Hydrogen a great step forward but first we must dare to ditch our fossil fuel and economic growth addictions

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New Plymouth District councillor Stacey Hitchcock is researching hydrogen fuel in Aberdeen, Scotland.

OPINION: New Plymouth District Council councillor Stacey Hitchcock's opinion piece (Saturday, 13 October *Taranaki: Southern Hemisphere energy hub*) brims with enthusiasm and optimism.

Indeed, it would be a dream come true if Taranaki could lead the way as New Zealand builds a greener, low carbon future. And she is right in that we risk being left behind, if we're not prepared to look further afield than oil and gas.

Unfortunately, the devils are in the detail. While the hydrogen fuel cell is regarded as a clean energy carrier, it is what makes the feedstock and energy for hydrogen production that determines how clean it really is.

It would indeed be 'clean' if hydrogen is produced by electrolysis which splits water into hydrogen and oxygen, and renewable energy is used to power the process.

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However, currently the vast majority of hydrogen produced globally is derived from fossil fuels by steam-methane reforming and gasification.

Typically, natural gas is used as feedstock which reacts with high-temperature steam to produce hydrogen, carbon monoxide and carbon dioxide, so it is not without emissions.

This is also how Taranaki became home of New Zealand's largest hydrogen producers: Methanex, which produces methanol for export and Ballance Agri-Nutrients, which produces urea for industrial farming locally.

Both plants use natural gas as feedstock and for energy. Together, they consume over half of all the natural gas we produce annually. The environmental harms from fossil fuel mining and industrial agriculture are far-reaching; from seismic blasting, fracking, deep-well injection, to degradation of soil and waterways, and of course emission of greenhouse gases.

While some argue that hydrogen derived from methane could be a transition to a sustainable energy future, its effectiveness in reducing greenhouse gas emissions varies hugely depending on the process.

A recent study revealed a 27 per cent emission reduction at best, but with an equivalent increase in emissions of up to 27 per cent in less than ideal situations, such as when fugitive emissions of methane, an extremely potent greenhouse gas, are high.

Last week's IPCC special report called for unprecedented, drastic action across nations to reduce emissions and avoid the worst of climate chaos, as the door of no return is closing fast.

Just transition must be genuine. Investing tens of millions of dollars now in methane-based hydrogen development, and locking in multi-decadal assets for it, does little but prolong the fossil fuel and petrochemical industries.

It is not just transition. It wastes precious time and resources that are urgently needed for substantial emissions reduction, climate mitigation and community resilience.

The latter hinges very much on how able we are to provide ourselves with safe shelter, nourishing food and clean water, rather than revenue from export of methanol or milk produced with urea and dried with fracked gas and coal.

The crux of the matter is: Are we able to undertake systemic changes that forego the growth model and consumerism, but value resource conservation and social equity, including inter-generational equity?

Councillor Hitchcock wants us to "make the most of invaluable opportunities just like this one." There are indeed opportunities here.

Imagine a future where Taranaki communities thrive on local, diverse produce grown on regenerated soil, energy is sustainably produced and used smartly, working families get fair pay, quality health care and education, caregivers are valued, necessary connectivity is enabled through no-emission transport and innovations, all rivers and beaches are safe to swim in, and nature abounds.

But first of all, we must dare to ditch our fossil fuel and economic growth addictions.

Catherine Cheung is a researcher for Climate Justice Taranaki.

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