



Regional Briefings for the 2018 Coal Plant Developers List

The regional briefings accompanying Urgewald’s 2018 Coal Plant Developers List give an overview and analysis of the dynamics and the main players behind each country’s coal plant pipeline. While we have not quoted them directly, the wiki pages CoalSwarm has set up for each of the new coal plants under development were an invaluable resource for these briefings.

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Anti-coal protest in Senegal. © Clément Tardif

Africa's Coal Plant Pipeline - Summary

Home to 14% of the world's population, Africa only accounts for around 7% of global greenhouse gas emissions. With the exception of South Africa, most African nations have little or no installed coal capacity. While Africa's energy needs are huge, so is the continent's potential for renewables. The opportunity at hand is to leapfrog to a renewable energy economy, and escape the economic risks and the health, environmental and climate impacts associated with coal-based energy systems.

Yet foreign coal plant manufacturers and coal mining companies are pushing forward a flood of new coal plants in Africa. New coal power stations are being developed in 18 African countries out of which 11 countries currently have no installed coal-fired capacity and 3 have only 600 MW coal capacity or less. In most of these 'frontier countries', the development of coal mines and coal power plants is closely entwined. The first unit of many coal plants is slated to power coal mining operations, but as coal mining expands, further coal units are developed, drawing countries ever deeper into a vicious circle of coal dependency. The 3 African countries that represent the largest

planned increases of coal-fired capacity are South Africa (14,192 MW), Egypt (12,640 MW) and Zimbabwe (8,250 MW).

Affected African Countries

Botswana:

While Botswana currently has only one operating coal power station – the 600 MW Morupule B plant - the country is swamped with coal power development plans.

The main drivers of this development are foreign companies such as First Quantum Minerals from Canada, Kibo Mining from Ireland, African Energy Resources based in Guernsey and Jindal Steel & Power from India. These companies seek to develop Botswana's enormous coal reserves, which are estimated at over 2 billion tons, to generate power for the mining industry and for export to South Africa. If these plans go forward, Botswana's coal capacity will rise by 350%, but the power will bypass the 47% of the population that still have no access to electricity.¹ While Botswana's government is providing tax holidays and other incentives to turn the country into a major coal hub, Botswana's enormous renewable energy potential remains untapped.²

Democratic Republic of Congo:

As in most African 'frontier' countries, the development of Congo's first coal power plant is driven by mining interests. The planned 500 MW Luena Katanga power station is being developed by Gecamines, Congo's state-owned copper miner.

Egypt:

As of yet, Egypt does not have a single coal power station and until recently, the country even had a law forbidding coal power and coal imports. In 2015, the el-Sisi regime, however, eliminated the ban on coal power in spite of broad protests by Egyptian academics, doctors and civil society.³ The country immediately became a favorite destination for coal plant developers from China, Japan, the US and Saudi Arabia, who rushed to negotiate memorandums of understanding for coal power

¹ <https://www.se4all-africa.org/seforall-in-africa/country-data/botswana/>

² Botswana has one of the highest solar power potentials in the world and it is estimated that less than 1% of the country's land area could generate its entire domestic energy consumption.

³ <https://news.mongabay.com/2017/04/in-post-revolution-egypt-a-fierce-fight-over-coal-imports/>

projects with the Egyptian government. As a result, Egypt now has the 8th largest coal plant pipeline in the world, totaling 12,640 MW. According to the Egyptian Energy Ministry, 15% of the country's electricity generation would be coal-fired by 2030.⁴

The most advanced project in Egypt's coal plant pipeline is the 6,000 MW Hamrawein power station to be built on the coast of the Red Sea. Hamrawein would be the world's largest coal plant and will be developed by a consortium of the Chinese companies Shanghai Electric and Dongfang Electric and the Egyptian company Hassan Allam Construction. The US\$ 4.4 billion project would come online in 2023 at the earliest.

The second largest project is the 2,640 MW Ayoun Moussa coal plant on the Sinai Peninsula. It will be developed by the Emirati company Al Nowais Investments in cooperation with the Egyptian Electricity Holding.⁵ Egypt does not have coal reserves of its own and will therefore have to depend on coal imports – presumably from South Africa or Indonesia – to supply the new power stations.

Ghana:

The plan to build a 700 MW coal plant in Ghana seemed derailed in October 2016, when Ghana's Environment Minister, Mahama Ayariga, said: "I will not be signing a permit for anyone to put up a coal plant, when Ghana has just ratified the Climate Change Agreement."⁶ After a new Government came into office in 2017, however, China's Shenzhen Energy Group and Ghana's Volta River Authority submitted the Environmental and Social Impact Study for the coal power station and are now moving the project forward.

Ivory Coast:

The Ivory Coast currently produces 68% of its electricity from gas and 32% from hydropower.⁷ Although the country has no coal-fired capacity as of yet, its government plans to switch a significant portion of the Ivory Coast's energy supply from gas to coal. The expectation is that by 2030, 26% of the country's power would be coal-fired.

⁴ <https://www.thenational.ae/business/patrick-werr-egypt-s-case-for-coal-is-now-on-less-firm-ground-1.149510>

⁵ <http://www.egypttoday.com/Article/3/53310/Bring-on-the-coal-Egypt%E2%80%99s-journey-to-becoming-regional-energy>

⁶ <https://www.ghanabusinessnews.com/2016/10/10/ghana-is-not-building-a-coal-plant-minister/>

⁷ <https://www.africa-eu-renewables.org/market-information/cote-divoire/energy-sector/>

The centerpiece of this plan is a 700 MW power station, planned by Broto IPP, a subsidiary of the Ivorian Snedai Group. According to Snedai Energy's webpage, the African Development Bank will help fund this project, but it is likely that Chinese money will also play a role as China Power Construction has signed an EPC and investment contract for the project.

Kenya:

For the coal industry, Kenya is a frontier country. It has no installed coal-fired capacity and relies mainly on hydropower, geothermal and fuel oil for its electricity generation.

There are heated battles around each of the new coal plants proposed in Kenya. The 960 MW Kitui coal power station would power the development of coal mining operations in the Mui basin, which would in turn displace at least 100,000 small farmers. The 1,050 MW Lamu project would be located on Kenya's Indian Ocean coast, only 20 km from the World Heritage listed town of Lamu, the oldest Swahili settlement in east Africa. A 2015 Report by UNESCO's World Heritage Committee states: "There can be no doubt that a project of this scale and scope, in an area as remote and protected as Lamu, cannot help but have profound negative impacts on the heritage."⁸ The area's population is widely opposed to the project and in 2016 the Lamu County Assembly rejected the environmental and social impact assessment put forward by the plant's owner, the Amu Power Company. Amu Power is a special purpose vehicle set up by the Kenyan companies Gulf Energy and Centum Investment. In 2015, Amu Power received an initial loan from the Industrial Bank of China, but is still seeking further financing to complete the project. In May 2018, General Electric agreed to buy a stake in the Amu Power Company, but seems to be reconsidering as 56 institutional investors with US\$ 713 billion under assets called on General Electric to pull out of the project.⁹

⁸ <https://www.theguardian.com/global-development-professionals-network/2016/mar/03/locals-oppose-plans-to-build-first-coal-fired-power-plant-in-kenya>

⁹ https://www.the-star.co.ke/news/2018/07/19/general-electric-reconsiders-investment-in-lamu-coal-plant_c1789674

Madagascar:

At 650 MW, Madagascar's total installed electric power capacity is tiny and only 20% of the population have access to power.¹⁰ Madagascar's only existing 120 MW coal plant powers a nickel mine in Toamasina Province. The South African company Lemur Resources is partnering with PowerChina to now build a 60 MW coal plant and develop a coal mine in the south of the country.

Malawi:

Malawi is one of the world's poorest countries. 90% of its citizens don't have access to electric power, and the 10% who do, experience frequent power cuts.¹¹ The country's total power generation is only 363 MW, most of which is generated by 2 large dams on the Shire River. But even this energy supply is far from secure as rainfall patterns become more erratic due to climate change.

Malawi's government has turned to China for help. But although China is the largest producer of photovoltaic power and the world leader in wind power generation, the help it is offering is a 1,000 MW coal plant. The planned Kam'mwamba power station will be financed by China's Export Import Bank and partially owned by the China Energy Engineering Corporation.

Morocco:

The Maghreb state is famous for the huge solar power projects being developed in the country, but Morocco, which currently has 3 coal power stations, is also due to increase its coal-fired capacity by 47%. The construction of the 1,386 MW Safi coal power station on Morocco's west coast is already underway. The project is owned by the Safi Energy Company, a joint venture of Engie (35%), Nareva Holding (35%) and Mitsui (30%) and is financed by Japanese, French and British banks.

Mozambique:

Mozambique currently has no coal-fired capacity, but the Mozambican power development company, Ncondezi Energy, plans to develop a large open pit coal mine

¹⁰ https://energypedia.info/wiki/Madagascar_Energy_Situation

¹¹ <https://www.dandc.eu/en/article/order-manage-its-current-energy-crisis-malawi-turns-coal>

and 300 MW coal plant in Mozambique's Tete region. To build the coal plant, Ncondezi Energy is partnering with the China Machinery Engineering Corporation (CMEC) and General Electric. CMEC and General Electric are expected to acquire 60% of the coal plant and lead project financing. According to Ncondezi Energy the coal plant will eventually be expanded up to 1,800 MW.

Another player in Mozambique is the Irish company Kibo Mining, which is planning to develop the Benga project, a 150 – 300 MW coal power station, also in the Tete region. Kibo Mining is aiming to become a key African power producer by building coal plants in Tanzania, Botswana and Mozambique.

Nigeria:

Currently most of the country's power capacity is based on natural gas and large hydro, but in August 2017 the government announced plans to generate around 30% of the country's power supply through firing coal. The two largest projects in Nigeria's coal plant pipeline are a 1,200 MW power station to be built by Nigeria's Eta-Zuma Group, and a 2,400 MW coal power station to be built by PowerChina in Nigeria's coal-rich Kogi State. A report released by "Global Right Nigeria" in early 2018 warns that the government's coal plans violate its obligation to protect the health and environmental rights of its citizens and to respond appropriately to climate change.¹²

Senegal:

Up to now, Senegal has only one 30 MW coal power station, which powers a cement plant belonging to the Nigerian Dangote group. The country has 2 new coal power stations in the pipeline. One is a 350 MW plant planned by the Indian company Jindal Power and the other is a 125 MW plant near the town of Bargny that is being financed by the African Development Bank (AfDB). The Bargny project has met with vibrant resistance by villagers and fisher folk due to its immense impacts on the environment and local livelihoods. During the UN Climate Summit 2015 in Paris, the citizens of

¹² <https://leadership.ng/2018/01/14/experts-raise-concern-fgs-coal-power-project/>

Bargny held rallies calling for renewables instead of coal development and continue to contest the project.¹³

South Africa:

While most African nations are frontier countries when it comes to coal, South Africa has long been a country where coal is king. Close to 90% of South Africa's electricity is coal-fired. The country's power plants and the coal mines that feed them are dirty, water-thirsty, inefficient and unhealthy, and coal pollution is responsible for up to 2,700 premature deaths each year.¹⁴

South Africa's coal addiction also makes it impossible for the country to meet its international emission reduction commitments. South Africa is victim and perpetrator in one: Although it is among the countries hardest hit by climate change, it is also among the world's top 20 CO₂ emitters and accounts for almost 40% of Africa's emissions from fossil fuels.¹⁵ And South Africa's emissions are set to still grow: Over 14,000 MW of new coal plants are in various stages of development. If completed, these new plants would increase the country's coal-fired capacity by 34%.

