No Exceptions

Why HSBC's new coal policy could fuel climate change



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Christian Aid is a Christian organisation that insists the world can and must be swiftly changed to one where everyone can live a full life, free from poverty.

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Summary

'Follow the money.' This was the crucial clue that FBI Directorturned-informant Mark Felt gave Washington Post journalist Bob Woodward which helped him expose the Watergate scandal and topple President Nixon in 1974.

The same is true when trying to trace the causes of our current climate change crisis. Despite the breakthrough of the Paris Agreement, which saw the nations of the world committing to try to prevent global warming exceeding 1.5°C above pre-industrial levels, the world is not on track to achieve this.

Innovation and new technology have seen the costs of solar and wind power fall to levels that make them cheaper than fossil fuels, but new fossil fuel power plants are still being built, even ones powered by the dirtiest and most polluting fuel of all: coal.

Burning coal has contributed to us already reaching 1°C of global warming, threatening the livelihoods of the poorest and most vulnerable people, displacing many others and causing deaths through drought, floods and extreme weather.

To understand what drives this expansion in coal use, we need to follow the money. Billions of pounds from British banks, especially HSBC, have led to the creation of coal power stations around the world in recent years. While this finance tap is open, coal power stations will continue to be built, and the world's fragile climate will remain under threat.

In response to mounting pressure from activists and campaigners including Christian Aid's Big Shift campaign - HSBC announced a partial ban on financing new coal plants in March 2018. However, its policy still permits the financing of coal plants in Bangladesh, Indonesia and Vietnam until 2023, despite all three countries being on the front line of climate change and offering significant renewable energy potential, a crucial tool to sustainable poverty eradication.

While the rest of the world embraces the benefits of clean and affordable renewable energy, HSBC is open to locking these three countries into a dirty, dangerous and expensive fossil fuel infrastructure that will be obsolete within a few years. Meanwhile, a string of proposed renewable energy projects on the table in all three countries remain under-funded.

HSBC claims to support the goals of the Paris Agreement, yet it threatens our very future by funding the expansion of Asian coal burning. Climate change is the greatest threat to international development and human prosperity.

In Matthew's gospel Jesus tells his disciples: 'Where your treasure is, there your heart will be also.'

HSBC may talk a good game on climate change, but its policy on coal in Bangladesh, Indonesia and Vietnam tells a different story.

This report hopes to amplify the concerns of people in these countries and expose the damage of HSBC's coal policies.

'If Vietnam goes forward with 40 GW of coal, if the entire region implements the coal-based plans right now, I think we are finished...That would spell disaster for our planet'

Jim Yong Kim, World Bank President

Europe's biggest bank

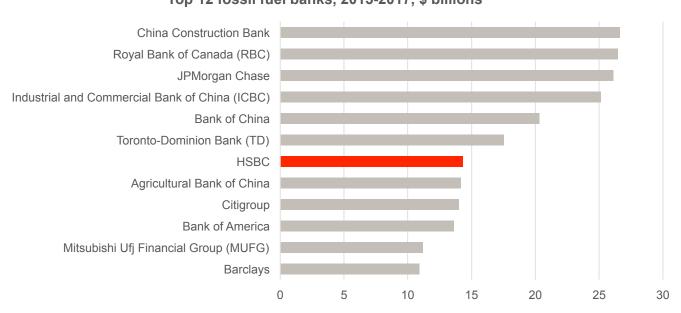
HSBC is Europe's biggest bank, with \$2.6 trillion in assets.1 This is more than France's annual economy of \$2.4 trillion, the sixth largest in the world.2 HSBC provides loans worth nearly a trillion US dollars annually to clients.

