Electricity generation rosso

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While electricity only represents 22% of the EU"s final energy consumption, electrification of sectors like transport and heating - and power-to-x fuels like hydrogen - means cleaning up the power sector will be crucial to meet net-zero targets.

The IEA"s Net Zero Pathway, published in May 2021, estimates global electricity demand will more than double between 2020 and 2050. The share of steel produced from electric arc furnaces will increase from 20% to 53%, the share of electric vehicles will increase from 1% to 53%, and heat pumps will meet 55% of heat demand, up from 7% today.

Our electricity map displays the share of electricity generated from different sources, with countries colour-coded to represent how clean or dirty their power grids are. The drop-down tab at the top lets you see the share of power from specific generation technologies, to shine a spotlight on trends such as hydropower in Scandinavia, coal in eastern Europe or the role of nuclear power.

The area chart below the map breaks down where the EU is getting its power from. Clicking on a country will reconfigure the area chart to represent that country. Selecting a time period will change both the period shown in the area chart, as well as the time period over which electricity generation is shown on the map.

Below the area chart are two more charts. The first shows how the share of renewables in the electricity mix has developed over time. It plots this against the 68% share of renewable electricity the European Commission suggests is needed by 2030 to hit the EU"s 55% decarbonisation target. The second bar chart shows the upcoming capacity of different power sources. It is based on GlobalData"s power plant database, which lists plants planned between now and 2036. This chart will be updated every few months to ensure that it always shows the latest data.

As heavy industry has declined and electricity systems have become greener, EU carbon emissions have dropped by nearly a quarter over the past three decades. It was only responsible for 8% of global emissions in 2020, compared with 17% in 1990. However, this does not mean the bloc can rest on its laurels. Since Europe was the first region in the world to industrialise, the continent"s contribution to historic emissions stands at 33%, despite making up just 10% of the world"s population.

Both the Paris Agreement and the Glasgow Climate Pact make explicit mention of the fact that developed countries have greater responsibilities for climate action than others. This has led to the notion of "climate fair shares", which means those countries with greater historic responsibility for carbon emissions should decarbonise more quickly.

An assessment of national decarbonisation plans from think tank Climate Action Tracker suggests that while the EU"s policies actions are "almost sufficient" to keep global warming to less than 2?C, when viewed in terms of a fair share, the EU"s contribution actually puts the world on track for warming closer to 3?C.

Energy Monitor"s electricity map may suggest the EU is making good progress on plans to reach net zero by 2050, but it is worth remembering such plans will not deliver an equitable global energy transition.

Delivery of onshore wind projects is significantly quicker and cheaper than other forms of energy generation, which will help reduce our reliance on gas more quickly. Onshore wind is currently six times cheaper than gas.

The CCC has recommended that the UK should install 35GW of onshore wind by 2035, and analysis from RenewableUK showed that doubling the UK"s onshore wind capacity to 30GW by 2030 would reduce consumer bills by ?16.3 billion over the course of this decade - which is an annual saving of ?25 for every household. This is a particularly important aspect in what is currently an especially challenging economic environment for consumers.