The number one culprit is the country's state-owned utility Eskom, which is building two of the world's largest coal plants, the Medupi and Kusile projects. The costs for these two 4,800 MW plants have spiraled out of control and pushed Eskom into a dire financial crisis. In a country already hard hit by droughts, these gigantic coal plants will deplete scarce water supplies and increase South Africa's carbon emissions by 16%.¹⁶

But Eskom is not alone. Several South African power and mining companies as well as large international companies from South Korea, Saudi Arabia, Japan and China are also contributing to the country's enormous pipeline of new coal plants. In September 2018, South Africa's president Cyril Ramaphosa personally inked a deal with Chinese

¹³ <https://waterkeeper.org/magazine/summer-2016/senegals-waterkeepers-lead-a-sendoff-for-coal-fired-sendou/>

¹⁴ http://www.greenpeace.org/africa/Global/africa/publications/Health%20impacts%20of%20Eskom%20applications%202014%20_final.pdf

¹⁵ <https://www.economist.com/middle-east-and-africa/2018/04/21/africas-big-carbon-emitters-admit-they-have-a-problem>

¹⁶ <https://www.fin24.com/Economy/Eskom/kusile-medupi-conceived-in-20th-century-struggling-in-water-scarce-21st-20160318>

companies to build a 4,600 MW coal plant in the ecologically fragile Limpopo region. As its name implies, the “Power China International Energy Project” won’t produce electricity for South African households or businesses. Its sole purpose is to electrify a Chinese-controlled industrial complex for metallurgical processing, which is being set up as a “Special Economic Zone” (SEZ) – a status that provides substantial tax breaks to the project’s owners. The new coal plant is not included in South Africa’s national energy plan and energy analysts call it a “costly and irrational project”, but this unfortunately doesn’t mean it won’t be built.¹⁷

In spite of the fact that new renewable projects produce power at around 1/3 of the price of mega coal plants like Medupi and Kusile, renewables currently account for less than 3% of the electricity in South Africa’s grid.¹⁸ As Bobby Peek from South Africa’s “Life After Coal Campaign” says: “It is time for a transition. South Africans deserve to be supplied with the cheapest, cleanest electricity available.”

Swaziland:

The Australian company Canham Mining International plans to develop a 500 MW coal plant and an associated coal mine in Swaziland. Although Swaziland is not able to meet its own energy needs, most of the plant’s electricity will be exported to South Africa and Mozambique. India’s JSW Energy has also signed a Memorandum of Understanding to develop a coal plant in Swaziland, but the project’s capacity has not yet been determined.

Tanzania:

Tanzania has no coal power plants so far, but has the largest coal reserves in eastern Africa.¹⁹ While only about 20% of the population has access to electricity, the main purpose of the proposed 1,690 MW of new coal capacity is to power the development and expansion of coal and iron mines. The main companies behind these plans are the

¹⁷ <https://www.businessinsider.co.za/the-new-coal-power-station-in-limpopo-will-only-be-used-by-the-chinese-heres-why-its-an-irrational-project-2018-9>

¹⁸ <https://www.usaid.gov/powerafrica/south-africa>

¹⁹ <http://www.thecitizen.co.tz/oped/Should-Tanzania-make-own-way-on-coal-/1840568-3900372-10uh2nx/index.html>

Irish company Kibo Mining, UK-based Edenville Energy, China's Sichuan Hongda Group and the Australian company Intra Energy.

Zambia:

Zambia is another frontier country for the coal industry and showcases how coal plants are often initiated as a by-product of coal mining operations. Maamba Collieries Limited (MCL) is the country's largest coal miner and built Zambia's first coal-fired power station in 2016 to supply power to its mining operations. The Maamba power station was financed by Chinese banks and Standard Chartered and Barclays from the UK and is now due to be expanded from 300 MW to 600 MW, whereby the additional electricity will be sold to Zambia's state-owned utility ZESCO. A second coal power station with 340 MW capacity is planned in the Sinazongwe district by the company EMCO Energy. If these plans go forward, Zambia's installed coal capacity would increase by over 190%.

Zimbabwe:

Zimbabwe is at an energy crossroads. After decades of authoritarian rule, its power systems are woefully inadequate and less than half of the population has access to electricity. Instead of, however, leapfrogging to a renewable energy economy, the country's new government is counting on coal to power an economic revival.

While Zimbabwe currently has only one coal power station, the severely impaired 920 MW Hwange plant, the country has the 3rd largest coal plant pipeline in Africa, totaling some 7,250 MW. Most of its new coal projects are being developed by private companies headquartered in Zimbabwe, such as Per Lusulu Power, Riozim, or Makomo Resources. In reality, Zimbabwe's coal plant pipeline is, however, very much a Chinese affair.

Per Lusulu Power, which plans to build the 2,100 MW Binga project, writes on its webpage that a Chinese lender is providing 85% of the project's capital costs. The country's largest private coal miner, Makomo Resources has stated that its 660 MW power station would be financed with Chinese investors, but has declined to divulge names. The State-owned Zimbabwe Power Company, which is planning 2 new units for the Hwange power station has created a joint venture with ChinaPower. And

Riozim, which plans to build a coal plant of up to 2,800 MW is currently negotiating with Chinese financiers. As most of these projects are designed to provide power for coal mining and for export, Zimbabwe's rural populations will continue to be left in the dark.



Protest in Bangladesh against the planned Phulbari coal mine. © BankTrack

Asia's Coal Plant Pipeline – Summary

As projects in Asia account for over 78% of the global coal plant pipeline, Asia is the major battleground when it comes to stemming the tide of new coal power development. After China and India, the Asian countries with the largest coal plant pipelines are: Vietnam (42,925 MW), Indonesia (33,107 MW) and Bangladesh (27,178 MW). While people often tend to think of the entire continent as a stronghold of coal, the installed coal capacity of countries like Myanmar, Bangladesh, Cambodia and Mongolia is as of yet tiny. Whereas these “frontier” countries are just beginning to embark on a path of coal dependency, countries like South Korea and Taiwan have begun adopting strong measures to break their dependency on coal and transition to cleaner energy sources.

Asia's coal build-out is increasingly coming under pressure from two sides: public opposition to new polluting coal plants and the rapidly falling costs of solar and wind, which are already outcompeting coal-based electricity generation in many countries. The question is not whether Asia will move away from coal, the question is whether it will move away fast enough to salvage the Paris climate goals. International banks and

investors can help hasten this transition by cutting off financial flows to Asia's coal plant developers.

Affected Asian Countries

Bangladesh:

While one of the countries hardest hit by climate change, Bangladesh is currently flooded with new coal power projects. In comparison to its installed coal capacity, it is the country with the largest coal power expansion plans. Bangladesh's only operating coal power station is the 250 MW Barapukuria plant in Rajshahi, but new projects totaling over 23,000 MW have been announced. The main actors behind this enormous pipeline of new coal capacity are companies from China, India, Malaysia, South Korea and the United Kingdom. In 2016 alone, 7 deals were signed for new coal plants backed by China.²⁰

The largest projects have been put forward by the UK-based company GCM Resources which plans to develop two coal power plants totaling 6,000 MW and an open-pit coal mine near the town of Phulbari in northwestern Bangladesh. The Phulbari region is one of the country's most important agricultural areas and key for Bangladesh's food security as it is not impacted during major flooding events. The plan to develop a coal mine here is not new and a former government-sponsored study estimated that over 129,000 people would be displaced and a further 220,000 farmers would lose their livelihoods as de-watering for the mine will sink the region's groundwater table.²¹ Broad popular resistance has time and again halted coal mining plans in the region, but the project has been revived and in 2018 GCM Resources signed a contract with a subsidiary of the China Energy Engineering Corporation to build a 2,000 MW mine-mouth coal plant in Phulbari. GCM Resources has also enlisted China's Sinohydro Corporation to undertake a pre-feasibility study for a second 4,000 MW coal plant in the area.

²⁰ <https://www.thedailystar.net/star-weekend/meet-the-coal-power-plants-1518427>

²¹ Report of the Expert Committee to Evaluate Feasibility Study Report and Scheme Development of the Phulbari Coal Project (in Bangla)

Another project that is outstanding in terms of controversy is the Rampal coal plant which is being developed by the Bangladesh India Friendship Power Company, a joint venture of Bangladesh's Power Development Board and India's National Thermal Power Corporation (NTPC). The 1,320 MW project will be built in direct proximity to the Sundarbans, the largest mangrove forest in the world and a UNESCO World Heritage site. The expected massive impacts of the project on this sensitive ecosystem and the 500,000 people whose livelihoods depend on it led the Norwegian Council on Ethics to recommend the exclusion of NTPC from Norway's Government Pension Fund. Several commercial banks also declined funding for Rampal, but in April 2017 the Export Import Bank of India extended a loan of US\$ 1.6 billion for the project.²²

In 2018, researchers from the International Centre on Climate Change and Development and the University of California published a groundbreaking study on renewable power options for Bangladesh.²³ The study shows that the country has enormous potential for utility-scale photovoltaic projects at costs that are significantly lower than coal power. The government of Bangladesh, however, seems determined to strike ever more "friendships" with coal power giants from abroad.

Cambodia:

While Cambodia currently has only 580 MW of installed coal-fired capacity, new coal plants totaling over 3,500 MW have been proposed or are under development. The largest project is the 2,400 MW Koh Kong coal plant planned by Thailand's national power utility EGAT. According to media reports, a transmission line would be built to export the plant's electricity to Thailand.²⁴ Two further projects are a 500 MW coal plant proposed by Cambodia's Royal Group and a 540 MW coal plant which is being developed by the Cambodia International Investment Development Group (CIIDG) and China's Erdos Hongjun Electric Power Company.

