



RepRisk Special Report

Coal-fired Power Plants

June 2018

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Introduction

During the UN Climate Change Conference held in the German city of Bonn in November 2017, a global alliance called Powering Past Coal Alliance, led by Canada and the UK, was launched to unite governments, businesses, and organizations in phasing out traditional coal power. By April 2018, some 36 countries and cities had joined the alliance and signed a declaration committing to achieve the transition in a sustainable and economically inclusive way.

According to the declaration, coal-fired power plants are a leading contributor to climate change today, as they produce nearly 40 percent of global electricity. A recent study by the medical journal *The Lancet* has also found that more than 800,000 people die each year globally from pollution generated by burning coal.

Limiting the rise of global temperatures to “well below” two degrees Celsius by 2050, a target set out in the Paris Climate Agreement within the 2015 United Nations Framework Convention on Climate Change, requires a global effort to transition to low-carbon, climate-resilient economies.

Since 2015, RepRisk has recorded a steady increase in the number of coal-fired power plants facing the threat of divestment and retirement, which is indicative of a worldwide trend toward cleaner energy and a shift from coal-based power generation.

In this special report on coal-fired power plants, we have focused on Bangladesh, India, and the US, the three countries identified by RepRisk as being the most exposed to ESG risks in relation to coal-fired power plants in the last two years.

Bangladesh, which ratified the Paris Climate Agreement, is said to be facing a “coal black” future as its government has announced plans to expand energy production through coal. With enough coal plants to produce 23,000 megawatts of power planned across the country, coal-based power generation in Bangladesh is expected to increase from its current two percent, to over 50 percent by 2022. In this report, we will highlight how one single coal-fired power plant in Bangladesh could pose a threat to the world’s largest contiguous mangrove forest.

Similarly, India, estimated by the World Bank to be the fastest-growing major economy in the world, is trying to cope with a growing demand for electricity by building more coal-fired power plants. The world’s largest coal-plant developer, National Thermal Power Corporation of India (NTPC), recently announced plans to invest USD 10 billion in new coal-fired power stations until 2022, and it has been estimated that India’s energy sector will remain dominated by coal over the next decade. While it has been claimed that 300 million Indians

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will be lifted out of energy poverty if India carries through with its plans to build nearly 370 coal-fired power plants, environmentalists warn that hundreds of millions of people will be subjected to harmful levels of airborne pollutants, constituting a public health crisis.

Meanwhile, the US is not only the leading contributor to coal power development in the world today, but also the only member state within the Group of Seven (G7), representing the seven largest advanced economies in the world, which has not yet committed to a plan to phase out coal within a set timeframe. Domestically, US coal-fired power plants are facing mounting pressure from local communities whose water has been contaminated by coal ash waste, the second largest source of industrial waste in the country. According to the US Environmental Protection Agency (EPA), toxic coal ash waste has already contaminated water sources at 200 sites in 37 states.

Most Associated Countries¹

- United States of America
- Bangladesh
- India
- Republic of Korea (South Korea)
- South Africa

Most Associated Companies¹

- NTPC Limited (National Thermal Power Corp. Ltd)
- Bangladesh-India Friendship Power Co Pvt Ltd
- Enel SpA
- Eskom Holdings SOC Ltd (Eskom Holdings Ltd)
- RWE AG

Most Associated Projects¹

- Rampal Thermal Power Plant
- Samcheonpo Thermal Power Plant
- Hemweg Power Plant (Central Hemweg)
- Badarpur Coal-based Thermal Power Station
- Dangjin Thermal Power Plant

Most Associated NGOs¹

- Sierra Club
- Greenpeace International
- BankTrack
- Friends of the Earth
- Centre for Environmental Rights

¹ The tables displaying the entities (countries, companies, projects, and NGOs) that are most associated with coal-fired power plants are not necessarily related with each other, each table is separate. The information is provided by the RepRisk ESG Risk Platform, based on the last two years (May 2016 – May 2018) and excludes less severe risk incidents. For more information on RepRisk's research approach, please see page 11.

