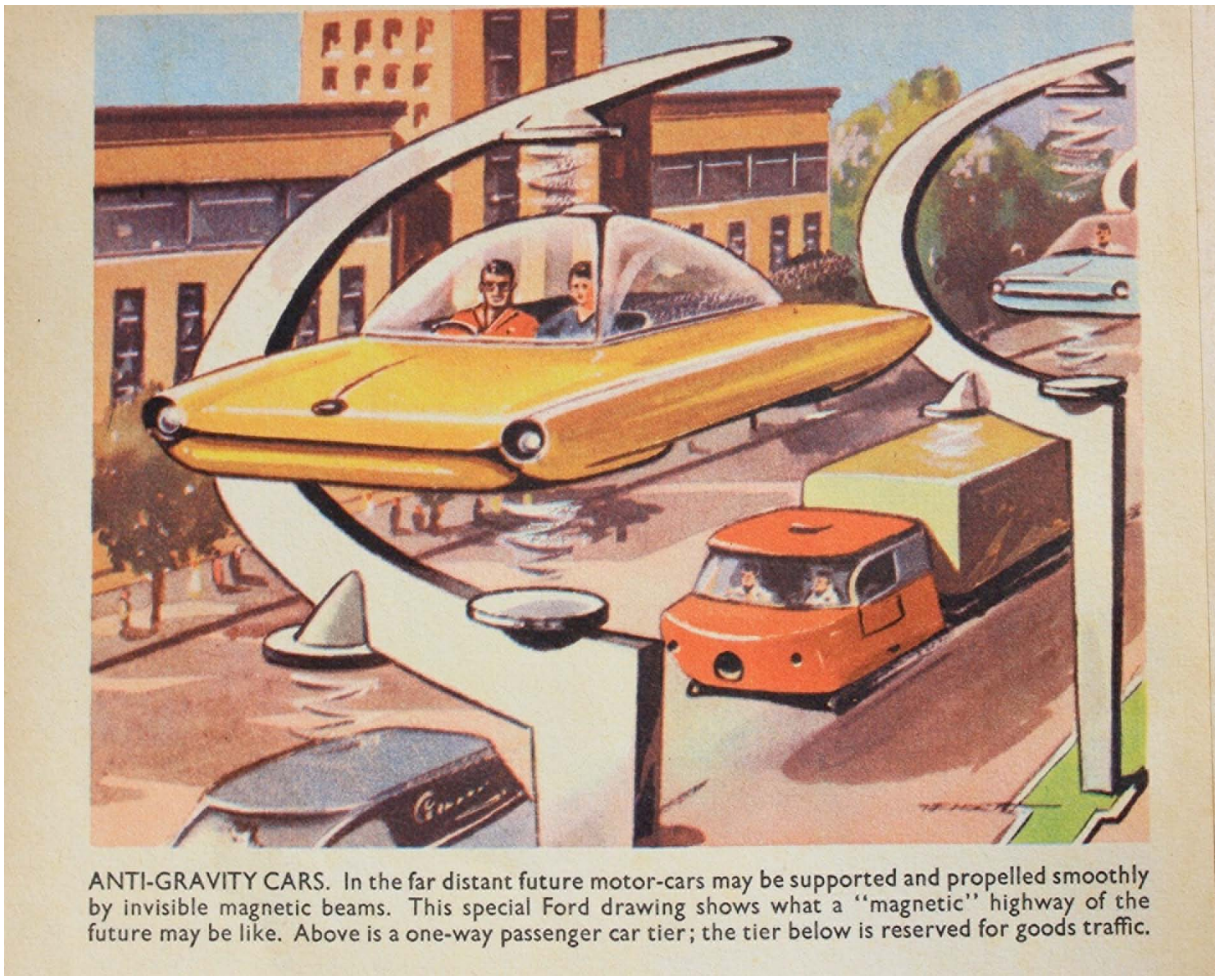

ANTI-GRAVITY CARS. In the far distant future motor-cars may be supported and propelled smoothly by invisible magnetic beams. This special Ford drawing shows what a "magnetic" highway of the future may be like. Above is a one-way passenger car tier; the tier below is reserved for goods traffic.

ELECTRIC CAR PROMOTERS want you to believe that the world is locked in a battle between good and evil; between electric cars and fossil-fuelled cars.

Actually, the real battle is between the car industry and public transport.

Cars are the perfect form of transport for special trips on empty roads. They are a lousy form of mass transport.

