

Where will the water come from?

Coal Market Update: October 2012

This Coal Market Update summarizes general developments from August to October 2012 that raise the risks of investing in the global coal industry. Greenpeace International tracks coal market developments worldwide through specialists located in the 28 national and regional offices, including the United States, China, India, Australia, South Africa and Indonesia. This update is prepared in collaboration with BankTrack. All prices are in USD unless noted.

Key points:

- In separate analyses in China, India and South Africa, Greenpeace highlights the conflict between proposed new coal-fired power stations and water resources:
 - In Western China, the demand in 2015 for water for new coal power bases will either challenge or exceed 100% of several provinces' 2010 capacity for industrial water supply (Shaanxi: 141%, Inner Mongolia: 140%, Shanxi: 103%, Ningxia: 94%).
 - A study of water demand in the central Indian region of Vidarbha shows a cluster of proposed coal-fired power plants may bring down the future availability of water in the Wardha river by almost 40%, reducing water available for irrigation for about 100,000 hectares of farmland, exacerbating the regions agrarian crisis, and risking plant shutdowns.
 - In South Africa, over 98% of water has already been allocated. It is not clear where Eskom, the national electricity utility, will get the water needed for planned new coal-fired power stations. Eskom uses just over 10,000 litres of water a second, the amount one person uses in a year. Eskom expects its water costs to more than double in five years.
- China's slowdown in growth is likely to reduce coal demand. Indicators for August showed coal-fired electricity production was down on a year-on-year basis and for the year to date.
- As India's "Coalgate" scandal escalated, a Greenpeace commissioned analysis showed that Coal India could be stuck with a new \$4.8bn import bill through the Presidential directive on fuel supply agreements.
- Recent GIS analysis by Greenpeace shows that proposed coal mining in India threatens to destroy over 1.1 million hectares of forest land in just 13 (out of 40) coalfields. Almost half this area is tiger, leopard and elephant habitat.
- Burning the coal from the proposed Galilee Basin mines in Australia would result in more carbon dioxide emissions per year than the entire fossil-fuel emissions of the UK, according to a new Greenpeace report. Investment in the projects could contravene IFC Performance Standards and the Equator Principles.
- In the US, Ambre Energy has announced a delay to the start-up date for its Port of Morrow coal export terminal. Resistance to northwest coal exports is growing with the Affiliated Tribes of Northwest Indians and Portland City Council passing resolutions in opposition.
- Duke Energy was dropped from the Global Dow Jones Sustainable Index in September. Duke is planning to produce just 3% of its energy from renewables by 2020, but a plan for 33% by 2020 would be achievable and also save ratepayers 57% on their bills over the next 20 years.
- Nathan Rothschild resigned from the board of Bumi PLC as its subsidiaries, including Indonesian coal miner PT Bumi Resources, went under investigation over financial irregularities of over \$500 million.
- The governor of Indonesia's largest coal producing region called for a cap on coal output lower than current production levels.

Companies mentioned include:

Adani Power (BSE: 533096 | NSE: ADANIPOWER)
Indiabulls Power (BSE: 533122 | NSE: IBPOW)
Lanco Infratech Limited (BSE: 532778 | NSE: LITL)
Indo Rama Synthetics (India) (BSE: 500207 | NSE: INDORAMACIL)
Eskom (unlisted)
Ambre Energy (unlisted, planning IPO)
GVK Group (GVK Power & Infrastructure Ltd NSE:532708)
Adani (BSE: 512599, NSE: ADANIENT)
Vale (BM&F Bovespa: VALE3, VALE5)
Bandanna Energy (ASX: BND)
Duke Energy (NYSE: DUK)
Bumi PLC (LSE: BUMI.L)
PT Bumi Resources Tbk (Jakarta: BUMI.JK)

China

Thirsty Coal: A Water Crisis Exacerbated

A new [report](#) from Greenpeace has highlighted the water constraints on China's coal expansion. China plans to construct 14 large-scale coal power bases, predominantly in western areas of the country over the duration of the 12th Five-Year Plan (2011-15). According to the plan, in 2015, 10 bases (Shandong, Mengdong, Jinbei, Jinzhong, Jindong, Ningdong, Shaanbei, Shanxi, Shaanxi, and Ningxia, the majority in Inner Mongolia) will contribute a total coal output of 2.2 billion tons, contributing to 56% of China's annual coal output for 2015, and will place tremendous strain on China's water resources.