²² <https://www.banktrack.org/project/rampal/pdf>

²³ Identifying High Priority Clean Energy Investment Opportunities for Bangladesh, Shiraishi et al, February 2018

²⁴ <https://www.internationalrivers.org/resources/dam-projects-require-serious-debate-the-bangkok-post-16529>



Coal pollution causes over 360,000 premature deaths each year in China. © Chang Qiang / Imaginechina

China:

While the expansion of China's coal plant fleet has slowed down over the past two years, China still has more coal plants under development than any other country. With over 259,000 MW of new coal plants in various stages of development, China accounts for more than a third of the global coal plant pipeline.

China's enormous economic growth over the past decades was to a large extent fuelled by coal: Between 2006 and 2015, the country's coal-fired capacity grew by 618 GW.²⁵ This resulted in tremendous air pollution, health impacts and water shortages, which not only led to widespread public unrest, but also had massive economic implications. In addition, it became clear that the coal plant boom was outstripping the country's actual energy needs. On average, coal plants in China ran at below 50% of their capacity in 2015.²⁶ The government tried to react to these problems by implementing restrictive measures on coal plant development and by establishing a cap for the

²⁵ <https://endcoal.org/wp-content/uploads/2018/09/TsunamiWarningEnglish.pdf>, p.5

²⁶ *ib.*, p.6

country's coal power capacity: 1,100 GW by 2020 according to the 13th Five-Year Plan (2016-2020).²⁷ China's current installed coal capacity is 993 GW.

Until recently, the government's 2016 and 2017 restrictions were thought to have led to the suspension of an estimated 444 GW of new coal-fired capacity in various stages of development.²⁸ However, new research suggests that many of the shelved projects were simply rescheduled, and that construction has now been resumed. Part of the problem is that the central government decentralized coal plant permitting authority from Beijing to the provinces in 2014, which led to a surge in project approvals as provincial authorities hoped to stimulate local economies through new construction projects. While the central government's 2016 coal restriction policies led to the cancellation of many projects, others – especially those that were already under construction – were simply put on hold. As provincial authorities didn't revoke the permits for these projects, in many cases construction has now re-started. To make things worse, the National Energy Administration recently loosened its coal policy restrictions in several provinces.

Currently, China's coal plant pipeline totals 259 GW and if completed, the country's installed coal capacity will overshoot the 1,100 GW cap set by the central government.²⁹ This is a vast problem for both, the Chinese economy and the global climate. Adding new capacity to an existing overcapacity only adds more stranded assets to a fleet of already underperforming coal plants, while the money could be used to diversify the power supply and increase the use of cleaner renewable energy sources with less health implications. For our climate, the new Chinese coal plants are very bad news since the International Energy Agency predicts that in order to preserve a 50% chance of limiting the Earth's average temperature increase to 1,75°C, China must close all coal plants without CCS by 2045.³⁰

Despite the Chinese government becoming ever more authoritarian, the building of new coal plants is encountering public opposition due to the visible problems of heavy air pollution and water shortages. Citizens are concerned that financial interests are

²⁷ <https://www.reuters.com/article/us-china-power-consumption-idUSKBN1320LT>

²⁸ https://endcoal.org/wp-content/uploads/2018/03/BoomAndBust_2018_r6.pdf, p.9

²⁹ <https://endcoal.org/wp-content/uploads/2018/09/TsunamiWarningEnglish.pdf>

³⁰ Energy Technology Perspectives, IEA, 2017

being prioritized at the expense of public health. Protests have been reported in Guangdong, Hainan, Hunan, and Inner Mongolia with demonstrations of ten thousands of people, sit-ins and a hunger strike against proposals to expand the Huaneng Yueyang power station in Hunan, which sadly, was still approved by the Hunan Development and Reform Commission in 2015.

China's largest coal plant developer is also the world's largest coal miner and coal plant operator. The National Energy Investment Group was formed in 2017 when the Government merged the Shenhua Group with the China Guodian Corporation. Other top players in the country's coal plant pipeline are China Huadian, the State Power Investment Corporation, China Huaneng, China Datang and the Shaanxi Energy Group. Together, these 6 companies account for over half of China's planned new coal capacity. All of these companies are state-owned and therefore more driven by state orders than by market logic. Most of the "big six", however, have at least one publicly listed subsidiary in order to attract capital from international investors.

Chinese companies also play a key role for the expansion of coal power in many other countries around the world. All in all, Chinese companies are currently developing almost 60 GW of new coal-fired capacity in 17 countries. Almost 19% of Chinese-led coal plant development is thus taking place abroad. As the Chinese market becomes more and more saturated with coal plants, China's coal plant manufacturers are developing new markets overseas with the massive financial and political support of the Chinese government. Through the "One Belt One Road" Initiative and massive loans from its public banks, China is locking more and more countries into the pattern of coal expansion it is still trying to curb at home.

India:

India and China have seemingly unsolvable differences and rivalries in the political and economic sphere, but one thing they have in common are their enormous coal plant pipelines. With 102,699 MW of new coal projects announced or under development, India has the world's 2nd largest coal plant pipeline. If these projects were all completed, they would increase the country's installed coal capacity by 47%.

The giant of Indian coal power is the National Thermal Power Corporation (NTPC). NTPC owns 20% of India's installed coal-fired capacity and is the world's 6th largest coal plant operator. It is also one of India's most hated companies due to its disastrous environmental and social track record. NTPC has a history of brutal evictions for the construction of its power plants and coal mines. Virtually all of the company's coal plants violate India's air pollution standards and the ash residue from its power stations contaminates local water supplies, putting enormous health burdens on communities living nearby.³¹ Its safety record is also abominable as evidenced in 2017, when an explosion at one of NTPC's plants killed 43 people and injured over 100 more³². With 25,056 MW of new coal planned, NTPC is responsible for almost 1/4th of India's coal plant pipeline. As if this were not enough, the company is also building a highly controversial coal power station in Bangladesh. The 1,320 MW Rampal project is situated close to the Sundarbans, the world's largest mangrove forest and a UNESCO World Heritage site. UNESCO has warned that Rampal poses a serious threat to this unique ecosystem and the people whose livelihoods depend on it.³³ NTPC is majority owned by the Indian government, but many of its shares are also held by international investors such as BlackRock and T. Rowe Price from the US.

A second company that plays a key role for India's coal plant pipeline is the Power Finance Corporation (PFC). Under the control of the Ministry of Power, PFC sets up shell companies to finance, plan and facilitate so-called "Ultra Mega" coal power projects in India. These shell companies acquire the necessary land, obtain permits and financing for the projects that are then sold to other power companies in a bidding process. PFC was thus responsible for financing a large part of the Indian coal boom, which led to the tripling of India's coal-fired capacity between 2007 and 2017. A 2017 report by India's Comptroller and Auditor General (CAG) states that PFC's lending to these coal projects was not properly vetted.³⁴ As a consequence, PFC is now burdened

³¹ <http://www.millenniumpost.in/delhi/up-pollution-watchdog-sends-notice-to-ntpc-dadri-283015>

³² <https://www.hindustantimes.com/lucknow/probe-panel-blames-ntpc-blast-on-operating-staff-s-negligence/story-hrVWM11RdujBKtSlAx44cL.html>

³³ <http://whc.unesco.org/en/news/1573>

³⁴ <https://endcoal.org/2017/08/indian-auditor-general-finds-public-banks-have-us1-8-billion-at-risk-on-dud-coal-plants/>

with non-performing loans, which were sunk into stranded coal assets. PFC nonetheless currently still has 8,000 MW of new coal projects under development.

The good news is that India's proposed coal plants are quickly losing ground. In 2018 alone, plans for 24,000 MW of new coal capacity were scrapped. The main reason is economics: Renewable energy costs in India fell by 50% over the past 2 years and new wind and solar are now 20% cheaper than existing coal-fired generation. As Forbes magazine wrote in January 2018, "Coal's reign in India is about to come crashing down."³⁵

Indonesia:

Indonesia is the biggest exporter of thermal coal and is the world's fifth largest CO₂ emitter. With over 28,000 MW of installed capacity, coal currently accounts for around 30% of the country's electricity generation. And things are about to get a whole lot worse. The government's 2018 – 2027 Energy Plan sets out a steep growth curve for coal power, which is expected to provide 54% of Indonesia's electricity generation by 2025. Coal combustion already leads to an estimated 7,500 premature deaths each year, and if Indonesia's coal fleet expansion goes forward as planned, this number would rise up to 25,000 in 2030.³⁶

With new coal power projects totaling 33,107 MW announced or under development, Indonesia's has the world's 5th largest coal plant pipeline. The country's largest coal plant developer is the state-owned utility PLN Persero which is planning to build over 6,900 MW of new coal capacity. Other Indonesian coal power expansionists are Bukit Asam (1,010 MW) and Adaro (1,144 MW). Foreign companies are, however, behind most of the country's planned coal capacity additions. Collectively, Chinese companies are planning new coal projects totaling over 10,400 MW in Indonesia. Among the most significant players are China's National Energy Investment Group and China Huadian. One of China Huadian's most controversial projects is the expansion of the Celukan Bawang power station on Bali. In a recent study called "Polluting Paradise", Greenpeace describes how the existing coal power plant has already damaged the

³⁵ <https://www.forbes.com/sites/energyinnovation/2018/01/30/india-coal-power-is-about-to-crash-65-of-existing-coal-costs-more-than-new-wind-and-solar/#403cce2c4c0f>

³⁶ <https://www.iisd.org/sites/default/files/publications/health-cost-coal-indonesia.pdf>

health and livelihoods of local residents.³⁷ Both agricultural yields and fisheries have already been heavily impacted. A further expansion of the coal power station threatens not only the traditional economy, but will also harm tourist attractions like Lovina Beach, famous for its black sand beaches and as a dolphin watching spot, as well as the West Bali National Park, one of Bali's most important conservation areas. In January 2018, representatives of the Celukan Bawang community filed a lawsuit against the permit for the planned 660 MW expansion of the coal power plant.

Companies from Japan are building what is probably Indonesia's most controversial coal power station. The 2,000 MW Batang project on Java's Northeast coast has met with enormous resistance from local communities. Their peaceful protests have been met with a wave of threats and violence, culminating in attacks on local landowners by the army, police and hired thugs to force them to relinquish their lands.³⁸ The project's owner Bhimasena Power is a joint venture between Indonesia's Adaro and the Japanese companies J-Power and Itochu. The main financier of Batang is the Japan Bank of International Cooperation. The 2,000 MW Tanjung Jati B coal power station is being built by Bhumi Jati Power, a joint venture of the Japanese companies Sumitomo and Kansai Electric with the Indonesian company United Tractors. Other large projects which are driven by international companies are Cirebon 2 and Cirebon 3, two 1,000 MW coal plants planned by KEPCO from South Korea and Marubeni from Japan. The Japanese companies TEPCO and Chubu Electric are also involved in Cirebon 2.

