

Planning Assessment Commission Submission

Newcastle T4

A Stranded Asset?



**Institute for Energy Economics
and Financial Analysis**
IEEFA.org

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Executive Summary

Thank you for the opportunity to make a submission on the Newcastle T4 Coal Export Expansion proposal. We oppose the project as an obvious stranded asset in the making and believe it should not be given development consent.

The Institute of Energy Economics and Financial Analysis (IEEFA) believes the proposed capacity expansion is redundant. With global traded thermal coal market peaking in 2013 and given the Newcastle Coal Port is now operating at only a 72.5% utilisation in 2015, down from its 2014 peak of 75%. Adding another 33% is adding serious stranded asset risk.

Chinese coal imports peaked in 2013 and the subsequent and totally unforeseen 11% decline in import demand over 2014 caught the global coal industry by surprise. The decline has accelerated into a collapse of 38% year-on-year in the six months to June 2015. IEEFA forecasts that this trend is structural and permanent. The Chinese Premier has made it clear that the Chinese government is undertaking a war on pollution and pursuing all means possible to diversify away from coal. As the marginal and high cost source of incremental supply, the import market is the immediate and permanent casualty of this war. China was a net exporter of coal pre-2008, and IEEFA sees China as likely to be an opportunistic net exporter again on any temporary price improvement in seaborne coal.

The International Energy Agency (IEA) acknowledged in 2012: "*China is coal. Coal is China.*" As the world's largest producer, consumer and importer of coal, China is the best barometer of this global commodity's future.

With the collapse of China demand, India is today the world's largest importer of coal. The Energy Minister of India, Piyush Goyal announced in November 2014 a target to cease India's thermal coal imports within 2-3 years. In May 2015 Minister Goyal updated his view to say this is now a two year target, given the Government of India aims to treble India's domestic coal production by 2020 to 1,500 million tonnes per annum (Mtpa). With domestic Indian coal selling at US\$24/t, the ability of imported coal (even at record low export prices of US\$58/t in 2015) to compete is limited at best.

IEEFA views the global equity market as a clear barometer of the structural decline of coal. The coal mining sector has seen share prices decimated. Global listed coal mining companies are down an average 70% in the last five years. Five years ago Peabody Energy's equity capitalisation was US\$18 billion. Peabody, the largest Western coal producer, has seen its share price decline 95% since, against a U.S. equity market up 80%.

Approving the proposed \$4.8bn T4 expansion at a time when the Newcastle Port's coal exports are running at only 72% of existing capacity would be counter-productive to Australia's national interest. Enabling massive new supply to flood an already oversupplied and declining export sector will only serve to further erode the long term price of coal.

Seaborne Thermal Coal has Entered Structural Decline

In conjunction with Carbon Tracker, IEEFA published a major global thermal coal study in September 2014.¹ The key conclusion of this study was that the Chinese domestic demand for thermal coal was likely to peak by 2016, and then steadily decline thereafter. Given China is 50% of global coal consumption, this in turn lead to the second conclusion, that world seaborne thermal coal demand would peak concurrently with China in 2016.

The IEA has historically proven far more optimistic about the outlook for coal markets. The IEA's World Energy Outlook 2014 forecast a peaking then plateau in thermal coal demand in China by 2020-2025. A key weakness in this analysis is the reliance on data only up to 2013, ignoring the key turning point evident in 2014 that has accelerated into 2015. A second key weakness well documented by Bloomberg New Energy Finance has been the consistent, material underestimation of the rate and magnitude of the global update on renewable energy and implications of energy efficiency in dampening electricity demand growth.

However, the IEA's June 2015, "Energy and Climate Change" publication² models a dramatically different scenario with China's coal-fired power generation peaking at 4,110TWh in 2013 and declining -0.2% pa over the 2013-2030 period. This has staggering implications for the outlook for seaborne thermal coal imports into China, and with China the #1 importer globally in 2014, global implications for demand and hence pricing.

