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Response to the  
Institute for Energy  
Economics and  
Financial Analysis'  
Submission

**Bylong Coal Project**

**Response to the**

**Institute for Energy Economics and Financial Analysis' Submission**

**Prepared for**

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## EXECUTIVE SUMMARY

The Department of Planning and Environment and Independent Planning Commission should be cautious about placing any weight on the submission from the anti-coal, US-based, Institute for Energy Economic and Financial Analysis (IEEFA).

The statements made in the IEEFA submission are misinformed and misleading. The report involves many instances of data being referenced selectively and out of context, as well as spurious extrapolation of unrelated data to the Project.

Contrary to claims made in the IEEFA submission:

### Global Supply and Demand

- the International Energy Association (IEA) forecasts an **INCREASE** in the quantity of coal demanded in the world to 2040 under both the Current Policy Scenario (CPS) and the more speculative New Policies Scenario (NPS).
- the IEA forecasts an **INCREASE** in the quantity of thermal coal traded in the world to 2040 under the CPS, and a very slight decline under the more speculative NPS.
- the IEA forecasts an **INCREASE** in the quantity of coal demanded in the world to 2040 for power generation under both the CPS and NPS.
- coal remains the second largest source of energy demanded in 2040 under the CPS (behind oil), and the third largest source of energy demanded in 2040 under the NPS (behind oil and gas).
- the Australian Chief Economist has identified 286 advanced technology coal fired power stations planned or under construction around the world.
- demand for a new export thermal export coal mine in NSW (the Bylong Coal Project) is demonstrated by KEPCO's willingness to spend in excess of \$700 million dollars to get an approval to mine.

### Strategic Importance and New Energy Priorities of South Korea

- coal will continue to be critical to the energy mix in South Korea. While some coal-fired plants will be retired in coming years, other HELE technology clean coal-fired power stations are proposed to replace them.
- the coal from the Bylong Coal Project has a low sulphur content (less than 0.4% over the life of the Project) that has advantages for lowering air pollution in South Korea and accords with South Korea's new regulations for the sulphur content of coal.
- even under a highly conservative NPS, demand for coal for South Korea in 2040 will be over 10 times the average annual production from the Bylong Coal Project.
- according to the South Korea Government plan (the 8th Basic Plan for Long-term Electricity Supply and Demand dated 29th December 2017), the total capacity of coal-fired power plants in South Korea will grow from 36.8GW in 2017 to 39.9GW in 2030 i.e. increase.
- South Korea and KEPCO (who is currently responsible for supplying 80% of power to the people of Korea) see strategic advantages in being able to control its own supply of coal i.e. increase the vertical integration of KEPCO.
- South Korea and KEPCO are best placed to judge the need and strategic importance of the Bylong Coal Project to South Korea and KEPCO.

#### Coal Price Forecast and Quality

- coal price forecasts in the Economic Impact Assessment were based on a detailed Wood Mackenzie marketing study, specifically taking into account coal quality from the Project.
- the Economic Impact Assessment included sensitivity analysis of +/- 20% of AUD coal price. The Response to Submission included sensitivity analysis of +/-30% AUD coal price.
- the independent review of the Economic Impact Analysis by the Centre for International Economics stated that the implied coal price used in the CBA is reasonable.
- the current coal price is substantially in excess of the coal price forecast by Wood Mackenzie in its marketing study for the Project.
- KPMG's consensus price forecasts quoted by IEEFA were inaccurate even at the date of its publication and are in contrast with those that IEEFA provides from the IEA.
- coal price forecasts will vary month to month and year to year. However, whatever the coal price during the Project operation, the royalty benefits to NSW will be in the hundreds of millions of dollars, present value.

#### Unrealistic Corporate Tax Benefits

- the level of company tax benefits of the Project to NSW were identified in the Economic Impact Assessment at \$21M.
- the Economic Impact Analysis actually significantly understated company tax benefits to NSW, as it used a company tax rate of 28.5% (a proposed Australian Government policy at the time) and attributing only 7% to NSW.
- using the prevailing company tax rate of 30% and a 32% allocation of these tax receipts to NSW as suggested by the NSW Government Guidelines for Economic Assessment of Mining and Coal Seam Gas Proposals (2015), the company tax benefits of the Project to NSW are projected to be \$102M.
- notwithstanding, the major direct financial benefit of the Project to NSW relates to royalties.
- the method of financing mining projects is highly uncertain and determined by complex financial, legal and tax matters. Consequently, profit and loss calculations used in discounted cash flow analysis to estimate company tax payments of projects generally default to 100% equity funding.
- importantly, thin capitalisation rules under Australian law limit the level of debt financing that is tax deductible to 60%.
- KEPCO Korea's net income in 2015 was \$16B and hence it has the capacity to 100% equity fund the Project. However, in practice the level of tax deductible debt funding may range from 0% to 60%.
- the maximum allowable debt financing under Australian law would reduce the estimated company tax benefits by approximately one third.
- however, as identified above the initial estimate of company tax accruing to NSW i.e. \$21M, was highly conservative. The revised estimate of company tax benefits of the Project accruing to NSW i.e. \$102M, would reduce to approximately \$68M under maximum debt funding. Lower levels of debt financing increase the level of tax benefits from the Project to NSW.
- since the Project Economic Impact Assessment was undertaken, mining costs across the industry, and particularly in Australia, have reduced. A 15% reduction in costs since 2015 would completely offset tax reductions from the maximum allowable level of debt funding.