Indonesia's power development goals could easily be met with the country's abundant renewable energy resources. Indonesia, for example, possesses 40% of the world's geothermal power potential.³⁹ But the lack of sustained government support for renewables and the hurdles put up by Indonesia's national utility PLN are holding back the growth of renewables while a wave of new coal projects flood the country.⁴⁰

³⁷ <http://www.greenpeace.org/seasia/Global/seasia/report/2018/Celukan-Bawang-CFPP-Polluting-Paradise.pdf>

³⁸ <https://news.mongabay.com/2017/01/as-construction-begins-on-javas-batang-coal-plant-a-divided-community-faces-environmental-problems/>

³⁹ <http://global-climatescope.org/en/country/indonesia/#/enabling-framework>

⁴⁰ <https://www.reuters.com/article/us-indonesia-energy-coal-renewables/legal-fight-over-bali-coal-power-plant-illuminates-indonesia-energy-dilemma-idUSKBN1JN007>

Japan:

Although Japan already has the world's 6th largest coal plant fleet, it currently has the biggest coal plant pipeline of any developed country. 15,114 MW of new coal capacity are in various development stages and while some older coal plants may be shut down, these new plants will lock the country into a high-carbon energy future.

While Japan's government champions the Paris Climate Agreement in theory, its new energy plan is a slap in the face of the Paris goals. The plan sets the country's share of coal-fired electricity at 26% in 2030.⁴¹ According to climate researchers, Japan would need to phase out its entire coal plant fleet by 2030 in order to meet the Paris Climate Agreement goals.⁴² The Japanese utilities with the largest coal expansion plans are J-Power, Chugoku Electric Power, TEPCO, Chubu Electric Power and Kyushu Electric Power.

But Japanese companies are doing even more to undermine the Paris goals abroad than they are at home. All in all, companies headquartered in Japan aim to build 37,044 MW of new coal capacity. Out of this total, 21,930 MW or 59% are planned overseas. Japanese companies as well as Japanese public and private financial institutions are second only to China's when it comes to supporting a coal plant boom in developing countries.

There are, however, first indications that this could change. In July 2018 one of Japan's largest insurance companies, Nippon Life Insurance, announced that it will no longer invest in new coal power projects at home and abroad. And in the same month, Sumitomo Mitsui Trust Bank, Japan's fifth largest bank by assets, announced that it intends to restrict financing for new coal plants regardless of their location. And Japan's Environment Minister has warned that the country will fail its climate goals and is in danger of isolating itself if it continues to pursue a coal power expansion course.⁴³

A special case among Japan's companies is Marubeni, a huge trading house whose business portfolio ranges from building cruise ships to selling coffee. According to the

⁴¹ <https://www.businessinsider.de/japan-moving-back-to-coal-2018-5?r=US&IR=T>

⁴² <https://climateanalytics.org/briefings/japan-at-an-international-crossroads-seeking-a-sunset-for-coal/>

⁴³ <https://www.reuters.com/article/us-japan-environment-analysis/new-coal-power-plants-may-block-japans-carbon-emissions-goal-minister-idUSKBN19K15Z>

company's own information, Marubeni has built around 40 GW of coal capacity worldwide.⁴⁴ After several large European investors divested from Marubeni because of its role as a top coal plant developer, the company has, however, begun to change course. In September 2018, Marubeni announced that it will no longer enter into any new coal-fired power generation business⁴⁵. While the policy is not perfect and contains loopholes for coal plants using "best available technology", this is nonetheless an important step forward.⁴⁶ It unfortunately, however, remains unclear how Marubeni plans to deal with the 7 new coal plants it is currently developing in South Africa, Indonesia, Vietnam, Japan and Mongolia. Altogether, the company still has 5,812 MW of new coal capacity in the pipeline. Until this is clarified, Marubeni will therefore remain on Urgewald's Coal Plant Developers List.

Malaysia:

When it comes to renewable energy, Malaysia hasn't exactly been a quick mover, but according to statements made by the country's new Energy Minister, Yeo Bee Yin, this may be about to change. Yeo Bee Yin wants to move the country's share of renewable electricity from 2% to 20% in the coming years and decrease its dependency on coal.⁴⁷ Currently coal accounts for about half of Malaysia's electricity generation and a further 2,600 MW of new coal capacity is already under development. The Malaysian utility Tenaga Nasional Berhad (TNB) – one of South East Asia's largest publicly listed companies - is building the 2,000 MW Jimah East coal power station in partnership with the Japanese companies Chugoku Power and Mitsui. And Sarawak Energy, which is owned by the State government of Sarawak, is building the 600 MW Balingian coal plant, which is expected go online shortly. To supply the Balingian plant, Sarawak Energy has acquired prospecting licenses to develop coal mining operations in Sarawak. The coal for the Jimah plant will be imported.

⁴⁴ <https://www.business-humanrights.org/sites/default/files/documents/Marubeni%20Response%20-%20Coal%20power%20plants%20Egypt%20-%20February%20-%20March%202017.PDF>

⁴⁵ <https://www.marubeni.com/en/news/2018/release/00028.html>

⁴⁶ <http://sekitan.jp/jbic/en/2018/09/18/2983>

⁴⁷ <http://climatetracker.org/check-new-malaysian-minister-whos-wants-bring-renewables-big-way/>

Mongolia:

With estimated reserves of 6.4 billion tons of coal, Tavan Tolgoi is a coal miner's dream. The mostly untapped coal deposit is located in the South Gobi desert, a remote and ecologically fragile area. For the nomadic herders who inhabit the region, Tavan Tolgoi is a nightmare as mining pits have begun eating up their ancestral pasture land and poisoning the air with coal dust.⁴⁸ Erdenes Mongol, the state-owned company that holds the mining rights for Tavan Tolgoi, is, however, determined to live its dream. But to do so, it needs power to scale up the exploitation of the region's coal reserves. And Japan's Marubeni will provide that power by building and financing the 450 MW Tavan Tolgoi coal power station.

With only 706 MW installed, Mongolia's current coal-fired capacity is tiny, but a flood of new coal power projects totaling 8,715 MW are in the pipeline. Like the Tavan Tolgoi plant, almost all of these projects are about stepping up the exploitation of the country's coal reserves. Bodi International is planning a 600 MW coal plant to service the Buuruljuut coal mine and Erdenes Mongol is planning a 700 MW coal plant for its Baganuur mine. Most of the coal produced in these mines is exported to China and then burned in Chinese power plants. The largest of Mongolia's planned power stations, Shivee Ovoo will, however, by pass this step. The gigantic 5,280 MW coal plant to be built by Erdenes Mongol and IM Power from the UK, would export electricity to China. A neat solution as China receives the power and the pollution stays in Mongolia.

Myanmar:

Today, Myanmar has a mere 160 MW of installed coal capacity. Although massive plans for the expansion of the country's coal-fired capacity were put on the table, many of the proposed power stations had to be cancelled due to broad-spread popular protests. While Myanmar's coal plant pipeline amounted to 5,130 MW in January 2017, it currently comprises "only" 1,480 MW of new coal capacity. The Indonesian coal miner PT Bukit Asam plans to build a 200 MW coal plant and the Thai company TTCL aims

⁴⁸ <https://www.theguardian.com/world/2014/apr/20/mongolia-gobi-desert-coal-mining>

to build a 1,280 MW coal power station near Hpa-An in Kayin State. The US\$ 3 billion Hpa-An plant is, however, already encountering fierce local opposition. As a local resident says: "We do not want coal at all. If the project goes ahead, the forests and the river we rely on for food and for our living will be destroyed."⁴⁹ After 42 civil society organizations from the region made a joint statement rejecting the project, Myanmar's Federal Minister of Electricity and Energy announced in 2018 that the government will not grant permission for the Hpa-An plant.⁵⁰ Local communities, however, report that TTCL is already acquiring land in the area and that the State government has still not cancelled the project.

Pakistan:

New high quality solar maps - essential to securing financing for major projects - show that Pakistan is one of the world's best countries for producing solar energy.⁵¹ Accordingly, more and more international investment has begun flowing into solar solutions to the country's energy problems. 4,400 MW of new solar projects are in the pipeline and will be completed by 2022.⁵² While solar power is on the rise in Pakistan, so is coal power. As the energy consultant Vaqar Zakaria says: "The support and incentives being offered for coal-based power generation are far more attractive than those being offered for investment in solar power."⁵³

Coal power plants with a total capacity of 11,450 MW are in planning or under construction and if finalized, they will more than triple the country's operating coal capacity. While coal only accounts for around 2% of Pakistan's electricity mix today, its share could grow to 24% by 2020.⁵⁴ The beginning of Pakistan's coal rush lies in Thar, a scrubby desert in Pakistan's southeastern province of Sindh, where one of the world's largest lignite deposits was discovered in 1992.⁵⁶ Although Thar provides a

⁴⁹ <https://frontiermyanmar.net/en/divisions-harden-over-coal-power-plant-in-kayin-state>

⁵⁰ https://earthrights.org/wp-content/uploads/180404_PR-HpaAn-Closure_English.pdf

⁵¹ <http://esmap.org/node/3058>

⁵² <https://www.reuters.com/article/pakistan-solar-idUSL8N1I528F>

⁵³ <https://www.reuters.com/article/pakistan-solar/is-pakistans-solar-power-poised-to-take-off-amid-energy-crisis-idUSL8N1I528F>

⁵⁴ <https://tribune.com.pk/story/1696258/2-power-production-rises-30-five-years/>

⁵⁵ <https://economictimes.indiatimes.com/news/international/business/coal-addiction-spreads-as-chinese-workers-dig-in-pakistan-desert/articleshow/57765898.cms>

⁵⁶ <https://www.economist.com/business/2018/02/03/pakistans-biggest-private-sector-firm-bets-on-a-fabled-coal-mine>

perfect setting for large-scale solar, the Sindh government and the Sindh Engro Coal Mining Company are intent on exploiting Thar's lignite. The environmental and social impacts are immense as scarce water resources, needed for irrigation and drinking water, will be depleted for the mine and the associated power station. Villagers are already suffering from coal dust pollution and fear that their livelihoods and the fragile ecology of the region will be destroyed.⁵⁷

Pakistan's coal plant pipeline is massively dependent on Chinese companies and Chinese capital. 9 out of 15 of the country's new coal projects are backed by Chinese companies, which account for 63% of the planned coal capacity additions. And out of the US\$ 62 billion of Chinese funds to be invested in Pakistan under the China-Pakistan Economic Corridor (CPEC), about US\$ 35 billion are assigned for energy projects⁵⁸ Main players in Pakistan's coal plant pipeline are China Huaneng, China's State Power Investment Corporation, China Datang, PowerChina and China Machinery Engineering Corporation. Key coal plant developers on the Pakistani side are Hubco and the Jamshoro Power Company, which aims to build a 1,320 MW coal plant in Sindh. Jamshoro has reportedly just signed an EPC contract for the first unit with Germany's Siemens and Harbin Electric from China.