Major global investment banks have increasingly come to a similar conclusion. Bernstein Research in June 2013 called for a peak in China's coal consumption by 2016 in their seminal Blackbook: "China: The beginning of the end of Coal." Morningstar in April 2014 published "Burned Out: China's Rebalancing Heralds the End of Coal's Growth Story." UBS, Citigroup ("Energy Darwinism"), Merrill Lynch, Deutsche Bank, HSBC, Morgan Stanley and Goldman Sachs ("Thermal coal reaches Retirement Age") have likewise massively downgraded their demand and price expectations for coal and now assume no material price recovery in the longer term.

Professor Ross Garnaut has likewise repeated argued that Chinese energy demand is at a cross roads.³ Lord Nicholas Stern and Fergus Green have published authoritative papers detailing the structural changes in China and the resulting conclusion of structural decline of seaborne coal.⁴

The historic November 2014 China-US Climate Change Agreement has created a wave of global regulatory and policy initiatives that supports the IEEFA projection. This agreement commits to building upon a number of significant actions to move aggressively away from fossil fuels and transition towards a lower carbon energy mix. U.S. domestic coal consumption is on track to decline 10% in 2015 alone (down 30% from its peak in 2008).

Under its Intended Nationally Determined Contribution (INDC) to the United Nations framework convention on climate change in June 2015, China **made** the declaration:

¹ <http://www.carbontracker.org/wp-content/uploads/2014/09/Coal-Demand-IEEFA.pdf>

² <http://www.iea.org/publications/freepublications/publication/weo-2015-special-report-energy-climate-change.html>

³ http://www.rossgarnaut.com.au/Documents/Garnaut_AFR_AustraliahasnotrecognisedchangeinChinesedemandforironoreandcoal060415%20.pdf

⁴ http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2015/06/Chinas_new_normal_green_stern_June_2015.pdf

"China is making efforts to embark on a sustainable development path that is in line with its national circumstances and leads to multiple wins in terms of economic development, social progress and combating climate change,"

Consistent with this policy, China's imports of coal declined a record 38% year-on-year in the first six months of 2015,⁵ and coal consumption in 2015 year-to-date is **estimated** to be down 8% yoy.⁶ The largest coal miner in China, Shenhua Energy, has reported that its year to May 2015 coal dispatches in China are down 24.7% year-on-year.⁷ Contrary to all forecasts evident at that time, China's thermal coal consumption actually peaked in 2013.

India is the third largest domestic thermal coal market in the world. On 12 November 2014 India's Energy Minister Piyush Goyal said he plans for India to cease importing thermal coal in 2-3 years.⁸ This is a part of a well conceived and ambitious development of the Indian electricity sector. India's Minister is making it clear India can't afford to solve energy poverty using expensive imported coal, and will increasingly diversify the electricity sector away from coal. Imported coal fired power plants are not commercial.⁹

In April 2015 Energy Minister Goyal again **said**:

"We are confident that in the next year or two, we will be able to stop imports of thermal coal while imports of coking coal will continue till we are able to explore more reserves."

NTPC MD Arup Roy Choudhury **said** in April 2015 (as to relevance, NTPC is the largest coal-fired power generator in India with 44GW of capacity):

"Our aim is to have zero import of coal, and manage with the coal from Coal India sources or our own mines. You can say in the next five years."

A greater reliance on energy efficiency and improved grid efficiency, plus a plan to install 175GW of run-of-river hydro, biomass, wind and solar in the next five years alone. 175GW of new renewable energy installations combine with an acceleration in domestic coal mining, plus expanded LNG and nuclear power in India to facilitate this transition.ⁱ

Citigroup Research in May 2015 said that thermal coal was in:

"structural decline as a result of increasing environmental pressures and improving competitiveness of alternative power sources, including renewables and natural gas."

Thermal Coal Price decline

The seaborne thermal coal market has entered structural decline. Having peaked in 2009, the seaborne price has fallen over 60%. The Australian export benchmark is the Newcastle 6,000kcal net as received (NAR) free on board (FOB) index. Into July 2015 this coal index price remains at US\$60/t, and the Newcastle coal **forwards** factor in coal prices likewise remains at or below US\$60.55/t through to October 2021.¹⁰ For detail, refer Appendix A.