## **1.0 INTRODUCTION**

The Institute for Energy Economic and Financial Analysis (IEEFA) has prepared a submission to the Bylong Coal Project (the Project) dated June 2018. The NSW Department of Planning and Environment (DPE) provided this submission to KEPCO Bylong Australia Pty Limited (KEPCO) on 18 June 2018 and has provided the opportunity for comment. Each of the main issues raised within the IEEFA submission is responded to below.

## 2.0 WHO IS THE IEEFA?

The DPE and Independent Planning Commission (IPC) (formerly Planning Assessment Commission (PAC)) should be cautious about placing any weight on the US-based Institute for Energy Economic and Financial Analysis (IEEFA) submission. Far from being a reliable, unbiased, source of information on global energy and the environment, its research is skewed to achieve its Mission Statement which is to "*accelerate the transition to a diverse, sustainable and profitable energy economy* i.e. away from coal fired electricity generation. Indeed, the document is effectively a piece of advocacy.

The statements made in the IEEFA submission are misinformed and misleading. The report involves many instances of data being referenced selectively and out of context, as well as spurious extrapolation of unrelated data to the Project.

### 3.0 GENERAL COMMENTS ON GLOBAL SUPPLY AND DEMAND

**Claim:** The IEEFA submission paints a picture of global irrelevance of coal mining and coal fired electricity generation.

*"declining global coal demand", p. 5.*

*"In its latest World Energy Outlook report for 2017, the International Energy Association (IEA) forecasts that the global thermal coal trade is headed downward, with both 2025 and 2040 volumes below the level of 2016 under the central New Policies and the Sustainable Development scenarios", p 15.*

*"the project will exist through a time when coal fired electricity generation is increasingly obsolete", p. 5.*

*"Rapidly transitioning electricity markets mean that there are, in IEEFA's opinion, significant doubts as to the need for a new export thermal coal mine in NSW" p. 5.*

#### **Summary Response:**

- The IEA forecasts an **INCREASE** in the quantity of coal demanded in the world to 2040 under both the Current Policy Scenario (CPS) and the more speculative New Policies Scenario (NPS).
- The IEA forecasts an **INCREASE** in the quantity of thermal coal traded in the world to 2040 under the CPS, and a very slight decline under the more speculative NPS.
- The IEA forecasts an **INCREASE** in the quantity of coal demanded in the world to 2040 for power generation under both the CPS and NPS.
- Coal remains the second largest source of energy demanded in 2040 under the CPS (behind oil), and the third largest source of energy demanded in 2040 under the NPS (behind oil and gas).
- The Australian Chief economist has identified 286 advanced technology coal fired power stations planned or under construction around the world.
- Demand for a new export thermal export coal mine in NSW (the Bylong Coal Project) is demonstrated by KEPCO's willingness to spend in excess of \$700 million dollars to get an approval to mine.

#### **Detailed Response:**

##### IEA Scenarios

There is considerable misrepresentation of the forecast global demand and supply for coal and the findings of IEA World Energy Outlook 2017.

The IEA is an autonomous agency established in November 1974. Its primary mandate is twofold: to promote energy security amongst its member countries through collective response to physical disruptions in oil supply and provide authoritative research and analysis on ways to ensure reliable, affordable and clean energy for its 29 member countries and beyond. The IEA carries out a comprehensive programme of energy co-operation among its member countries, each of which is obliged to hold oil stocks equivalent to 90 days of its net imports. The Agency's aims include the following objectives:

- Secure member countries' access to reliable and ample supplies of all forms of energy; in particular, through maintaining effective emergency response capabilities in case of oil supply disruptions.