Over the last three years, HSBC generated \$160bn in revenue, with 75% its profits derived from operations in Asia.3 It is listed on the London Stock Exchange and because of its size is in the FTSE 100, and is therefore a component in nearly all British savings and pension plans. It is Asia's leading international bank and considered by the finance sector to be an Asian bank, although its headquarters are in London to take advantage of the UK's deregulated financial environment.4

Europe's dirtiest bank

Globally, HSBC was ranked the seventh worst offender of extreme fossil fuel finance and the worst in Europe between 2015 and 2017 (Figure 1). This included the financing of tar sands oil, Arctic oil, ultra-deepwater oil, liquefied natural gas, coal mining and coal-fired power.5 Research shows that between 2015 and 2017, HSBC funnelled \$14bn to the most climate-changing, environmentally destructive and capital-intensive fossil fuels.6

Figure 1: Bank financing for fossil fuels (2015-2017)



Top 12 fossil fuel banks, 2015-2017, \$ billions

Source: Banking on Climate Change, Fossil Fuel Report Card⁷

HSBC's coal exposure

Between January 2014 and September 2017, HSBC financed 31 coal plant developers, across 16 countries, mostly in Asia. Total finance exceeded \$13bn during this period. Nearly \$3bn of this was for coal projects and general loans to companies developing coal plants, while \$10bn was to underwrite the shares and bonds of coal plant developers; this financing included loans of \$122m in Vietnam and \$149m in Indonesia, plus \$1bn in underwriting in Indonesia.8

HSBC's new energy policy

At its Annual General Meeting on 20 April 2018, HSBC announced a revised energy policy that prohibited financial services to new coalfired power plants – except in Bangladesh, Indonesia and Vietnam.

HSBC said: 'We recognise the need to reduce emissions rapidly to achieve the target set in the 2015 Paris Agreement to limit global temperature rises to well below 2 degrees Celsius and our responsibility to support the communities in which we operate."9

HSBC continues to permit finance to coal power plants in these three developing countries, locking them into a dirty energy future and undermining its commitment to the Paris Agreement. HSBC has prohibited new fossil fuel projects in developed countries and this lack of consistency must be questioned.

We also do not have time to wait until 2023 to stop funding the creation of unnecessary new coal plants in these countries.

HSBC's policy of excluding Vietnam, Bangladesh and Indonesia from its coal policy has been made to look even more questionable by fellow bank Standard Chartered, which announced in October 2018 that it would stop financing coal in all countries.10 If Standard Chartered can take this step, why not HSBC? If HSBC was committed to the Paris Agreement, it would simply do the same and not finance the building of any new coal plants.

In 2016, research by the University of Oxford demonstrated that to meet the goals of the Paris Agreement, no new plants can be built after 2017 and 50% of existing infrastructure will have to be retired early to ensure a 50% probability of keeping the global temperature rise within safe limits.11

The myth that coal is better than renewables in tackling poverty

HSBC's energy policy has been defended by the bank, using the myth that coal helps to reduce poverty. The assertion is that coal is a cheap, reliable source of fuel for power plants in developing countries and can provide access to those needing energy most, thus helping to lift people out of poverty.

Coal lobbyists point to China's heavy use of coal in recent decades as proof that development based on coal can help to reduce poverty. However, the eradication of extreme poverty occurred mostly between 1981 and 1987 – before the large-scale deployment of coal power infrastructure. Industrialisation, while important to China's overall economic success, accounts for less than a quarter of the decline in extreme poverty between 1981 and 2004.12 In fact, China

'HSBC has prohibited new fossil fuel projects in developed countries and this lack of consistency must be questioned'

is now trying to close coal plants due to the toxic air pollution that blights many Chinese cities.

Basing energy policies on misguided assumptions from the 1980s is folly when we now have far better, cheaper, options. Christian Aid and other organisations, including the Overseas Development, Institute, CAFOD, Greenpeace, ShareAction, Global Witness and the Institute for Energy Economics and Financial Analysis, have all provided independent evidence showing that coal expansion will actually entrench poverty.13

It is impossible to ignore coal's impact on climate change when calculating its poverty alleviation potential. Coal, more than any other fossil fuel, is driving the sea level rise, extreme weather and flooding in Bangladesh, Indonesia and Vietnam that will almost certainly cancel out any supposed economic benefits of coal-based power. Scientists predict that by 2050 as many as 25 million people in Bangladesh will be affected by rising sea level. Of the megacities most threatened by sea level rise, the capitals of Vietnam (Hanoi), Indonesia (Jakarta) and Bangladesh (Dhaka) all make the top 10. Helping these countries to decarbonise their electricity grid would do far more to reduce this impact and also help these countries meet their Paris Agreement pledges.14

It is also worth noting that most electricity-poor households live far from a conventional energy grid – 84% are in rural areas. 15 If scaled up appropriately, distributed renewable solutions like wind and solar will be the cheapest and quickest way of reaching more than twothirds of people without electricity. The experience of Christian Aid's partners in developing countries shows that the most effective way to help the poorest communities is to give them access to clean, safe and affordable renewable energy.16

The arguments in favour of coal are from those who have the most to gain from it, not the world's poorest people with no access to energy.

