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Eskom is now the world's most polluting power company

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Summary

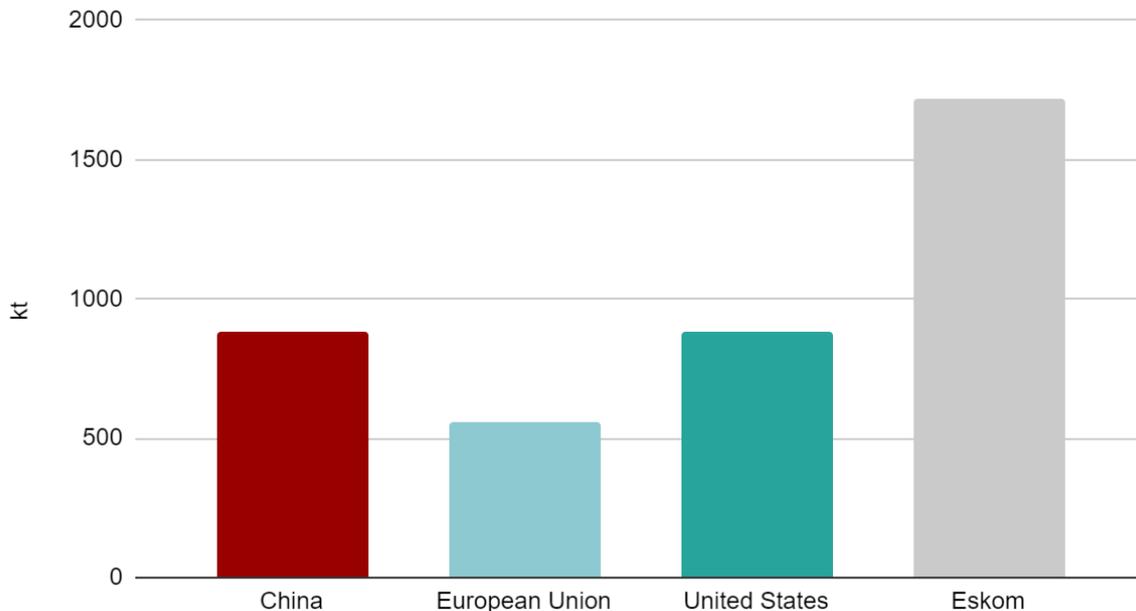
Data analysis by CREA finds that Eskom has become the largest emitter of health-harming sulfur dioxide in the world, surpassing the entire power sector emissions of any country in the world, except for India.

These emissions contribute to high levels of ambient air pollution and to air pollution-related deaths in South Africa, responsible for approximately 2,200 deaths annually according to a [study](#) by air pollution expert Mike Holland. Most of these deaths are due to SO₂ emissions, which form deadly PM_{2.5} particles once released into the air.

As most other regions with large power sector air pollutant emissions have made rapid progress in reducing emissions, Eskom has been stuck in place, lobbying against even the most rudimentary requirements to curb its SO₂ pollution.

As a result, the company has now become the worst SO₂ emitting power company in the world. Eskom also emits more SO₂ than the entire power sector of the EU and US, or the US and China, combined.

Power sector SO₂ emissions in 2019



Eskom's sulfur dioxide emissions in 2019 exceeded those from the power sectors from each of the world's three largest economies. Eskom's emissions are shown for FY 2019–2020.

Identifying the largest emitters

Eskom's 15 coal power plants (44 GW) emitted 1,600 thousand tonnes (kt) of SO₂ in FY 2020-21, based on the company's [Integrated Report](#).

Based on the [EDGAR emissions database](#), the six economies with the highest power sector SO₂ emissions in 2015 were India, United States, China, Saudi Arabia, South Africa and the European Union.

Out of these six emitters, the U.S., EU and China have realized dramatic emissions reductions since then. India as a country remains the largest polluter, and it is a tight race still between South Africa and Saudi Arabia.

However, our analysis of emissions data from each of these countries shows that by 2019, Eskom had become the world's most polluting power company measured by SO₂ emissions.

China

China has carried out a massive retrofit program, installing cutting-edge desulfurization equipment on its entire fleet of coal-fired power plants, more than 20 times as large as that of South Africa, in just a decade. As a result, [SO₂ emissions from the power sector fell](#) from a humongous 13 million tonnes in 2006 to 2 million tonnes in 2015, below South Africa's level. During the past five years, equipment was upgraded or replaced to reach so-called "ultralow" emissions levels at more than 90% of the fleet, delivering a further 60% reduction to 780 kt in 2020.

The largest coal power plant operator in the country, China Huaneng, emitted 26 kt from 73 GW of coal-fired capacity and [390 TWh generated](#), based on the average emissions of 67mg/kWh reported in the company's [social responsibility report](#). This is less than 2% of Eskom's emissions, from a fleet almost twice as large. Per unit of power produced, Eskom's emissions are more than 100 times as high. The second-largest coal power plant operator in the country, China Energy, [reported](#) 18 kt of SO₂ emissions from installed capacity of 52 GW and [generation of 300 TWh](#).

There are understandable doubts about emissions data reported by companies themselves, but the dramatic reductions in SO₂ (and NO_x) emissions from coal-fired power plants in China can be [validated](#) using satellite data. [Similar research](#) has validated the reductions in the EU.