- **Promote sustainable energy policies that spur economic growth and environmental protection in a global context – particularly in terms of reducing greenhouse-gas emissions that contribute to climate change.**
- Improve transparency of international markets through collection and analysis of energy data.
- **Support global collaboration on energy technology to secure future energy supplies and mitigate their environmental impact, including through improved energy efficiency and development and deployment of low-carbon technologies.**
- Find solutions to global energy challenges through engagement and dialogue with non-member countries, industry, international organisations and other stakeholders.

Source IEA - Emphasis added

The IEA consider world energy demand and supply under three policy settings:

1. CPS that considers only those policies and measures enacted into legislation by mid-2017 i.e. those currently in place.
2. NPS that considers existing policies as well as announced **policy intentions**, including aspirational policies and targets. These are not enacted into legislation and may not be implemented.
3. Sustainable Development Scenario (SDS), a new scenario that examines what it would take to achieve the main energy-related components of the "2030 Agenda for Sustainable Development" adopted in 2015 by member states of the United Nations.

The IEA does not provide a preference between scenarios. They are simply scenarios around which they provide data analysis. However, only the CPS represents the current state of play. The other scenarios are subject to the vagaries of domestic and international politics. The SDS scenario has no basis in current or aspirational policy announcements of governments. Yet it is the more speculative NPS and highly speculative SDS scenario continually referenced in the IEEFA submission without appropriate context. For the purpose of the following response to the IEEFA submission, the results of both the CPS and NPS are presented, even though only the CPS is grounded in current policy.

#### Global Demand, Supply and Trade For Coal

World coal demand, production and trade by IEA scenario is provided in Table 1.

Under both the CPS and NPS, demand for coal **INCREASES** from 2016 to 2040 (at an annual average rate of 0.2% for the NPS and 1.2% per year under the CPS).

Demand for coal for power generation also **INCREASES** from 2016 to 2040 (at an annual average rate of 0.05% for the NPS and 1.7% per year under the CPS).

Production of steaming coal **INCREASES** from 2016 to 2040 (at an annual average rate of 0.5% for the NPS and 2.0% per year under the CPS).

The quantity of thermal coal traded in the world to 2040 **INCREASES** under the CPS (at an average annual rate of 1.5%). The quantity traded under the NPS slightly declines to 2040 under the NPS (at an average annual rate of 0.2%).

**Table 1 World coal demand, production and trade by scenario** (Mtce)

			New Policies		Current Policies	
	2000	2016	2025	2040	2025	2040
<b>Demand</b>	<b>3 301</b>	<b>5 364</b>	<b>5 488</b>	<b>5 613</b>	<b>5 950</b>	<b>7 208</b>
Power generation	2 236	3 320	3 339	3 359	3 731	4 693
Industrial use <sup>2</sup>	856	1 714	1 854	2 040	1 902	2 240
Other sectors	209	330	295	214	318	274
<i>Power generation share</i>	<i>68%</i>	<i>62%</i>	<i>61%</i>	<i>60%</i>	<i>63%</i>	<i>65%</i>
<b>Production</b>	<b>3 254</b>	<b>5 271</b>	<b>5 488</b>	<b>5 613</b>	<b>5 950</b>	<b>7 208</b>
Steam coal	2 504	4 049	4 319	4 574	4 734	6 040
Coking coal	449	967	900	806	923	875
Lignite*	301	255	269	233	293	293
<i>Steam coal share</i>	<i>77%</i>	<i>77%</i>	<i>79%</i>	<i>81%</i>	<i>80%</i>	<i>84%</i>
<b>Trade**</b>	<b>471</b>	<b>1 046</b>	<b>1 004</b>	<b>1 009</b>	<b>1 167</b>	<b>1 336</b>
Steam coal	310	756	735	721	875	1 023
Coking coal	175	292	280	306	301	329
<i>Production which is traded</i>	<i>14%</i>	<i>20%</i>	<i>18%</i>	<i>18%</i>	<i>20%</i>	<i>19%</i>

Source: IEA 2017, p. 207.

Mtce - million tonnes of coal equivalent

#### World Primary Energy Demand by Fuel and Scenario

While absolute demand for coal and supply of coal increase under both the CPS and NPS, coal's share of world energy demand decreases under the NPS from 27.3% in 2016 to 22.3% in 2040. Under the CPS coal's share of world energy demand remains relatively static, 27.3% in 2016 to 26.1% in 2040. Refer to Table 2.

Under the CPS coal retains the rank of the second most important source of primary energy to 2040 behind oil, while under the NPS coal remains the second most important source of primary energy to 2040, behind oil and gas.

What is clear from this is that in the foreseeable future, coal will remain a significant contributor to world energy demand.