Coal is Southeast Asia's silent killer

The appalling air pollution in Southeast Asia is another hidden factor in coal's impact on poverty.

A study by researchers at Harvard University predicted that Vietnam and Indonesia will have the two highest death rates from coal plant emissions in the Association of South East Asian Nations (ASEAN) by 2030. (Note: Bangladesh is not part of ASEAN.)

In total, coal-related pollution will account for an estimated 70,000 premature deaths per year in Southeast Asia by 2030 if the coal power plants planned or under construction in the region go ahead (Figure 2).17

Annual Mortality from Southeast Asian Coal by 2030

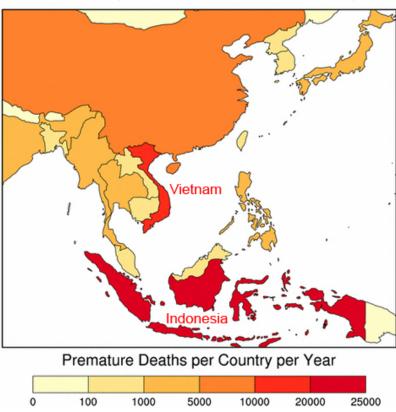


Figure 2: Predicted premature deaths per country per year by 2030

Source: Koplitz et al, 2017.18

Energy does not have to be dirty

Renewable energy is becoming the most economical energy infrastructure option around the world.19 Costs of solar PV, for example, have fallen 72% between 2009 and 2017, with solar alone accounting for 38% of net new power capacity in 2017 – more than coal, gas and nuclear combined.20

The World Economic Forum predicts solar PV to be cheaper than coal or gas power globally by 2020, based on a measure known as the 'levelised cost of energy'.21

HSBC's policy threatens to saddle the people of Vietnam, Bangladesh and Indonesia with more fossil fuel infrastructure that will kill them with pollution, worsen the impacts of climate change they are experiencing and be obsolete in a few years. If the bank really wants to help these countries tackle poverty, it should be ramping up its investment in renewables.

The Waterkeeper Alliance, an international non-governmental organisation which fights for communities' rights to water, has identified more than 50 renewable energy projects in these three countries that are currently underfunded. With renewables being a far better energy option for developing countries and vital for addressing climate change, it is lamentable that potential projects are left needing financial loans while HSBC is happy to pour money into dirty coal power.

HSBC's investment in dirty coal will push back the three countries' potential for sustainable energy development.

Vietnam

Vietnam is a country caught in the crosshairs of climate change and air pollution, so it is no surprise that local people are fighting HSBC's plan to keep the door open to fund more coal power stations.

As a nation heavily dependent on agriculture, climate change poses a particular threat to the prosperity of the country. It relies on the Mekong River system to provide freshwater for its agricultural production. But due to the low-lying coastal geography, the Mekong Delta is one of the most vulnerable in the world. A one-metre sealevel rise would flood 40% of the Mekong Delta, 11% of the Red River Delta and leave parts of Vietnam's Ho Chi Minh City underwater.22 Even a less drastic sea-level rise of 30 cm by 2050 is expected to accelerate salt water intrusion, with potentially devastating effects on farmers.23

As well as floods, climate change could also increase drought between 2015 and 2017 the Mekong suffered a historic drought that led to water shortages and a 40% drop in coffee exports, a key plank of the Vietnamese economy.24

Vietnam came fifth in Germanwatch's 2018 Climate Risk Index, which ranks countries most affected by climate change.25

As a member of the Climate Vulnerable Forum, a group of 48 countries most at risk from climate change, with little historic responsibility for causing the problem, Vietnam pledged in 2016 to use 100% renewable energy by 2050, as long as it received financial support to do so. This act of leadership from Vietnam requires outside investment in clean energy, not locking in more coal burning infrastructure. Yet this is exactly what HSBC is doing by arranging finance for the controversial 1.2 GW Long Phu 1 coal-fired power station.26

Such power plants will exacerbate the country's lethal air pollution crisis. Of the 70,000 projected premature deaths from coal-related pollution in the region, 20,000 of these will be in Vietnam. This equates to 188 excess deaths per million people. To put that in context, it will dwarf Vietnam's current largest killer; road traffic accidents, which accounts for 106 excess deaths per million people.27

It is no wonder HSBC's new energy policy has been met with anger and opposition.

