

The Power of the Myth

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Myths are a fixture of human society, and provide several vital psychological services. People need to make sense of complex situations, and they need heroes with super-human powers. Myths have universal themes that help us understand moral dilemmas, right and wrong. Of course, the meaning of myth that I am referring to is a widely held false belief, or something that is fictitious or nonexistent. The interesting thing about false beliefs is that there is almost always a reason behind them. There is currently a Western Industrial mythology of simple solutions to a complex problem: alternative clean energy sources and technologies that will substitute for fossil fuels to support the lifestyles we are afraid to change. This package of myths includes fuel cells, hydrogen, biofuels for transport, carbon capture and storage, wave and tidal energy, air cars, and electric cars. The myths are easily communicated, easily believed, and once believed, difficult to dispel with facts. The green energy myths are low-cost compared to the loss of income which would be incurred by conventional fuel and transport markets if people started responding en-masse to the imperative of CO₂ emission reduction and the reality of fossil fuel depletion. Thus, we discover the purpose behind the creation and propagation of the Green Energy mythology. Every year that the general population can be made to wait for miracles and super-heroes, is another year of car sales, fuel sales, road building, sprawl development, jet-setting eco-tourism, entertainment governance and air-freighting of eggs to the USA. It also means another year lost and increased risks, with no changes in urban form or other innovations that would reduce the motorized travel demand and improve wellbeing.

Types of Myths

- Origin Myths
 - Cultural Capital
- Hero Myths
 - Harmless Entertainment
- Apocalypse Myths
 - Satisfy some personality types



Origin myths tell us who we are, where we came from, what is special about our people.

Hero myths ensure us that the good guy always wins. He may make mistakes along the way, and have failings, but he comes through in the end and saves his people by self sacrifice. (Beowulf)

Even apocalypse myths seem to have some usefulness for those who need them.

These kinds of myths are healthy and harmless really. All humans throughout all time have populated their psychic space with mythologies of existence and purpose. Not a problem, but rather part of the adaptation of a social species.

Types of Myths

- Widely held false beliefs
 - Tragic



However,

There are other types of myths, defined as widely held false beliefs, that are truly tragic. These kinds of myths cause harm, limit potential, repress, and give licence to violence and ignorance.

(outspoken women burned at the stake as witches)

(Spanish Conquistadores searching for the lost city of gold)

(Leaching, blistering and blood-letting to release evil humours)

Properties of Myths

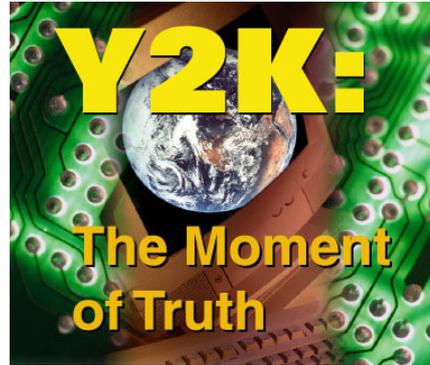
- There are some examples
- Anecdotal evidence sufficient
- Fulfil emotional need
- Self propagate
- Hard to eradicate
- Resistant to factual analysis



Friday the 13th is an un-lucky day. You probably know that is a myth, but the real question is, why do you even know that Friday the 13th is supposed to be unlucky? I'll use Fri the 13th as an example to illustrate the important properties of falsely held beliefs.

Widely Held False Belief Myths

- Example: Y2K



Remember this one? People around the world were preparing for a holocaust! In the USA, the computer people kept assuring people (reporters mostly) that there was no problem. But people stocked up on food, made sure their guns were cleaned... it was a scary moment. But it wasn't real!

Creating and Using False Belief

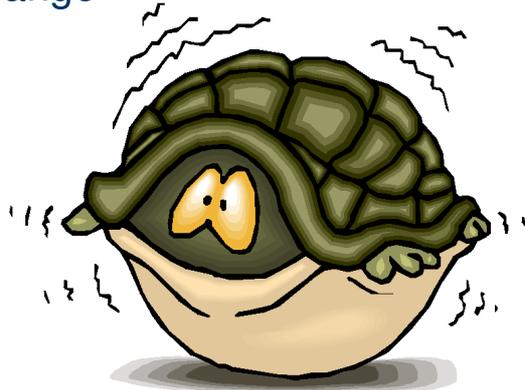
- Example: WMD's
- Manipulation



Of course, false beliefs can be created for a purpose.

Dangerous Myths

- Induce paralysis when action is needed
- Delay needed change



In the context of sustainability, dangerous myths are ones that stop or delay action to reduce and minimise un-sustainability. Over my years as a sustainability researcher, I have learned one important thing.

Sustainability is like safety:

- It is self-defining
- The measures of sustainability are determined by the specific conditions
- You can never be 100% sustainable
- The project of sustainability engineering is identifying, measuring, and working to **minimize un-sustainability**

Dangerous myths stop action to reduce or change un-sustainable resource use or environmental impacts

Dangerous Energy Myths

- Green Technology



Many dangerous energy myths are green. The green color is usually added by Photoshop.