Coal Power Bases Expansion: During China's 12th Five-Year Plan (2011-15), 14 large-scale coal power bases with a total expected installed capacity of 600GW, will be built, predominantly in the western areas of the country.

Risk of Water Shortage: Because most of these bases will be located in places scarce in water resources, Greenpeace believes that the expected installed capacity growth and development of these coal power bases is threatened by significant water shortage challenges.

Expected Coal Power Base Water Consumption: These 14 coal power bases will consume 9.975 billion m³ of water in 2015, more than one quarter of the Yellow River's water supply. Each day, these coal power bases will consume 27.3 million cubic metres of water, which is nine times Beijing's daily water supply in 2012.

Water Situation in the West: The water situation in Western China, specifically, Shaanxi, Inner Mongolia, Shanxi and Ningxia, is likely to be especially serious, as coal power base demand for water in 2015 will either challenge or exceed 100% of these provinces' respective 2010 industrial water supply capacity. (Shaanxi: 141%, Inner Mongolia: 140%, Shanxi: 103%, Ningxia: 94%).

Expected Yellow River Pollution: The presence of coal power bases along the Yellow River is also likely to result in increased water pollution. According to researchers at Wuhan University, the 5 coal power bases currently located along the Yellow River discharge more 80 million tons of waste annually, which ultimately flows into the river stream.

Threat to Iconic Inner Mongolian Grasslands: In eastern Inner Mongolia, the expansion of coal power bases is threatening China's most extensive grasslands: the Xilin Gol grasslands, Hulun Buir grasslands and the Horqin grasslands. Coal power bases in Inner Mongolia are expected to demand 3.1 billion m³ of water in 2015, which is close to the total volume of water resources of the Xilin Gol grasslands, and 140% of Inner Mongolia's total industrial water supply capacity in 2010.

Greenpeace proposes:

1. A strict and robust water demand assessment of China's coal power bases
2. That the National Development & Reform Commission take the lead in adjusting the energy bases and project development plans of western coal provinces.
3. That the Ministry of Environmental Protection highlight the severe water consumption needs of coal power base development and pollution issues, in the Strategic Environmental Impact Assessment of the Western Region Development.

A summary report is available in [English](#) and the full report in [Chinese](#): 《噬水之煤——煤电基地开发与水资源研究》

China's slowdown could hit coal demand

The [World Bank](#) lowered its projection for Chinese GDP growth for 2012 from 8.2% in May to 7.7% in its 8 October report as signs of a slowdown spread.

Electricity production in August still rose 2.6% YoY, but [electricity produced from thermal coal was down](#) 7.2% YoY. Electricity production over the first eight months of 2012 was up by 3.4% compared to 2011 but electricity production from thermal coal was down 1%. Hydropower and renewables growth along with the slowdown have contributed. In August the [North West](#) grid centres for the first time traded more kilowatt hours from renewables and hydropower than coal.

Construction of coal fired power plants has slowed, with [one-third behind schedule](#) out of those given full approval by April. Further more than half of the projects with preliminary approval, allowing preparatory work to begin, were still waiting for the final go-ahead after 20 months. In the first four months of 2012 the value of fossil fuel power plant constructed was down 29.3% YoY.

The slowdown is coupled with a shift towards services in the Chinese economy and major efforts to boost energy efficiency, with the 12th five-year plan is expected to generate [\\$315 billion in energy efficiency investment](#) and save up to 400Mt of coal by 2015. This raise questions for coal demand projections over the short and long term.

China Wind Power Outlook points to stable growth

Greenpeace, in collaboration with the Chinese Renewable Energy Industries Association (CREIA) and the Global Wind Energy Council (GWEC), launched the [2012 China Wind Power Outlook](#) Report in September. After years of rapid growth, China's wind power market is now entering a period marked by stable growth. In 2011, China added 17.63 GW of newly installed wind power capacity, slightly lower than 2010 (18.93 GW). Total installed wind capacity reached 62.36 GW and wind accounted for 1.5% of total electricity output in 2011. However grid connectivity and curtailments continue to hamper the industry. A summary is available in English and the [full report](#) in Chinese.