**Table 2 World primary energy demand by fuel and scenario (Mtoe)**

	2000	2016	New Policies		Current Policies	
			2025	2040	2025	2040
Coal	2 311	3 755	3 842	3 929	4 165	5 045
Oil	3 670	4 388	4 633	4 830	4 815	5 477
Gas	2 071	3 007	3 436	4 356	3 514	4 682
Nuclear	676	681	839	1 002	839	997
Hydro	225	350	413	533	409	513
Bioenergy*	1 023	1 354	1 530	1 801	1 507	1 728
Other renewables	60	225	490	1 133	441	856
<b>Total</b>	<b>10 035</b>	<b>13 760</b>	<b>15 182</b>	<b>17 584</b>	<b>15 690</b>	<b>19 299</b>
<i>Fossil-fuel share</i>	<i>80%</i>	<i>81%</i>	<i>78%</i>	<i>75%</i>	<i>80%</i>	<i>79%</i>
<b>CO<sub>2</sub> emissions (Gt)</b>	<b>23.0</b>	<b>32.1</b>	<b>33.4</b>	<b>35.7</b>	<b>35.4</b>	<b>42.7</b>

Source: IEA 2017, p. 79.

Notes: Mtoe = million tonnes of oil equivalent.

#### World Electricity Generation by Source and Scenario

The way in which electricity supply evolves depends strongly on the nature of power sector policies and the assumed policy scenario. Under the CPS, the quantity of electricity generation from coal increases by 2.3% per annum till 2040. While under the NPS, it increases by 0.4% per annum.

In a growing energy world increases in total coal usage can be associated with declines in coals overall share of total energy. Coal's overall share of global electricity generation declines marginally under the CPS from 35% in 2016 to 34% in 2040. Refer to Table 3. Even under the NPS, it remains at 26% in 2040.

**Table 3 - World electricity generation by source and scenario (TWh)**

			New Policies		Current Policies	
	2000	2016	2025	2040	2025	2040
<b>Total</b>	<b>15 477</b>	<b>24 765</b>	<b>29 657</b>	<b>39 290</b>	<b>30 724</b>	<b>42 321</b>
Fossil fuels	10 017	16 136	17 124	19 758	18 666	25 336
Coal	6 005	9 282	9 675	10 086	10 897	14 386
Gas	2 753	5 850	6 730	9 181	7 033	10 428
Oil	1 259	1 004	719	491	736	523
Nuclear	2 591	2 611	3 217	3 844	3 218	3 825
Renewables	2 869	6 018	9 316	15 688	8 840	13 160
Hydro	2 619	4 070	4 804	6 193	4 755	5 964
Bioenergy	164	566	867	1 424	833	1 211
Wind	31	981	2 192	4 270	1 983	3 358
Solar PV	1	303	1 264	3 162	1 096	2 192
Other renewables	53	98	188	638	173	436
Fossil fuels	65%	65%	58%	50%	61%	60%
Coal	39%	37%	33%	26%	35%	34%
Gas	18%	24%	23%	23%	23%	25%
Oil	8%	4%	2%	1%	2%	1%
Nuclear	17%	11%	11%	10%	10%	9%
Renewables	19%	24%	31%	40%	29%	31%
Hydro	17%	16%	16%	16%	15%	14%
Bioenergy	1%	2%	3%	4%	3%	3%
Wind	0%	4%	7%	11%	6%	8%
Solar PV	0%	1%	4%	8%	4%	5%
Other renewables	0%	0%	1%	2%	1%	1%

Source: IEA (2017), p. 257.

The journal of the Office of the Chief Economist, the Energy and Resources Quarterly (September 2017), identified that as of June 2017 there were 286 advanced technology coal fired power stations planned or under construction around the world, including 11 in South Korea.

#### Need for a New Export Thermal Coal Mine in NSW

The need for another export thermal coal mine in NSW is determined by global demand and supply, not the representations of IEEFA. KEPCO has assessed the global supply and demand situation, as well as global and domestic policy settings, and determined that there would be benefit to it from obtaining secure supply of the high quality, low emission coal from the Project. Demand for a new export thermal coal mine in NSW (the Bylong Coal Project) is demonstrated by KEPCO's willingness to spend more than \$700 million (to date) prior to gaining final regulatory approvals.

## 4.0 STRATEGIC IMPORTANCE AND NEW ENERGY PRIORITIES OF SOUTH KOREA

**Claim:** The IEEFA questions the strategic importance of the Bylong Coal Project to South Korea given supposed policy announcements of the Korean Government and CEO of KEPCO, referring to New Energy Priorities of South Korea, South Korea's renewables build-out that is underway, KEPCO's move to renewable energy, the IEA's 'plummeting forecasts for Korean coal imports' and an IEA scenario for achieving the Paris Climate Agreement Target.

