Coal-to-clean transition is taking its place and the data shows coal power emissions have fallen by 43% since 2013, so we are definitely well on the way to coal-free electricity. However, coal power generation is still responsible for 30% of EU ETS emissions, so this job is far from finished. This is particularly true for lignite fuelled power stations which have seen slower emissions declines.

After Europe’s coal power collapsed it exposed steel plants as biggest emitters. That is why Europe needs to start on coal-free steel. For the first time, the biggest emitter in both the Netherlands and Spain is revealed as a coal-fired blast furnace. Coal-fired blast furnaces are also the biggest emitters in the UK, France, Austria, Finland and Slovakia. The steel sector makes up 8% of EU ETS emissions.

Europe’s coal collapse

Power sector emissions fell by 13% (129 MT), due to Europe’s coal collapse in 2019. Hard coal fell by 28% (81 MT) and lignite fell by 18% (60 MT), offset by a 3% (12 MT) rise in gas & oil generation. In our analysis of the EU Power Sector, we show that around half the power sector emissions falls came from coal-gas switching, with the other half from new wind and solar installations.

Coal power emissions are now down by 43% since 2013 – hard coal is down 57% and lignite is down 26%. In that time, the remaining gas & oil generation emissions have risen by only 7%. This led to a 29% fall in total power sector emissions in just six years. Wind and solar have replaced coal, with help from an increasing carbon price and national coal phase-out policies.

Industrial emissions fell by 2%. This is more due to a fall in industrial production than efficiency increases. Industrial production fell 0.6% in 2019 according to EUROSTAT, including a 5% fall in steel production.

Aviation rose 7%. Jet2 had the biggest increase, of 11%. The biggest aviation emitter, Ryanair, increased by 6%, and is still the 9th biggest overall emitter in Europe.

Power sector decarbonisation has a long way to go

The power sector still accounted for over half (52%) of EU ETS emissions in 2019. Even after an impressive 29% fall in the last six years, rapid cuts to power sector emissions can continue. Lignite power plants emitted 17% of all EU ETS emissions (see graph below), yet generated only 9% of Europe’s electricity. Hard coal emitted another 13% of EU ETS emissions, despite generating only 10% of Europe’s electricity. The remaining gas+oil

generation makes up 22% of EU ETS emissions. In total 844 million tonnes of CO2 were emitted from the power sector in 2019, summing to 52% of total EU ETS emissions.
More wind and solar is needed. While the power sector is making progress, annual renewables deployment must double from its 2010-2019 average in 2019-2030 just to meet existing EU targets.

What about lignite phase-out?

To ensure a further rapid decline in emissions, the phase out of lignite power plants is an urgent priority. The six major remaining lignite countries are: Germany, Poland, Czechia, Romania, Bulgaria, and Greece. Their lignite emissions are responsible for 17% of all EU ETS emissions, yet generated only 9% of Europe’s electricity.
Of the six countries, only Greece has a sufficiently ambitious timeline to phase-out lignite. Germany’s 2038 phase-out date is too late; it’s both incompatible with the Paris Agreement and an abdication of the required climate leadership from the EU’s largest economy. Similarly, while Czechia has a set up a coal commission which will set an end date for lignite, the dates currently under discussion do not reflect the urgency of the task at hand. In Poland, Romania & Bulgaria a phase-out of lignite is not even under discussion.
Hard coal is on a path to phase-out, with the exception of Poland. Poland’s hard coal emissions exceeded Germany’s in 2019 for the first time. This means Poland’s share of Europe’s hard coal emissions has doubled from 16% in 2013 to 33% in 2019. Poland needs to urgently address not only its lignite emissions, but also its hard coal emissions. Poland’s coal power accounts for 62% of its EU ETS emissions.
Lignite power plants still dominate Europe’s top-10 emitters list. The biggest emitter is Poland’s Belchatów lignite power plant, followed by six of Germany’s lignite plants.
Coal-fired blast furnaces in 2019 were the biggest CO2 emitter in seven countries: the UK, France, Spain, Austria, Netherlands, Finland and Slovakia. It is the first time that steel plants in Spain and the Netherlands have had bigger emissions than coal power plants.

What would it take to make steel coal-free?

The steel sector makes up 8% of EU ETS emissions. Approximately 80% of these emissions are from just 30 blast furnaces, mapped below. While traditionally considered hard to decarbonise, the technology to make new coal-free steel at these sites is developing quickly; the use of hydrogen is now considered a likely long-term solution. A number of demonstration projects are in development (Hybrit, for example) but significant policy support will be needed before large-scale deployment takes place. For recycled steel, coal-

free production is already possible via electric arc furnaces (EAF) powered by renewable electricity.
Therefore, in the future, steel production – either powered by electrolysed hydrogen or powered directly by electricity using EAFs – will require huge amounts of zero-carbon electricity. Consequently, an over-build of wind and solar across Europe is needed to help power steel’s transition. Adding up the power sector and steel, wind and solar electricity could replace at least 60% of 2019’s EU ETS emissions.
Governments should work hand-in-hand with steel companies to transition these sites. Most countries have just one or two blast furnaces, so bilateral solutions between governments and steel companies may yield the most optimal response.
The government response to COVID-19 must be to protect and create jobs. Steel sites are often steeped in over 100 years of steel-making history, still with 10,000’s of employees in the steel value-chain in the same region. As we bounce out of lockdown, COVID-19 provides an opportunity to give the investment and innovation needed to future-proof the steel industry, onto a pathway of coal-free steel.
Source: ember-climate.org