# BRIEFING NOTE

## FOSSIL FUELS, ENERGY TRANSITION & RISK

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# IEEFA Briefing Note – Fossil Fuels, Energy Transition and Risk

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*In this briefing paper, the Institute for Energy Economics and Financial Analysis (IEEFA) explores regulatory, market, technology and reputation risks resulting from the transformation of global energy markets - with a focus on the implications for Australian fossil fuel investment.*

## Executive Summary

- Exxon states: "The risk of climate change is clear and the risk warrants action."
- US listed coal majors have seen share price declines of over 75% since 2011, in stark contrast to the 42% gain in the Dow. Australian listed coal companies have matched this underperformance.
- Coal demand continues to undershoot expectations, with new data in Germany, Japan and Australia.
- Transitioning to a gas dominated electricity system will see US emissions continue to rise.
- Manufacturing Australia predicts that Australia's gas export plans could cost 100,000 jobs due to surging domestic gas prices.
- McKinsey is the latest to acknowledge "The disruptive potential of solar power". Solar stocks have massively outperformed the wider market since 2013, reversing some of the 2011-12 losses.
- First Solar, the US' largest solar PV manufacturer, continues to achieve record efficiencies.
- One of the largest undeveloped coal basins in the world remains stalled, with both GVK and Adani again pushing out their expected financial close for the Galilee by another year.
- Wiggins Island Coal Export Terminal is a year behind schedule with A$1bn of writedowns expected on this 100% debt/preference share funded A$3.3bn project.
- Chinese Premier Li Keqiang declares a "war on pollution", announcing that China will shut down 50,000 small coal-fired furnaces across the country in 2014
- China's first carbon market in Chongqing plans a 4.1% pa cut to carbon dioxide emissions starting in 2014, using 2013 as the baseline.
- Santos agrees to not undertake drilling activities on private land without landholder consent.
- UniSuper announces it is adjusting its Socially Responsible Investment Option to "screen companies involved in fossil fuel exploration and production".
- In the face of investor pressure, Peabody has agreed to release a report regarding fossil fuels and their impact on climate change, and potential liabilities.
- Blackrock, the world's largest fund manager highlights the "licence to operate" risk for any company operating in the Great Barrier Reef.
- The Norwegian Sovereign Wealth Fund commences a review of whether to divest its holdings of all fossil fuel stocks.

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# Key Developments in Energy Markets

## Fossil Fuels

### ExxonMobil

In two new reports to shareholders, Exxon detailed its long-term forecasts, business plans and views on climate change. The company states: "it is equally essential that society manages the risk of climate change by increasing energy efficiency and by investing in research into technologies to reduce greenhouse gas emissions. The risk of climate change is clear and the risk warrants action." [1]

### Wealth Destruction in the Coal Sector

Figure 1 details the share price performance of US coal companies: Peabody Energy Corp. (BTU); Arch Coal (ACI); and Alpha Natural Resources (ANR). Each is down 75–92% since the start of 2011 (the peak in global coal prices), a distinct contrast to the 40% increase in the US equity market in the same period. James River Coal Co. filed for Chapter 11 bankruptcy protection in Apr'2014, down from a peak market capitalisation of US$2bn in 2008.[2]

The chart for the three Chinese coal majors is less dramatic, only down on average some 50% in the same period. Australian coal stocks are down 50–75% in the same period.

**Figure 1: Wealth Destruction – US Coal Sector (2011-2014)**


Source: Yahoo Finance

## Thermal coal price hits four year low, down 45%:

The Newcastle benchmark thermal coal price hit a four year low of US$75/t in Apr'2014, down 45% from its peak in 2011. While lower than expected demand growth has been a key driver, so has continued growth in global supply. Even as new supply from Australia, Indonesia and Columbia continues to grow, global coal companies continue to invest in increased coal export capacity from the US and new mines / rail / port facilities in Mozambique. In Mar'2014 Aurizon lifted its coal shipments forecast for 2013/14 by 3-4% to 207-212Mt.[3] The risk of stranded assets continues to rise.[4]