Interestingly in 2016, Pakistan's Parliament became the first in the world to run entirely on solar power and according to official announcements the project was funded by the Chinese government "as an act of friendship".⁵⁹ Pushing forward dirty new lignite plants in the rest of the country, however, seems like an act of hostility.

The Philippines:

A nation of over 7,000 islands, the Philippines are among the most climate vulnerable countries in the world and are experiencing more super typhoons than ever before. Yet the Philippines are also a country that depends on coal – the major agent of climate change – for almost 48% of its electricity generation. With 8,123 MW of installed coal capacity, the Philippines have the 4th largest coal plant fleet in Southeast Asia. And

⁵⁷ <https://www.dawn.com/news/1387151>

⁵⁸ <https://tribune.com.pk/story/1693962/2-lobbies-work-turn-energy-mix-favour/>

⁵⁹ <https://www.independent.co.uk/news/world/asia/pakistan-s-parliament-becomes-first-in-world-to-run-entirely-on-solar-power-a6873586.html>

what is worse, the country has a further 12,168 MW of new coal capacity in the pipeline.



Protest against coal power in Bataan. © PMCJ

In contrast to many other countries, the Philippines' coal plant pipeline is largely a homegrown affair, and includes only a few international players such as KEPCO from South Korea or China's Energy Engineering Corporation. Most of the country's new coal power projects are backed by Philippine companies such as Meralco, SMC Global Power Holdings, DMCI Holdings, Ayala Corporation, Aboitiz Power, Global Business Power, JG Summit Holdings or the Zest-O Group.

While the Philippine government and a handful of power families that control much of the nation's economy have their mind set on coal, the country is missing out on the chance to transition to cleaner and cheaper energy sources. Today, Philippine citizens have to pay electricity rates that are among the highest in Southeast Asia. When it comes to renewable energy resources, the Philippines are a veritable paradise with an enormous and diverse potential for solar, wind, ocean energy, geothermal and micro-hydro. The Philippines' largest solar company sells its electricity for about 6 cents a kilowatt-hour, this is 40% less than the rates charged by Meralco for coal-powered

electricity.⁶⁰ Gerry Arances from the Manila-based Center for Energy, Ecology and Development, says: “The country’s big power companies are locking us into a coal-based energy system that is more expensive than solar.”

Civil Society in the Philippines is, however, fed up with filthy, climate-changing coal plants. A wide spectrum of NGOs, community-led organizations and institutions like the Catholic Church are challenging each and every of the new coal plants that have been put on the table through legal cases, peaceful demonstrations and rallies.⁶¹ Fighting for environmental justice is, however, dangerous in the Philippines. In 2016 alone, 28 environmental activists were murdered in the country.⁶² One of them was Gloria Capitan, president of the United Citizenry of Lucanin, a community organization fighting against open coal stockpiles and coal energy in Bataan province.

South Korea:

While coal currently accounts for 43% of South Korea’s electricity generation, the government under Moon Jae-in has recently vowed to increase the country’s share of renewable energy from 2,8% to 20% by 2030, and has issued a ban on licenses for new coal plants.⁶³ ⁶⁴ To curb the country’s rampant air pollution, utilities have also been ordered to scale back the operation of coal power stations in major cities by 80% when fine dust warnings are issued.

The government’s ban on new licenses, however, doesn’t cover projects that have already made their way into the country’s coal plant pipeline. Before the ban was issued, South Korea’s Posco Energy received a license to begin developing the 2,100 MW Samcheok coal plant. And a further 5,160 MW are already under construction by South Korea’s utility KEPCO. Among the projects KEPCO aims to complete, is the 1,000 MW Seochen plant, which is at the heart of a conflict around the pace of South Korea’s energy transition. Seochen is located in South Chungcheong, a Province that is determined to leave coal behind.

⁶⁰ <https://www.reuters.com/article/us-philippines-coal-renewables/coal-reliant-philippines-struggles-to-power-up-clean-energy-idUSKCN1IJ1DL>

⁶¹ <https://www.reuters.com/article/us-philippines-coal-religion-idUSKCN0YA1QW>

⁶² <https://www.globalwitness.org/en/campaigns/environmental-activists/defenders-earth/>

⁶³ <https://www.powermag.com/coal-generation-reaches-new-high-in-south-korea/>

⁶⁴ <http://www.sxcoal.com/news/4572703/info/en>

South Chungcheong is not the largest of South Korea's nine provinces, but it harbors half of the country's installed coal capacity. The Province's climate goals are, however, much more ambitious than those of the Moon Jae-in administration. On October 2nd 2018, the Governor of South Chungcheong announced that the Province will reduce its energy consumption, close down 14 coal plants by 2026 and expand its share of renewable electricity generation from 7.7% to 47.5%. And that's not all: South Chungcheong has also joined the "Powering Past Coal Alliance", an initiative of 74 national and sub-national governments and private companies pushing for an accelerated global phase-out of coal power generation.⁶⁵ How this will affect the Seochen coal plant is not yet clear as the permitting authority for large power plants lies in the hands of the central government.

As the pipeline of new coal projects within South Korea is beginning to close, South Korean companies like KEPCO, Posco Energy and Daewoo Engineering & Construction are taking their coal plant business abroad to South Africa, Indonesia, Vietnam, Bangladesh, Mongolia and the Philippines.

Taiwan:

After coming to power in 2016, Taiwan's president Tsai Ing-Wen set out an ambitious plan to transform the country's power sector. According to the government's new energy policy, Taiwan will shut down its nuclear reactors, more than triple the share of renewables in its electricity mix and decrease coal-fired power generation from 50% to 30% by 2025.⁶⁶

But the plans of the country's state-owned utility Taipower, are at odds with the government's coal reduction ambitions. Taipower aims to build 3 new coal plants that would add over 3,600 MW to the country's coal plant fleet. The most controversial of these is the 1,200 MW Shenao coal plant that would be built on Taiwan's north coast, not far from Taipei. After a former coal power station in Shenao was shut down in 2007, Taipower attempted to build a new coal plant here in 2011, but the project was cancelled due to widespread public opposition. Taiwan's environmental movement and

⁶⁵ Press Release, Powering Past Coal Alliance, October 2, 2018

⁶⁶ <https://www.bloomberg.com/news/articles/2018-08-05/nuclear-ghost-town-reveals-power-risk-for-taiwan-s-energy-shift>

residents of the region were therefore shocked in March 2018, when the Federal government awarded Taipower a new permit for the construction of Shenao. Air pollution is already a major concern in Taiwan and the emissions of the new coal plant would equal the annual emissions of all 1.6 million cars in Taipei City and New Taipei City combined.⁶⁷ Shenao is part of the municipality of New Taipei City and the City's government has already come out and said it will not issue a permit for the plant to burn coal.⁶⁸ As municipal governments are responsible for allocating coal allowances to utilities and factories with their borders, Shenao could end up being a coal plant without coal.

Thailand:

Thailand's largest coal power station is the 2,600 MW Mae Moh lignite plant. For the associated lignite mine - the largest in Southeast Asia - over 30,000 people were displaced.⁶⁹ The Mae Moh plant is run by Thailand's state-owned utility EGAT and is notorious for its health impacts in the region. In 2015, a group of villagers who organized themselves in the Mae Moh Patients' Network won a ten-year court battle against EGAT, forcing the utility to pay at least a meager compensation for ruining their health.⁷⁰ But EGAT still plans to expand the Mae Moh power station by adding new units totaling 1,050 MW.

70% of Thailand's electricity generation is currently based on natural gas and about 20% is coal-fired.⁷¹ The country's gas reserves in the Gulf of Thailand will, however, soon be depleted and the government therefore aims to increase the country's installed coal capacity by 73%. Thailand's main coal plant developer is EGAT, which owns the country's transmission systems and 37% of Thailand's installed power capacity.

All in all, EGAT plans to build 4,050 MW of new coal projects in Thailand. Mae Moh, however, is the only project that has already been sited. The government has

⁶⁷ <https://thediplomat.com/2018/05/taiwan-takes-a-step-back-with-new-coal-plant/>

⁶⁸ <https://www.taiwannews.com.tw/en/news/3384854>

⁶⁹ <http://developmentdebacles.blogspot.com/2008/02/grievous-mae-moh-coal-power-plant.html>

⁷⁰ <https://opus.lib.uts.edu.au/bitstream/10453/62387/2/02whole.pdf>

⁷¹ <https://th.boell.org/en/2018/05/11/coal-situation-thailand-and-strategic-environmental-assessment>

announced that the sites for the remaining 3,000 MW of new coal capacity will be designated at the end of 2018.⁷²

Resistance against the construction of new coal plants is, however, omnipresent in Thailand. After 5 years of ongoing protests, the government had to put plans on hold to build 2 coal power stations in Krabi Province.⁷³ Krabi is a center of marine biodiversity and hundreds of thousands of the Province's inhabitants depend on fisheries and tourism for their livelihoods. But the fight against coal power plants in Krabi is not yet won. In May 2018, the government announced that the Krabi projects are still part of its feasibility study on siting of new coal plants.⁷⁴

Vietnam:

Vietnam currently has around 16,200 MW of installed coal capacity, which provides 1/3rd of the country's electricity. The south east Asian country is a decisive battleground for our climate: With 42,925 MW of new coal capacity planned, Vietnam has the world's 3rd largest coal plant pipeline.

About 1/3 of the country's new coal power capacity is planned by Vietnamese companies. Most notable here are Vietnam's national power producer EVN (5,319 MW), the state-owned oil company PetroVietnam (3,600 MW) and the country's largest miner Vinacomin (3,110 MW). The bulk of Vietnam's coal expansion is, however, driven by foreign companies. South Korea's KEPCO, POSCO and Daewoo Engineering and Construction are planning 5,860 MW and Japan's Marubeni and J-Power aim to build 5,060 MW of new coal capacity. The Chinese companies SPIC, CLP and China Southern Power Grid are planning projects totaling 3,130 MW. Other players are Tata Power from India (1,320 MW), EGAT from Thailand (1,200 MW) and ACWA Power from Saudi Arabia (900 MW).

The strangest beasts among Vietnam's coal plant developers are the Texhong Textile Group and the Toyo Ink Corporation. Both companies are newcomers to coal power.

