https://www.economist.com/international/2024/11/11/king-coal-is-dirty-dangerous-and-far-from-dead

Dethroning fossil fuels

King coal is dirty, dangerous—and far from dead

Rumours of its rapid demise have been greatly exaggerated

Photograph: Sim Chi Yin/New York Times/ Redux/ Eyevine

Nov 11th 2024|JAKARTA AND KOMATI

BRITAIN WAS the first country to generate electricity from coal. On September 30th that era came to an end when it closed its last coal-fired plant, amid much self-congratulation. But look beyond England's clean and pleasant skies—and those of the mostly-rich countries in the OECD, a third of which now have coal-free electricity—and there is little to be smug about.

Coal provides around one-third of the world's electricity, much of that in developing countries, which argue it is necessary for economic growth. Yet the arguments for phasing it out as rapidly as possible are also compelling. By polluting the air, coal kills millions of people each year, most of whom are in poor countries. It also contributes mightily to global warming, a global problem but the harm of which often falls disproportionately on poorer people. Despite this, coal refuses to die.

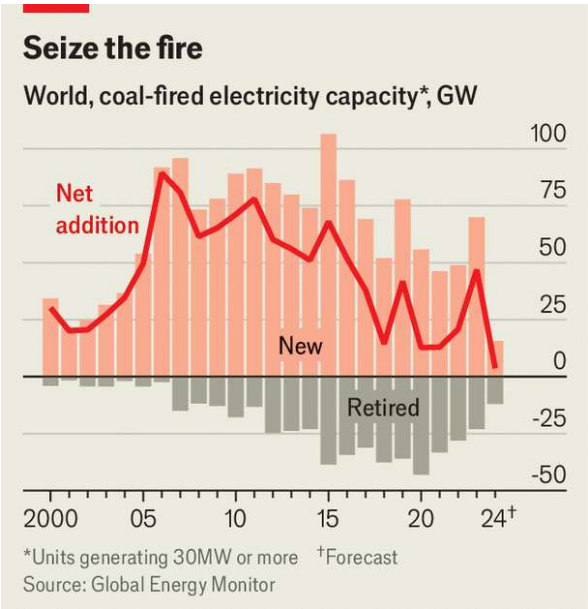

Chart: The Economist

Last year worldwide coal consumption grew by 4.5% to its highest level ever, notes BloombergNEF, a research firm. The main source of demand is electricity. The world's total generating capacity from coal-fired power stations has grown by 11% since 2015, according to E3G, an advocacy group. There are now more than 6,500

coal-fired power plants worldwide with a combined generation capacity of around 2,245GW. They are still being built. Because burning coal releases much more carbon per unit of energy than burning oil or natural gas, it is especially bad for the climate, accounting for 41% of all greenhouse-gas emissions from fossil fuels.

If the current fleet of coal plants is run normally until 2050, they will emit some 250 gigatonnes of carbon dioxide, according to the International Energy Agency (IEA). Those emissions alone would be enough to provide a better-than-even chance of global temperatures rising from their current level of about 1.2°C above pre-industrial levels to more than 1.5°C above. Yet to phase out all coal plants by 2040 the world would need to shut down several plants a week and replace their capacity.

Can that be done? In theory, yes. Solar and wind energy are cheap and getting cheaper. These days energy systems can cope with such intermittent sources much better than previously, not least because storage technology is improving. And there are clean baseload sources, too, such as nuclear and hydropower.

But there are also hard truths to reckon with. Although coal makes up a small share of GDP, the jobs it supports are often geographically concentrated. In the coal heartlands of Colombia, Indonesia and South Africa it provides 5-8% of employment, the IEA says.

The consequences of hasty transitions are evident in Komati in Mpumalanga, South Africa. The town has been reeling since the closure of its power station and mine two years ago. Hopelessness bred from unemployment is tearing at the heart of the community, says an official.

Eskom, the state-owned electricity utility, has tried to soften the blow by moving workers to other facilities and retraining others. The World Bank has provided South Africa $497m to repurpose the plant using renewables. Locals are learning to install solar panels and farm fish. Yet Dan Marokane, Eskom's chief executive, calls the shutdown an "atom bomb" for jobs in a country in with a 33% unemployment rate.

South Africa has become a test case for the Just Energy Transition Partnership (JET-P), a brainchild of the G7 club of rich countries launched in 2021 to accelerate the "coal to clean" transition. Moving its electricity generation away from coal to renewables is expected to cost $47bn, mostly from private investors. Yet South Africa's once-feted plan has stalled. This is partly because of stingy donors, who have offered less money than is needed.

Eskom's ineptitude is also to blame. In recent years South Africa has suffered from relentless power cuts as breakdowns at poorly-maintained power stations left the grid without enough capacity. To keep the lights on Eskom has delayed the retirement of three big coal plants.

Undaunted, in 2022 more than a dozen governments and development banks signed JET-P agreements with Indonesia and Vietnam worth $36bn. Emissions from coal will continue to grow as energy needs in each country increase. But under the plan coal would provide just 20% of electricity in Vietnam by 2030, down from 31% in 2020. In Indonesia the share of renewables would rise to about 40%.

In Asia, too, the schemes face challenges. The amount pledged is unprecedented but still not enough. Neither country has fully embraced the partnerships. Vietnamese leaders worry that expensive electricity will scare off manufacturers. Indonesia backtracked on limiting new coal plants because officials worried about having enough cheap and dependable power.

Despite coal's persistence, carbon cutters have reason for hope. Almost two-thirds of the 1,500GW-worth of coal plants that were in development in 2015 have been scrapped, according to the Systems Change Lab, a green coalition. E3G calculates that some 470GW of capacity has been retired since 2000, with America and Europe leading the charge.

The European Union's Emissions Trading System is credited with speeding the shift from coal to gas and renewable energy. Other countries, including China, are expanding carbon-pricing schemes. The EU's new Carbon Border Adjustment Mechanism punishes exports from countries reliant on carbon-intensive energy, prompting countries to offset emissions or reconsider coal.

Local opposition to air pollution in places like China is also playing a role. Capacity utilisation at coal plants there has fallen from 55-59% in the early 2010s to 48% in recent years, according to RMI, a resources think-tank.

Most encouraging is financial innovation involving carbon markets. With the help of the Monetary Authority of Singapore and the Rockefeller Foundation, a firm in the Philippines will generate carbon credits representing the 19m tonnes of emissions that will be avoided by closing a plant early. The Asian Development Bank has a similar effort involving carbon credits, which it is using to shut a different coal plant in the Philippines 15 years early. One of the most important tasks for the UN's COP29 climate talks in Baku is to settle rules covering such trading.

South Africa offers some lessons. Eskom's power cuts prompted corporations to embrace solar and wind, which are expected to roughly double as a share of power generation to 17% by 2032. The constraint is not finance or the cost of solar panels, but the lack of transmission capacity to get power from windswept and sunny lands to cities. Powerful political interests tied to mining and trade unions still try to thwart the transition.

This suggests that top-down schemes to bribe coal owners to shut down plants early are unlikely to be sufficient. Massive investments in grid transmission and flexibility are needed and countries need to do more to mitigate the harm inflicted on coal-dependent towns. Yet if both those steps can be taken by governments and donors, the market forces can be unleashed to add cheap, clean capacity to grids, which would leave much of the world's stock of dirty coal-fired power plants stranded. ■