


From: 
To: [Clean Cars](#)
Subject: Electric cars
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My name is Peter Sayers. I am a retired university lecturer, and I have undertaken some deep investigation over several years into the concept of electric vehicles and I am of the opinion that the widespread use of electric cars will not make a significant contribution to climate change or reduction in CO₂.

The reasons are not difficult to comprehend.

Regardless of the method of vehicular propulsion, the energy required is the same given the same mass, and friction whether it be oil, electricity, horse drawn or pedal power. It is true that electric cars themselves are low in emissions but the electrical energy they consume must come from somewhere. Only when our energy sources are 100% pollution free can we consider that electric cars might reduce CO₂ emissions. World wide, coal is responsible for 38% of our electricity generation, which means that every electric car put on the road will mean more coal used for their energy. The laws of physics state unequivocally that energy can neither be created or destroyed.

In mid 2018 Genesis energy were concerned that a forecast dry period could result in an electricity generation shortfall, so imported large amounts of coal from Indonesia, (believed to be 100,000 tonnes). Great assurance for all the electric car owners.

We are not being told the true facts about electricity generation, for example we are told that natural gas is renewable and non polluting, but neither is true. We are already experiencing a natural gas (methane) shortage which means more coal is being burnt to operate our thermal electrical generation plants at Meremere.

It is note worthy also that geothermal energy does not have a clean bill of health either. According to the New Zealand governments own figures the level of arsenic in the Waikato river from Wairaki waste water frequently exceeds the safe levels set by the W.H.O., and yet the river augments the Auckland reticulated water supply.

Then there is the rare earth metals required for batteries. The crustal abundance of Lithium is but 21 parts per million, which means that you must mine and process about 50 tonnes of ore to obtain 1 kg of the element. Cobalt also required in Lithium based batteries is primarily produced in the Congo by child slave labour, a fact we choose to ignore when running about in our "pollution free car". The very high price of batteries implies that the recovery and processing of these minerals is very energy intensive, one university in the U.S. estimated that the energy required to produce a lithium

battery may be around 10% of the total energy that the battery can store in its lifetime. And in case it slipped your mind, a battery is not a source of energy, it is simply the fuel tank.

Tourism is a serious threat to atmospheric pollution. There are some 30,000 airliners plying the word and another 15,000 on back order, maybe more than 10,000 airborne at any one time. These aircraft are serious polluters as they place their pollution high in the atmosphere where it does the worst damage. But then to eliminate international tourism would "damage our economy", a serious paradox.

The widespread use of electrical and thermal energy is essential to our economy, and indeed to our survival and is the reason for our high standard of living. Without oil our cites would be unsustainable, food and water supplies would fall, and there would likely be a move to rural self sufficient farming.

I do not believe I am being alarmist, and nor do I do not have the answers, but the present suggestions and actions are not viable in the long term. The suggestions that technology will save us is improbable. History abounds with civilisation collapses.

The proximate and definitive problem is the explosion of human population, which has trebled in my lifetime, a veritable pyramid scheme which few governments seem to acknowledge, because it will not win popularity.

Peter Sayers.

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