

## Nuclear green, nuclear gas

*The clarifying contradictions of the energy transition*

Juan Bordera – Antonio Turiel

**G**reen, I want you green, methane green, nuclear green. France with uranium and Germany with gas. Not even the eternal García Lorca managed to make green as fashionable as the energy transition. But when we take a closer look, the supposed green fades, and we find a rather dark, raw colour.

A derby of sorts is taking place between the two quintessential European powers. The teams are nervous about the final stages of the "encounter", where gas prices - and therefore electricity prices in a marginalist market - have broken records that few would have predicted so soon. France and its (nuclear) power plant defence is attacking the German rearguard, arguing that nuclear power is essential to overcome other worse options such as coal. On its productive playing field, Germany seeks to counterattack by defending gas as an unavoidable transitional energy. They argue that it does not generate as much hazardous waste, serves to stabilise the grid and has the lowest emissions rate of all fossil sources - about half that of coal.

The debate is hot because members of the nuclear lobby support (oh, surprise) nuclear, and those who consider this energy source an economic ruin full of risks often defend gas as the lesser evil or argue that renewables will soon be enough to cover the supply. Who is right? What would be wiser to do?

According to the Minister for Ecological Transition, Teresa Ribera, the draft leaked to the press, which advocates inclusion in the "taxonomy of sustainable finance" - a term that can be translated as "invest here without regrets" - is wrong: "It makes no sense and sends the wrong signals for the energy transition of the EU as a whole".



Chooz nuclear plant as viewed from Foisches (France). — RAIMOND SPEKKING / CC BY-SA 4.0 (VIA WIKIMEDIA COMMONS)

But what if we were to turn the argument on its head a little bit, and what if what it is sending out are very clear, unambiguous signals? The transition will be far more complex than we are used to seeing, and the high prices and contradictions are some of the latest signs. And there is little point in artfully claiming that they are "transitional energies", only valid for a fixed time: to all intents and purposes, they will be considered green. Nuclear green and gas green.

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According to the proposal pending approval, new nuclear plants will be green as an olive until - for the time being - 2045, and for this, they will have to have a plan for the safe disposal of waste (ha).

Advocates of the green categorisation, led by France, which has half of Europe's reactors, say it is an essential source for the transition; without it, they say, we'll be stuck with dirty coal and expensive, sought-after gas. They do not say that the world's uranium production has fallen by 20% from the 2016 highs. They do not mention that it is expected to fall by another 30% between today and 2040. They do not tell us that France is keeping 5,000 troops in Saharan Africa to secure the increasingly strained supply of uranium from Niger. They do not share with us that 25% of French power plants are permanently shut down. They sell us the nuclear dream so that we do not see what a nightmare it is right now.

They are trying to make us believe that we have the technology to reuse waste at our fingertips so that we can keep quiet. Ultimately, France is trying to ensure that the bailout of Areva, the semi-public company in charge of nuclear fuel management that went bankrupt in 2016, does not drag down the semi-public EDF, which took it over. France knows that nuclear power has no future, but it needs an alibi so that the EU does not prevent it from continuing to give public subsidies to a shaky business. And meanwhile, here in Spain, some people are clapping their hands and playing with the French government while trying to dazzle us by saying that this decadent industry will save the world (we don't want to be saved in this way, thank you).

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As for gas, it would be [dyed] green until 2030. The choice of date does not respond to any climate criteria: already, the IPCC Panel III report we leaked months ago revealed that, by around 2030, all gas and coal plants should be shut down. Closed, not pardoned until that date, and from then on, we will see how we close them. What is expected to last - more or less - until 2030 is world gas production. The production ceiling would be reached in 2030, which magically appears in the European Commission's text. The message is clear: we will use natural gas as much as we can, and if we then go down, it will not be because of any climate commitment but because there will be less and less of it. A calculation full of cynicism: Europe is expected to hoard scarce gas that should go elsewhere but will end up in our countries, which pay with hard currency.

And we come to coal: recent news has made half the world cringe. After 26 Climate Summits, and with 99.9% of the scientific community agreeing on the seriousness of climate change, gas prices and economic recovery have meant that, according to the International Energy Agency, the amount of electricity generated by coal has risen by 9% to a record high. That's great. How well the energy transition works with little planning!

The increase is mainly due to India and China. A large part of the labyrinthine transition will be decided between the two. The aspiration for a certain degree of equity concerning the standard of living in the West cannot be denied. This means that the West (the United States, Europe, Australia, Japan, etc.) will have to voluntarily plan to shrink to try to balance our footprint, even if they do not want to admit it.

As if this were not enough, oil gives us no respite. With prices already flirting with the \$90 barrier and demand currently unsatisfied - the fall in production has been 4% - the International Energy Agency's forecasts predict a fall, if the disinvestment process begun in 2014 continues, of between 20% and 50% by 2025.

Even with some action by states to stop the bleeding, we are likely to see a further 8% drop in black gold production this

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year and one or two price shocks in 2022. Worse still, global diesel production is in a tailspin: down almost 15% from the 2015 peak, dragged down by the lack of good quality oils. We see it at the pump, as it rises unstoppably to prices not seen since 2008. And diesel means

transport, heavy and mining machinery, tractors... If there is a lack of diesel, there is - and will be - a lack of everything.