⁷² <https://www.reuters.com/article/india-ief-thailand/thailand-plans-to-increase-coal-use-in-power-generation-minister-idUSL3N1RP1TV>

⁷³ <http://www.khaosodenglish.com/politics/2018/02/20/govt-halts-coal-power-plant-plan-strikers-call-off-protest/>

⁷⁴ <https://www.bangkokpost.com/news/environment/1466118/coal-fired-plants-back-on-agenda>

Texhong Textile, incorporated on the Cayman Islands and Hong Kong, but operating only in Vietnam, plans a 2,100 MW coal plant to supply its factories, whereby excess power will be sold to the grid. Toyo Ink from Malaysia, a company that is specialized in producing inks for packaging wants to switch its business model and set up a 2,000 MW coal power plant in Vietnam.

Even without all these new coal plants, air quality in Vietnam's cities is every bit as bad as in Beijing. In 2017, Hanoi experienced only 38 days without dangerous air pollution levels. The emissions of Vietnam's existing coal fleet is responsible for 4,250 premature deaths every year and this number could rise to as high as 25,000 per year if the country's coal expansion goes unchecked.⁷⁵ According to the World Bank, Vietnam is also one of the countries that will be hardest hit by climate change.⁷⁶ Rising sea levels are predicted to swallow up large parts of the Mekong Delta, an area that is central for Vietnam's food production.

And opposition to new coal is growing. A senior executive of Vietnam's national utility EVN recently confirmed that it has become difficult to find locations for coal power stations, as "local authorities all say 'No' to coal power".⁷⁷

Nguy Thi Khanh, founder of the Green Innovation and Development Center, is adamant that Vietnam's energy needs can be met by renewables. She calls on international investors to stop investing in coal as "every dollar invested today will be felt in Vietnam and in our Earth's climate for decades to come."⁷⁸

⁷⁵ <http://www.greenpeace.org/seasia/Press-Centre/Press-Releases/Coal-expansion-in-Vietnam-could-claim-25000-lives-per-year/>

⁷⁶ <https://www.forbes.com/sites/nishthachugh/2017/01/31/for-vietnam-coal-will-ensure-a-cheap-energy-future-or-will-it/#79f5afa74871>

⁷⁷ <https://english.vietnamnet.vn/fms/business/207216/locals-boycott-thermal-power-projects-as-electricity-shortages-loom.html>

⁷⁸ <https://www.youtube.com/watch?v=uL0o4Pchcxw>



Anti-coal protest in Sovetskaya Gavan, a small town in the Russian Far East. © Amurmedia

Eurasia's Coal Plant Pipeline

Georgia:

Georgia is due to begin building its first coal power station in 2018. The 300 MW Gardabani project in Kvemo would be built by C-Power, a subsidiary of Georgian Industrial Group (GIG), and by the Dongfang Electric Corporation of China. The plant is supposed to start service by 2020 and its coal supply would come from the Tkibuli mine in Western Georgia, also owned by GIG. The Director General of GIG says: "The demand for coal on the international market is low. If we do not create demand for coal within the country, the mines in Tkibuli will stop running."⁷⁹ NGOs in Georgia are outraged that the project is moving forward although no environmental impact statement was ever submitted, and villagers from the Gardabani region oppose the plant as they fear their health and harvests will be harmed.⁸⁰

⁷⁹ <http://www.tabula.ge/en/story/120489-gig-building-300-megawatt-coal-run-thermal-power-station>

⁸⁰ Gardabani Coal-Fired Thermal Power Plant and Associated Problems, Green Alternative & CEE Bankwatch, 2016

Kazakhstan:

Kazakhstan is rich in energy resources: uranium, oil, gas and coal and its economy is driven by extractive industries. Around 80% of the country's electricity generation is coal-fired and less than 1% is based on non-hydro renewable sources.⁸¹ While Kazakhstan's president recently announced a push towards renewable energy, the government has signed an agreement to build a new 636 MW unit at the Ekibastuz coal power station. The project is being developed by Russia's PJSC Inter RAO together with the Kazakh power utility Samruk Energo.

Russia:

Russia is the world's 6th largest coal producer and 3rd largest coal exporter. Three-quarters of its coal, is however, consumed domestically. Russia has over 140 coal-fired power plants, which generate 29% of the country's electricity. While the heart of the country's coal industry lies in the Kuzbass region in Siberia, all of the new projects in Russia's coal plant pipeline are in the Far East. In this region, the government is developing new infrastructure for the export of coal, oil and gas to Asia and these developments need power.

Russia's largest power producer, RusHydro, is thus building the 360 MW Sovetskaya Gavan plant to meet the power needs of Vanino. Russia's second-largest coal port on the Pacific. Another RusHydro project is Sakhalin GRES-2, a 360 MW lignite plant that is under construction on the southwest coast of Sakhalin island and meant to replace the aging 200 MW Sakhalin GRES-1 coal plant.

The largest project in Russia's coal plant pipeline is, however, the 4,000 MW Erkovetskaya project. This lignite-fired power plant will export electricity to China, while the environmental and health costs are borne by the affected municipalities in Amur Province. The project includes the development of a huge open-pit mine. Erkovetskaya's sponsors are Russia's PJSC Inter RAO (51%) and the State Grid Corporation of China (49%). The costs are estimated at US\$ 10 billion and will likely be financed by Russian and Chinese banks. A smaller coal plant, the 226 MW Ussuriysk

⁸¹ <https://thediplomat.com/2018/01/the-real-future-of-green-energy-in-kazakhstan/>

project in Russia's Primorsky territory, will be built by the China Energy Engineering Corporation to export electricity to the Chinese city of Mudanjiang.

Despite the tense political situation in Russia in terms of freedom of speech and harassment of civil society organizations, resistance against new coal projects is growing. In the Far East, thousands of people demonstrated against the contamination of coastal ecosystems through dust from coal terminals and achieved a temporary ban on coal transit.⁸² In Slavyanka, a small town close to the Chinese border, the protests led to a halt of the construction of a new coal terminal. And in Kuzbass, local communities waged a successful court case against licensing of a new open pit coal mine in April 2018.

⁸² <https://www.hellenicshippingnews.com/russian-ports-pay-a-heavy-price-for-coal-shipments-to-asia/>

Europe's Coal Plant Pipeline - Summary

There is a strong divide among European nations, when it comes to coal. While Belgium has been coal free since 2016 and ten other EU countries (Austria, Denmark, Finland, France, Ireland, Italy, Netherlands, Portugal, Sweden and the UK – all of which are part of the Powering Past Coal Alliance) have announced or adopted laws to replace coal in their energy mix, the Balkans, Turkey and most Eastern European countries are still putting their chips on coal. Even though energy and finance experts warn that this is a losing bet that will cost taxpayers billions of Euros, many of Europe's utilities continue to pursue an energy model whose climate, pollution and health burdens are immense. In spite of the fact that renewables are now among the lowest cost power options, 13 European countries still have new coal power plants in the pipeline. The countries in which the largest coal capacity additions are planned are Turkey (37,569 MW), Poland (9,590 MW) and Bosnia-Herzegovina (4,080 MW).

The ten countries that have already announced a coal phase-out represent 25% of the European Union's installed coal capacity. The question whether the EU will, however, succeed or fail in meeting its commitments under the Paris Climate Agreement is largely dependent on two countries: Germany and Poland. Together they account for 53% of the EU's emissions from coal power plants.⁸³ The challenge in Europe is two-fold: to prevent the construction of new coal plants and retire the existing coal plant fleet by 2030. In order to ensure that this challenge is met, citizens and NGOs from 28 European countries have joined forces in the Europe Beyond Coal Campaign. "A coal plant in any one country is a liability for all of Europe," says Kathrin Gutmann, the campaign's coordinator. "We are calling on governments, cities, companies and investors throughout Europe to make a full coal exit."

Affected European Countries

Bosnia and Herzegovina:

Currently, 75% of Bosnia-Herzegovina's electricity stems from 5 lignite-fired power plants which are among the dirtiest in Europe. Although Bosnia-Herzegovina is already

⁸³ „A Stress Test for Coal in Europe under the Paris Agreement“, Climate Analytics, 2017

a net exporter of electricity, seven further coal power plants have been proposed. If all of the announced plants are built, they would add over 4,000 MW capacity to the country's coal plant fleet, an increase of almost 200%. The companies behind these plans are the 3 state-owned utilities Elektroprivreda BIH, Elektroprivreda HZHB and Elektroprivreda Republike Srpske and the coal mining company RMU Banovici. The Chinese Export Import Bank has just committed US\$ 1 billion in financing for Elektroprivreda BIH's 450 MW Tuzla 7 Unit and it is likely that other projects may also receive Chinese support.

These expansion plans contradict Bosnia-Herzegovina's energy policy, which aims for 40% renewable energy by 2020, and would exacerbate the country's health problems. Bosnia-Herzegovina already has the second highest mortality rate from air pollution worldwide (after North Korea).⁸⁴ 44,000 years of life are lost per year due to air pollution and the connected costs amount to over 20% of the country's GDP.⁸⁵

Czech Republic:

The Czech Republic is one of Europe's largest lignite producers and continues to rely heavily on coal for electricity and heat. The growth of renewables in the Czech Republic has been fairly slow. In 2017, only 9% of the country's power was generated from non-hydro renewables and 49% from coal.⁸⁶ And according to the Czech Government's State Energy Plan, up to 21% of electricity generation would still be coal-fired in 2040.⁸⁷ Most Czech coal plants belong to the CEZ-Group, in which the Czech government owns a 70% stake. CEZ also operates 2 coal power stations in Poland and one in Bulgaria. While CEZ has recently decided to shift the focus of its foreign activities to renewables, in the Czech Republic it is currently expanding the Melnik and Ledvice coal power stations by a total of 770 MW.

Former Yugoslav Republic of Macedonia:

Macedonia's installed coal-fired capacity of 800 MW is controlled by its utility Elektrani na Makedonija (ELEM) and the private operator JSC Macedonian Powerplants. The

⁸⁴ Page 66, World Health Statistics 2017, World Health Organization

⁸⁵ <https://www.unenvironment.org/news-and-stories/story/coming-clean-air-bosnia-and-herzegovina>

⁸⁶ The European Power Sector in 2017, Agora Energiewende and Sandbag, 2018

⁸⁷ Page 90, Energy Policies of IEA Countries – Czech Republic, IEA, 2016

capital Skopje is among the 10 European cities with the highest toxic particle concentration and in June 2018, ELEM had to shut down the 125MW Oslomej plant, because of concerns from the local population over air pollution levels.⁸⁸ Although the country has a legally binding renewable energy target of 28%, ELEM has announced plans to build a 300 MW lignite-fired coal plant by 2033.⁸⁹



Protest in the German Hambach forest against the expansion of RWE's nearby lignite mine. © Tim Wagner

Germany:

Once a role model for its shift to renewables, Germany's energy transition is losing pace as the country grapples with an entrenched and still powerful coal industry. While renewables accounted for 36% of Germany's electricity generation in 2017, its share of coal power remains stubbornly high, leading the country to fail its 2020 climate goals. Although the German government has put a commission in place to plan a coal exit, its official name – "Special Commission on Growth, Structural Economic Change and Employment" – does not bode well for an ambitious climate outcome.