At the launch of the new energy policy at its AGM in May 2018, HSBC claimed that the reason it has exempted Vietnam in its coal policy is on energy poverty grounds. This is a ridiculous claim, because Vietnam is already 99% electrified and the country's current coal plants are only being run 56% of the time.

Vietnam's Green Innovation and Development Centre developed A Blueprint for Vietnam's Clean Energy Future, which showed that the most affordable and safest way to meet Vietnam's future energy needs and comply with the Paris Agreement is to cut 30 GW of coal power – equivalent to 25 coal-fired power plants – replacing them by increasing energy efficiency and renewables.29

'It seems my daughter doesn't have the right to clean air'

Nguy Thi Khanh, founder of the Green Innovation and Development Centre, is forced to put a facemask on her young daughter most days and described HSBC's energy policy in Vietnam as 'lazy racism'.

'Remarkably HSBC's commitment excluded my own country, along with Indonesia and Bangladesh. My daughter, along with the rest of Vietnam, it seems, doesn't have the right to breathe clean air like the rest of the world.

'Too poor, too foreign, let them breathe sulphur dioxide and smog," the policy might as well read. "They're only Vietnamese."

'Such lazily racist double standards are made all the more galling by the bank's attempt to hide its greed behind a thin veneer of condescending concern for the provision of "cheap" power in Vietnam.

'The argument that Vietnam needs more coal is nonsense. According to the recently launched Blueprint for Vietnam's Clean Energy Future, if all the health and environmental costs of coal power are factored in, renewables are already cheaper than coal in Vietnam.'28

Nghiem Vu Khai, Vice President of Vietnam Union of Science and Technology Associations, said: 'Going green is the smart direction for Vietnam, a country with rather abundant renewable potentials, especially solar and wind energy.'

Vietnam's renewables generation is low compared to countries of similar or lower wealth. A focus on investment in this much-needed area would be a better demonstration of HSBC's concern for energy policy.

Bangladesh

Bangladesh is ground zero for humanity's battle with climate change. The low-lying coastal region is vulnerable to sea level rise and salt water intrusion, which threaten livelihoods for millions of people. The coastline is also exposed to cyclones and storm surges. While 80% of the land area is susceptible to flooding, it also suffers from droughts and rising temperatures, especially in the north of the country. The 2018 Climate Risk Index ranked countries by their long-term suffering from climate impacts between 1997 and 2016. Bangladesh was the sixth most affected.³⁰

For one of the poorest countries in the world, with a large and densely packed population, this poses significant problems, not least the pressure that climate-induced migration away from the agriculture-dependent coastal areas may have on the country's underdeveloped urban infrastructure.

As another member of the Climate Vulnerable Forum, Bangladesh has pledged to go 100% renewable by 2050, with international support. Currently, coal plants generating 13.3 GW are planned, but a joint study from the Bangladesh-based International Centre for Climate Change and Development and University of California found that Bangladesh could replace all this planned coal capacity with solar at a 20% lower cost than coal.³¹

Researchers assessed the available land for solar and found enough to potentially generate 53 GW, much more than previously estimated.³²

Developments in utility scale solar farms mean they do not need to replace important agricultural land. Instead, space can be left between solar panels for fish ponds or crop production.

As well as being much quicker to get up and running than coal plants, solar power can reach remote places that are not able to access conventional electricity grids.

Despite the country's great clean energy potential, a number of Bangladeshi renewable projects are underfunded and could use finance from banks like HSBC. Last year, the Bangladesh Government complained that 18 renewable energy projects that needed private sector funding had not made any significant headway.³⁴

Indonesia

Indonesia is second only to Vietnam in terms of premature deaths from coal-related air pollution among ASEAN nations. It is understandable that the Indonesian Government would want to increase its clean energy capacity.

