Crude Awakening

Travel energy may wreck Tasmania's renewables advantage – but only if complacency allows it.

Chris Harries

The future of the world will be defined by what happens with energy and energy policy. Whilst Tasmania has been embroiled in lively energy debate for decades, these debates have been perennially focussed on electrical energy generation and conservation. Meanwhile, education of the community about the other half of the energy debate – liquid fuels – is seriously deficient. It's time we conversed more about the implications of transport energy – in the interests of our state economy and personal livelihoods.

The first thing I ask in every energy forum is *"What immediately springs to mind when alternative energy is mentioned?"* Almost every participant instantly pictures solar panels and/or wind turbines because, in the public mindset, energy = electricity. The same fixation generally applies in the headspace of our decision makers. Why is this so? Why does it matter?

It matters a lot. It matters because social evolution and policy reform is primarily determined by force of popular world views and social memes. It matters because the profligate burning of oil resources plays a major part in world carbon pollution. It matters because even after some three decades of intensive environmental education, awareness of liquid fuels and travel energy lags way behind that of electrical energy in our homes and industry – to the point that travel energy is given scant attention.

This conundrum struck me with full force when my local community was engaged recently in a comprehensive behavior change project funded by the Tasmanian Climate Change Office. Having engaged 450 households about their sustainable behaviour successes, some 70 percent of households were delighted to report successful energy savings in relation to areas such as hot water and refrigerator energy, whereas fewer than 20 percent of those households had managed to reduce their travel energy one bit, even for low-hanging-fruit behaviours, such as short trips to the local store.

The take home messages for us were striking:

1) a very high level of household disappointment and frustration over their failure to deal with travel energy and
2) an almost total lack of public awareness of liquid fuels energy and travel footprints.

As an environmental educator, I share responsibility for this failure because in hindsight we can truthfully say that NGOs and all three levels of government have focused nearly all of their well funded educational programs on energy savings in the home – and, by contrast, very little on how to conserve travel energy.

Stemming from this lack of travel energy awareness we see a range of sometimes bizarre and idiosyncratic behaviours and attitudes, exhibited by both householders and by our public institutions and political leaders.

In an effort to redress this shortcoming, these days I try to bring transport energy up front by comparing energy forms in quantifiable ways that make people sit up and take note. It comes as a bombshell to many that the energy output of their highly cherished rooftop solar system during a whole year equates to two or three tanks of car petrol – an amount of travel energy that can be gobbled up in a trice by a flip-

pant decision. Or that the stand-by energy lost by leaving an electrical appliance on all night typically equates to running their car engine for less than one second. It's commonplace to feel guilty for the first behavior lapse, totally oblivious to the other usage.

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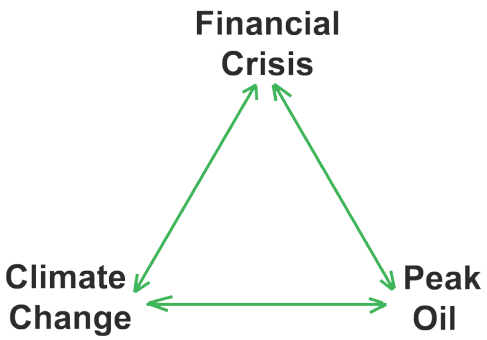
Let's now explore urban design and planning issues in the context of this acute awareness failure.

From experience, any public discussion on transport futures tends to be overhwhelmed by a sense of fatalistic resignation. Professional planners tend to feel that decades of pre-built urban infrastructure combined with lack of political will means that our urban design and car dominated transport systems are more or less locked in place, locked in the past in fact, allowing almost no room for the tweaking of change. From the householders' perspective, their individual travel behaviours are fiercely defended on the grounds that it is impractical to do otherwise, since we citizens have become trapped by our priorities of convenience, safety and time pressures and because urban architecture goads them into car travel, even against their will.