Bangladesh's ability to adhere to the Paris Climate Agreement has been called into question as the construction of the country's biggest power project, the Rampal Thermal Power Plant (RTPP), continues despite persistent criticism from stakeholders in Bangladesh and India, as well as from the international community. Since 2011, RepRisk has identified repeated criticism of RTPP, a project conceived in 2010 when the Bangladesh Power Development Board signed a Memorandum of Understanding with the National Thermal Power Corp of India (NTPC).

The Rampal plant is a 1,320-megawatt coal-fired thermal power plant being constructed on the eastern bank of the Pusur River that flows through the Sundarban National Forest in Bangladesh. The plant will be operated by Bangladesh-India Friendship Power, a joint-venture between Bangladesh Power Development Board and India's NTPC.

Opposition began to intensify in 2013, when the final agreements on the project were signed by both the Indian and Bangladeshi governments, despite fierce objection by experts who identified serious problems with the environmental impact assessment.

Greenpeace, WaterAid, and residents in the Bangladeshi city of Khulna have criticized the power plant for posing serious threats to the Sundarbans mangrove forest and its dependent communities in Bangladesh and India. The Sundarbans is a UNESCO World Heritage Site that is also protected under the Ramsar Convention. It consists of a bird conservation area and three

wildlife sanctuaries. Its mangrove forest, reportedly the world's largest, protects approximately four million people from cyclones in Bangladesh and India.

In 2016, a UNESCO mission recommended the project be relocated, after raising concerns about the negative impacts of wastewater, coal ash, and future industrial and infrastructure development. The mission reported that the "intrinsic connectivity" between the Sundarbans World Heritage Site and the Rampal site, which are only 14 kilometers apart, would likely result in air and water contamination in the protected forest. A 2015 fact-finding mission by the NGO South Asians for Human Rights also concluded that land acquisition for the project had begun two years before the environmental impact assessment had been approved. UNESCO withdrew its objections in 2017 after the Bangladesh government agreed to conduct a strategic environmental assessment, as required by the World Heritage Committee.

Environmentalists have claimed that the Rampal project will exacerbate climate change, increase pollution, and compromise tiger conservation efforts. Once in operation, the plant is expected to emit nearly eight million tons of carbon dioxide annually for 25 years, which environmentalists warn would drastically affect the climate. The annual disposal of 0.94 million tons of toxic coal ash and emissions of toxic substances, such as mercury, sulfur oxide, nitrogen oxides, and unburned coal particles, would reportedly harm rice production fields, as well as the habitats and breeding grounds of the endangered Bengal

Bangladesh

tiger, the threatened Irrawaddy dolphin, and over 1,000 other species of flora and fauna. The plant will allegedly reduce the downstream flow of the Pusur River by 35 billion liters each year and expose the river to heavy metal contamination that could endanger human health and wildlife. Fishermen have warned that annual dredging to enable the passage of coal-delivery ships will lead to a lower fish catch, and fear that the transport of 13,000 tons of coal per day through the shallow mangroves will increase shoreline erosion and pollution from coal spillage and the release of bilge water. Critics have also claimed that the project will destroy the livelihood of thousands of smallholder farmers, who will have to be resettled.

The prospect of cheap power from Rampal has already attracted many industries to the area, all operating within a 10-kilometer radius from the ecologically critical zone, although none of them have been classified as environmentally “safe.” Increased industrialization, however, has allegedly blocked many canals, caused riverbank erosion, and sunk several villages. The decision to build the Rampal plant has also spurred plans for another thermal power project, the 565-megawatt Khulna Power Station proposed by Orion, just 12 kilometers from the Sundarbans. The combined impact of these two developments is feared to ultimately cause irreversible damage to the unique forest area.

