	$ 41,868	$ 70,137	$ (1,265)	$ -	$ 110,741	$ 1,212,093	$ 312,301	$ 88,165	$ -	$ 1,612,558	$ -	$ 1,723,299
17	$ 41,868	$ 70,137	$ (1,265)	$ -	$ 110,741	$ 1,212,093	$ 312,301	$ 88,165	$ -	$ 1,612,558	$ -	$ 1,723,299
18	$ 41,868	$ 70,137	$ (1,265)	$ -	$ 110,741	$ 1,212,093	$ 312,301	$ 88,165	$ -	$ 1,612,558	$ -	$ 1,723,299
19	$ 41,868	$ 70,137	$ (1,265)	$ -	$ 110,741	$ 1,212,093	$ 312,301	$ 88,165	$ -	$ 1,612,558	$ -	$ 1,723,299
20	$ 41,868	$ 70,137	$ (1,265)	$ -	$ 110,741	$ 1,212,093	$ 312,301	$ 88,165	$ -	$ 1,612,558	$ -	$ 1,723,299
21	$ 41,868	$ 70,137	$ (1,265)	$ -	$ 110,741	$ 1,212,093	$ 312,301	$ 88,165	$ -	$ 1,612,558	$ -	$ 1,723,299
22	$ 41,868	$ 70,137	$ (1,265)	$ -	$ 110,741	$ 1,212,093	$ 312,301	$ 88,165	$ -	$ 1,612,558	$ -	$ 1,723,299
23	$ 41,868	$ 70,137	$ (1,265)	$ -	$ 110,741	$ 1,212,093	$ 312,301	$ 88,165	$ -	$ 1,612,558	$ -	$ 1,723,299
24	$ 41,868	$ 70,137	$ (1,265)	$ -	$ 110,741	$ 1,212,093	$ 312,301	$ 88,165	$ -	$ 1,612,558	$ -	$ 1,723,299
25	$ 41,868	$ 70,137	$ (1,265)	$ -	$ 110,741	$ 1,212,093	$ 312,301	$ 88,165	$ -	$ 1,612,558	$ -	$ 1,723,299
26	$ 41,868	$ 33,410	$ (1,265)	$ -	$ 74,013	$ 1,212,093	$ 312,301	$ 88,165	$ -	$ 1,612,558	$ -	$ 1,686,572
27	$ 41,868	$ 33,410	$ (1,265)	$ -	$ 74,013	$ 1,212,093	$ 312,301	$ 88,165	$ -	$ 1,612,558	$ -	$ 1,686,572

Appendix 3

Progressive net value of production removed from and returned to agriculture

	$/ha	Domain Dist Bound	Ha	Value of Water/Ml	
Domain	$ 480.92	A	451	$/ML	$ 101
A	$ 115.81	B	694		
B	$ 28.71	C	15		
C	$ -	D	0		
D					