⁵ <http://in.reuters.com/article/2015/07/13/china-economy-trade-coal-idINL4N0ZT1L220150713>

⁶ <http://www.afr.com/markets/commodities/china-coal-imports-plunge-375pc-as-economy-struggles-20150713-gib16c>

⁷ http://www.shenhuachina.com/cs/sh_china_en/PAGE1382683238777/sh_china_en_ED.html?year=year:2015,P

⁸ <http://in.reuters.com/article/2014/11/12/india-coal-imports-idINL3N0T234F20141112>

⁹ <http://www.frontline.in/economy/there-is-no-intention-to-denationalise-coal-india/article6847880.ece?homepage=true>

¹⁰ <http://quotes.esignal.com/esignalprod/quote.action?symbol=NCFQ-ICE>

Adding New Supply to an Oversupplied Seaborne Coal Market

It makes no strategic sense for Australia to add new greenfield thermal coal export infrastructure capacity. If Newcastle T4 is built, this will add additional infrastructure capacity into an already chronically oversupplied seaborne market where demand is now declining, having peaked globally in 2013 or 2014. This will drive the thermal coal price down further, and more existing Australian mines will close as a result – given many are operating at gross cash breakeven at best in the current weak pricing environment.

Australia might gain some incremental export volume market share as a result. But adding new coal infrastructure capacity is merely profitless prosperity, at best for Australia. At worst, it is building yet another stranded asset, unable to get a commercial return on its investment.

The Development Approval of T4 Crowds Out Alternatives

The Chinese equity market crash of June-July 2015 is symptomatic of a major restructuring and transition of the Chinese economy, with all the resulting imbalances and financial risks entailed in such a change.

The collapse in pricing and weakening in demand outlook for Australia's four largest exports is a major strategic threat to Australia. Expectations for strong growth in demand from China for Australia's iron ore, coking coal, thermal coal and liquid natural gas (LNG) have been wrong, and the implications for hundreds of billions of dollars of investment across Australia are at risk. The investment involved is equally in the mining and related long life rail and port infrastructure.

Approving T4 further locks Newcastle and the surrounding community and economy into a thermal coal future: digging Newcastle deeper into the hole already covering much of the Hunter Valley. What is clearly needed is a long term transition plan that involves developing and promoting alternative industries that best leverage industries of the future and the lower Australian dollar (e.g. tourism, wine, education, food and agriculture).

The Expansion That Isn't Needed – Newcastle T4

The current rated capacity of Newcastle Coal Port is 211 million tonnes per annum (Mtpa) – Figure 1. The expansion of T4 proposes to add 70Mtpa initially,¹¹ relative to the expansion of 120Mtpa originally proposed. This would see a 33% expansion of capacity.

Figure 1: Newcastle Coal Port Capacity (2015 and proposed, Millions of Tonnes pa)

	Capacity Mtpa	Capacity Mtpa	Expansion
Carrington Coal Terminal	25		
Kooragang Coal Terminal	120		
Port Waratah Coal Services Limited (PWCS)		145	
Newcastle Coal Infrastructure Group (NCIG)		66	
Total Newcastle Coal Port Capacity		211	
T4 Proposal		70	
Total Newcastle Coal Port Capacity post T4		281	33%

Source: *Newcastle Coal Infrastructure Group, Port Waratah Coal Services Limited*

As per the Port of Newcastle 2014 Annual Report,¹² and the year to June 2015 Trade Report¹³, the value of coal exported from Newcastle in the first six months of 2015 was flat in A\$ terms (annualised) at A\$13.8bn relative to the calendar year of 2014 (CY2014). However, Newcastle Port reported a 3.7% year-on-year decline in volumes in the six months to June 2015 (annualised) – as per Figure 2.

As detailed in the section above, the IEEFA forecasts that global seaborne coal demand peaked in 2013, declined fractionally in 2014 and the rate of decline has accelerated in 2015 to-date. The export volumes detailed by the Port of Newcastle show that the trend for NSW is consistent with this global trend.