In June 2016, BankTrack, a global network of NGOs focused on banking, urged more than 50 NTPC shareholders to withdraw their support for the Rampal plant on the grounds

In May, the Norwegian Pension Fund Global withdrew its investments from Bharat Heavy Electricals.

that it contradicts NTPC’s sustainability commitments. Around 131 civil society groups, including Greenpeace, and over 60,000 people also called on the Export-Import Bank of India to refrain from providing a USD 1.6 billion loan to Bharat Heavy Electricals for the construction of the Rampal power plant. A few months later, environmental groups including the Ecology Movement North America and the Sierra Club criticized the US Export-Import Bank for funding the Khulna Power Station.

In January 2017, a demonstration against the Rampal plant in Dhaka, Bangladesh, turned violent when police deployed batons and tear gas against protestors.

Although the construction of the plant began in April, the protests continued throughout 2017.

In May, the Norwegian Pension Fund Global withdrew its investments from Bharat Heavy Electricals, the company constructing the Rampal plant, following an assessment of the environmental risks associated with the project.

At the time of writing, the project is facing continuous protests.

With a growing demand for electricity as India goes through fast-paced economic changes, the world's largest coal-plant developer, National Thermal Power Corporation of India (NTPC), headquartered in New Delhi, has announced plans to invest USD 10 billion in new coal-fired power stations until 2022. NTPC plans include new plants in Jharkhand, as well as in Singrauli, in the state of Madhya Pradesh, and Talcher in Odisha.

However, India's Central Electricity Regulatory Commission has estimated that thermal plants now under construction will be able to meet demand until 2027. At present, around 78 percent of generated power in India reportedly comes from coal-fired plants, making the country one of the biggest coal users in the world.

According to Greenpeace, two-thirds of existing Indian coal generation is now more expensive than solar or wind generation, and India spends billions every year to keep the coal-fired plants running. Reportedly, most of India's coal power plants violate the new air pollution standards imposed in December 2015 by the Ministry of Environment and Forests.

According to a November 2017 study published by the University of Maryland and the US space agency National Aeronautics and Space Administration (NASA), India is set to surpass China to become the world's largest emitter of sulfur dioxide, a toxic air pollutant that has been blamed for India's current haze problem.

NTPC's Badarpur Thermal Power Station, a plant founded in 1968 to supply power to the city of Delhi, is India's oldest power plant and, according to the Delhi-based Centre for Science and Environment, is the country's most polluting power plant. In November 2016, India's Environment Protection Control Authority ordered the government of Delhi to shut down the plant, due to its systemic pollution levels, in order to alleviate a toxic air pollution crisis suffered by residents of the city. Although the plant was re-opened on March 16, 2017, there are plans to close it down completely by July 31, 2018.

The Badarpur plant has been blamed for 40 cases of lung and throat cancer, and 55 cases of tuberculosis in a neighboring village. A local NGO, Gram Vikas, has criticized NTPC for storing coal next to the village and for dumping fly ash, a fine powdery by-product of coal ash, over an area of 1,680 acres next to the plant. Reportedly, those who have died from throat cancer over the past 20 years include villagers who used to work at the plant.

NTPC was also accused of gross negligence by the Uttar Pradesh Labor Department after 32 people were killed and over 100 were injured in an explosion at the company's Feroze Gandhi Unchahar coal-fired Power Plant in the state of Uttar Pradesh on November 1, 2017. The explosion was blamed on a buildup of ash in the furnace below the boiler. NTPC was also accused of under-reporting the number of fatalities in the incident and of hiring unqualified, sub-contracted workers to save costs. The fatal

India

explosion was considered by the New Trade Union Initiative, a trade union centre, as India's "worst industrial accident in living memory."

