

We'll agree to disagree...

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Recently, I wrote [a very smug piece](#). I think it was richly deserved – as one of our key predictions, our “Big Short” in diesel, was starting to play out. That’s important, as it’s one of the key reasons why we’re expecting a commodity, informally known as “white diesel”, to rise substantially in value.

My smug didn’t go down well with one reader – who thinks we’ve got it all wrong.

At *Exponential Investor*, we like a good challenge to our arguments – but we don’t take it lying down. I’ll let you read this letter – and I’ll rebut it, point by point, as we go through. (*Letters are edited for clarity.*)

From: Andrew

Subject: Re: Time for us to (not) feel smug

75% of a barrel of oil becomes petrol and diesel. On the basis we will still need jet fuel; and oil by-products, such as plastic – then what do we do with that 75% when it is no longer needed? Perhaps what they did in the late 19thC (when there were no internal combustion engines) – just dump it in the sea? However it is disposed of, the upper end of the barrel is going to get far more expensive, yet demand will ensure oil will always be required.

Catalytic cracking means we can turn heavy oils into light ones. As some of the lightest fractions can be used to make plastics, we won’t have a surplus to dispose of. Nor will oil-derived plastics necessarily be as widely made as today. Plant-derived plastics and composites are a viable alternative – as is more extensive recycling.

Heavy goods vehicles use diesel for many good reasons. They have 30% better fuel economy compared with petrol – plus lower maintenance costs, higher reliability and, higher torque. There are no substitutes on the horizon – or you would be more specific.

Long-distance diesel vehicle use won’t die soon – but for urban commuting, it’s on the way out. Nevertheless, we already have alternative fuels available. London buses use hydrogen, for example. Firms like ITM Power can make hydrogen today from surplus electricity, without needing to rely on extractive industries. This solves both the chemical fuels issue – and the energy-storage problem (as we’re already good at storing gas). If we want, other chemical fuels can then be made from hydrogen.

The government has just scrapped rail electrification schemes in favour of dual mode locomotives. That's more diesel, not less, for another decade or two.

This short-sighted delay to electrification doesn't actually increase diesel use (in fact, fuel-efficient hybrids reduce it). Nor does it change the ultimate future, which will be powered by renewables. That's due to Swanson's law – which predicts inexorable falls in cost for solar, our most important renewable [energy](#) source (although solar has a potential challenger, which it's worth reading about).

You suggest hydrogen and electric cars will take over. They should, but only if we generate the electricity required. We are already looking at winter power outages, with a slim 4% generating margin.

Hmm... power shortages, you say? Wouldn't it be handy if we had some big batteries outside everyone's house, ready to inject power into the grid at short notice? That's the future Nissan is backing, with its vehicle-to-grid technology – and the UK government is facilitating the necessary market changes. Then, we won't need to worry about overbuilding generation, to meet peak demand.

As urban transport moves to electric cars, diesel will be diverted to power generation. Diesel gensets are quick, cheap and easy to deploy – and can cut in to satisfy peak demand. I can't see any net gain in environment benefits. Nuclear will remain the (expensive) baseload provider as solar/wind are far too variable in supply for baseload. It would be nice to see tidal, but how many years have they been trying to crack that one for?

No, fossil diesel definitely won't become the fuel of choice for power generation. Even in island locations, where it previously did a successful (if costly) job, it's being replaced with renewables+storage. And when I say renewables, I don't generally mean tidal. That's always going to be a niche interest, due to a lack of accessible resource. Solar's expected to be the backbone of our future energy economy – and it's getting cheaper all the time.

I am not convinced batteries are an economic baseload/overnight source. The environmental costs of production and disposal are in no way reflected in the market price. Purchasers may not now have to carry the environmental production cost, but I can foresee them incurring a disposal/recycling charge in the future. This is a cost they are not expecting, right now. On that subject: some are promoting lithium investment. That has a nasty habit of catching fire. I can see insurers getting nervous on that one.

Solidly-built static batteries aren't as vulnerable to fire as flimsy mobile batteries. You may not be convinced on the economics – but costs really are falling rapidly. Even the frugal IKEA has just launched its range of home batteries. Clearly, this it's now becoming a very mainstream trend. As for lithium's environmental costs, we've previously looked at [alternative battery chemistries](#). As costs fall, the environmental costs will become less of a showstopper – as the economic case will swamp any marginal environmental concerns. Furthermore, support industries will arise, to help with recycling and clean up (we've got an interview coming, with one such firm). However, if you want some really clean storage, try [compressed air](#) and liquid air technologies.

I agree that the proposals for updating the energy market are surprisingly forward-looking – but when peak production of solar is in the middle of the day (when demand is lowest) it's going to require a better supply/demand smoothing mechanism than a heap of lithium batteries. I know; I have both PV and solar thermal arrays on my house. It's 2pm on a lovely sunny day. I have a tank full of water at 78degC, and the PV is in overdrive. Are we all having showers and doing our laundry, boiling the kettle, using the oven or microwave? No, and with batteries and a change of inverter coming in at £7k that is not going to be a solution until it gets at least 50% cheaper.

Fortunately, battery technology is indeed halving in cost every few years. Plus, we'll have a range of storage technologies for short-term ([capacitors](#)), medium-term ([air](#)) and long-term ([power-to-fuels](#)) use.

Technology changes fast for sure. But none of it covers dealing with that surplus petrol and diesel... Perhaps we could use some form of microbe digester? Is anyone working on that, at a suitable scale? If so that will defer the death of oil even longer. I wouldn't give up on it just yet.

That surplus oil is staying buried in the ground – along with the stock price of any firms who've banked on it.

If you think our logic's sound, don't just nod – make a profit. If you'd like to pocket the benefits of the renewables revolution, we've got big news for you. It's all about a breakthrough power source – which had previously been written-off. Fortunately, due to recent technological developments, it's potentially set for a startling renaissance. [You can find out more here.](#)

If there's anything you think we've got wrong, do write in: andrew@southbankresearch.com – just don't expect us not to argue with you!

Best,

Andrew Lockley
Exponential Investor