### Summary Response:

- Coal will continue to be critical to the energy mix in South Korea. While some coal-fired plants will be retired in coming years, other HELE technology clean coal-fired power stations are proposed to replace them.
- The coal from the Bylong Coal Project has a low sulphur content (less than 0.4% over the life of the Project) that has advantages for lowering air pollution in South Korea and accords with South Korea's new regulations for the sulphur content of coal.
- Even under a highly conservative NPS, demand for coal for South Korea in 2040 will be over 10 times the average annual production from the Bylong Coal Project.
- according to the South Korea Government plan (the 8th Basic Plan for Long-term Electricity Supply and Demand dated 29th December 2017), the total capacity of coal-fired power plants will grow from 36.8GW in 2017 to 39.9GW in 2030.
- The South Korea Government has pledged to abandon nuclear power. While the government did try to boost solar and wind power generation, it is not yet able to provide a steady volume of affordable energy from renewable resources.
- South Korea and KEPCO (who is currently responsible for supplying 80% of power to the people of Korea) see strategic advantages in being able to control its own supply of coal i.e. increase the vertical integration of KEPCO.
- South Korea and KEPCO are best placed to judge the need and strategic importance of the Bylong Coal Project to South Korea and KEPCO.

### Detailed Response

#### Context

South Korea is the third largest importer of Australian thermal coal. The number of advanced technology coal fired power stations planned or under construction in South Korea is 11 (see Figure 1) (Resources and Energy Quarterly September 2017).

#### New Government, New Energy Priorities

KEPCO's letter of support for the Bylong Coal Project (Appendix C of the Response to the PAC Review Report) was provided in the month after the new Republic of Korea Government's long-term plan<sup>1</sup> for the South Korean electricity system was released. The letter of support, reflects the fact that while renewables and liquefied natural gas (LNG) will increasingly become important to South Korea's energy mix, coal will continue to have a central role to play, just as it will globally. Part of the South Korean Government's plan is to execute an early shut down of aged coal-fired power plant ahead of the end of

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<sup>1</sup> The 8<sup>th</sup> Basic Plan for Long-term Electricity Supply and Demand (Dec. 29<sup>th</sup> 2017), the Ministry of Trade, Industry and Energy of the Republic of Korea.

their design life, and expand high efficiency low emissions (HELE) technology clean coal fired power plants.

With regard to air pollution concerns in South Korea, under new regulations, Korean power stations will be restricted to burning coal with an average sulphur content of 0.4% or less over a 12 month period. As identified in the Newcastle Herald (28 June 2018) government statistics showed that two-thirds of mines exporting through Newcastle had sulphur contents above the Korean limit: some just over but others as high as 1 per cent sulphur. Seven coal sources were under the limit, including coal from the Bylong Coal Project. The Bylong Coal Project will help KEPCO switch from electricity generation using coal high in sulphur, to low sulphur coal from the Project.

#### *South Korea's Renewable Build-Out is On the Way*

The IEEFA refer to a renewables "build-out" when identifying that South Korea is seeking to obtain sufficient renewable energy capacity to provide 20% of the nation's electricity by 2030. This belies the fact that 80% of South Korea's electricity generation will continue to be supplied by coal and gas.

The South Korean Government has pledged to abandon nuclear power. While the government did try to boost solar and wind power generation it quickly realised that it is not yet able to provide a steady volume of affordable energy from renewable sources (The Chosun Ilbo (English Edition): Daily News from Korea 6/7/2018).

#### *KEPCO Moving into Renewable Energy*

According to the IEEFA, any movement by KEPCO into renewable energy generation is a sign that there is no demand for the Bylong Coal Project. This is illogical and simply not the case. It is clear that coal will continue to play an important role in electricity generation in South Korea (as set out above).

#### *IEA Forecasts Plummeting South Korean Coal Imports*

The IEA (2017) presents a NPS for South Korea that assumes new policies based on political statements in newspapers, rather than existing policies. Under this speculative scenario, the IEA predicts a 50% reduction in coal imports by 2040. However, significantly, under this scenario, the IEA still predicts demand for coal imports of around 60 million tonnes in 2040, which is more than 10 times the level of average annual production from the Bylong Coal Project.

No CPS scenario is presented in the IEA (2017). However, according to the South Korea Government plan (the 8th Basic Plan for Long-term Electricity Supply and Demand dated 29th December 2017) the total capacity of coal-fired power plants will grow from 36.8GW in 2017 to 39.9GW in 2030.