Northern Coalfields (NCL), a subsidiary of Coal India, has faced opposition to its plans to displace approximately 50,000 people from the town of Morwa in order to expand its Singrauli Mining Project in the Singrauli Coalfield, which spans the states of Madhya Pradesh and Uttar Pradesh. NCL mostly supplies coal from its open-pit mines in Singrauli to coal-fired power plants operated by NTPC and Uttar Pradesh Rajya Vidyut Utpadan Nigam, although some coal is delivered to plants owned by Rajasthan Rajya Vidyut Utpadan Nigam, and the Haryana State Electricity Board. Under the Coal Bearing Areas Amendment Act 1957, NCL is reportedly acquiring nine villages, including Morwa, which are inhabited by local tribes. The villagers claim that the acquisition notice violated multiple legal provisions and complain that NCL has refused to listen to their objections.

Tata Power Company has faced repeated criticism for the Mundra Ultra Mega Power Plant, a 4,150-megawatt subbituminous coal-fired power plant operated by its subsidiary Coastal Gujarat Power in the state of Gujarat. The project allegedly burns 30 million tons of coal and emits roughly 88 million tons of carbon dioxide annually. In 2015, local farmers and fishermen sued the World Bank, which granted a USD 450 million loan for the project, claiming that their livelihoods have been devastated by the plant. They claim that hot water from the plant's cooling systems has harmed the fish, and that coal dust pollution

has contaminated the air and drinking water sources. The fishermen are currently appealing a US court ruling that granted immunity to the World Bank.

The Mahagenco Thermal Power Plant in the state of Maharashtra has been linked to high levels of air pollution and in October 2017, Western Coalfields was accused of supplying it with coal bearing an ash content well above the 34 percent norm established by the Ministry of Environment, Forests and Climate Change.

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United States of America

Following a 2016 campaign pledge by the President of the United States Donald Trump to revive the ailing coal industry, and a proposal by the US Environmental Protection Agency (EPA) to roll back President Obama's Clean Power Plan, environmentalists fear a resurgence of coal plant construction in the US. According to the US Energy Information Administration, coal is currently used in nearly a third of electricity generation in the country.

Criticism of coal-fired power plants in the US mostly centers around the disposal of coal ash, a residual substance produced primarily from the burning of coal. This waste contains a mixture of toxic heavy metals that can harm wildlife and human health as well as contaminate water sources. The EPA has estimated that the US produces more than 110 million tons of coal ash each year and has claimed that around 40 percent is recycled for use in the construction industry, while the remainder is stored in coal ash ponds or landfills.

Communities living near coal ash storage pits have complained of respiratory illnesses, and there have also been reports that the toxic waste can cause liver, kidney, and brain damage. In 2015, during the presidency of Barack Obama, the EPA imposed new regulations for the disposal of coal ash. However, following aggressive lobbying by the energy industries, the EPA has now stated that it is "in the public interest" to reconsider these regulations.

A number of high-profile accidents in the US involving coal ash have prompted massive

protests about the impact of coal ash pollution on water quality, wildlife, and agriculture. In December 2008, a total of 5.4 million cubic yards of coal ash polluted local rivers near the Kingston Fossil Plant, owned by the Tennessee Valley Authority (TVA). In February 2014, an accident at the Dan River Plant, owned by Duke Energy in North Carolina, allowed 39,000 tons of coal ash to flow into the Dan River.

Duke Energy has faced repeated criticism regarding the disposal of coal ash from its coal-fired power plants in North Carolina. In 2015, the company paid USD 102 million in fines and compensation after being charged with nine criminal violations of the Clean Water Act in connection with coal ash-related pollution from five plants in the state.

Environmentalists and local communities in North Carolina have repeatedly criticized Duke Energy's Allen Steam Station, Belews Creek Steam Station, Roxboro Power Station, and the now-retired Cliffside Steam Station, Buck Steam Station, and Sutton Plant, claiming that the facilities have contaminated groundwater. In 2015, the state advised thousands of families living in North Carolina to refrain from drinking water from their wells.

Many families in the state have also expressed worries that the contamination would drive down the value of their homes. In response, Duke offered a payment of USD 5,000 to those families wishing to sell their houses, but residents complained that, in exchange, they were required to sign a pledge promising not

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to take future legal action against the company for coal ash pollution.