⁸⁸ <https://www.reuters.com/article/us-macedonia-pollution/macedonia-introduces-emergency-measures-as-smog-chokes-capital-idUSKBN1EM0XW>

⁸⁹ <https://bankwatch.org/beyond-coal/the-energy-sector-in-macedonia>

While the Commission is debating the how and when of phasing out coal, Germany's most contested energy company, RWE, is preparing to clear-cut the 12,000 year-old Hambach forest for the expansion of a lignite mine. NGOs and residents of the affected region have requested a moratorium on the mine's expansion until the Commission finishes its work, but RWE is determined to create facts beforehand. This has precipitated an enormous public outcry as Hambach has become a symbol for the insanity of Germany's continued lignite exploitation.

RWE operates more lignite-fired power plants than any other European company and is Europe's largest CO₂ emitter. And Hambach is not the only testimony to the company's unwillingness to change course. Against all odds, RWE is currently pursuing permits to build a new 1,100 MW lignite plant.

Two further coal plants are waiting in the wings. The German utility Uniper has built a 1,100 MW coal power plant in Datteln, which has yet to go online. Due to technical problems, commercial energy production of the plant has been postponed to 2020. NGOs are, however, still contesting the plant's permit in the courts. And in Stade, Dow Deutschland - a subsidiary of Dow Chemicals and Germany's second biggest energy consumer - is planning a 920 MW captive power plant, which would mainly be fed with coal.

Greece:

Greece is the 4th largest lignite producer in the European Union and generates 34% of its electricity with this dirty fuel. The country's 4,337 MW of installed coal capacity are in the hands of one company: The Public Power Corporation (PPC), which is majority owned by the Greek government. Next to PPC's 625 square mile Ptolemaida mine, the company has begun constructing the 660 MW Ptolemaida V lignite plant. The European Investment Bank refused to finance this project due to its high CO₂ emissions, but Germany's public bank KfW is providing a € 740 million loan for Ptolemaida V and Germany's Euler-Hermes is providing an export guarantee. The funds being sunk into Ptolemaida V should instead be invested in wind, solar and hydro-pumped facilities that would provide the same amount of energy at lower costs.

PPC has also announced plans to build a new 450 MW coal unit at its Meliti power station. In April 2018, however, Greece agreed with its lenders to sell 40% of PPC's coal-fired capacity and this sale will also include the license for the new unit at Meliti. Selling these assets is the worst possible solution as it will prolong the use of lignite in Greece for decades to come. Companies that have expressed interest or already submitted bids for the sale are Czech Sev.en and EPH and the Greek Copelouzos Group together with China Energy.

Hungary:

Over the last four years, the share of coal in Hungary's electricity generation has dropped to 15%. However, the country's national energy strategy for 2030 still includes coal as a key component for securing Hungary's energy needs. In 2015, Germany's RWE developed tender documents for a new 500 MW unit at the Matra coal power station, in which it held a majority stake. In 2017, a Hungarian court set aside the environmental license for the new unit as it termed the environmental studies to be insufficient. At the end of 2017, RWE then sold its stake in Matra to a holding company formed by the Czech company EPH and the Hungarian company, Opus Global, which is controlled by the Oligarch Lőrinc Mészáros, a figure close to Hungary's Prime Minister Viktor Orbán. In the meantime, Opus Global is in the process of taking over EPH's share and has stated its willingness to develop the new unit at Matra.⁹⁰

Kosovo:

90% of Kosovo's electricity is supplied by two outdated lignite plants (Kosova A and B), which are among the worst polluters in Europe. Kosova A was supposed to have been shut down in 2017 in accordance with EU emission standards, but as of September 2018 the plant is still running. For 40 years, the state-owned Kosovo Energy Corporation (KEK) has carelessly dumped coal ash, tar and other toxic materials next to the Kosova A plant. Because of severe environmental and health hazards, the World Bank financed a clean-up project for the dumpsite with \$10.5 million.⁹¹

⁹⁰ <https://af.reuters.com/article/energyOilNews/idAFL8N1R9263>

⁹¹ <http://projects.worldbank.org/P096181/energy-sector-cleanup-land-reclamation-project?lang=en>

While protests against air pollution abound in Pristina, Kosovo's government has signed a contract with the US company Contour Global to build a new coal plant, the 500 MW Kosova C Project. The plant would be operational by 2026, with an expected lifetime of 40 years and would cost around US\$ 1.3 billion. While the World Bank had originally promised a loan to support Kosova C, the institution came under so much criticism, that it has put the decision on hold in order to carry out a study on other energy options for Kosovo. Contour Global has meanwhile said it hopes to secure an equity partner for the project by early 2019.⁹²

Poland:

Coal's fiercest defender in Europe is Poland, which generates almost 80% of its electricity from coal. As many of the country's coal plants are over 30 years old, the sensible option would be to begin an energy transition and replace them with cleaner energy sources. But Poland's government is charting a different course. Despite the World Health Organization's findings that 33 of Europe's 50 most polluted towns are in Poland, and despite the fact that the overwhelming majority of Polish coal mines are out-dated, unprofitable and unable to produce up to quota, Poland is planning more new coal plants than any other country in the European Union.

All in all, 9,590 MW of new coal capacity are planned or under construction. The main companies behind these plans are Polska Grupa Energetyczna SA (PGE), Tauron, Energa SA and Enea SA. The most aggressive coal plant developer is PGE, which is building the 1,800 MW hard coal plant Opole in Silesia, just over 100 km from Katowice, where the UN Climate Summit will take place in December 2018. And in western Poland PGE is planning a new 450 MW unit at the Turow lignite power station, which is supposed to come online in 2020. PGE's Gubin lignite plant with a planned capacity of 3,000 MW would be situated close to the German border. The plans for the required lignite mine were, however, suspended in 2016 by the local authorities and the permitting process for the plant thus had to be suspended. But PGE is not yet ready to give up on the project and has announced it will postpone its decision until 2020.

⁹² <https://www.reuters.com/article/kosovo-energy/contourglobal-launches-tender-to-build-new-kosovo-coal-plant-idUSL8N1TN4T0>

Tauron is building a 910 MW expansion unit at its Jaworzno hard coal power station in Silesia, which is supposed to start operations in 2019. And in 2017, the Polish energy minister said he expected the state run utility Enea SA to build a 500 MW plant in Leczna in eastern Poland. The plant would run on gas generated from coal by the miner Bogdanka and is now in the permitting process. Together with state controlled Energa Sa, Enea also plans to build a new 1,000 MW unit at Energa's Ostroleka power station. This unit, Ostroleka C, was originally stopped in 2012 because of its high economic risks, but is now being moved forward in spite of rising prices for carbon allowances and the uncertainty around future capacity market payments. These coal plans defy both economic and climate realities, but popular resistance against new coal power plants and mines in Poland is growing. In the Gubin area the vast majority of people voted against coal mining plans in two referendums.⁹³ In other parts of the country as well, local communities and NGOs are fighting each new coal plant inside and outside of the courts. And activists are carrying this protest to the shareholder meetings of the coal companies' banks, investors and insurers.

Romania:

Although Romania's electricity generation is less dependent on coal and has a larger share of renewables than most other Balkan countries, its state-owned utility Complexul Energetic Oltenia (CEO) is one of Europe's most entrenched coal hard-liners. CEO informs readers of its webpage that it intends to continue operating coal plants for the next 40 years "as the wind does not blow continuously, the sun power reduces the water flow and the sun does not shine all the time."⁹⁴ Most of CEO's coal power stations, however, already violate EU emission standards and in 2018, Romania has been called before the EU Court of Justice for its failure to comply with these standards. Beyond Coal has calculated 1,000 premature deaths due to air pollution in Romania, of which 50% are caused by CEO's power plants.⁹⁵

The director of CEO says that further upgrading of plants to meet new European emission standards is too costly, and wants Romania to ask the EU for a postponement.

⁹³ <http://en.frankbold.org/our-work/campaign/lignite-mine-gubin>

⁹⁴ <https://www.ceoltenia.ro/en/despre/>

⁹⁵ <https://www.aljazeera.com/indepth/inpictures/hidden-costs-coal-romania-180429143054573.html>

At the same time, CEO plans to expand its coal plant fleet by building a new 600 MW unit at its Rovinari coal station. Negotiations for the new project are being carried on with China Huadian as CEO needs outside investment to shoulder the expected project costs of over US\$ 1 billion.

Serbia:

Serbia's national utility Elektroprivreda Srbije (EPS) is not only the country's largest enterprise, but also one of the world's largest lignite miners, producing around 37 million tons annually. Lignite accounts for 70% of Serbia's electricity production, but by 2024 several of its oldest coal plants will have to be shut down to comply with the European Union's Large Combustion Plants Directive. EPS is, however, planning to build up to 1,400 MW of new coal-fired capacity. The project that is furthest along is the 350 MW Kostolac B3 plant for which EPS is partnering with the China Machinery Engineering Corporation. The US\$ 613 million project also includes the expansion of lignite mining near Kostolac. But whether EPS can move the project forward still remains to be seen. No environmental or social assessments were carried out for the mining expansion and NGOs are challenging the environmental permit for Kostolac B3 in court.

Serbia's other coal plant developer is the Serbian Oil Company NIS, which is planning a 700 MW coal plant near the town of Kovin. Two Chinese companies - China Huadian and Tianjin Dredging - have shown interest in participating in the project.



The beautiful town of Amasra on Turkey's Black Sea coast is threatened by Hattat Holding's coal power plans. © BankTrack

Turkey:

Over the last years, Turkey's pipeline of new coal projects shrank from more than 70 planned coal plants in 2015, to around 50 projects in July 2018. The reasons for this decrease range from local community and civil society fights against the health, livelihood and climate impacts of these projects, to the Turkish government's policy shift of favoring local coal projects and the financial difficulties experienced by sponsor companies and investors. However, with plans to build over 38,000 MW of new coal capacity, Turkey is still the country with the 4th largest coal plant pipeline in the world. Around 1,000 MW of these capacity additions concern existing coal power stations that would be upgraded in connection with rehabilitation measures.