Faced with such a problem, if renewables were enough to cover our energy needs, as their staunch defenders claim, if they are cheaper, cleaner... in short, greener - like the banknotes that will go to the big companies and investment funds - why hasn't a model that exploits all available resources, that only seeks to maximise profits at all costs like the capitalist model, already installed a huge amount, so that the energy manna continues to flow at the same rate and the show can go on?

The answer is complex but, at the same time, straightforward. It is not possible. At the moment, not by a long shot. And all indications are that those who believe that the current amount of energy can be sustained with renewable energy capture sources are at best naïve and well-intentioned, at worst more like "elixirs of eternal youth" salesmen than visionaries.

It is often claimed - and it is true - that the cost of producing electricity by renewable means has plummeted, and that it has long been cheaper than the cost of coal-fired or nuclear, and, for some years now, even than combined cycle gas. Looking only at a price, however, hides certain uncomfortable truths. For example, photovoltaic panels are mostly manufactured in China, a country that generates 65% of its electricity with coal. Or that large quantities of materials, extracted using diesel, are required for panels and wind turbines. Or that everything is transported from the mine to the processing plant, from the plant to the factory, and from the factory to the installation site using diesel.

Although the CO2 footprint of renewable systems is undoubtedly much smaller than that of other types of power plants, it is no less true that renewables need those same fossil fuels for their manufacture and installation (no one has ever closed the life cycle of renewables using only renewable energy). But there is more. Renewables have become economically competitive compared to other systems as long as they have been relatively few, less than 2% of the world's primary energy. But as they spread, their competitiveness would worsen: there would be fewer and fewer suitable sites for their installation; installation and maintenance costs would be higher and higher.

Those who uncritically defend the current renewable model are perhaps falling into the trap of growthism when they define the progress of renewables as "exponential growth". Nothing grows exponentially for long on a finite planet. And let's not even talk about some of the increasingly scarce materials required for this transition model, which, according to the International Energy Agency, would have to multiply its annual production by exorbitant factors: lithium by 42, cobalt by 21, rare earths by 7.

If we do not accept the inevitable decline and adapt, we will be waiting for a miracle until 2050. Not very scientific, to be honest. A miracle that doesn't look like it will happen and leave more and more people outside acceptable standards of living, while the market allocates resources efficiently if you are a millionaire.

A few days ago, the engineer Marcel Coderch illustrated in a programme on Catalan television with a magnificent

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example of why this type of techno-optimistic promise of the sort, we'll invent something, are a danger: "It's like if you buy a lottery ticket and say, come on, I'm going to buy a car" [electric, of course] "and when you go to pay you say, here, and try to pay

with the lottery ticket". That's what we are doing with faith in technology. And not only with the energy transition but also with the enormous climate challenge: some of the most widely accepted "solutions", even by the scientific community, are carbon capture and sequestration, which at the moment is a boondoggle that does not work except as a black hole of funds and resources, or geoengineering, whose dangers far outweigh its supposed positive effects.

The latest green silver bullet seems to be hydrogen: a vector, not an energy source. No hydrogen mines exist in the world; hydrogen is obtained by consuming fuels or electricity. In the last annual report of the International Energy Agency, it was recognised that one of the great challenges of the model we want to move is the losses due to successive transformations. Hydrogen is a good example: at present, the losses of obtaining hydrogen industrially to produce heat are around 50%, and for vehicles, they are a staggering 90% (in the laboratory, everything is better, but we have to go to the real world). For this reason, the European Hydrogen Strategy recognises that Europe could not be self-sufficient with the hydrogen it can produce using its renewables.

Germany has signed advantageous trade agreements to import hydrogen from Ukraine (what a coincidence), Morocco,

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Chile, Namibia and the Congo. And, partly for this reason, Spain is being offered generous allocations of Next Generation funds: to install countless wind and solar farms while being reminded that the hydrogen market is unique to the whole of Europe and that Germany expects the countries of the

South to "show solidarity" with those of the cold North.

That is the game we are playing: one in which we may become an energy colony of Northern Europe. But, rest assured, it will all be green. Nuclear, radioactive and glowing green. Gas, fossil green. Pollution from the massive extraction of materials for our renewables, mining green. If we are careless, in no time at all, there will also be green macro-farms. And when we have no choice, we will end up painting coal the colour of emerald. Because of all the non-renewable materials, coal is the slowest to decline. Either we accept the labyrinth we are in, or the world will continue to use coal at full throttle in the years to come.

Although the outcome of the match is still to be determined, it looks like it will end in a pyrrhic draw and in an agreement to avoid (temporarily) downgrading - turning both gas and nuclear into bridging, transitional energies - which is very convenient for the two most powerful countries in a Europe that is bent —old, rickety, and badly wounded— on an emerging proto-fascism that does not want to hear about limits of any kind and that has it frightened, to at least pretend in front of the mirror that it is painting itself a little green. Green that I want you green.

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