Figure 2: Newcastle Coal Port Throughput (2015 annualised vs 2014, A\$m & Mtpa)

	CY2014	1HCY2015	2015 Annualised	Change yoy
Value (A\$m)	13,780	6,912	13,824	0.3%
Volume (Mt)	159.0	76.5	153.1	-3.7%

Source: *Port of Newcastle Trade reports*

The capacity utilisation of the Port of Newcastle coal facilities has declined from the peak of 75.4% in CY2014 to 72.5% in the half to June 2015 – Figure 3. That the capacity utilisation rate has declined by 370basis points has a material, adverse impact on the profitability of

¹¹ <http://www.pwcs.com.au/terminal-4/>

¹² <http://www.portofnewcastle.com.au/Resources/Documents/PON-Annual-Trade-Report-2014-FINAL.pdf>

¹³ <http://www.portofnewcastle.com.au/Resources/Documents/Monthly-Trade-Report----June-2015.pdf>

the coal port and reduced employment prospects for the community, as was seen over 2014.¹⁴

Figure 3: Newcastle Coal Port Capacity Utilisation Rate (2015 annualised vs 2014)

Coal Exports	CY2014	2015 Annualised	Change yoy
Volume (Mt)	159.0	153.1	-3.7%
Capacity (Mtpa)	211.0	211.0	0.0%
Capacity Utilisation (%)	75.4%	72.5%	-3.7%

Source: Port of Newcastle Trade reports, IEEFA calculations

Should IEEFA's forecast that global seaborne thermal coal import demand falls by 30% in the period to 2020 (refer Appendix B), even if Australia gains market share, the share gain is highly unlikely to offset the overall global market decline. As such, within six years it is entirely feasible that the Port of Newcastle is operating at or below a 60% capacity utilisation rate.

While this is a very different scenario to that painted by the proponent using the International Energy Agency (IEA) forecasts relying on data up to only December 2013, the world has clearly changed structurally since. The IEA's June 2015 "Energy and Climate Change" publication¹⁵ models a dramatically different scenario more consistent with IEEFA's forecasts.

Coal Miners Scale Back and Try to Exit

While some are still talking up longer term hopes for a recovery in coal markets, the reality is rapidly hitting this industry. Glencore in February 2015 announced a massive cutback in global capital expenditure plans, with this [reported](#) as being driven to try to protect its credit rating from being cut to junk status. Glencore announced it would idle its Australian coal mines over December 2014 and then in March 2015 announced it would cut Australian production by 15Mt, a 15% cut.

In February 2015 Vale SA of Brazil wrote down its Australian coal assets by 71%¹⁶ and closed its Camberwell open-cut and Glennies Creek underground Hunter Valley mines in June 2014 along with 500 jobs.¹⁷

RIO Tinto has taken US\$3-4bn of write-downs on its global coal business over the last two years, exited a number of its once key coal assets and then in 2015 sacked its global CEO of Energy and subsumed the remnants of its coal division under its copper group.¹⁸ The

¹⁴ <http://www.theherald.com.au/story/2418135/port-waratah-sheds-34-jobs-from-kooragang-carrington-terminals/>

¹⁵ <http://www.iea.org/publications/freepublications/publication/weo-2015-special-report-energy-climate-change.html>

¹⁶ <http://www.smh.com.au/business/mining-and-resources/australian-coal-industry-edges-towards-the-abys-as-rio-tinto-glencore-vale-announce-cuts-20150227-13qszt.html#ixzz3SzV0OHey>

¹⁷ <http://www.miningaustralia.com.au/news/vale-s-motives-for-inegra-mine-closure-called-into>

¹⁸ <http://www.afr.com/business/mining/coal/no-coal-price-recovery-for-a-long-long-time-says-rio-tinto-20150510-ggy3m0>

new CEO Jean-Sébastien Jacques' first interview on coal saw him [para-phrased](#) as saying 'No coal price recovery for 'a long, long time''.

BHP has been cutting its NSW coal mining workforce¹⁹ and exited a number of coal assets via its South32 spin-off.

Anglo-American has closed its Drayton mine is also trying to exit Australian coal projects.

Likewise Japanese trading houses like Mitsui, Itochu and [Sumitomo](#) have been [reported](#) to also been quietly trying to exit their Australian coal assets and taking significant write-downs.