#### *IEA: Achieving the Paris Climate Agreement Targets*

The IEEFA make reference to an extreme scenario modelled by the IEA in collaboration with the International Renewables Energy Agency, whereby global policies are set to give a 66% chance that the Paris Climate Agreement Target is met. The scenario does not represent existing or even intentioned policies. It is completely hypothetical and irrelevant. Notwithstanding, even under this extreme scenario coal continues to contribute to the global power generation sector in 2050.

#### *Bylong Coal Project is No Longer Strategically Important*

The IEEFA considers that with a forecast reduction in future demand for coal under a conservative NPS, it is difficult to see how the Bylong Coal Project could be considered "strategically important" to South Korea, and therefore to majority state-owned KEPCO.

KEPCO, the proponent for this Project, which is 51% Republic of Korea government owned and a major global utility company, is in a better position to judge the need and strategic importance of this Project to South Korea and KEPCO, than the IEEFA based on miscellaneous and selective quotes from newspaper articles. As identified in the Response to Submissions, KEPCO is seeking to develop the energy resources located within the Project site so as to reduce KEPCO Korea's exposure to global supply and demand fluctuations, gain secure supply of high quality and low emissions coal, and to assist in ensuring energy security for South Korea as a whole.

Put simply:

- coal will continue to be important to the energy mix in South Korea.
- the coal from the Bylong Coal Project has a low sulphur content (less than 0.4%) which is mandated by South Korea as part of its policies (commencing July 1 2018) to reduce pollution levels.
- even under a highly conservative NPS for South Korea, demand for coal in 2040 will be over 10 times the average annual production from the Bylong Coal Project.
- South Korea and KEPCO see strategic advantages in being able to control its own supply of coal i.e. increase the vertical integration of KEPCO, mitigating supply and demand fluctuations, etc.
- South Korea and KEPCO are best placed to judge the need and strategic importance of this Project to South Korea and KEPCO. The letter of support from KEPCO Korea was released under the new and current South Korean Government and remains valid.

#### Motivation of KEPCO is to Sell It

The IEEFA state that the only reason that KEPCO is continuing to maintain that the Project is of strategic importance, is to achieve all planning approvals so that KEPCO can sell the project if and when the company concludes that the Bylong Coal Project is no longer a strategic priority.

Firstly, how can IEEFA purport to know this other than through its own speculation. Secondly this reasoning is contradictory to the bulk of the IEEFA's submission which seeks to argue that there is no demand for coal from the Project, globally or in South Korea. If this is the case, then an approved Project would have little or no value in the market. There is also no evidence to support this spurious contention.

## 5.0 COAL PRICE FORECASTS AND COAL QUALITY

**Claim:** Coal price forecasts used in the Economic Impact Assessment are out of date and don't reflect the coal quality from the Project.

### Summary Response:

- The Economic Impact Assessment of the Project was prepared in 2015.
- Coal price forecasts were based on a detailed Wood Mackenzie marketing study, specifically taking into account coal quality from the Project.
- The Economic Impact Assessment included sensitivity analysis of +/- 20% of AUD coal price. The Response to Submission included sensitivity analysis of +/-30% AUD coal price.
- The independent review of the Economic Impact Analysis by CIE stated that the implied coal price used in the CBA is reasonable.
- The current coal price is substantially in excess of the coal price forecast by Wood Mackenzie in its marketing study for the Project.
- KPMG's consensus price forecasts quoted by IEEFA are in contrast with those that IEEFA provides from the IEA.
- Coal price forecasts will vary month to month and year to year. However, whatever the coal price during the Project operation, the royalty benefits to NSW will be in the hundreds of millions of dollars, present value.

### Detailed Response:

#### Economic Impact Assessment in the EIS and Response to Submissions

The Economic Impact Assessment was prepared in 2015 and based on market analysis in 2014. The United States Dollar (USD) coal price assumption used in the Economic Impact Assessment (Appendix AE of the Environmental Impact Statement (EIS)) were from a detailed marketing study undertaken by Wood Mackenzie, a leading global energy, metals and mining research and consultancy group. This assessment specifically accounted for the different quality coal products from the Project. The marketing study and Economic Impact Assessment also used an Australian Dollar (AUD): USD exchange rate of 0.84, which is disadvantageous to the Project compared to the current and forecast exchange rate of around 0.75.

The Centre for International Economics (CIE) peer review commissioned by the DPE supported the price assumptions used in the Economic Impact Assessment. CIE stated that:

*"While there are significant uncertainties regarding future prices, the implied coal price of A\$90-A\$100 per tonne for export thermal coal prices used in the CBA is reasonable."*

*"This is broadly consistent with the NSW DTI's previous advice on expected future thermal coal prices."*

The CIE peer review also identifies that *"In its assessment of the Mount Owen mine extension ... the NSW Department of Trade and Investment has used the current low short term coal prices and medium to long term export thermal prices in the range of \$A97 to \$117 per tonne"*.