European Union

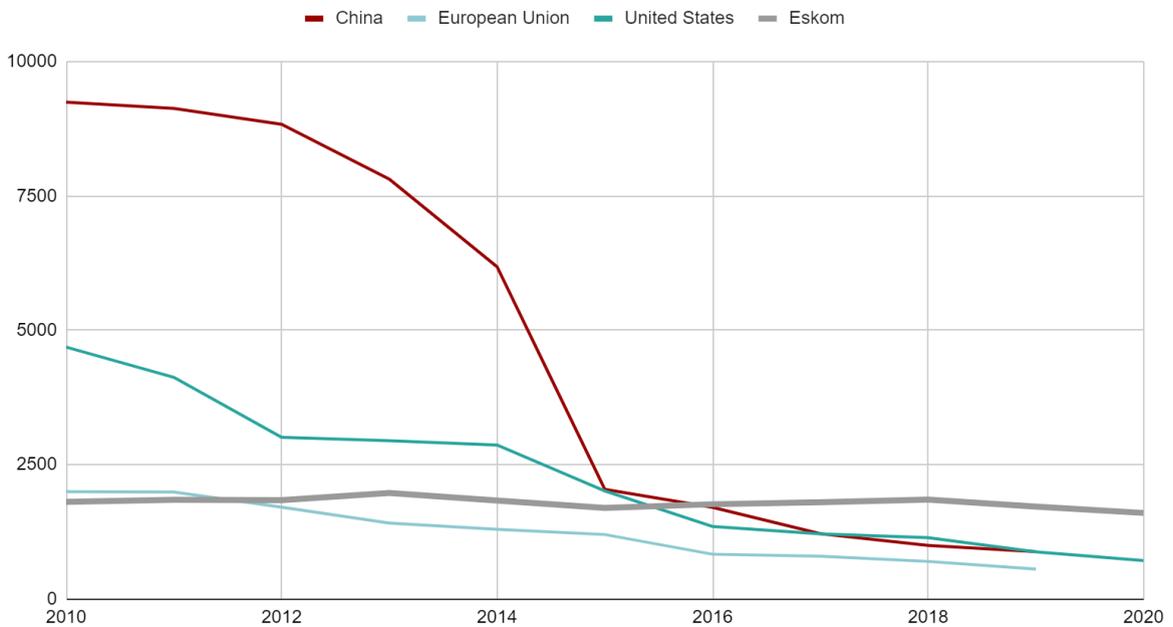
The EU and the US have both retrofitted and rapidly closed down coal power plants.

The entire electricity and heat sector of the 28 EU countries, including 231 coal power plants (128 GW) in the European Union, [emitted](#) 560 kt SO₂ in 2019, one third of Eskom's emissions. EU emissions fell from 12 million tonnes in 1990 to 1.4 million tonnes in 2013, falling below Eskom's current emissions level, and then further by 45% between 2013 and 2019.

United States

Eskom’s emissions are also more than twice as high as those from the entire power sector of United States, including 249 coal-fired power plants (234 GW). U.S. emissions [fell by](#) 64% from 2015 to 2020, and a whopping 94% from their peak in 1998. Emissions stood at 11.9 million tonnes in 1998, first falling below South Africa’s level in 2016, registered at 2 million tonnes, and then falling a further 64% to 720 kt in 2020.

Power sector SO2 emissions by year



Eskom’s SO2 emissions compared to the power sector emissions of the European Union, United States and China. Eskom emissions are shown for financial year beginning on the year indicated; other data is by calendar year. Unit: kt/year.

India

India's power sector SO₂ emissions were [estimated by the IEA](#) at a towering 4,300 kt in 2019, entirely due to coal-burning. Like South Africa, almost all of the country's coal power plants run without any kind of sulfur emissions controls, although the country is slowly working to implement emissions rules passed in 2015. However, Indian coal is much lower in sulfur than South African coal, meaning that despite having more than five times as much coal-fired capacity, the emissions are "only" twice as high. For the same reason, Indonesia, another country with a large coal-fired power generating fleet entirely lacking SO₂ emissions controls, didn't even rank in the top 6.

Furthermore, India's coal-fired capacity is operated by dozens of different firms, the largest of which is NTPC with a share of 21% of installed capacity. This means that even the largest emitter in India falls far short of Eskom in terms of tons of SO₂ spewed into the air.

Saudi Arabia

Saudi Arabia's power sector SO₂ emissions are due to oil-fired power generation and are dominated by Saudi Electricity Company, which controls 3/4 of oil-fired generating capacity in the country. The company's [ESG Report](#) puts the SO₂ emissions from those power plants at 1.2 million tonnes in 2019, a quarter less than Eskom's emissions.

Emissions GRI-EN15, GRI-EN16, GRI-EN18, GRI-EN19	Description	2016	2017	2018	2019
Greenhouse Gas (GHG) Emissions	Total direct GHG emissions in tons of CO ₂ eq	145,326,761	136,533,380	122,490,639	124,870,343
	Total indirect GHG emissions from purchased power in tons of CO ₂ eq	54,896,863	68,647,841	68,187,691	65,878,054
	Total GHG emissions in tons of CO ₂ eq	200,223,624	205,181,221	190,678,330	190,748,397
	GHG emissions intensity (tons of CO ₂ eq / MWh production *)	0.63	0.59	0.57	0.58
Other Toxic Emissions	NO _x emissions (tons)	446,266	371,711	304,700	329,814
	SO _x emissions (tons)	1,193,119	1,249,789	1,164,087	1,189,401
	SF ₆ emissions (tons)	4	3.5	2.5	2

(* includes direct and indirect GHG emissions related to SEC's production and purchased power from IPPs/IWPPs and other producers)