Australian coal firms like Whitehaven and [Yancoal](#) have reported successive losses post 2012, with rapidly declining operating margins combining with rapidly rising financial leverage to put the companies increasingly at risk of [financial distress](#).

The shareholder wealth destruction of global coal mining companies has been massive over the last five years – refer Appendix C.

Take or Pay Contracts and Unfunded Rehabilitation Liabilities

There are two major factors stopping NSW coal mining companies from cutting production further and faster – Take or Pay contracts and Mine Rehabilitation. Take or Pay rail and port infrastructure contracts mean that many NSW coal mines are forced to continue to operate at or below gross cash breakeven.²⁰ For example, Peabody Energy in April 2015 reported its entire Australian mining group lost money in the three months to March 2015 at the gross cash cost level before head office and SG&A costs, before interest, tax, depreciation and rehabilitation.²¹

The coal mining firms have signed long term contracts locking them in to paying for rail and port infrastructure even if they are not able to use the agreed volumes. It will only be as these contracts expire progressively over 2016-2018 that NSW will see the extent of mine closures in the absence of any material price recovery.

Likewise, many Australian coal mining firms have not provided for mine rehabilitation. An independent analysis of Australian mine closure and rehabilitation liability published in May 2015 by Lachlan Barker [estimated](#) Australian coal mining has at least A\$18bn of rehabilitation liabilities. Many coal mines are either on care and maintenance or deferring shutdown in order to defer cash rehabilitation costs that run into the hundreds of millions of dollars per coal mine.

¹⁹ <https://au.finance.yahoo.com/news/bhp-cuts-163-coalmining-jobs-113712054.html>

²⁰ http://www.afr.com/p/business/companies/take_or_pay_means_miners_use_and_53JtOEad186apaNkhzcVfM

²¹ <http://ieefa.org/peabodys-dismal-numbers-speak-volumes-about-the-coal-industry-as-a-whole/>

Queensland Coal Port Bonanza – Turning to Stranded Assets

It is also worth referencing the Centre for Policy Developments' "Too Many Ports in a Storm: The risks of Queensland's port duplication," By Laura Eadie.²² This excellent report warned in November 2013:

"However, as boom turns to bust, port capacity has shifted from a shortfall to a surplus. Coal ports are operating at 65% of capacity, and utilisation may remain below the industry average of 85% if the global thermal coal market shifts to structural oversupply, ... Surplus port capacity raises fixed costs and further lowers the short-term competitiveness of energy exports. Over the longer-term, duplicate ports could become stranded assets."

Two years ago Queensland's coal industry was proposing a similar wholesale capacity expansion, with new developments proposed at Abbot Point (70Mtpa at T0 by Adani Enterprises and 70Mtpa at T3 by GVK Power & Infrastructure plus an unspecified NorthHub AP-X by Aurizon and Lend Lease) and 80Mtpa at Wiggins Island Coal Export Terminal (WICET stages 1-3), building on yet-to-be completed expansions by Adani Enterprises of Abbot Point T1 (doubling from 25Mtpa to 50Mtpa) and by BHP Mitsubishi at Hay Point from 44Mtpa to 55Mtpa.

It is worth reflecting that at least Queensland's coal industry has to some degree recognised the structural change facing the industry. After BHP formally cancelled its Abbot Point T2 port development in 2013, the 70Mtpa Abbot Point T3 expansion has also been put on hold until at least next decade, Lend Lease formally withdrew from NorthHub and Aurizon hasn't commented on this proposal for years, and WICET Stage 2 has likewise been postponed indefinitely.

WICET Stage 1 is the latest coal port to come online in the second quarter of 2015, and before it has even been formally commissioned the financial markets are forecasting it will only operate at 40-50% capacity utilisation for some time and that markets are now pricing in evident financial distress – this is a \$3bn stranded port asset that couples with a stranded \$0.8bn rail infrastructure development. The Australian Financial Review on 8 July 2015 again reported²³ that WICET debt is currently being priced at a 20% discount to face value – implying an A\$1bn total writedown is likely. IEEFA published a report forecasting this eventuality in May 2014,²⁴ and other financial houses have likewise forecast distress²⁵ and possible receivership.²⁶

²² Centre for Policy Development, "Too Many Ports in a Storm: The risks of Queensland's port duplication," By Laura Eadie with Su-Min Lim and Michael Hayman, November 2013.