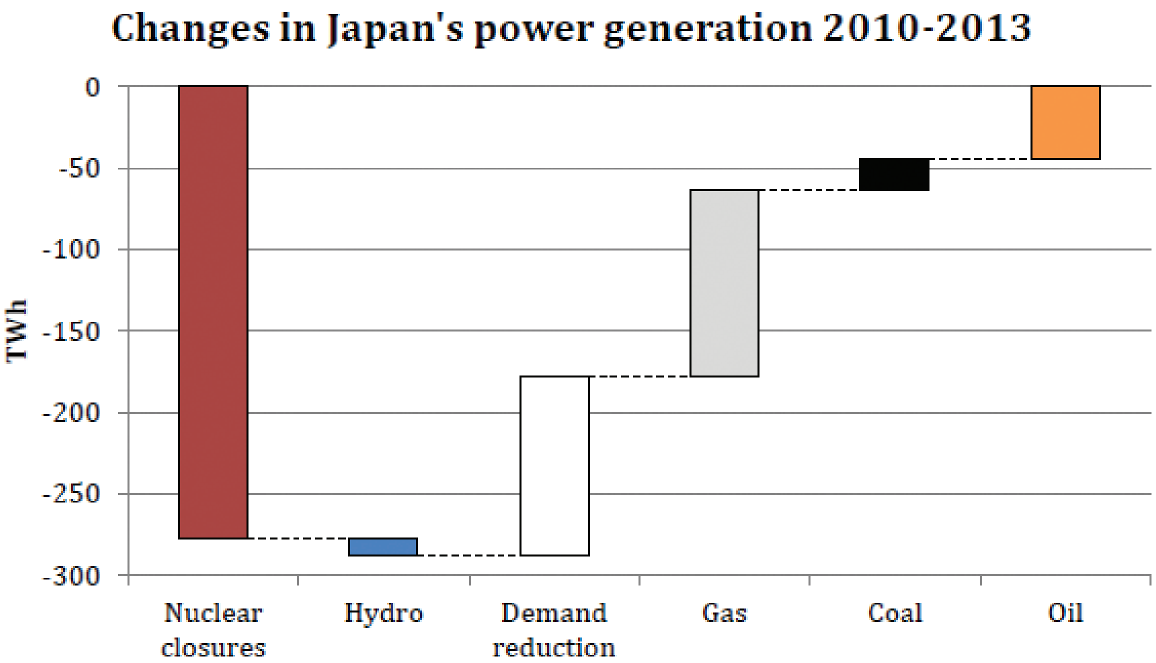
## Coal demand continues to undershoot expectations

**USA:** In part driven by the need to comply with the Environmental Protection Agency's (EPA) new Mercury and Air Toxics Standards (MATS) regulations[5]together with weak electricity demand growth and lower electricity prices, the US electricity system continues a steady transition away from coal towards gas and renewables. The Energy Information Administration (EIA) in Mar'2014 released an update to its forecast for US coal fired power generation capacity closures following announcements for the retirement of 5.4GW of old coal-fired generation capacity in the preceding quarter. Based largely on firm plans lodged by power utilities with their energy regulators, the EIA forecasts the retirement of 60GW of coal capacity over 2012-2020,[6] inclusive of 12GW in 2012 alone. BNEF has a more aggressive forecast for coal plant retirements, forecasting 77GW over 2012-2017, representing over a quarter of the American coal-fleet.[7] Given that the US is the #2 coal producer and consumer in the world, these domestic trends have significance for the global coal market.

**Japan:** With the closure of Japan's entire nuclear power generation fleet after Fukushima, there were expectations in some quarters that Japan would see a resurgence in demand for imported coal. However, as Figure 2 shows, this has not occurred. With a huge focus on energy efficiency (reducing demand by 120TWh pa), and a rapid uplift in gas fired generation plant utilisation rates (adding 110TWh), over the 2010-2013 period actual coal-fired power generation has lifted by ~40TWh or 15% of the 280TWh lost from nuclear. The Japanese Ministry of Economy, Trade and Industry has approved 30.3GW of renewable energy projects since Jul'2012. With a massive scale up in solar installs, we expect Japan to source 110TWh from solar in 2020 vs almost zero in 2012, such that Japanese coal and gas import demand will be smaller in 2020 than it was pre-Fukushima in 2010. This is a massive sectoral transformation in just one decade.

**Australia:** The 1,000MW Wallerawang coal-fired power station near Lithgow has ceased generation, the latest in a series of fossil fuel power plant closures in Australia.[8]

**Figure 2: The Change in Japan's Power Generation: 2010-2013**




Source: Japan's Ministry of Energy, Technology and Industry (METI) Agency for Natural Resources and Energy (ENECHO): Energy Survey Statistics [in Japanese].