It can take several hours to drive across most major cities. This gridlock isn't caused by how the cars are powered. This gridlock isn't caused by a lack of self-driving cars. This gridlock is caused by too many cars sharing too little space. It's that simple.

Any transport solution that encourages cars in congested cities, effectively encourages further congestion.

Electricity to power cars is cheaper than the petrol, but that's mainly because petrol is heavily taxed, while electricity isn't.

Once large numbers of motorists are plugging into the national grid, the costs for electricity will inevitably rise during times of high demand.

In Australia, one study showed that fast-charging a Tesla actually costs more than the cost of fueling a petrol car.

And, roads don't build themselves. Right now, conventional cars are paying for the roads that electric cars drive down. Soon, electric cars are going to have to pay their share. This will significantly raise the cost of running an electric vehicle.

No such thing as free lunch

And let's not fall for the hype about 'emissions-free' motoring. The electric car may be emissions-free on the street, but a great deal of pollution is produced generating the electricity to power it.

This pollution is rarely mentioned by the electric car lobby, but globally, the pollution produced by generating electricity is a major factor in climate change.

In the United States, 61% of the total 2019 electricity generation came from coal and natural gas.

And, in the US, the generation of electricity produces almost as much pollution as all the cars, trucks, boats and planes put together.

Australians rely on fossil fuel for about 94% of their total energy needs. And, well-meaning Australians who install solar panels are improving their own air at the expense of ordinary people in other countries.

China, the source of most solar panels and much of the technology that underpins electric cars, is also the world's largest coal burner.

In 2018, coal made up 59% of China's energy use. Since 2011, China has consumed more coal than the rest of the world combined.

According to the International Energy Agency, 80.6% of China's emissions came from coal in 2017, compared to 70% in India, 28% in the United States, and 29% in the European Union.

And, while China is busy installing vast arrays of solar panels in its own country, much of the energy produced by these panels is simply wasted.

The bottom line is this: an electric car can only be as green as the electricity that powers it. And, most electricity is a long way from green.

Canadian energy researcher Alexandre Milovanoff compared the overall emissions of a Tesla Model 3 with a Toyota Corolla. His conclusion: if you drive a Tesla Model 3 instead of a Toyota Corolla in Québec, you can reduce your greenhouse gas emissions by 75%. That's because Québec has relatively green electricity.

However, says Milovanoff, if you drove the same two vehicles in the Canadian province of Alberta, there would be no reduction in greenhouse gases. The difference? Most of Alberta's electricity comes from burning fossil fuels, including 35% coal.

In fact, few countries in the world have completely 'green' electricity. Even clean, green, New Zealand produces about 18% of its energy from burning fossil fuels.

Although, globally, alternative energy usage has been growing rapidly, it grew from a very small base. So, doubling or tripling alternative energy usage is quite possible, without really affecting the overall equation.

To quote the *Financial Times*:

"Oil, gas and coal still account for about 86% of the energy keeping the world's lights on, cars running and homes warm — a share that has barely changed in 25 years. Coal and gas-fired power plants are still being built, especially in the developing world where 1.2 billion people lack electricity."

A slightly more recent summary is here.

It's possible to dramatically reduce the pollution produced by generating energy, but you can't eliminate it. Every part of the electricity generating system, from the copper and aluminium to make cables, to the concrete and steel to make pylons, uses a huge amount of energy and causes a huge amount of pollution.

And it's not just conventional power generation that pollutes: here's a wonderfully honest quote from the New Zealand-based Unison Group website.

"Although solar generation is renewable, there are wider environmental considerations associated with the panel manufacturing processes, and end-of-life disposal of solar panels.

Solar panel production requires electricity and, for example, while China is a leading global manufacturer of solar panels, around 77% of China's electricity is generated from fossil fuels. This means that the manufacturing process contributes to greenhouse gas emissions.

[There's also a] future issue that will need to be addressed in New Zealand: some panels contain hazardous materials such as cadmium that could leach into the environment if disposed in a landfill."

We're not saying that people shouldn't install solar panels. We're saying *there's no such thing as free lunch.* In a planet of over eight billion people, *every form of energy production has a large negative effect.* We can reduce these effects, but we can't stop them.

We congratulate the innovative and caring companies trying to find real technological solutions to climate change. However, in today's mad, globalised economy, the lowest priced goods tend to be the biggest sellers. So, kind and caring companies often go broke, while companies that abuse both their employees and the environment often prosper.