In September 2016, Duke Energy's repeated coal-related environmental violations prompted one of its-largest institutional investors, the Norwegian Pension Fund Global, to divest more than USD 378 million-worth of shares in the company.

In April 2017, the Roanoke River Basin Association accused Duke Energy of polluting the groundwater at its Mayo Power Plant in Person County, North Carolina. Six months later, civil groups including Mountain True and the Broad River Alliance urged Duke Energy to clean up toxic coal ash at its retired Cliffside Steam Station. The problems still persist, however, and in April 2018, Duke Energy was fined USD 156,000 in North Carolina for polluting water sources with coal ash from three power plants.

In the neighboring state of Tennessee, the Tennessee Valley Authority is also facing criticism concerning its Gallatin Fossil Plant amid claims that the plant's ash pond is leaking heavy metals into the ground water. A US judge ruled that the plant had violated the Clean Water Act by contaminating the Cumberland River, and said that the waste should be excavated and removed, a solution that the TVA claimed would cost up to USD 2 billion and take 24 years.

Meanwhile, local communities living near the Colstrip Coal Power Plant, operated by Talen Energy, in the US state of Montana, have complained that the plant's ash ponds have been leaking

200 million gallons of toxic water annually for three decades. In 2008, local residents took legal action against the plant owners, claiming that the community had been forced to source water from the Yellowstone River, 30 miles away. In 2016, another lawsuit filed by the Montana Environmental Information Center, the National Wildlife Federation, and the Sierra Club forced the owners to agree to stop pooling coal ash sludge by 2019, and to remove the bottom ash from the ash pond. It was reported in the same year that one of the plant owners, Puget Sound Energy, had agreed to shut down two of the plant's four units by 2022. In 2018, Talen Energy estimated the cost of capping the ash ponds at USD 113.7 million and said that the work would only be completed by 2049.

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RepRisk's research process

RepRisk Special Reports are compiled using information from the RepRisk ESG Risk Platform, the world's largest due diligence database on environmental, social, and governance (ESG) and business conduct risks, used to conduct in-depth risk research on listed and non-listed companies as well as projects of all sizes, from all sectors and countries, including emerging and frontier markets. As of June 2018, the Platform includes risk profiles for over 105,000 listed and non-listed companies, and more than 25,000 projects.

RepRisk believes it is important to look at performance, not just policies. Therefore, we take an outside-in approach to assessing a company: Our research captures and analyzes information from media, stakeholders, and other public sources external to a company. This perspective helps assess whether a company's policies and processes are translating into actual performance on the ground. RepRisk combines artificial intelligence with human analysis in 16 languages to translate big data into curated and actionable research and metrics, using a proprietary, rules-based methodology.

On a daily basis, RepRisk screens over 80,000 media, stakeholder, and third-party sources including print and online media, NGOs, government bodies, regulators, think tanks, newsletters, social media, and other online sources at the international, national and local level. RepRisk's methodology is issues-driven, rather than company-driven – i.e. RepRisk's daily screening is driven by RepRisk's research scope. The scope is comprised of 28 ESG Issues, which were selected and defined in accordance with the key international standards and of 45 Topic Tags, ESG “hot topics” that are specific and thematic.

For more information on our [research approach](#) and the [ESG Risk Platform](#), please visit our [website](#) or email us at contact@reprisk.com.

The RepRisk Index (RRI)

The RRI is a proprietary risk metric developed by RepRisk that dynamically captures and quantifies a company's or project's reputational risk exposure related to ESG issues. The RRI is not a measure of reputation, but is rather an indicator of ESG-related reputational risk of a company. It facilitates an initial assessment of the ESG and reputational risks associated with financing, investing, or conducting business with a particular company. The RRI ranges from zero (lowest) to 100 (highest). The higher the value, the higher the risk exposure. A value between 75 and 100 denotes extremely high risk exposure. The Peak RRI equals to the highest level of the RRI over the last two years – a proxy for overall ESG-related reputational risk exposure.

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