According to official 2023 targets, Turkey is set to double its coal-based energy production. However, according to research by CoalSwarm's Global Plant Tracker, a lot more coal-based energy is planned. The spider in the web of Turkey's coal plant pipeline is EÜAŞ, Turkey's state utility, which controls most of the country's coal. EÜAŞ has recently taken the lead in developing new finance and business models to make unprofitable coal projects bankable for investors and financiers. Through auctioning off coal power assets and major lignite reserves, EÜAŞ offers favorable access to public resources, infrastructure and land. Privatization also offers certain exemptions from permit and impact assessment procedures as EÜAŞ deals with these processes before the auctions. Through the government's new coal policies, energy producers now also benefit from generous capacity payments and from price and purchase guarantees in US\$ from the country's treasury, if they use local coal, which is mostly lignite.

The first project to be privatized under EÜAŞ's new scheme - the proposed 800 MW Çayırhan B coal plant - was awarded to a consortium of 3 companies: Kolin, Kalyon and Çelikler Holding. The largest of the proposed coal plants that EÜAŞ plans to auction off is the 5,000 MW Konya Karapınar project, which would be built in an extremely water-stressed area. Other important Turkish coal plant developers are Yildirim Energy and Hattat Holding. One of the longest standing anti-coal struggles in Turkey is against Hattat Holding's plan to build a 1,320 MW coal power station near the scenic town of Amasra on the Black Sea coast. For 12 years now, residents have been fighting tooth, claw and nail against these plans and repeatedly challenged them in the courts. 120

NGOs and municipalities from the region have joined forces to prevent the destruction of Amasra's unique environment and cultural heritage.

Ukraine:

While the Ukraine has long been a major coal producer, 85 of the country's 150 coal mines are in areas no longer controlled by the Ukrainian government. The ongoing conflict in Donbas has thus led to a significant decline of the Ukraine's coal production, creating supply problems for the country's coal plants and forcing it to begin importing coal from other countries.⁹⁶ "The obvious solution would be to develop renewable energy capacity to replace Ukraine's aging coal plant fleet," says Oleg Savitskyi from the National Ecological Center of Ukraine. Instead, Donbasenergo, one of the country's main thermal power producers, is planning a new 660 MW plant at its Slavyansk power station.

⁹⁶ <https://www.mining-technology.com/features/mining-ukraine-strikes-hit-hard-lies-ahead-mega-coal-miner/>

Latin America's Coal Plant Pipeline - Summary

While there are still plans for new coal power plants in 4 Latin American countries, the energy landscape on the continent is rapidly shifting as renewables gain more and more ground. Costa Rica and Uruguay have almost completely phased out fossil fuels in their electricity mix and are now beginning to tackle transport-related fossil fuel consumption.^{97 98} Costa Rica aims to become carbon-neutral by 2021 and Uruguay by 2030. And in countries like Chile, Mexico, Brazil and Argentina, solar and wind energy are now outcompeting fossil fuel projects.⁹⁹ In most Latin American countries, coal power's prospects are not good, especially as 77% of Latin Americans – the highest number of any region in the world - are deeply concerned about the immediacy of climate change.¹⁰⁰

Affected Latin American Countries

Brazil:

In Latin America's biggest economy, hydropower stations supply more than 70% of the country's energy. In spite of the fact that high-grade coal is scarce in Brazil and non-hydro renewable alternatives are plentiful, there are still 2,900 MW of new coal power projects in the pipeline. If these go forward, they would double the country's coal-fired capacity.

Tractabel, which is owned by GDF Suez and Engie, is just completing a 340 MW coal plant and planning to add another 300 MW unit. The resource giant Vale is planning a 600 MW coal power station, partly to supply its own operations. The two biggest projects in permission stage belong to Eneva and Ouro Negro Energia ('Black Gold Energy'). Eneva, in which Germany's Uniper holds a 6% stake, is planning two units with 727 MW each, adjacent to its coal mine. The 600 MW project proposed by Ouro

⁹⁷ <https://www.independent.co.uk/news/world/americas/costa-rica-electricity-renewable-energy-300-days-2017-record-wind-hydro-solar-water-a8069111.html#r3z-addoor>

⁹⁸ <https://www.theguardian.com/environment/2015/dec/03/uruguay-makes-dramatic-shift-to-nearly-95-clean-energy>

⁹⁹ <http://www.atlanticcouncil.org/blogs/new-atlanticist/is-latin-america-the-new-global-leader-in-renewable-energy>

¹⁰⁰ <http://www.atlanticcouncil.org/blogs/new-atlanticist/is-latin-america-the-new-global-leader-in-renewable-energy>

Negro Energia, is backed by Chinese companies such as SEPCO and supposed to receive funding from China's Development Bank. In Brazil's energy auctions in 2017 and 2018, however, none of these new coal plants were able to make successful bids and the lion's share of contracts were won by wind power projects.

Chile:

Recent good news came from Chile in February 2018, when president Michelle Bachelet declared a coal phase-out. In a joint statement, Chile's electricity companies pledged to deliver the country's goal to generate 70% of power from renewable sources by 2050.¹⁰¹ Accordingly, all new coal projects were cancelled. The construction of the 375 MW plant Mejillones by France's Engie is, however, still being finalized.

Colombia:

In Colombia, coal power accounts for less than 5% of the country's electricity mix, which is dominated by large hydropower. Coal mining is, however, very big in Colombia. The country is the world's 9th largest coal producer and exports most of its coal to the US and Europe. Colombian coal is often called "blood coal" due to the close connection between some of the country's largest miners and paramilitary violence against local communities. While paramilitary forces were de-mobilized in Colombia in 2006, unionists and community leaders are still in danger if they oppose mining interests and several of them were murdered in the past years.

Colombia's pipeline of new coal plants would add 700 MW to the country's 1,400 MW of installed coal capacity. One of the projects under consideration is a 165 MW extension of the Termopaipa coal power station, which is being pursued by the US company Contour Global.

Panama:

As of yet, Panama only has one small 120 MW coal plant and a national energy target of over 70% renewables in its electricity mix by 2050.¹⁰² Only 130 km west of Panama City, however, the Canadian company First Quantum Minerals is building a 300 MW

¹⁰¹ <http://www.climatechangenews.com/2018/02/01/chile-declares-start-coal-power-phase/>

¹⁰² <http://www.celsia.com/centrales-termoelectricas>

coal power station to supply energy for its Cobre copper mining complex. The new power station will import its coal from Colombia, a country where coal mining operations are notorious for their disastrous human rights and environmental impacts.

The Caribbean's Coal Plant Pipeline - Summary

Like the Small Island States in the Pacific, the Caribbean Islands are already hit hard by the impacts effects of climate change, as tropical storms in the region have increased in frequency and intensity.¹⁰³ Caribbean states are also among the nations for whom the 1.5°C limit is a question of survival as rising sea levels threaten their shores and their fresh water supply. In the past, Caribbean countries relied mainly on imported fossil fuels for their energy supply, but now many countries from the region are implementing decentralized renewable energy programs. Coal is thus not popular in the Caribbean, and when a Chinese steelmaker attempted to build a 1,000 MW coal power station in Jamaica, the project was scrapped in 2017 due to popular protests.

Affected Caribbean Countries

Dominican Republic:

The only company currently attempting to build a coal plant In the Caribbean, is CDEE (Corporation of State Electricity Companies) in the Dominican Republic. The 770 MW Punta Catalina coal power station is not only facing strong environmental opposition, it is also at the center of a huge corruption scandal. In February 2017, a US court noted that Odebrecht, the main construction contractor for Punta Catalina, had paid US\$ 92 million in bribes to Dominican officials. Punta Catalina was financed by 5 European banks, of which most have now frozen their loans. Several Dominican politicians, including the country's Public Works Minister, were arrested in connection with the Odebrecht scandal, but the project's sponsor CDEEE still hopes to hold on to Punta Catalina.¹⁰⁴ Although the Dominican Republic's entire electricity demand could be met through renewable sources, renewables currently make up only a small portion of the country's energy mix.¹⁰⁵

¹⁰³ <https://www.theguardian.com/environment/2017/oct/06/climate-change-in-the-caribbean-learning-lessons-from-irma-and-maria>

¹⁰⁴ <https://www.reuters.com/article/us-dominican-corruption/dominican-republic-arrests-officials-in-odebrecht-bribery-probe-idUSKBN18P1S7>

https://www.banktrack.org/project/punta_catalina

¹⁰⁵ <http://www.worldwatch.org/bookstore/publication/roadmapdr>

The Middle East Coal Plant Pipeline

While more and more coal plants are being shut down in the US and in Europe, several Middle Eastern countries are just now getting started on coal. Oman, Jordan and the United Arab Emirates are all planning to develop their first coal plants. In a region rich with oil, gas and solar power, but virtually no coal resources, this entry into coal power generation seems ill advised and will undercut efforts to rein in fossil-based emissions in these countries.

Oman:

In an effort to decrease its dependency on gas, the Sultanate is planning to develop its first coal-fired power station on advice of the Finnish consultancy Pöyry. The 1,200 MW coal plant is planned at Duqm and will be awarded to an independent power producer on a Build-Own-Operate basis. Oman is looking to develop up to 3,000 MW of new coal capacity by 2025.¹⁰⁶

United Arab Emirates:

The Emirates currently have no coal power stations, but are planning to diversify their electricity mix away from gas.¹⁰⁷ Although the UAE Premier recently broke the ground for the world's largest single-site concentrated solar power project, the sun-rich desert also has plans to build 5,400 MW of coal-fired capacity.¹⁰⁸ According to the Emirates' "Clean Energy Strategy", the government wants to generate 12% of its energy from coal by 2050.¹⁰⁹

The Hassayan Energy Company, a joint venture between the Dubai Electricity and Water Authority (DEWA), Saudi Arabia's ACWA Power and Harbin Electric from China, has already begun constructing the 3,600 MW Hassayan coal plant. The US\$ 3.6 billion project is being financed by several Chinese and Emirati banks as well as by Standard Chartered from the UK.¹¹⁰ The Emirates' Federal Electricity and Water Authority

¹⁰⁶ <http://www.omanoobserver.com/oman-weighs-3000-mw-of-clean-coal-power-by-2025/>

¹⁰⁷ <https://www.eia.gov/todayinenergy/detail.php?id=36172>

¹⁰⁸ <https://gulfnnews.com/news/uae/environment/dubai-pushes-solar-power-cost-to-world-s-lowest-as-largest-single-site-solar-park-set-to-rise-1.2191086>

¹⁰⁹ <https://www.thenational.ae/business/energy/the-strange-rise-of-coal-in-the-middle-east-1.621296>

¹¹⁰ <http://gulfbusiness.com/dubai-hassayan-clean-coal-plant-secures-2-47bn-of-financing/>

(FEWA) has also announced the construction of a 1,800 MW coal plant to be built in Ras al-Khaimah. When completed, both power stations will be run on imported coal as the Emirates -while rich in oil - have no coal reserves.