Electric cars themselves are also responsible for a huge amount of pollution. In fact, manufacturing an electric vehicle generates more carbon emissions than building a conventional car, according to most studies.

Electric cars are cleaner, but...

Despite the amount of pollution produced building and powering electric cars, most studies have shown that, *over its entire lifetime, an electric car puts out far less pollution than a conventional car*. However, this efficiency depends on how the electricity is generated, and how far the electricity has to travel to reach the car it is powering. But there's no such thing as free lunch.

A recent study in China estimates that building a conventional car produces about 10.5 tonnes of carbon dioxide (tCO) per car. Manufacturing an equivalent electric car produces about 13 tonnes of carbon dioxide, when you include the batteries.

Note that this figure is just for carbon dioxide and does not include the ghastly environmental damage inflicted by the mining of the minerals necessary for electric car production.

Companies like Tesla claim that their vehicles have a much kinder environmental footprint.

This is true if you only measure the electricity that goes into car production (if the electricity is cleaner, then so is the car).

However, companies like Tesla trash the planet in equally nasty ways. Tesla's founder, Elon Musk, is on record saying that it's okay for the US to overthrow foreign governments to get those countries' lithium.

On July 24, 2020, Musk tweeted that a U.S. 'government stimulus package is not in the best interests of the people.' Someone responded: "You know what wasn't in the best interest of people? The U.S. government organizing a coup against Evo Morales in Bolivia so you could obtain the lithium there." Musk responded: "We will coup whoever we want! Deal with it."

But even billionaires don't always get their way. Bolivia's president Evo Morales was swept back to power in October of 2020. So, he's safe, for now.

The people of Congo are not so lucky.

A large percentage of the current environmental and political catastrophe in the Congo is a direct result of global demand for Cobalt; a key ingredient in Lithium ion batteries used in cellphones and electric cars. Including Teslas.

It's just as frightening to look at the industrial processes behind wind turbines and electric motors. The production of 'rare earth' minerals, used in wind turbines and electric car motors, has turned parts of China into a toxic swamp.

Catch 22

Because, over the long haul, electric cars put out less pollution, they're widely seen as the future of personal transportation. But there's a big catch with most studies of electric cars versus conventional cars:

Many studies appear to assume that an electric car will be driven in much the same manner as a conventional car (for example 150,000km over its 12 year lifetime). That's 12,500km per year, or roughly 34km per day.

In other words, these studies assume that consumers are simply going to swap their daily long commute using a conventional car, for a daily long commute using an electric car.

That's better for the environment is one way (reduced emissions per trip) but bad for the planet in a much bigger way (the unsustainable continued reliance on the private car as the primary form of transportation).

The bottom line is: consumers needlessly driving vehicles for long distances is one of the major causes of our current global environmental crisis.

There's strength in numbers

That's why, when we're looking at electric vehicles, we shouldn't be comparing electric cars with conventional cars. We should be comparing cars with buses and trains.

The bottom line is this: a well organised, modern electric bus or train system is almost always far more efficient than a fleet of electric cars carrying the same number of passengers. Why? For the same reason that it's far more efficient to pipe water into your home than to carry it to you in individual bottles.

For example, the London Underground carries around five million passengers every day.

Now imagine that we replaced the London Underground with Uber hire cars. Assuming each car held five people, including the driver, you'd still need over half a million cars to carry the same number of passengers from home and back each day.

However, half a million Uber cars would never fit in the London Streets. In fact, whenever there is a major stoppage on the London Underground, London's streets grind to a halt.

And therein lies the problem.

Electric car promoters are selling a dream where we can still use cars for mass transport, without feeling guilty about it. This is nonsense. The sad truth is that electric cars merely change the way traffic jams are powered, without addressing the basic problem.

Cars are perfect for special trips on empty roads, but when an entire culture is built around the car, the inevitable result is urban sprawl, destruction of productive farmland and massive economic losses caused by traffic jams.

The claims that autonomous electric cars will somehow solve traffic jams and prevent accidents are mostly fantasy, virtually without any scientific backing whatsoever.

And, where will these clean, green, electric cars be driven? Down roads built of two of the most environmentally-damaging substances on the planet: asphalt (thick oil) and concrete (which is the third largest source of CO2 on the planet).

Take a look at the traffic jam below. Are they all autonomous cars? Are they electric cars? Are they ordinary cars? What difference would it make?

The answer, of course, is: little or nothing.

The dominant problem for the planet is not how we power our cars, or how we drive our cars, but simply that there are too many cars.

Capische?