Avoiding the Highway to hell*, the cost of electric cars!

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Much has been written in the last week following the publication of Climate Change 2021: The Physical Science Basis, the sixth assessment report to be published by the IPCC (Intergovernmental Panel on Climate Change) in which there's urgent warning of a need for humanity to recognise its negative impact on the environment.

In particular, and as has long been argued by those examining climate change, the activities we engage in, especially industry, which produces so many of the things we take for granted, has created emissions that have destabilised the earth's fragile ecosystems. The IPCC's report explains that since the beginning of the industrial revolution, in the mid-nineteenth century, human activity has been the cause of a discernible rise in the earth's temperature.

The IPCC, a United Nations body consisting of 195 member counties, established in 1988 in collaboration with the World Meteorological Organization (WMO), has regularly warned that we're likely to see increasingly turbulent weather. As we've seen recently, this can include heatwaves and draughts for some and torrential rain for others.

Critically, it's argued, if further disruption is, at best, to get no worse, it's essential temperatures go no higher. This requires a massive programme of reduction of harmful emissions contributing to what's called 'greenhouse gases' through almost everything we do. According to government data, transport is the largest sector of gas emissions; 26.9%.

Greenhouse gases, mainly consisting of carbon dioxide but also including methane, nitrous oxide, as well as a range of fluorinated gases emanating from industrial processes as well as devices in the home, such as aerosols and fridges, contribute to trapping heat from the sun and creating conditions similar to those experienced in a greenhouse or conservatory on a hot day:

How to achieve the reduction, is, of course, the crux of the challenge confronting humanity at present.

One thing we are being encouraged to use is electric cars. In less than a decade, we will not be able to buy the petrol and diesel versions now available. On the face of it, this seems pretty straightforward and sensible.

That is, until you investigate the cost of buying such cars. I'm old enough to remember the days when colour televisions were so prohibitively expensive as to only be affordable by the very rich. This changed because a virtuous relationship emerged in which suppliers increased production which reduced costs. This made colour TVs sufficiently cheap to make them affordable to all. What's known as a 'tipping point'.

Henry Ford recognised this relationship and, in providing the affordable and versatile Model T, which was first produced in 1908, and went on to sell over 15 million, democratised motoring for the masses.

The rest is history.

The ability to aspire to own a car became possible in every country in the world and created the basis of the car production sector that still exists to this day.

What's fascinating is that debate concerning the impact of cars and the fuel they run on is nothing new. An article published recently in The Guardian by Tom Standage and based on his wonderful new book published by Bloomsbury on 18th August, A Brief History of Motion: From the wheel to the car to what comes next (i), shows how cars reliant on electric (batteries) were freely available a century ago.

However, for a variety of reasons, the battery and its range being one, were superseded by those powered by the internal combustion engine As this article also makes abundantly clear, and lest anyone be under any illusion that things were better back in the 'good old days', cars – regardless of how they were powered – were regarded as an advancement on carriages drawn by horses which were responsible for their own pretty significant emissions:

"In particular, the accumulation of horse manure on the streets, and the associated stench, were impossible to miss. By the 1890s, about 300,000 horses were working on the streets of London, and more than 150,000 in New York City. Each of these horses produced an average of 10kg of manure a day, plus about a litre of urine. Collecting and removing thousands of tonnes of waste from stables and streets proved increasingly difficult."

Anyone who lives close to where manure is being spread will attest to how powerful the smell can be and usually only for a couple of days and not a perennial problem as it would have been before the invention of alternative forms of transport.

Standage's article examines the fact that, as is always the case with 'new technology', there is a trade-off between what is possible and the negative impact that may be produced. A paradox of unintended consequences.

As we are increasingly becoming aware of, electric vehicles (EVs), whilst apparently solving one problem, a vast reduction in the emission of fumes produced by the burning of fossil fuels, may produce other problems beyond their issue of affordability.

Firstly, there's the matter of how and where electricity needed to provide power to the batteries which, like that in your mobile phone, must regularly be recharged? Though there's analysis that, as we move to become more energy-saving, we'll need less electricity, many are sceptical this will happen.

The reality is if we all drive EVs, there will need to be more energy produced using methods that, ideally don't add to carbon emissions. This will mean huge investment in hydrogen which and won't be cheap (ii).

How such investment will be recouped is another of the thorny decisions to be taken by the Chancellor in the near future. However, as seems highly likely, consumers will pay more for energy than has been the case in recent years, notwithstanding the fact that costs have already risen very rapidly in recent weeks.

There's some optimism that offshore wind farms may produce the electricity that would, as well as supplying domestic needs, be used to make hydrogen that would provide fuel for power stations as well as for boilers to heat our homes (iii).

Another issue for electric cars is the infrastructure that's essential. Research carried out by Scottish Power in conjunction with Capital Economics and the Energy and Industrial Strategy committee have calculated that the total costs of ensuring the UK is being able to achieve 'net zero' by 2050 for EVs is of the order of £93.9 billion.

Given that many believe that the total cost of becoming green is going to be well in excess of £1 trillion, the investment in producing an infrastructure to support EVs may seem, at less than a tenth, of the final bill, well worthwhile.

Perhaps the greatest challenge is how to source the minerals need for batteries for EVs, lithium, cobalt and well as other rare earth elements. These are most abundant in many of the poorest countries in the world and mined using rudimentary tools with little or no concern for conditions for workers some of whom are children.

There are some extremely serious moral issues to be confronted. That China, which dominates the process of refinement of many of the rare earth minerals essential for EVs, is another concern (iv).

Another very important question is disposal of batteries from EVs no longer functioning efficiently. Equally, how much of the EVs will be recyclable?

There are many critical and, it should be stressed, expensive questions to be addressed in the coming months by the government which, it should be remembered, will host the Cop26 Climate Change Conference in Glasgow in November.

Johnson's government will be expected to lead by example.

Given that there is still the matter of the debt accumulated during the pandemic as well as other commitments made such as 'levelling up', finding the additional investment needed for EVs might seem problematic by the Chancellor (v).

However, as the IPCC stridently argue in their report, the environmental crisis we potentially face without such investment means we have little choice. Delaying critical decisions will make matters a great deal worse and mean hundreds of millions of people in countries whose ability to survive, already tenuous, may become impossible.

Dr. Steven McCabe is co-editor of Exploring the Green Economy, Issues, Challenge and Benefits published by Bite-Sized Books (ISBN-13 979-8532032347) on 5th July. His chapter 'Al Promised You a Miracle – Life Under 'Greased Piglet' Johnson', is included in Populism and the Media, published by Abramis Academic Publishing in June.

***Based on the 1979 single by Australian band AC/DC**

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