'Choosing solar farms will avoid the widespread toxic contamination of air with sulfur dioxide, nitrogen oxides and particulates that come from even the best coal plants, sparing tens of thousands of Indians and Bangladeshis from premature deaths, low birthweight babies, heart attacks, respiratory disease, and cancer'

Dr Saleemul Huq, Director of the International Centre for Climate Change and Development in Bangladesh³³

In 2017, Indonesian Minister of Energy and Mineral Resources Ignasius Jonan stated: 'Indonesia is resolved to increasing its new and renewable energy mix to 23% in 2025.'35 This commitment also extends to upping the figure to 31% by 2050.

However, the International Renewable Energy Agency (IRENA) said that Indonesia could hit this 2050 target two decades ahead of schedule, such is the potential for renewable energy in the country.36 A 2017 World Bank study noted: 'Compared to other countries of the world, Indonesia has very favourable potential for [solar] PV for power generation.'37

Compared to the rigidity of a coal-powered grid system, renewables offer unparalleled energy access for Indonesia's 17,000 islands. Residents of the 922 permanently inhabited islands would need to be joined up to the grid to access coal power, which is simply not feasible in most cases.

Coal expansion is clearly not a solution to energy poverty, exposed by the fact is that most, if not all, of the proposed new coal plants are to be built in Java and Sumatra, which already have an over-supply of energy. Communities in most need of energy are in eastern Indonesia where decentralised hybrid diesel and solar systems are being built, not coal plants.

IRENA's proposals to the Indonesian Government would cut net energy system costs and avoid air pollution and carbon dioxide emissions compared to current plans and policies - enough to save up to \$53bn per year by 2030 in economic terms.38 Harnessing this potential would require annual investments in renewable power capacity of more than \$16bn until 2030.

For Indonesia to meet its national commitment contained in the Paris Agreement, greater investment in Indonesian renewable projects will be needed.

Current plans will mean the state power authority, Perusahaan Listrik Negara, will be locked into 25-year coal-fired purchase power agreements that will cost an estimated \$76bn. This is money that Indonesia can ill afford to spend on coal energy that it does not need.39

If HSBC is serious about supporting the aims of the Paris Agreement, and tackling energy access in Indonesia, it should focus on helping provide financial support for this clean energy transition, not keeping the door open for more coal funding.

'HSBC's decision to exclude Indonesia for coal financing is not only discrimination, but explains that HSBC still wants to use its money to burn and release carbon into the air in Indonesia, shortening the life span of Indonesians.

'To continue to finance coal in Indonesia, means financing destruction. The area of the rainforest will carry on shrinking and land grabbing of people's productivity will continue'

Hendrik Siregar, Team Leader for Climate & Energy Unit at Indonesian non-governmental organisation Auriga Nusantara

Conclusion

The world is waking up to the danger caused by climate change. Costs for renewables are falling faster than all predictions and countries are working to deliver their commitments enshrined in the Paris Agreement. But the global energy transition needed to fulfil the Paris commitments is not coming fast enough.

The actions we take in the next three years will be crucial in determining our success in avoiding global warming of 1.5°C, a goal of the Paris Agreement.

In September 2018, UN Secretary-General António Guterres warned: 'If we do not change course by 2020, we risk missing the point where we can avoid runaway climate change with disastrous consequences for people and all the natural systems that sustain us.'

The decarbonisation of our electricity supply is the easiest part of the transition and needs to be accelerated if we are going to succeed. As a bank that claims to support the Paris Agreement and wants to fight climate change, it is perverse for HSBC to continue to fund coal in Asia.

When the scientific evidence indicates that this expansion will damage human health through toxic air pollution while locking these countries into outdated and harmful fossil fuel infrastructure, HSBC's grand claims of being a green bank that cares about poverty alleviation look decidedly cosmetic.

With underfunded renewable projects in the region, HSBC should close the door on lending to yet more coal power for good and put Vietnam, Bangladesh and Indonesia on the same footing as the rest of the world.

