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COMMENT

Mr Bean, you are a climate hero

Ambrose Evans-Pritchard

Rowan Atkinson has fallen out of love with his electric vehicle. He was an early adopter doing the right thing, only to feel “duped” by ecological claims.

The comedian was an electrical engineer before becoming Mr Bean. He speaks for large numbers in Britain trying to fathom the CO2 emissions of the EV supply chain, and trying to navigate the moral minefield of lithium, cobalt, and rare earth extraction.

Many readers share his doubts, struggling to sort out what is true and what is untrue in a polarised debate contaminated by ideological wokery, Putin’s bots, and the culture war. They are intelligent, wellinformed people.

So let me try to change the angle of view. It helps to know where your lithium comes from, where your battery is made, who makes the steel, and what goes into the electricity that runs your car.

A Nissan Leaf from Sunderland relies heavily on Welsh steel made using relatively low-carbon electricity (circa 60 per cent nuclear and renewables, backed with gas).

It uses batteries from the nearby Envision gigafactory linked to wind farms. The new giga-expansion will be carbon-neutral when operational in two years' time. Not bad.

The difference between a clean EV and a dirty EV is so great as to invalidate any broad-brush comparison with petrol and diesel cars. You need to be as picky about the origin of your car as you are about your food.

Atkinson cites a Volvo study issued in 2021 (based on older legacy data) concluding that the carbon footprint of manufacturing its electric C40 EV was 70 per cent higher than its XC40 petrol version, and that you would have to drive it for 110,000 kilometres based on the average global mix of electricity before breaking even on emissions.

I do not wish to dwell on this much-disputed report except to say that the global mix tells you nothing about the CO₂ equation in Britain, as Volvo itself makes clear. The break-even point for the Nissan Leaf is probably under 30,000 kilometres, falling to near zero within two years. Technology has already rendered the Volvo analysis obsolete even at a global level in any case.

Lithium produced from pumped brine in Chile is made from open evaporation in the Atacama desert, the driest spot on Earth. The sun does the work. The next stage of processing relies on solar panels generating the cheapest photovoltaic power known to man.

Benchmark Mineral Intelligence says supply from the lithium triangle of Chile, Bolivia and Argentina has a carbon footprint six to seven times lower than quarried spodumene from north-west Australia that requires crushing.

Or so it used to be: the Australians are changing fast, turning the Pilbara into a vast renewable hub.

At one extreme you have a battery made from solar and geothermal in Nevada, supplied with Atacama lithium, in a car using steel made in an electric arc furnace, with 75 per cent lower emissions than blast furnace steel. If it is then run off the electricity mix in Texas (wind and gas), or France (nuclear), or Switzerland (hydro), it has extremely low life-time emissions, and is becoming cleaner each year as renewables go parabolic.

At the other extreme, is what was going on five years ago during the lithium rush in China, where 70 per cent of the world's EV batteries are made. Let us call it the cowboy phase. The global giant lithium Ganfeng was still shipping Australian rock with a lithium density of 1.5 per cent in diesel-powered vessels to China, from where it was transported deep inland to Xinyu and turned into lithium hydroxide using coal-powered energy. Much of this would then go into batteries made by CATL (37 per cent world share) for shipment to BMW, Volvo, Peugeot, or Volkswagen.

If the cars were made in China, with Chinese steel reliant on coal plants, and if they were driven in China or south-east Asia using dirty electricity, the life-cycle CO2 emissions were scarcely better than petrol and diesel cars. Mr Bean is right to worry about that.

But Ganfeng has moved on. It already obtains much of its supply from the Andes. It is climbing the technology ladder very fast, too fast for the Europeans to keep up.

CATL has opened the world's first carbon-neutral gigafactory on the Yangtse in Sichuan, relying on hydropower fed from the Great Snowy Mountains rising towards 25,000 feet. This plant is scaling up to 120GWh, making it by far the largest gigafactory in the world.

The facility has been certified by the French testing firm SGS. It has a recycling recovery rate above 99 per cent for cobalt, manganese, and nickel. CATL aims to be carbonneutral across its core operations by 2025, and across its global supply chain by 2035.

Too good to be true? Not if the International Energy Agency is right in its Renewable Energy Market Update released last week. China alone will account for 55 per cent of the world's wind and solar rollout next in 2023 and 2024. The total volumes will smash previous records.

The empty desert of Inner Mongolia and Gansu is being covered with turbines and solar panels, within range of the cities today using hi-tech power cables. Carbon Brief says China

is adding coal plants at a ratio of 1GW for every 6GW of renewables as backup to stabilise the grid.

The Communist regime was badly shaken by power cuts in late 2021 and is willing to pay the cost of a strategic reserve of coal plants sitting idle most of the time.

It is also worried that the US alliance could cut off maritime gas supplies in a future conflict over Taiwan. When push comes to shove, China can always fall back on its own coal mines.

This expansion in coal capacity – not coal use – has confused the West. The larger picture is that China's reliance on coal has fallen from 81 per cent of total electricity in 2007 to 61 per cent last year. It is heading for 35 per cent within a decade, increasingly with carbon capture.

Annual coal emissions will peak before the 2025 target. "We think they could do it as soon as this year. The big surprise at the provincial level is that they are ahead of the Five-Year Plan," said Steve Jones, of coal experts Ember.

The EV carbon footprint is plummeting across the three great industrial zones of Europe, America, and China. A deep dive by McKinsey concluded that the emissions of leading battery suppliers would fall by 75 per cent over the next five to seven years.

Batteries are already being made that no longer require cobalt. By late-decade we will start to see solidstate batteries that are four to six times more efficient.

Rowan Atkinson can sleep easy. He did the right thing, even if his particular cars were too expensive and not green enough.

The pioneers provided the critical mass of buyers needed to get over the hump and reach manufacturing and technological take-off. Thank goodness for the well-meaning rich. Mr Bean, you are a hero of the energy transition. Telegraph, London