India

Endangered Waters: thermal power plants may escalate region's existing agrarian crisis

A [new report](#) from Greenpeace found that large clusters of coal fired power plants proposed in Vidarbha, a region of Central India, may bring down the future availability of water in the Wardha river by almost 40% and affect irrigation for about 100,000 hectares of farmland.

71 coal-fired thermal power projects with a capacity of 55,000 MW have been proposed for the parched Vidarbha region in Maharashtra. This would require a total water allocation by the state government of 2,049 million cubic metres of water per year, or the equivalent irrigation water for approximately 409,800 hectares of arable land.

It is against the present state water policy to prioritise industry water needs over irrigation. Lack of irrigation facilities have been linked to agricultural distress and suicides. 8,200 farmers have committed [suicide](#) in the region since 2002.

The Indian Institute of Technology, Delhi, was commissioned by Greenpeace, to [model](#) the impact on water availability in the Wardha (one of the two main rivers in the region) if all the

power plants and other demands for the area were realised. They found that the annual mean flow would reduce from its present level of 1,419 million cubic metres to 867 million cubic metres, a reduction of almost 40%. Analysis of the Wainganga River basin is currently underway and expected to also show significant impacts from coal plants.

Further analysis of the study data indicated that the annual mean flow in the Wardha river varied from a maximum of 5600 MCM to a minimum of just 229 MCM, in the last 35 years. Considering the water requirement for the coal-fired power plants is about 550 MCM and if all the power plants will be commissioned in the future, then there may be no water available to operate them in at least one in ten years, forcing them to shut down and risk power production.

Renewable energy can provide India with the electricity it needs while saving water. Under the Energy [R]evolution scenario, Greenpeace's global energy roadmap, almost half of India's power could be provided by renewable energy by 2030. This has a potential to save approximately 18 billion cubic metres of water used in fossil fuel extraction and power generation, enough to bring 3.6 million hectares under irrigation.

Greenpeace recommends an immediate moratorium on further environment clearances to coal power plants in Vidarbha as well as all the inland districts in the country. The existing clearances must be re-examined on the basis of a cumulative water impact and availability assessment in the river basins so that water conflicts between various users can be avoided and irrigation needs of farmers are not jeopardized.

Listed companies with proposed coal-fired power stations in Vidarbha include Adani Power, Indiabulls Power, Lanco Infratech Limited and Indo Rama Synthetics.

“Coalgate” scam escalates as coal's impact on forest land comes under more pressure

The controversy over the coal block allocation scam, dubbed “coalgate” in India exploded in August with Parliament in uproar and calls for the Prime Minister Singh to [resign](#). The Comptroller and Auditor General (CAG) of India's [final report](#) on 17 August found that the Indian government may have [lost \\$33bn](#) by allocation coal mining sites too cheaply and uncompetitively.

Coal mining sites are also being allocated with little regard for their environmental impacts. Expanding coal mining is destroying significant areas of tiger, leopard and elephant habitat in India. Recent GIS analysis by Greenpeace showed that coal mining threatens to destroy over [1.1 million hectares](#) of forest land in just 13 (out of 40) coalfield. Greenpeace is calling for a halt to allocating new coal blocks and clearing more forests for coal mining until the coal scam is fully investigated and there is a clear demarcation of areas where mining shouldn't be allowed. Over 120,000 people have joined the [campaign](#) this year.

Greenpeace commissioned analysis shows Coal India could be stuck with a new \$4.8bn import bill

Subsidised coal provided to electricity producers could be another growing area of controversy. Earlier this year, a Presidential Directive forced Coal India (CIL) to sign Fuel Supply Agreements (FSAs) with all power projects that would be commissioned up to March 2015. CIL had earlier refused to sign binding FSAs, fearing it would not be able to produce sufficient coal. Financial research firm [Equitorials](#), commissioned by Greenpeace, analysed the likely impact of signing Fuel Supply Agreements on CIL under different scenarios.

