

# Double Glaze Matters

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## Update on Electric Cars

After last month's item on electric cars, I received a couple of responses so I will try to clarify a couple of items.

In my list of Electric Cars, I included a couple of cars which are not truly Electric cars, but are extended range hybrid cars.

The first major hybrid car was the Prius. It has a small battery and a small electric motor and a medium sized petrol motor. The electric motor will drive the car, but not in heavy load situations where you need both the petrol and electric motor. It achieves its efficiency by reducing the time you need the petrol engine and by recovering energy when stopping and reusing it later. It also means that the petrol motor is always under load when running, improving its efficiency.

Pure electric cars such as the Leaf and i-MiEV have a larger electric motor, larger battery and no petrol motor. The electric motor gives suffi-

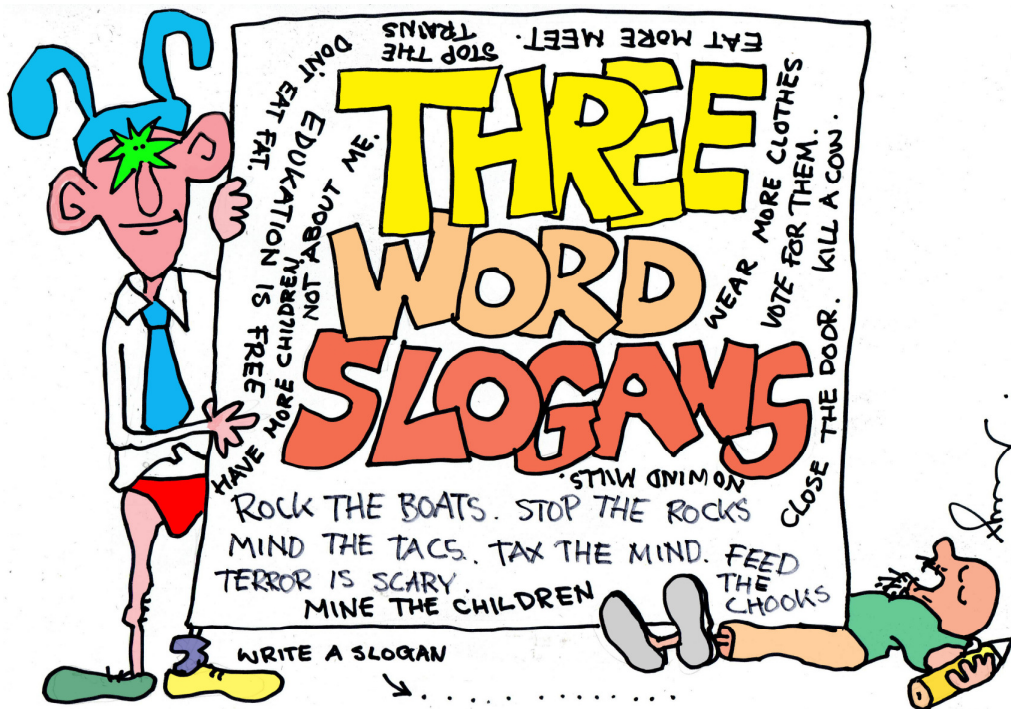
cient power to power the car and the batteries give 80km plus range.

The Tesla is the ultimate. A big electric motor to give you sports car performance, a big battery to give 400 km range and a big price ticket—\$120K

Back to the extended range hybrid cars. These have a big electric motor, medium sized battery and a small petrol motor. It initially acts like a Leaf, with the electric motor and battery powering it for 80 km. Then the petrol motor starts and recharges the battery. This gives you a large range without lots of expensive batteries.

A typical example of this is the Holden Volt. It has a 16 Kwh battery allowing it to travel around 80 kms for \$2.50, assuming you charge it off peak. Beyond that, it uses petrol and uses 7 litres per 100 km. This isn't brilliant performance, but is not bad for what is a fairly large vehicle.

Electric vehicles are finally getting there!



Franciscus Henri's contribution.

## “Do the Math”

The other night I attended a talk by an American named Bob Massie. He expanded on a talk that Bill McKibbin gave last year called “Do the Math”.

I have long felt that people opposing climate change must go further than saying “stop emissions” and must try to explain what this would mean. Effectively what are the implications of stopping emissions.

Beyond Zero have worked a lot in this area and has developed various booklets on the subject. One covered the power industry, giving a solution which allows us to go purely renewable over a 10 year period. The total cost would be of the order of \$100 per year per person for 10 years. Even allowing for underestimates of the cost, this is not an enormous amount.

The issue that “Do the Math” raises is quite simple. It works it all out backwards. If we want to limit the temperature rise of the earth to 2 degrees then you can calculate how much more CO2 you can add to the atmosphere. This amount comes out at 565 GigaTonnes. The known reserves of fossil fuels will generate 2,795 GigaTonnes of CO2. That is, we have 5 times as much fossil fuel as we are allowed to use.

Put another way, 80% of the known reserves must stay in the ground. If all the Fossil fuels were burnt, the earth would increase 4 –6 degrees.

This then brings up the obvious question, why are we developing more coal mines? The reason is that is worth lots of money. But that is based on current prices. If 80% must stay in the ground, there will be an excess of coal and oil.

India and China are the main buyers of our coal. So as they reduce their usage, India and China will meet most of their requirements from local mines, and Australian mines will have no market. There will be over production world wide and prices will fall.

Personally, I don't really mind if the mines fail and Clive Palmer goes broke. But our



**A slide from Bill McKibbin's talk**

government is spending billions to develop the mines. And that is my money.

And then there are subsidies. We pay \$8 billion a year in subsidies for fossil fuels. That's a lot of money. The renewable energy industry would love that level of support.

What is worse is that these subsidies create enormous anomalies. One example is the diesel subsidy for electricity generators in aboriginal communities. This idea sounds good. It is reasonable that power is subsidized so that communities have affordable power. The cost of diesel is less than 50 cents a litre.

At that price, diesel generated power is cheaper than solar power. If they paid \$2 a litre for the diesel, solar panels would spring up everywhere to reduce or replace diesel generators.

What we need is to “think outside the box” Rather than subsidizing diesel, subsidise power and let the community decide how they spend that subsidy.

Similarly diesel subsidies for farmers encourage fossil fuel usage at the expense of other solutions. And I think miners make enough already without subsidizing diesel usage. Without the subsidies, they would reduce there usage.

So -

- We should drop all fossil fuel subsidies. If anything, subsidise outputs, not inputs
- Stop subsidizing the fossil fuel industry. It is a dead industry
- Stop subsidizing new coal mines. They have no future.

If you have 45 minutes, watch Bill McKibbin's talk “Do the Math”. It is well worth it:

<https://www.youtube.com/watch?v=KuCGVwJIRd0>