	Disturbed area ($)					Biodiversity ($)					Irrigation Water used ($)	Total value foregone
PY	A	B	C	D	Total	A	B	C	D	Total		
	$ 2,886	$ 19,457	$ -	$ -	$ 22,342	$ 556,906	$ 152,643	$ 38,006	$ -	$ 747,556	$ -	$ 769,898
1	$ 2,886	$ 39,808	$ -	$ -	$ 42,693	$ 556,906	$ 152,643	$ 38,006	$ -	$ 747,556	$ -	$ 790,249
2	$ 62,039	$ 73,455	$ -	$ -	$ 135,493	$ 556,906	$ 152,643	$ 38,006	$ -	$ 747,556	$ 99,956	$ 983,006
3	$ 62,039	$ 73,455	$ -	$ -	$ 135,493	$ 556,906	$ 152,643	$ 38,006	$ -	$ 747,556	$ 99,956	$ 983,006
4	$ 119,268	$ 126,058	$ 999	$ -	$ 246,325	$ 556,906	$ 152,643	$ 38,006	$ -	$ 747,556	$ 99,956	$ 1,093,837
5	$ 119,268	$ 126,058	$ 999	$ -	$ 246,325	$ 556,906	$ 152,643	$ 38,006	$ -	$ 747,556	$ 99,956	$ 1,093,837
6	$ 110,131	$ 123,214	$ (1,265)	$ -	$ 232,080	$ 556,906	$ 152,643	$ 38,006	$ -	$ 747,556	$ 50,483	$ 1,030,119
7	$ 110,131	$ 123,214	$ (1,265)	$ -	$ 232,080	$ 556,906	$ 152,643	$ 38,006	$ -	$ 747,556	$ 50,483	$ 1,030,119
8	$ 110,131	$ 116,106	$ (1,265)	$ -	$ 224,971	$ 556,906	$ 152,643	$ 38,006	$ -	$ 747,556	$ 50,483	$ 1,023,010
9	$ 110,131	$ 116,106	$ (1,265)	$ -	$ 224,971	$ 556,906	$ 152,643	$ 38,006	$ -	$ 747,556	$ 50,483	$ 1,023,010
10	$ 19,237	$ 70,137	$ (1,265)	$ -	$ 88,109	$ 556,906	$ 152,643	$ 38,006	$ -	$ 747,556	$ -	$ 835,665
11	$ 19,237	$ 70,137	$ (1,265)	$ -	$ 88,109	$ 556,906	$ 152,643	$ 38,006	$ -	$ 747,556	$ -	$ 835,665
12	$ 19,237	$ 70,137	$ (1,265)	$ -	$ 88,109	$ 556,906	$ 152,643	$ 38,006	$ -	$ 747,556	$ -	$ 835,665
13	$ 19,237	$ 70,137	$ (1,265)	$ -	$ 88,109	$ 556,906	$ 152,643	$ 38,006	$ -	$ 747,556	$ -	$ 835,665
14	$ 19,237	$ 70,137	$ (1,265)	$ -	$ 88,109	$ 556,906	$ 152,643	$ 38,006	$ -	$ 747,556	$ -	$ 835,665
15	$ 19,237	$ 70,137	$ (1,265)	$ -	$ 88,109	$ 556,906	$ 152,643	$ 38,006	$ -	$ 747,556	$ -	$ 835,665
16	$ 19,237	$ 70,137	$ (1,265)	$ -	$ 88,109	$ 556,906	$ 152,643	$ 38,006	$ -	$ 747,556	$ -	$ 835,665
17	$ 19,237	$ 70,137	$ (1,265)	$ -	$ 88,109	$ 556,906	$ 152,643	$ 38,006	$ -	$ 747,556	$ -	$ 835,665
18	$ 19,237	$ 70,137	$ (1,265)	$ -	$ 88,109	$ 556,906	$ 152,643	$ 38,006	$ -	$ 747,556	$ -	$ 835,665
19	$ 19,237	$ 70,137	$ (1,265)	$ -	$ 88,109	$ 556,906	$ 152,643	$ 38,006	$ -	$ 747,556	$ -	$ 835,665
20	$ 19,237	$ 70,137	$ (1,265)	$ -	$ 88,109	$ 556,906	$ 152,643	$ 38,006	$ -	$ 747,556	$ -	$ 835,665
21	$ 19,237	$ 70,137	$ (1,265)	$ -	$ 88,109	$ 556,906	$ 152,643	$ 38,006	$ -	$ 747,556	$ -	$ 835,665
22	$ 19,237	$ 70,137	$ (1,265)	$ -	$ 88,109	$ 556,906	$ 152,643	$ 38,006	$ -	$ 747,556	$ -	$ 835,665
23	$ 19,237	$ 70,137	$ (1,265)	$ -	$ 88,109	$ 556,906	$ 152,643	$ 38,006	$ -	$ 747,556	$ -	$ 835,665
24	$ 19,237	$ 70,137	$ (1,265)	$ -	$ 88,109	$ 556,906	$ 152,643	$ 38,006	$ -	$ 747,556	$ -	$ 835,665
25	$ 19,237	$ 33,410	$ (1,265)	$ -	$ 51,382	$ 556,906	$ 152,643	$ 38,006	$ -	$ 747,556	$ -	$ 798,938
26	$ 19,237	$ 33,410	$ (1,265)	$ -	$ 51,382	$ 556,906	$ 152,643	$ 38,006	$ -	$ 747,556	$ -	$ 798,938
27												