²³ <http://www.afr.com/street-talk/lloyds-has-hedge-funds-ready-for-wicet-sale-20150709-gi8kzy>

²⁴ http://www.ieefa.org/wp-content/uploads/2014/09/IEEFA-Briefing-Note_WICET_May-2014.pdf

²⁵ <http://www.afr.com/Page/Uuid/64f934b0-e07e-11e3-b58f-b06efcf85917>

²⁶ http://www.afr.com/p/opinion/glencore_holds_cards_at_wicet_as_PK0uOEyGzUayr2Yy3VO28N

Subsidies: Externalising Health Costs and Subsidies

Coal Dust

Companies transport coal in uncovered open-top rail cars. This allows significant amounts of **coal dust** to blow over residential and agricultural areas, and pollute waterways, crops, and the air. Each car on a coal train releases 500 to 2,000 pounds of coal dust over the course of its journey, according to a **study** by the Berkshire Hathaway owned Burlington Northern Santa Fe Railway (BSNF). Thus, a typical 125-car coal train could release up to 30-110 tonnes per train trip, around 3% of all coal moved by rail.

Coal dust externalizes a huge cost onto the environment, damaging waterways, adjacent agricultural land and causing severe health costs to communities.

The world's largest coal port sits in the middle of Newcastle, a city of 300,000 people. Coal dust and the associated respiratory problems have been a source of ongoing community issue for decades, with the **various** government reports conflicted and compromised. Given the continuing health and pollution impacts, any cost-benefit analysis of the Newcastle coal expansion at T4 should take into account this major additional externality.

Railway, Mining Disasters and Black Lung Deaths from Coal

A U.S. Harvard **study** in 2011 detailed an estimate of the full external societal impacts of the U.S. coal industry.²⁷ This study should be compulsory reading on the externality costs of coal.

One example was that in just 2007 alone, a total of 246 people were killed in U.S. rail accidents during coal transportation coal. The report used actuary values on the value of life to estimate this societal cost at US\$1.8bn pa, or US9c/kWh of electricity produced.

Black lung disease (or pneumoconiosis), leading to chronic obstructive pulmonary disease, is the primary illness in underground coal miners. In the 1990s, over 10,000 former U.S. miners died from pneumoconiosis and the prevalence has more than doubled since 1995. Since 1900 coal workers' pneumoconiosis has killed over 200,000 in the United States.²⁸

A suite of studies of U.S. county-level mortality rates from 1979–2004 by Hendryx found that mortality rates, lung cancer and mortality from heart, respiratory, and kidney disease were highest in heavy coal mining areas, less so in light coal mining areas, lesser still in non-coal mining areas in Appalachia, and lowest in non-coal mining areas outside of Appalachia.²⁹

Any financial analysis of the cost-benefits of T4 should takes these community costs into account.

²⁷ ANNALS OF THE NEW YORK ACADEMY OF SCIENCES, Paul R. Epstein, Jonathan J. Buonocore, Kevin Eckerle, Michael Hendryx, Benjamin M. Stout III, Richard Heinberg, Richard W. Clapp, Beverly May, Nancy L. Reinhart, Melissa M. Ahern, et al. 2011, "Full cost accounting for the life cycle of coal", Ecological Economics Reviews, N.Y. Acad. Sci. 1219: 73–98.

²⁸ Goodell, J. 2006. "Big Coal: The Dirty Secret Behind America's Energy Future", Houghton Mifflin. NY.

²⁹ Hendryx, M. 2008, "Mortality rates in Appalachian coal mining counties: 24 years behind the nation." Environ. Justice 1: 5–11.

A continuation of Government Subsidies to the Coal Industry

Newcastle Port in NSW is one of the two largest coal ports in the world, and prior to its A\$1.7bn privatisation in March 2014, was government owned. This 21.1Mtpa capacity coal port was developed in conjunction with the NSW coal industry, with the actual terminal facilities owned and funded by two private consortia (PWCS and NCIG). As evidence that the provision of port infrastructure was subsidised for decades by the NSW government, in January 2015 the now privatised Newcastle Port proposed that the three most common coal-carrying vessels that use the port will pay 60% more to traverse the shipping channel, citing as justification that no price rises have been implemented in the previous decade.