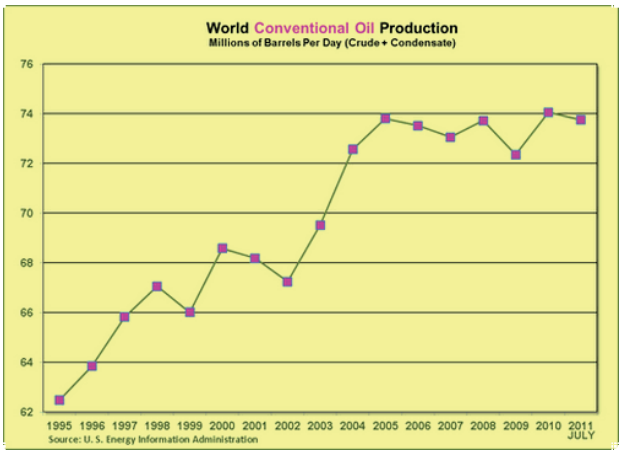
In the limited space that this article allows I am unable to do justice to this travel energy theme in detail, so what follows is a précis of influences that I believe will fundamentally upset these prevailing fatalistic attitudes.

External influences: why our transport future may be forced upon us



No policy changes or behavior education that we can enact within Tasmania will affect the future of transport more so than will the powerful external forces that are bearing down on all of society. A triumvirate of three interlocking global pressures (represented by the triangle diagram) is profoundly affecting energy policy and, more importantly, energy pricing around the globe.

World fuel price is the most significant issue with respect to transport, this being brought on by depletion of the world's major oil reserves.



As this graph illustrates, world conventional oil production has not significantly changed for eight years now and most experts within the industry predict that 74 million barrels per day is a level that is likely to never be exceeded.

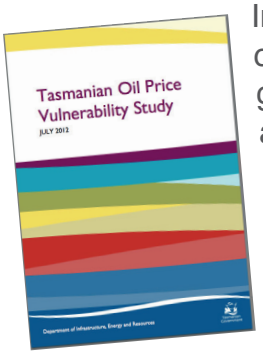
Notably, this plateau has happened in the face of burgeoning energy demand in emerging economies. The world supply / demand equation is becoming extremely precarious, as reported by the International Energy Agency and numerous industry bodies and there can be only one upshot for the future, sharply inflating prices for transport fuels in years ahead.

Many optimists are quick to point out that technologies such as horizontal drilling, fracking and tar sands mining are being successfully deployed to extract 'unconventional' fossil fuel resources. These efforts are certainly helping to bridge the ever-growing oil production gap, but the downside is that these costly efforts are serving to

1) exacerbate climate change and
2) push fuel prices up.

Burgeoning fuel prices, rather than oil supply disruptions, represent the greatest threat to future economic prosperity.

The Tasmanian energy setting

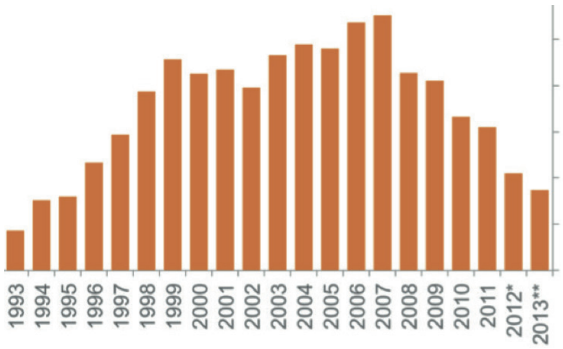


In response to unstable world oil prices, the Tasmanian government (along with UTAS and some local councils) has sensibly investigated likely impacts on Tasmanian business and citizens, with a view to incorporating those factors into policy planning. The state government's Oil Price Vulnerability Report was released late in 2013. It incisively pointed to Tasmania's high vulnerability to oil supply disruptions (being at the end of the shipping supply chain).

More pointedly, it also highlighted the fact that petrol pump prices have increased at a steady rate of 13 percent per annum over ten years – that trend being significantly above the CPI. In time this accelerating trend may manifest as a crippling burden not only on citizens and businesses but also on the state's macro economic health, since all transport fuels purchased in Tasmania are imported.