## Gas

### Natural gas will see emissions continue to rise

A Union of Concerned Scientists' analysis shows that transitioning to a natural gas dominated electricity future would not be sufficient to meet U.S. climate goals as power plant carbon emissions would barely change between today and 2050. [9] [10]

### Australia's gas export plans could cost us 100,000 jobs

Australia's plans to become the world's largest gas exporter aresending domestic gas prices surging, placing manufacturing jobs in the firing line. According to Manufacturing Australia, plans to triple Australia's gas exports: "could cost our GDP about $28 billion and 100,000 direct jobs plus all the indirect jobs for people who service the manufacturing sector." [11]

## Renewable Energy

### McKinsey

Released a new strategy paper in Mar'2014 titled "The disruptive potential of solar power[12] that highlights the 50% CAGR[13]for solar installs globally since 2006, and that solar is poised to assume a larger role in energy markets, with a significant and widespread impact.

### First Solar

At a Mar'2014 analyst investor day, First Solar (the largest US solar PV producer) reiterated their confidence in their five year strategic road map for an all-in US$0.99/w installed solar cost by 2017, a 38% reduction on their delivered 2013 average. A key driver of this cost reduction is technology improvements that see First Solar target a module efficiency of 19.7% by 2018 vs the already exceptional 17.3% target they presented as their 2017 goal three years ago.

To put this in perspective, First Solar's realised average efficiency in 2013 was 13.2% (and they target a 90bps improvement to 14.1% in 2014), already well up from 11% in 2011 and 12% in 2012.[14]

### Solar at US5c/kWh

In Mar'2014, Austin Energy US signed a 25-year PPA with SunEdison for 150MW solar power to be delivered at US5c/kWh (US$50/MWh), the lowest we've seen to-date, and down over 80% on PPA signed in America only 3-4 years earlier.[15]

### China's Electricity Sector Transformation

In 2013 China installed 30GW of hydro electricity, 14GW of wind power and a world record 12-14GW of solar. Coupled with 3GW of nuclear, 1GW of biomass/EfW and 7GW of gas-fired power generation capacity. The ~30GW of coal fired power generation capacity added in 2013 represented only a third of total new generating capacity commissioned. Renewable installs in 2014 look even brighter, with 18-20GW of wind and 14GW of mainly distributed solar installs targeted,[16] not withstanding a slowing GDP growth rate implying a lower electricity demand growth. Energy efficiency continues to be a critical driver of China's transition to a lower carbon economy, meaning electricity demand growth is slowing towards half the rate of GDP growth.

## Major Project Updates

### The Galilee Coal Basin

Even as the Queensland Government continues to approve various proposals covering the Galilee coal mining and dredging of the Abbot Point Coal Terminal in the Great Barrier Reef, proponents dani and GVK have both informally announced that their various Galilee Coal projects are another year behind schedule. Financial close is now expected by GVK by the end of 2014, and for Adani in 2015.[17] Interestingly, both companies have been reported to have tried to sell down their equity holdings in recent months. GVK approached Coal India Ltd, but was rebuffed on the grounds the project was uncommercial.[18] Adani is rumoured to have approached several Chinese firms, including China Railway Corp.[19] Adani and GVK are now almost the only companies left considering coal and associated coal port expansions in Queensland after Rio Tinto and BHP withdrew from the Abbot Point Expansion in 2012 and 2013 respectively and Lend Lease and Anglo American withdrew last month.[20]

### Wiggins Island Coal Export Terminal

The A$3.3bn, 27Mtpa greenfield coal export terminal at Gladstone and Aurizon's associated A$0.9bn rail upgrade has deferred its full commissioning till end 2015.[21] A writedown of up to A$1bn on WICET is expected to follow, given the likely underutilization and excessive port charges required to fund the associated 100% debt and preference share funding structure.