Similarly, although private rail freight firms move the export coal from the Hunter Valley to Newcastle, the government owned and funded Australian Rail Track Corporation (ARTC) manages the rail network. ARTC has invested over A\$1.3bn of capital in upgrading the Hunter Valley coal rail network in the six years to 2014. Despite A\$3.6bn of shareholders equity, the business has generated a net after tax loss averaging A\$80m annually over the last four years. The Government's own Commission of Audit in its 2014 report said:

“in recent years some of the capital projects undertaken by the Australian Rail Track Corporation have had marginal benefit-cost ratios, were not needed to meet future demand projections or did not effectively address expected capacity constraints”.

Australian taxpayers have been underwriting the capital risk of enabling rail and port infrastructure for the predominantly foreign owned coal industry in Australia for decades, and then having to fund the ongoing losses thereafter – an open-ended subsidy to a special interest group.³⁰

Global Carbon Budget

The University College of London published a report in January 2015 saying that 95% of Australian coal reserves need to stay in the ground for the world to have a 50% chance of staying within 2 degrees C. Approving the Newcastle T4 coal port expansion flies in the face of this compelling scientific logic.ⁱⁱ

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³⁰ For more details, refer The Australia Institute's report "Mining in the Age of Entitlement: State Government Assistance to the minerals and fossil fuel sector", June 2014, Mick Peel, Rod Campbell and Richard Denniss.

Appendix A - Structural Decline of Seaborne Thermal Coal

IEEFA views the thermal seaborne coal market as having entered structural decline. This reflects IEEFA's forecast that seaborne thermal coal demand will decline from its 2013 peak of almost 1,000Mt to below a 800Mtpa level by 2020. Figure A1 details the near 60% decline in coal prices since 2011.

The key driver of this forecast demand decline is the central role of China, who represents 50% of world coal consumption. In 2014 China's coal consumption declined by 2.9%.³¹ China rapidly moved to protect its domestic coal mining operations, resulting in an 11% decline to 290Mt in coal imports in 2014 (of which 240Mt was thermal). The decline in China's seaborne coal imports has **accelerated** to-date in 2015. The first five months of 2015 saw electricity generation up 1% year-on-year (yoy) and coal consumption was **down 8% yoy** in China, with coal imports down a staggering 38% yoy in the six months to June 2015. Declining coal consumption reflects economic transition towards less electricity intensive sectors, greater energy efficiency and a rapid diversification of electricity generation. Considerably more hydro, gas, nuclear, wind and solar capacity has been installed than coal-fired power plants in the last three years, and this trend is accelerating. A structural transition is in progress.

India imported close to 200Mt of coal in 2014/15 (this includes coking and thermal coal imports), up 18% yoy. While many commodity forecasters have assumed Indian imports will continue to grow, rising to upwards of 400Mt in the next decade, IEEFA forecasts a peak in Indian thermal coal imports in 2015/16, with a rapid 20-25% pa decline thereafter. This is directionally consistent, but more conservative, than Energy Minister Goyal's aim for zero thermal coal imports by around 2017.

Figure A1: Thermal Coal Export Price - Newcastle 6,000kcal NAR US\$/t



Source: [Index Mundi, Australian thermal coal Monthly Price - US Dollars per Metric Tonne](#)

³¹ China Shenhua Energy Company, 2014 Annual Report, page 65.

Appendix B – Falling Import Demand for Thermal Coal

IEEFA forecasts that global import demand for thermal coal peaked in 2013 at 1,072Mt, and is set for a 30% decline by 2020 to 770Mtpa. This forecast is predicated on the view that Western Europe, Japan and China have already passed peak demand. Should Energy Minister Goyal be successful, seaborne thermal imports will be the first casualty, with a globally material impact. Figure B1 assumes Goyal will be successful, but only by the end of this decade rather than his hope for cessation of thermal coal imports within 2-3 years.