According to Equitorials, CIL is likely to face an [annual average shortfall of 82 million tonnes](#) from 2013 to 2017. The cost of importing coal to bridge this shortfall would be an estimated \$4.8bn (Rs. 254,001mn) every year. The import cost will have to be borne either by CIL, power producer, or end-consumer. Bearing even a part of this cost would involve a significant financial burden for CIL. On the other hand, a failure to supply coal could result in penalties of \$180mn (Rs. 9,510mn) over the five year period. Or if CIL were to divert the coal that it currently sells via e-auction towards meeting its FSA requirements, the annual average income foregone could be as much as \$303mn (Rs. 15,980mn) over the same period.

South Africa

Eskom Set to Accelerate Water Crisis: Coal power dries up SA's water resources

Nearly a million South African households still have no access to the minimum 25 litres of water per day. The national utility's (Eskom's) water-hungry coal expansion is a major threat to the country's already stressed water resources, and further compromises water access for the poor, according to a report released by Greenpeace on 17 October.

The report outlines how the coal mining and electricity industry obtain priority access to water, and yet contribute substantially to water pollution and scarcity. The report '[Water hungry coal: Burning South Africa's water to produce electricity](#)' makes clear connections between risky investments in new coal-fired power stations and water scarcity, and outlines how the South African government and Eskom are favouring the coal expansion, at the expense of scarce water resources, people's health and affordable electricity.

Critical information on water allocation, management and pollution is classified as confidential, and decisions around it are not transparent. This lack of transparency translates into a lack of accountability in the water sector.

The Department of Water Affairs has said water infrastructure requires investment of 670 billion rand (\$76 billion) over the next decade, [338 billion rand more than the available funding](#). Eskom sees "water costs [more than doubling](#) in five years".

Eskom's credit rating was recently [downgraded](#) to Baa3 from Baa2 by Moody's.

It is estimated that over 98% of South Africa's water has already been allocated, so it is entirely unclear where the water for new coal-fired power stations will come from. Eskom uses just over 10 000 litres of water a second, the same amount a single person would use within one year.

93% of South Africa's electricity comes from coal, despite excellent renewable energy resources. The report also outlines how it would be possible to make substantial water-savings by investing in essentially 'water-free' renewable energy technologies instead of coal. For the South African government and Eskom there are very effective substitutes for coal, but there are no alternatives to water.

Australia

Galilee Basin mega mines will be major global emitters, may contravene Equator Principles

A new Greenpeace report has for the first time quantified the carbon dioxide emissions implications of the Galilee Basin coal mine expansion. If the mines proceed, the emissions from burning the extracted coal would be over [700 million tonnes](#) of carbon dioxide per year. If the Galilee was a country, this would make it the seventh biggest emitter of carbon dioxide pollution from fossil fuels in the world, larger than the UK.

There are 9 coal mega mines planned in the Galilee Basin alone. 5 of these mines would be bigger than any mine currently operating in Australia. Listed companies involved include Adani, GVK, Vale and Bandanna Energy.

The report finds that full exploitation of the Galilee Basin as proposed is consistent with scenarios that would lead to 6 degrees of global warming above pre-industrial levels. It would also require coastal development on a massive scale that would threaten the outstanding universal values of the Great Barrier Reef World Heritage Area. We believe that investing in these projects may therefore contravene IFC Performance Standard 6, which is linked to the Equator Principles and requires clients to preserve internationally recognised areas.

Over 6,000 extra coal ships could travel through the Reef each year from the Abbot Point and Hay point ports alone. More ships mean more risk of groundings, spills and collisions. There are also plans to dredge millions of cubic metres of sea floor in the Great Barrier Reef World Heritage Area.

Over [600,000 people](#) recently signed a petition to the Chairman of the United States Export-Import Bank, calling on him not to fund projects that would result in harm to the Great Barrier Reef.

Coal terminal approved. New risks revealed.