## Global Policy Developments

### China declares war on pollution

Chinese Premier Li Keqiang said: "China will fight smog with the same determination it battled poverty and all society should "act more vigorously to protect the land our lives depend upon".[22] As part of these plans, in 2014 the government will shut down 50,000 small coal-fired furnaces, clean up major coal burning power plants and remove six million high-emission vehicles from the roads.[23]

### China's first carbon market plans

A draft plan for a carbon market in Chongqing proposed that around 250 of its biggest companies be required to cut their carbon dioxide emissions by more than 4% per year starting in 2014. Under the scheme, emission caps will be backdated to the start of January 2013. China, the world's largest carbon emitter, aims to cut greenhouse gas emissions 40-45% from 2005 levels by 2020. Chongqing is one of seven cities and provinces picked to set up pilot carbon markets ahead of the launch of the nationwide scheme later in the decade.[24]

### Chile proposes a carbon tax

Chile's newly re-elected President Michelle Bachelet has proposed that Chile will charge thermal power generators $5 per tonne of $CO_2$ emitted. This follows a US$3/t fossil fuel tax being introduced in Mexico at the start of 2014.[25]

## Australian Policy & Regulation

### Santos and AGL agree to respect the views of NSW land-owners

In a landmark decision, oil and gas companies Santos and AGL have agreed to a set of principles in NSW to not seek access to land where there the landholders has expressed clear opposition. Commenting on the decision, NSW General Manager Peter Mitchley said: "It has long been Santos' position that we will not undertake drilling activities on private land without the landholder's consent....This agreement further recognises that position."[26]

### The Courts

The Queensland Land Court in Apr'2014 has handed down a decision on GVK's Alpha Coal mining application, stating: "EITHER "That MLA 70426 be rejected" OR "That MLA 70426 be granted, subject to the condition that approval be subject to Hancock first obtaining licences to take, use and interfere with water under s 206(1)(a) and (b) of the Water Act such that all concerns pursuant to the precautionary principle are resolved." "[27]

In a second key case handed down in Apr'2014, the NSW Court of Appeal found in favour of the Bulga community and rejected Rio Tinto's Warkworth Extension Project.[28]

## Reputational risk

The ongoing global debate about climate change is resulting in increased public opposition to the use of fossil fuels in key countries. This is resulting in increasing reputation risk for investors many of whom are facing calls for divestment or increased engagement over their investments. Key developments in this area include:

### UniSuper

In something of a first for a major Australian superannuation fund, in Mar'2014 the $30bn 450,000 member UniSuper announced it was adjusting its Socially Responsible (SR) Investment Option to "screen companies involved in fossil fuel exploration and production. In the future, we may review whether it's more appropriate to also exclude utilities and other fossil fuel related companies."[29] Having long excluded tobacco, UniSuper SR is now moving to put fossil fuel companies in the same category.

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## Peabody Energy

In the face of investor pressure, in Mar'2014 Peabody has agreed to release a report regarding fossil fuels and their impact on climate change, and potential liabilities.[30] This follows the US Utility FirstEnergy agreeing to a similar shareholder resolution.

## Blackrock

On 31 Mar'2014, Pru Bennett, Asia Pacific director of corporate governance and responsible investment at BlackRock Inc., the world's biggest largest manager, said: "It's a huge issue potentially for any company operating in the Great Barrier Reef if there is a failure of management systems from an environmental perspective ...
The reputational damage that could be done, and the potential to lose that social license to operate, is very high." [31]

## Norwegian Sovereign Wealth Fund

Having divested 23 mining companies in 2013, Norway's (and the world's largest) sovereign wealth fund, with $840bn under management and ownership of 1% of all global stocks, is currently considering divesting all of its coal and petroleum stocks. This would have a significant impact upon Australian resource companies and even more so if the fund votes to divest itself of all fossil fuels – a move it is now considering as part of a 1 year parliamentary review. [32]

## British Medical Journal

The latest IPCC report shows the need for "radical and transformative change". On 26 Mar'2014, The British Medical Journal came out endorsing this, stating: "...we should push our own organisations (universities, hospitals, primary care providers, medical societies, drug and device companies) to divest from fossil fuel industries completely and as quickly as possible, reinvest in renewable energy sources, and move to "renewable" energy suppliers. " [33]

## Important Information

This report is for information and educational purposes only. It is for the sole use of its intended recipient. It is intended solely as a discussion piece focused on the topic of the Australian energy sector, with respect to investment, policy and regulatory trends and the risk of stranded assets. Under no circumstance is it to be considered as a financial promotion. It is not an offer to sell or a solicitation to buy any investment referred to in this document; nor is it an offer to provide any form of investment service.

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