What a gas: one of Moreland's new hydrogen-powered garbage trucks.Takver/Flickr.com, CC BY

A while ago I asked what types of people will lead our great energy transition .

Well, some of them seem to be living in North Melbourne. Earlier this month I watched as Victoria's Climate Change Minister Lily D'Ambrosio announced A$1 million for a hydrogen refuelling station to power zero-emission local government vehicles. The money, from the New Energy Jobs Fund , will sit alongside A$1.5 million that Moreland Council is investing over three years.

The Council hopes that rainwater it harvests from its buildings can be turned into fuel, with the help of power from its solar panels and wind turbines, which can in turn be used to run its fleet of garbage trucks. If (and it is an if) everything works, then residents get less air and noise pollution, and the council gets a smaller energy bill and carbon footprint. You can read my account of the launch here .

Of course, there are doubters. One commenter under my report wrote:

It amazes me how anybody could still think [hydrogen fuel cells] are a step in the right direction for domestic land transportation. Their inherent lack of efficiency compared to batteries, difficulty with storage, explosion risk and the cost of building the support infrastructure has been demonstrated innumerable times.

Yet Japan is planning for 800,000 hydrogen-fuelled vehicles by 2030 . Are all of these governments really backing the wrong horse?

This is the nub of the problem: technological outcomes generally become clear after the fact, and rarely before. After a " dominant design " has survived the battles then hindsight, via historians, tells us it was obvious all along which type of gizmo was going to win.

Scholars have long pointed out that this is a fallacy – starting with the humble bicycle . The truth is that technological innovation is not the clean predictable process that pristine white lab coats and gleaming laboratories would have us think.

The history of technology is littered with the carcasses of superior ideas that were killed by inferior marketing (Betamax tapes, anyone?). Meanwhile there are the success stories that only happened through serendipity – such as Viagra , text messages , and Post-it notes . Sometimes technologies simply don't catch the public eye, and their proponents withdraw them and repurpose them (hello Google Glass).

Even the most successful technologies have teething problems. Testing prototypes is not for the faint-hearted (as anyone who's seen Robocop will vividly remember).

If there's no clear and obvious technological route to follow, then an industry can end up " perse verating " – repeating the same thing insistently and redundantly. As these two studies show, the American car industry couldn't decide what should replace the internal combustion engine, and so hedged their bets by flitting between various flavours of the month, from biofuels to LPG to hybrids and everything in between.

Risky business

This is what makes Moreland Council's choices so interesting. It might make "more sense" to wait and see, to let someone else run all the risks, and then be a fast follower, with the advanta ges and disadvantages

that entails. But of course if everyone does that, then nothing ever gets done.

Meanwhile, if civil society is pushing for change, and a council's own political makeup shifts (the Greens did well in the last local elections), and there are determined officers, then an experiment can be conducted. Coincidentally enough, Moreland Council's chief exective Nerina Di Lorenzo recently completed a PhD on local governments' attitudes to risk. Within a year or three she'll no doubt have enough material for a post-doc.

Meanwhile, South Australian Premier Jay Weatherill seems to have lost all hope that the black hole-sized vacuum in federal energy and climate policy will ever be fixed. He has famously commissioned the world's biggest lithium battery and, now, a long-awaited concentrated solar thermal power plant
in Port Augusta
.

Learning process

What we are seeing in Moreland is a local council and its state government acting together (what academics snappily call " multilevel governance "), while further west we have another state government that has resolved to push its chips onto the green baize and spin the roulette wheel.

Will these experiments work? Will the right lessons be learned, from either failure or success (or more likely, living as we do in the real world, a mixture of both)? How can the "successful" technologies (however that is defined) be scaled up at tremendous speed, so we somehow clamber up the learning curve faster than we slither up the Keeling Curve of atmospheric carbon dioxide levels?

Can it be done? We need industrial quantities of luck, and optimism. And seriously – what do we have to lose by trying, other than the love of some vested interests?

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