Recognising the inherent uncertainty in coal price, exchange rates and costs, the EIS Economic Impact Assessment includes sensitivity testing of +/- 20% changes in the AUD coal price, operating costs and



capital costs. In response to a comment from CIE in its peer review, sensitivity testing of +/- 30% changes in AUD coal price was provided in the Response to Submissions.

### Current Coal Prices and Forecasts

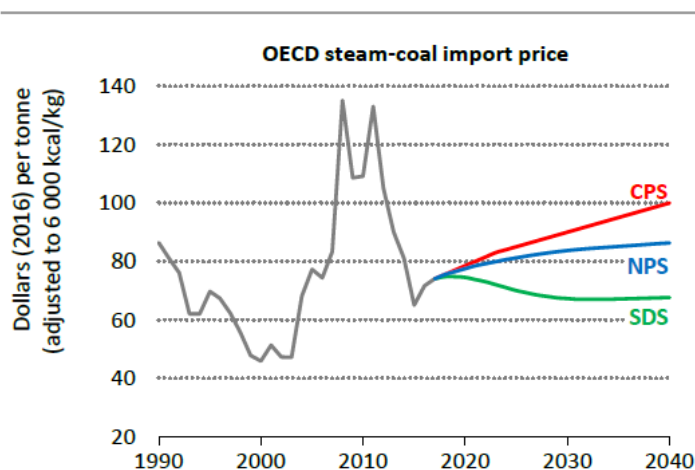
The IEEFA states that material changes in the global thermal coal markets over the past few years have led to significant declines in coal price forecasts, and hence price forecasts used in the Economic Impact Assessment cannot be relied on. The IEEFA states that the actual prices realised by the Project are likely to be significantly below forecast. To support this argument the IEEFA provides KPMG Benchmark Newcastle Thermal Coal Consensus Forecasts for 2018 to 2022 and Long Term, and a comparison of price forecasts from the IEA 2015 and IEA 2017.

Forecasts are inherently uncertain and will vary from month to month in response to changes in global supply and demand. This inherent uncertainty was recognised in the Economic Impact Assessment and has been addressed via sensitivity testing. Notwithstanding, the coal price forecast for 2018 by Wood Mackenzie in the marketing study that was relied on in the Economic Impact Assessment is considerably lower than current prices, not higher as asserted by the IEEFA. Further, the new Korean limit on sulphur content may materially drive up the price of low sulphur coal from the Bylong Coal Project. Higher prices for low sulphur and high energy coal are already being observed.

Blind faith in the latest forecasts being any more certain than forecasts relied upon in the Economic Impact Assessments is misplaced. The KPMG forecast referred to by IEEFA significantly understates coal prices for 2018, the first year of the forecast. Current benchmark coal prices are in the order of USD105.4/t, compared to the KPMG mean forecast of USD90.2/t i.e. the KPMG forecast was inaccurate even at the date of its publication.

The KPMG forecast also indicates coal prices declining over time, in contrast to the IEA forecast provided by the IEEFA in its submission, which shows coal prices under the CPS and NPS increasing over time. Refer to Figure 2.

**Figure 2 - Forecast Import Thermal Coal Price**



Source: IEA (2017), p.

Even allowing for the IEA forecast relating to import prices (and hence including shipping cost) rather than free-on-board prices, they are considerably higher than those suggested by the KPMG forecast, particularly when they are also for lower energy coal than assumed by KPMG.

The key observation to be made in relation to the foregoing is that forecasts are just that. They will change every day in response to unexpected changes in supply and demand. Claims that the Economic Impact Analysis should be continually updated for changes in forecasts are spurious. The uncertainty in future coal prices has been addressed appropriately using sensitivity analysis. The finding from the sensitivity testing undertaken for the Project is that no matter the assumed coal price, the Project will provide hundreds of millions of dollars (present value) in royalty benefits to NSW and several billion dollars of economic stimulus to the Mid-Western Region and even more to NSW as a whole, as forecast by the CGE Modelling undertaken (as requested by the IPC (formerly PAC) over the Project.

## 6.0 UNREALISTIC CORPORATE TAX BENEFITS

**Issue:** IEEFA consider that there are significant doubts over the corporate tax benefits of the Project as IEEFA considers that there will inevitably be a high level of Project and corporate debt used to fund the Project.