End notes

- Strategy Update 2018, HSBC, 2018, www.hsbc.com/investor-relations/eventsand-presentations/strategy-update-2018
- Banking on Climate Change, Rainforest Action Network www.ran.org/bankingonclimatechange2018
- HSBC Strategy Update: Return to Growth and Value Creation, HSBC, 2018, www.hsbc.com/-/media/hsbccom/investorrelationsassets/hsbcresults/2018/strategy-update/pdf/180611investor-strategy-presentation.pdf
- Banking on Climate Change: Fossil Fuel Finance Report Card 2018, Rainforest Action Network, 2018, www.ran.org/wpcontent/uploads/rainforestactionnetwork/pa ges/19540/attachments/original/152509918 1/Banking_on_Climate_Change_2018_vW EB.pdf
- Ibid
- Ibid
- Banks vs. the Paris agreement: Who's still financing coal plant development?, Banktrack www.banktrack.org/coaldevelopers/#explor e_the_data
- HSBC strengthens energy policy, HSBC, 20 April 2018, www.hsbc.com/news-andinsight/insight-archive/2018/hsbcstrengthens-energy-policy
- Position statement: Power generation, Standard Chartered, www.sc.com/en/sustainability/positionstatements/power-generation
- 'New study warns on probability that "2°C capital stock" will be reached in 2017' University of Oxford School of Geography and the Environment, 31 March 2016, www.geog.ox.ac.uk/news/articles/160331-2c-capital-stock-warning.html
- Beyond coal: Scaling up clean energy to fight global poverty, I Granoff, JR Hogarth, S Wykes and A Doig, Overseas Development Institute, CAFOD, Christian Aid et al, 2016, www.odi.org/sites/odi.org.uk/files/resourcedocuments/10964.pdf
- See note 12. Beyond coal.

'Greenpeace calls out the true cost of coal at coal industry event in Bali, Indonesia', Greenpeace, 7 May 2018, www.greenpeace.org/seasia/Press-Centre/Greenpeace-calls-out-the-true-costof-coal-at-coal-industry-event-in-Bali-Indonesia/

Banking Beyond Coal: Sustainable Development Without Coal Finance, ShareAction, 2018. https://shareaction.org/wpcontent/uploads/2018/06/InvestorBriefing-BankingBeyondCoal.pdf

The Coal Power Financing Problem at HSBC and Standard Chartered, Global Witness, 18 July 2018, www.globalwitness.org/documents/19388/Ti mes_Global_Witness_HSBC_Stand_Chart_ coal_briefing_18_July_2018.pdf

Energy Poverty Then and Now: How Coal Proponents Have It Wrong, Tom Sanzillo, Institute for Energy Economics and Financial Analysis, 2016, http://ieefa.org/wpcontent/uploads/2016/03/Energy-Poverty-

- Then-and-Now_-How-Coal-Proponents-Have-It-Wrong-_March-2016.pdf
- Bangladesh struggles to turn the tide on climate change as sea levels rise, Karen McVeigh, The Guardian, 20 January 2017, www.theguardian.com/globaldevelopment/2017/jan/20/bangladeshstruggles-turn-tide-climate-change-sealevels-rise-coxs-bazar
 - 'New Report and Maps: Rising Seas Threaten Land Home to Half a Billion', Climate Central, 8 November 2015, http://sealevel.climatecentral.org/news/glob al-mapping-choices
- Energy Access Database, International Energy Agency, www.iea.org/energyaccess/database
- Low-carbon Africa: Leapfrogging to a green future, Alison Doig and Mohamed Adow, Christian Aid, 2011, christianaid.org.uk/sites/default/files/2017-08/low-carbon-africa-leapfrogging-greenfuture-november-2011.pdf
 - Low-carbon Development in South Asia: Leapfrogging to a green future, Sudhir Sharma, Ram Kishan and Alison Doig, Christian Aid, 2014, christianaid.org.uk/sites/default/files/2017-08/low-carbon-development-south-asialeapfrogging-green-future-november-2014_2.pdf christianaid.org.uk/Images/lowcarbon-south-asia-november-2014.pdf
- Burden of disease from rising coal-fired power plant emissions in Southeast Asia, SN Koplitz, DJ Jacob, MP Sulprizio et al, Environmental Science & Technology 2017, 51, pp1467-76, https://pubs.acs.org/ doi/pdf/10.1021/acs.est.6b03731
- Renewable Power Generation Costs in 2017, International Renewable Energy Agency (IRENA), www.irena.org/publications/2018/Jan/Rene wable-power-generation-costs-in-2017
- Global Trends in Renewable Energy Investment 2018, Frankfurt School FS-UNEP Collaborating Centre for Climate & Sustainable Energy Science, 2018, p11, https://europa.eu/capacity4dev/file/71900/d ownload?token=57xpTJ4W
- Renewable infrastructure handbook: a guide for institutional investors, World Economic Forum, 2016, www3.weforum.org/docs/WEF Renewable Infrastructure Investment Handbook.pdf
 - The levelised cost of energy (LCOE) is a measure of the unique cost price of energy outputs (eg, \$/kWh or \$/GJ). LCOE allows a comparison of different methods of electricity generation. Simply, LCOE is the average total cost to build and operate a power-generating asset over its lifetime, divided by the total energy output of the asset over its lifetime. See https://en.wikipedia.org/wiki/Cost_of_electri city_by_source
- Vietnam, Research Program on Climate Change and Security, https://ccafs.cgiar.org/vietnam#.W6z5eGj0nIU
- Responding to rising sea levels in the Mekong Delta, A Smajgl, TQ Toan, DK Nhan, et al, Nature Climate Change, 2015, 5, pp167-74, www.nature.com/articles/nclimate2469
- Climate change blamed for severe drought hitting Vietnam's coffee crops, Mark Scialla,