Trends in public attitudes

It is often presumed (correctly) that reducing transport energy can be brought about most efficiently via heavy financial investments in appropriate infrastructure and through improved vehicle fuel efficiencies. However, even in the absence of these gradual reforms the Australian public is demonstrating significant travel behavior change in response to hip pocket and health concerns.

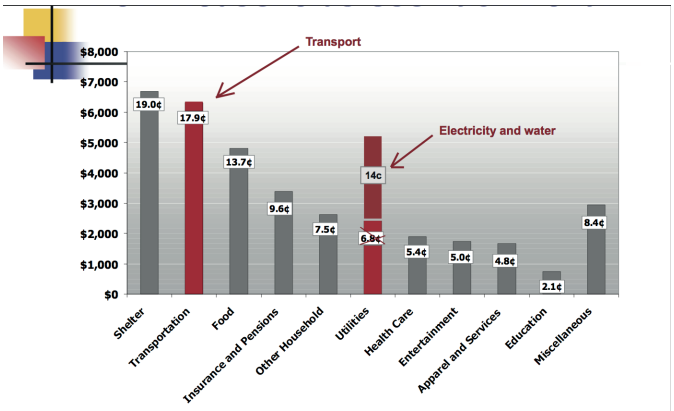


Of high significance is the peaking of car ownership and per capita travel distances – this trend now being evident in most industrialised economies. In Australia, per capita car ownership peaked in 2004. This trend has been attributed to rising petrol costs, increased concerns over obesity and health and also climate change concerns. Much more so, it has come about as our future citizens (Gen Y) are choosing to identify with their peers via ownership of IT devices rather than via (traditionally) ownership of vehicles.

Ballooning fuel prices set to transform travel choices

Looking forward, the consumer hip pocket (accepted as the most sensitive trigger in bringing about behaviour change) is in for a jolt.

During the past few years the Australian public has been stressed and outraged by a doubling of electricity prices in a five year period, this shock generating much public irritation and media coverage. Yet it comes as a surprise to most that the average household spends more on transport energy than on household electricity?



Tasmanian leads the nation in per capita car ownership and it turns out that our householders fork out more for petrol than they do for electricity. If petrol costs were paid quarterly, as electricity is, we would see much more outrage.

I'm predicting that the cost of petrol, especially in lower income homes, is set to become a highly vexed public issue in the next few years. Now that power utilities have re-set their electricity tariffs so as to pay for gold plating of their grids, industry analysts are reporting that electricity prices will now remain steady for at least the next five years. By contrast, as world oil supply is becoming increasingly constrained, industry analysts are forecasting asymptotic growth in fuel (and food) prices significantly above CPI levels. Public concern over energy costs is predicted to switch from the meter box to the petrol pump.

This predictable trend should be setting off

alarm bells amongst decision makers, because there's nothing like unaffordable cost of living pressures to make an electorate agitated and unhappy with their government. On the plus side, the affordability is likely to become a key factor in choice of travel modes.

Responses to the climate change imperative
Amongst climate change experts a sustained and unresolved debate rages over whether governments should focus on mitigation polices (i.e. reducing emissions) or adaptation polices (i.e. responding to climate emergencies). Both are considered important but they are generally viewed as distinctly separate policy areas.