### Summary Response:

- The level of company tax benefits of the Project to NSW were identified in the Economic Impact Assessment at \$21M.
- The Economic Impact Analysis actually significantly understated company tax benefits to NSW, as it used a company tax rate of 28.5% (a proposed Australian Government policy at the time) and attributing only 7% to NSW.
- Using the prevailing company tax rate of 30% and a 32% allocation of these tax receipts to NSW as suggested by the NSW Government Guidelines for Economic Assessment of Mining and Coal Seam Gas Proposals (2015), the company tax benefits of the Project to NSW are projected to be \$102M.
- Notwithstanding, the major direct financial benefit of the Project to NSW relates to royalties.
- The method of financing mining projects is highly uncertain and determined by complex financial, legal and tax matters. Consequently, profit and loss calculations used in discounted cash flow analysis to estimate company tax payments of projects generally default to 100% equity funding.
- Importantly, thin capitalisation rules under Australian law limit the level of debt financing that is tax deductible to 60%.
- KEPCO Korea's net income in 2015 was \$16B and hence it has the capacity to 100% equity fund the Project. However, in practice the level of debt funding may range from 0% to 60%.
- The maximum allowable debt financing under Australian law would reduce the estimated company tax benefits by approximately one third.
- However, as identified above the initial estimate of company tax accruing to NSW i.e. \$21M, was highly conservative. The revised estimate of company tax benefits of the Project accruing to NSW i.e. \$102M, would reduce to approximately \$68M under maximum debt funding. Lower levels of debt financing increase the level of tax benefits from the Project to NSW.
- Since the Project Economic Impact Assessment was undertaken, mining costs across the industry, and particularly in Australia, have reduced. A 15% reduction in costs since 2015 would completely offset tax reductions from the maximum allowable level of debt funding.

### Estimated Company Tax Benefits of the Project

The level of company tax benefits from the Project to NSW were identified in the Economic Impact Assessment at \$21M. The Project analysis assumed a 28.5% company tax (a proposal by Government at the time) with 7% of this accruing to NSW. The proposal by Government did not eventuate and hence the company tax rate remains at 30% of taxable income. NSW Government Guidelines (2015) which were released after completion of the Economic Impact Assessment suggest that it is appropriate to allocate 32% of company tax receipts to NSW. Under these assumptions, the company tax benefits of the Project to NSW are \$102M, substantially higher than originally estimated, all other things being equal. Notwithstanding, the major direct financial benefit of the Project to NSW relates to royalties.

### Method Used to Estimate Company Tax Payable

The method of financing mining Projects is highly uncertain and determined by complex financial, legal and tax matters. Consequently, profit loss calculations used in discounted cash flow analysis to estimate company tax payments of projects generally, by default, assume 100% equity funding.

Debt financing can impact the level of tax deductible debt and change the levels of tax payable. Under the thin capitalisation rules in Australian tax law, the amount of debt used to fund the Australian operations of foreign entities investing into Australia is limited. The maximum statutory debt limit (safe harbour debt limit) has been reduced from 3:1 to 1.5:1 (on a debt-to-equity basis) for general entities. That is, the maximum debt financing that is tax deductible is 60%.

KEPCO Korea's net income in 2015 was \$16B and hence it has the capacity to 100% equity fund the Project. However, in practice the level of debt funding may range from 0% to 60%. Even if KEPCO chose to use the maximum allowable debt financing, this would only reduce the estimated company tax benefits by approximately one third.

However, as identified above the initial estimate of company tax accruing to NSW i.e. \$21M, was highly conservative. The revised estimate of company tax benefits of the Project accruing to NSW i.e. \$102M, would reduce to approximately \$68M under maximum debt funding. Lower levels of debt financing increase the level of tax benefits from the Project to NSW.

### Declining Costs of Mining

The IEEFA submission focuses on different forecasts of coal prices and potentially reduced tax benefits of the Project due to debt financing. While coal price forecasts have varied since the Economic Impact Assessment of the Project and remain highly varied and uncertain, it is important to note that costs of mining and construction have declined since the Economic Impact Assessment for the EIS was completed.

As identified in IEA (2015, p. 64) Medium Term Coal Market Report 2015, in response to post boom reductions in coal prices (i.e. post peaks prices in 2008 and 2011) "Australian coal producers have been rigorously cutting costs in recent years in order to adjust to declining market prices and to avoid mine closures." This cost cutting has continued with the IEA (2017, p. 217) identifying that the "export oriented coal industry has achieved marked cost cuts in the past few years". "The cuts were deepest in the countries that have a high-cost base such as Australia."

These cost reductions would have the effect of increasing the level of company tax payable from the Project, all other things being equal. A 15% percent reduction in costs since the Economic Impact Assessment would completely offset any reduction in company tax due the maximum debt funding.