The T3 terminal at Abbot Point was approved on 10 October, however Greenpeace has obtained documents that expose the [flawed environmental process](#) and the threat to endangered bird species. GVK Hancock, the coal company developing T3, stated in its environmental assessment that the adjacent Caley Valley wetlands are not considered important migratory shorebird habitat. This assessment is incorrect. Greenpeace obtained documents under right to information laws that show the wetlands are highly important. In fact, there are 18 endangered, vulnerable or near-threatened bird species located there. Greenpeace is exploring possible legal avenues to challenge this flawed decision.

The United States

Further delays for Northwest coal exports

On September 13th, Ambre Energy announced to the Oregon Senate Committee on Environment and Natural Resources that it was [delaying the startup date](#) for its Port of Morrow export terminal to mid-2014. This delay reflects the growing public opposition to export terminals in the Northwest. Ambre has yet to obtain any permits for this terminal, despite telling investors and legislators that it would be operational by 2013.

[Portland City Council passed a resolution](#), 3-0, opposing coal trains in city limits unless the Army Corps of Engineers conducts an area-wide Environmental Impacts Statement of all proposed coal terminals in the Pacific Northwest. To date, over 25 cities, counties, and ports have passed resolutions in concern or opposition to coal exports.

The Affiliated Tribes of Northwest Indians, a congress of more than 50 tribes in seven states, [passed a resolution](#) calling on the Army Corps of Engineers to conduct a comprehensive review of all export terminals, with full transparency and government to government consultation. Leaders of the [Lummi Nation](#) have come out in opposition to Peabody and SSA Marine's Gateway Pacific terminal at Cherry Point in Washington state.

Duke Energy loses spot on sustainability index, clean energy transition needed

Duke Energy was [dropped from the Global Dow Jones Sustainable Index](#) in September, a move that was applauded by Greenpeace as recognition that the company is far from "best in class".

Duke's merger with Progress Energy has put them on a trajectory to overtake American Electric Power (AEP) as the largest generator of coal-fired electricity in the US in as little as five years. On an installed capacity basis, Duke Energy's coal exposure is more than twice the average for the 11 S&P 500 Index peers who operate more than 5,000MW. Duke's most recent Integrated Resource Plan (IRP) for North Carolina made it clear that the company will generate just 3% of their energy from renewables by 2020.

In July, Greenpeace released Charting the Correction Course: [A Clean Energy Pathway for Duke Energy](#). The report, based on Ventyx data, details how Duke Energy can save their customers \$108 billion over 20 years by investing in renewable energy and energy efficiency. The plan would benefit consumers, the environment and investors.

According to the report, Duke could source 33 percent of its electricity from wind, solar and efficiency resources while saving ratepayers 57 percent on their bills over the next 20 years. The clean energy pathway proposed in the report would also reduce long-term debt for the company by 75 percent compared to Duke's current plans.

Indonesia

Governor of Indonesian coal region calls for output cap

The Governor of East Kalimantan, which produces two-thirds of Indonesia's coal, has called for a [cap on coal output](#) below current production levels.

Governor Ishak Faroek floated his idea after showing a video of environmental damage caused by mining to an industry conference. The Governor said East Kalimantan would benefit if output was limited to 150 million tonnes, around 30 per cent below this year's expected production, and could extend the life of mines.

Rothschild resigns, Bumi under investigation for ‘financial irregularities’

Nathan Rothschild resigned as a director of Bumi plc following an ongoing conflict with the Bakrie family over financial irregularities. Bumi plc (BUMIP.L) launched an urgent investigation in September into potential [financial irregularities](#) of over \$500 million at its subsidiaries, including 29-percent-owned PT Bumi Resources (BUMI.JK), Asia's biggest exporter of thermal coal.

Bumi plc is one of the world's largest coal miners. It was created in a \$3 billion deal between the Bakrie Group and financier Nat Rothschild in 2010. Bumi Plc shares have fallen 69 per cent this year.

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The logo for BankTrack, featuring the word "BANKTRACK" in a bold, sans-serif font. The letters "BANK" are in a dark red color, and "TRACK" is in a dark blue color. The letter "O" in "TRACK" is replaced by a white circle with a dark red dot in the center, resembling an eye or a target.