Western Europe is forecast to decline materially over this decade due to European Union policy initiatives for renewables, energy efficiency and the Large Combustion Plant Directive 2001/80/EC.

Japan is forecast to decline due to the combination of four factors: ongoing economic growth headwinds; continued energy efficiency gains; the addition of 8-10GW pa of new solar installations; and any potential nuclear facility restart (Japan needs to resolve 42GW of idle nuclear capacity one way or another).

IEEFA forecasts that thermal coal imports peaked into China in 2013, far earlier than most commodity forecasters have anticipated. Thermal coal imports to China declined 9% in 2014, and year-to-June 2015, coal imports have declined a further 38% year-on-year. This is driven by significant ongoing improvements in energy intensity of growth, a gradual slowing of economic growth and continued efforts to diversify away from an excessive reliance on thermal coal.

Figure B1: Thermal Coal Import Demand (1990 to 2020)

Calendar Year	1990	2000	2010	2013	----- Forecasts -----						
					2014	2015	2016	2017	2018	2019	2020
COUNTRY											
China	11	8	126	264	240	168	134	108	86	69	55
India	0	10	81	142	168	195	170	139	108	72	36
Japan	42	93	128	142	145	142	136	131	125	120	115
Korea	12	45	90	96	98	101	104	106	109	112	115
Taiwan	14	40	58	61	63	64	65	67	68	69	71
South East Asia (1)	4	14	53	60	63	66	69	73	76	80	84
Western Europe (2)	48	80	98	128	114	108	104	100	96	93	90
Rest of world	191	150	172	179	181	184	188	192	196	199	203
Total World	322	441	806	1,072	1,071	1,028	970	915	865	815	770
United States	2	10	16	7	7	9	9	10	10	10	10
Russia	53	25	24	23	23	21	19	19	19	19	19
Net World Imports	267	406	766	1,042	1,041	998	943	886	836	787	741

(1) This includes only Thailand, Philippines, Malaysia, Pakistan and Vietnam
(2) This includes only United Kingdom, France, Germany, Spain and Italy
(3) Note - This is global traded thermal coal including lignite, and inclusive of non-seaborne trade.

Source: IEA database, IEEFA forecasts

Appendix C – Global Listed Coal Companies Wealth Destruction

IEEFA notes the average 70% decline in global coal company share prices in just five years.

For example, Peabody Energy, the largest pure-play western coal producer has seen over US\$17bn shareholder wealth destruction over the last five years. Peabody stock is down 96% in this period, whilst the U.S. Equity market index is up more than 90% - Figure C1.

Investing in coal companies is increasingly accepted by the financial markets as a wealth hazard.

Figure C1: Peabody Energy Share price – Value Destruction (2010-15, indexed)



Source: <https://au.finance.yahoo.com/echarts?s=BTU#symbol=BTU;range=1d>

Whitehaven Coal Ltd's share price is down 78% in this same five year period, whilst the Australian equity market index is up more than 40%. Likewise Yancoal (YAL.AX) and Cockatoo Coal (COK.AX) are both down even more - Figure C2.

It is also worth remembering that the once A\$1bn market capitalised Bandanna Energy went into administration back in September 2014 directly as a consequence of its outstanding WICET 10 year take-or-pay coal port liability.

Figure C2: Whitehaven Coal Share price – Value Destruction (2010-15, indexed)



Source: <https://au.finance.yahoo.com/echarts?s=BTU#symbol=BTU;range=1d>

Institute for Energy Economics and Financial Analysis

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Tim Buckley has 25 years of financial market experience covering the Australian, Asian and global equity markets from both a buy and sell side perspective. Tim was a top rated Equity Research Analyst and has covered most sectors of the Australian economy. Tim was a Managing Director, Head of Equity Research at Citigroup for many years, as well as co-Managing Director of Arkx Investment Management P/L, a global listed clean energy investment company that was jointly owned by management and Westpac Banking Group. Tim has worked at IEEFA since 2013.

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ⁱ <http://reneweconomy.com.au/2014/indias-plan-stop-importing-coal-deals-another-blow-australia-68894>

ⁱⁱ <http://www.theguardian.com/environment/2015/jan/08/australia-accelerates-coal-projects-study-buried>