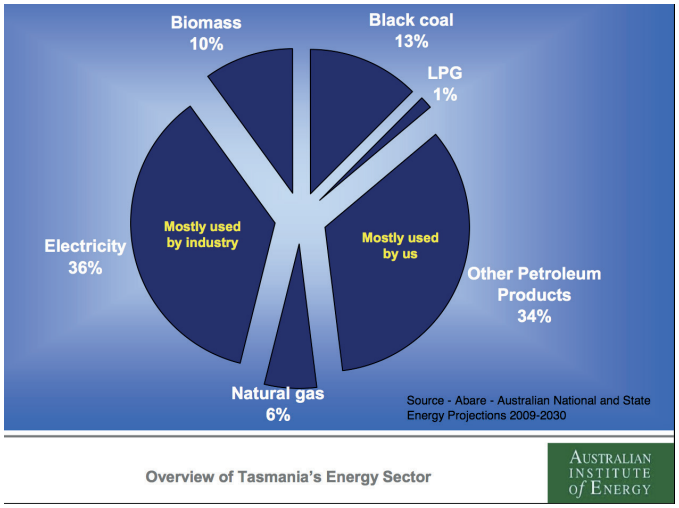
A more sensible and rigorous approach is to merge those two debates, applying a systemic analysis to public risk and moral responsibility. As it turns out, when using this systemic approach, public transport and urban reforms arguably offers by far the most cost efficient way to significantly reduce Tasmania's greenhouse emissions whilst in tandem building much greater resilience in our communities – as we become increasingly exposed to world climate and energy price constraints. It needs to be stressed that there is no policy area more beneficial to state, business and personal welfare that is making our urban forms more sustainable.

Why Tasmania needs to focus on its transport energy footprint

I've kept this one to last because it is perhaps the most important to get across.

When asked about renewable energy, it comes as a disappointment to proud Tasmanian citizens that less than 45 percent of our energy supply comes from renewable sources (hydro, wind and firewood). This lowly figure seems to fly in the face of the much touted call for '100 percent renewables by 2020'.

Again this yawning awareness gap stems because energy is viewed as equating to electricity alone. We invariably turn a blind eye the significant role that liquid fuel energy plays in the Tasmanian economy. We think of wind farms when often we should more prudently be thinking of fuel efficiency strategies.



This reality is revealed by a snapshot of Tasmania's energy 'pie'. Here we can see that Tasmania consumes almost equal amounts of electrical energy as it does transport energy. That's not the end of the story either. Take a look at the facts: Tasmania is almost self sufficient in its electrical energy needs and nearly all of that energy is renewable and produced within the state. By contrast, a full 100 percent of our liquid fuels energy is imported at great cost and none of it is renewable.

That's not the full story either. In terms of what we citizens and businesses can do to reduce energy demand, some three quarters of our electrical energy production is consumed by major industries, over which the citizenry has no control. By contrast, some 80 percent of our state's travel energy is consumed by our private cars and light vehicles.

Seen in this light, we can see that there is more scope for practical energy cost and pollution savings in the transport sector than there is elsewhere in the economy. We may well ask: *"Why, when we think of climate and energy policy, do we unthinkingly gravitate to the electricity arena?"*

I believe that this conundrum stems, in part, from our proud history in hydro electric power development but also because transport energy saving is too often relegated in our collective headspace to the too-hard basket.

Prospects for change:

The above shifts can all be expanded through many trend graphs, charts and references. What I've tried to relay, in short, is that transport

energy will inexorably come under the spotlight. External events beyond our control are set to shatter our common delusion that the transport status quo is more or less immutable.

These forces, as evidenced by a renewed focus on restoring Australian city architectures to make them more livable, will accelerate beyond our dreams. Though it is true that travel behavior change won't radically change in the absence of radical infrastructure improvements, there is ample scope for behavioural change even within the current urban setting. Fuel prices and health consciousness is already bringing about a strong desire for increased active transport. Hard data is not yet evident, but these behavior trends are indicated by the growing numbers of bike shops in Hobart, for instance.

On overcoming barriers to travel behavior, it is worth looking at anecdotal experiences that we educators have garnered through raising awareness in the area of household energy. To mentions just, in the early days when householders were being urged to install compact fluorescent bulbs and low flow shower heads, we were met initially with very solid resistance to them. People didn't like the light quality and they were accustomed to the luxury of showering under a deluge of water. In time those barriers have gradually lifted, resulting in almost universal changes in energy behaviours within households. I will confidently predict that the same pattern will follow with ravel behaviours once the populace understands the significance of travel energy in relation to their hip pockets, their health and their carbon footprint.

[Chris Harries is an environmental educator, specializing in energy issues. The above article is a summary of a presentation that Chris made to the IPA in Hobart, April 2014.]