- The Guardian, 22 May 2015, www.theguardian.com/environment/2015/m ay/22/climate-change-blamed-for-severedrought-hitting-vietnams-coffee-crops
- Global Climate Risk 2018, D Eckstein, V Künzel, L Schäfer, Germanwatch, 2017 www.germanwatch.org/sites/germanwatch. org/files/publication/20432.pdf
- Long Phu 1 (1200 MW), Market Forces, 12 September 2017, www.marketforces org.au/research/vietnam/long-phu-1/
- With growth of coal power plants, Vietnam's future is grim, Viet Phuong Nguyen, *The* Diplomat, 25 January 2017, https://thediplomat.com/2017/01/withgrowth-of-coal-power-plants-vietnamsfuture-is-grim/
- HSBC, Standard Chartered making a killing on coal in SE Asia, Nguy Thi Khanh, *Asia Times*, 4 July 2018, www.atimes.com/hsbcstandard-chartered-making-a-killing-oncoal-in-se-asia/
- A path to powering Vietnam without sacrificing environment and people's health, Green Innovation and Development Centre, 5 June 2018, http://en.greenidvietnam.org.vn/a-path-topowering-vietnam-without-scrificingenvironment-and-peoples-health.html
- See note 25, Germanwatch.
- The superior choice, Saleemul Huq and Daniel M Kammen, The Daily Star, 15 February 2018 www.the daily star.net/opinion/environment/the-superior-choice-1534639
- Identifying High Priority Clean Energy Investment Opportunities for Bangladesh, Kenji Shiraishi, Rebekah Shirley, Daniel M Kammen et al, Renewable & Appropriate Energy Laboratory, 2018, https://drive.google.com/file/d/16UP5MvCa WfnsiO7TPUFiqKE6GyYchmcT/view
- 33 See note 31, Huq and Kammen.
- Renewable energy projects continue to face delays, Aminur Rahman Rasel, Dhaka Tribune, 7 October 2017, www.dhakatribune.com/bangladesh/powerenergy/2017/10/07/renewable-energyprojects-continue-face-delays
- Indonesia poised to achieve 23 percent energy mix by 2025, Tempo, 27 January 2017, http://en.tempo.co/read/news/ 2017/01/27/206840258/Indonesia-Poisedto-Achieve-23-Percent-Energy-Mix-by-2025
- Renewable Energy Prospects: Indonesia, IRENA, 2017, www.irena.org/-/media/Files/IRENA/Agency/Publication/201 7/Mar/IRENA_REmap_Indonesia_summary _2017.pdf
- Solar Resource and Photovoltaic Potential of Indonesia, World Bank, 2017, http://documents.worldbank.org/curated/en/ 729411496240730378/pdf/115347-ESM-P145273-PUBLIC-IndonesiaSolarResourcePotentialWBESMA PMay.pdf
- See note 36, IRENA.
- IEEFA Indonesia: a potential overcommitment to coal-fired electricity puts a nation at risk, Yulanda Chung, Institute for Energy Economics and Financial Analysis, 10 August 2017, http://ieefa.org/ieefaindonesia-potential-overcommitment-coalfired-electricity-puts-nation-risk/

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