Media Release

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EU carbon prices could average €35-40 per tonne over 2019-2023 , accelerating coal to gas switching and potentially questioning the rationale for keeping old coal and lignite power plants running beyond 2021

LONDON, August 21 – EU carbon prices could average €35-€40 per tonne over the next five years (p. 4) driving accelerated fuel switching in EU countries with latent gas capacity and questioning the rationale for keeping old coal and lignite power plants running (p.5, 37), finds a new report by Carbon Tracker released today.

Carbon Countdown – Prices and Politics in the EU-ETS increases Carbon Tracker's forecast for EU carbon prices to €25 per tonne by year end 2018. Recent reforms to the EU Emissions Trading System (EU-ETS) have already seen the price of carbon allowances more than quadruple, from a low of €4.38 per tonne in May 2017 to €18.28 per tonne in August 2018.

Rising carbon prices: anticipating the carbon allowance squeeze

The report finds that the carbon allowance supply squeeze caused by the Market Stability Reserve over 2019-23 will leave the power and aviation sectors with a ~1.4bn tonne carbon deficit.

To reduce this deficit, power generators will need to bid up carbon allowance prices to (i) *facilitate their own transition from coal to gas so they need fewer allowances*, and (ii) *incentivise the sale of surplus carbon allowances currently held by industry and speculators.*

Mark Lewis, author of the report and Head of Research at Carbon Tracker said:

"We conclude that in order to achieve the level of fuel-switching required to eliminate the carbon deficit over 2019-23 it will be necessary for combined-cycle gas-turbine plants (CCGTs) with a thermal efficiency rate of 45% and above to displace coal plants with thermal efficiencies of 38% and below.[1] ***With the fuel-switching price very sensitive to efficiency rates, this will require higher EUA prices than we were previously assuming****."*

How high could carbon prices climb?

Carbon Tracker finds prices could trade up as high as €50/t for limited periods in the winter of 2020-21, and 2021-22. During this period the supply squeeze on generators will be at its peak and in winter months gas prices are at their seasonal highs. However, prices are effectively capped at around €50/t.

Mark Lewis said:

"Bullish as the outlook for EUA prices looks to us, it is important to remember that the EU-ETS is ultimately a political construct. In our view, if prices were to exceed €50/t for more than a couple of months at any point

[1] In *Carbon Countdown* we were assuming that CCGTs with a thermal efficiency of 50% and above displacing coal plant with thermal efficiency of 36% and below would be enough to clear the market, but we no longer think that the emissions reductions that could be achieved by this more limited efficiency range will be sufficient. As explained in our Executive Summary below, in our post-abatement modelling of the EU-ETS we now explicitly assume 60Mt of emissions reductions in the power sector in 2019, 90Mt per year over 2020-22, 70Mt in 2023 and 30Mt in 2024 compared with the numbers in our pre-abatement modelling. These emissions reductions are achieved mainly via fuel switching but also via energy-efficiency savings prompted by higher prices.

within the next two to three years this would likely lead to pressure for countervailing measures, especially in Eastern Europe."

A survey of eight analysts by Reuters forecast prices of 18.59 euros/t in 2019 and 20.76 euros/t in 2020. However, according to German bank Berenberg, prices could spike as high as €100/t by 2020.

Where could fuel-switching take place?

New analysis highlights where rising carbon prices could drive fuel-switching in Europe, according to coal capacity, gas capacity and average efficiency rates (p. 3). The four EU countries where switching could occur at scale over the next five years are Germany, Italy, Spain and the Netherlands.[2]

EU countries likely to experience coal to gas fuel switching at scale with carbon at €40/t

Country	Coal capacity (GW)	Average coal capacity efficiency (%)	Gas capacity (GW)	Average gas capacity efficiency (%)	Fuel switching at €40/t
Germany	25.1	37	29.5	44	46 TWh extra gas output
Italy	9.0	38.3	25.0	46.4	25 TWh extra gas output
Spain	9.5	38.5	24.9	55.6	42 TWh extra gas output
Netherlands	4.6	41.1	18.4	50.3	4 TWh extra gas output

This fuel-switching, alongside efficiency savings accounting for a third of total reductions, could reduce CO2 emissions by up to 60 Mt in 2019, 90Mt a year between 2020-2022, and 70Mt in 2023. (p. 6, 17)

Lower confidence on price forecasts beyond 2023

Over 2024-30 the picture is less clear. This is because the cost of both renewables and energy-storage technology are expected to fall significantly over the next decade.

Furthermore, the impact of coal phase-out policies across a number of EU member states could be greater than currently anticipated, especially if Germany implements a coal and lignite phase-out by the middle of the next decade.

Mark Lewis said:

"We think it is an open question as to whether or not fuel switching will actually be required over the second half of Phase 4 at all given that these trends will lead to a structural decline in the power sector's emissions in any case. This raises difficult questions about the visibility of EUA prices beyond 2024, which in turn explains why debate over a carbon-price floor is unlikely to go away."

[2] In August 2021, new regulations on industrial emissions will come into force across the EU in an amendment to the Industrial Emissions Directive. Though a wild card, this regulation under a scenario of EUA prices in the €35-40/t fuel-switching price range could precipitate an accelerated phase-out of old coal and lignite capacity in certain countries in the EU, especially Germany. An accelerated coal and lignite phase-out would reduce the forward-hedging demand in the power sector and hence the risk of EUA prices spiking above €40/t for long."

Background to the EU-ETS

The EU-ETS is a cap-and-trade system, covering energy intensive industries responsible for half the EU's emissions as well as aviation. It sets a cap on carbon emissions which is reduced over time.

Companies receive allowances to cover their carbon emissions, which they can also buy and sell. As the number of allowances is reduced over time, either demand must fall, or prices must rise in order incentivise action to cut emissions and switch to cleaner fuels.

The EU has introduced a mechanism to deal with a massive surplus of allowances which reached 1.7 billion tonnes by the end of 2016. From January 2019 a new **Market Stability Reserve** will cancel 24% of the surplus each year up to 2023 and 12% thereafter.

Generators, industry and speculative investors are already driving prices up in anticipation of the supply squeeze. Prices are likely to rise further as companies use up the stockpiles of allowances they have built up.

Aviation will play a major part in driving up prices as, with no technology available to meaningfully reduce its emissions, it has no alternative to buying carbon allowances. (p. 5) The report assumes aviation emission will continue to grow at the present rate of 2Mt a year, from 53Mt in 2013 to 89Mt in 2030. (p.18, 21)

The supply squeeze is likely to be most acute over 2019-2023, with Carbon Tracker estimating an average shortage of 277m tonnes of allowances a year on a pre-abatement basis over this period including aviation.

This will hit generators, who normally hedge their forward power sales two or three years ahead. They are likely to have enough allowances to cover their needs to 2020, but they will need to find 589m tonnes of allowances for 2021-23 on a post abatement basis. [refer fig. 39, p. 53]

Carbon Tracker now expects emissions from fixed installations to fall by 2.7% a year on a pre-abatement basis from 2021 to 2030, 50% faster than the 1.8% forecast in its previous report. (p. 20)

Once the embargo lifts at 0001 Tuesday, the designed report can be downloaded here:
https://www.carbontracker.org/reports/carbon-countdown/

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About Carbon Tracker

The Carbon Tracker Initiative is a not-for-profit financial think tank that seeks to promote a climate-secure global energy market by aligning capital markets with climate reality. Our research to date on the *carbon bubble unburnable carbon* and *stranded assets* has begun a new debate on how to align the financial system with the energy transition to a low carbon future. www.carbontracker.org

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