We will take on some of these green technology myths in a moment, but first, we will make sure we understand the definitions, range of possibilities, and methods employed by energy myth propagators. Then I will teach you a method to use to bust dangerous energy myths.

Dangerous Mantra Myths

People won't give up their cars

Demand will continue to grow



Rail is obsolete and expensive, only 20% of freight goes by rail.

Have you ever heard statements that you just didn't have an answer to? Something that can be chanted like a mantra because we have heard it so many times? Something that invalidates the very reason for doing the work that would change the unsustainable petrol vehicle system into a sustainable active mode and rail connected system?

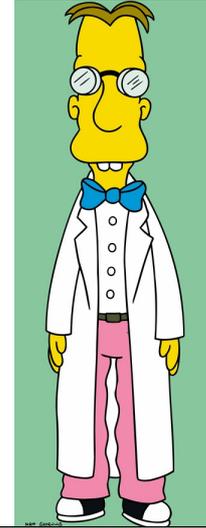
Dangerous mantra myths are aimed at stopping conversation, work, investment in anything but the short term money makers. "We need more energy for economic growth" Just like Friday the 13th, there is a link to past experience, there is an emotional negative feeling if you question it, etc.

So what should you do about dangerous Mantra Myths? Try to refute them with facts? That's a bit risky as myths are resilient to facts.

Here's what I suggest – OK, then we know the solutions if that's true, but what if it's not. What would we hypothetically do then? Isn't it a good idea to have a back-up plan?

Methods for Myth Identification

- Ask an expert
 - This is easy but very rarely used
 - Suspect if currently receiving Mythological research funding
- Use Dr. Krumdieck's Myth-Busting formula for non-experts!
 - Easy and simple to use



Now we move to dangerous green technology myths. I will teach you how to identify them which is usually enough of a treatment. Vapourware evaporates when exposed to the light of day.

Identifying Dangerous Myths

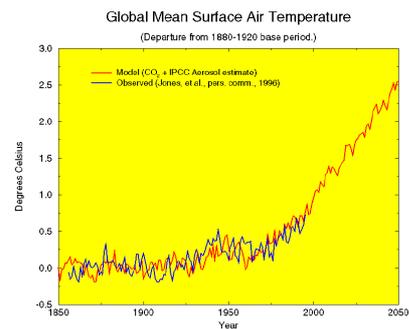
- Relevance Test
- Market Test
- Existence Test
- Delivery Test



There are four tests that are applied to a suspected green tech myth.

Relevance Test

- What was the reason for this green technology?



The reason for a green technology should be obvious:

- Reduces fossil fuel combustion
- Reduces energy demand
- Reduces environmental destruction

If the green technology does not do these things, it is a myth.

Market Test

- Could I make money selling it?
- Would subsidies, incentives be required?



Green
Energy
Transport



Solar PV

If this green technology existed, would someone want it? Or, would the government need to pay people to buy it?

Pictured: Nike PVC-free shoe. Not a myth. You could buy it if it wasn't sold out. It does reduce fuel use as it is an active transport mode alternative.

Pictured: More sustainable transport technology

Pictured: Solar PV – a green tech myth if it is used in the same sentence with “transport energy” “oil” “reduce our reliance on imported oil” “reduce greenhouse gas emissions”

Delivery Test

- Can I buy it?



Kindle: Amazon's 6" Wireless Reading Device (Latest Generation)

Other products by [Amazon](#)

★★★★☆ (4,700 customer reviews)

Price: **\$299.00** & this item ships for **FREE with Super Saver Shipping**. [Details](#)

In Stock.

Ships from and sold by **Amazon Digital Services**. Gift-wrap available.

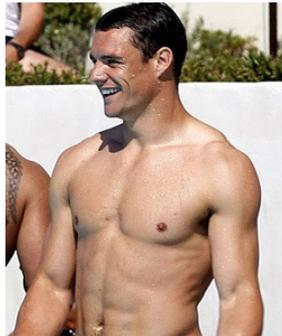
Is it available?

One of the hallmarks of greentech myths is that they are always almost ready to hit the market in just a few years. If you can test drive it and pay by cash or credit card, then it might be real!

Several years ago, there were stories about paper-less books, and how they would be available soon. Well, now they are, so it is not a myth.

Existence Test

- Real or Computer Animation?



Be careful of pictures.

Myth-busters need to know the difference between real and computer generated images. The image on the left is of an unbelievable, incredibly buff, shirtless, but real man (Daniel Carter). On the right is an image of an equally buff shirtless man, who has been generated with computer animation.

You have to do some practice, but you should be able to get to where you can tell the difference between reality and illusion.

Let's try some



Debunking myths

So, let's do some myth busting.

Example: Transport

What do we want?

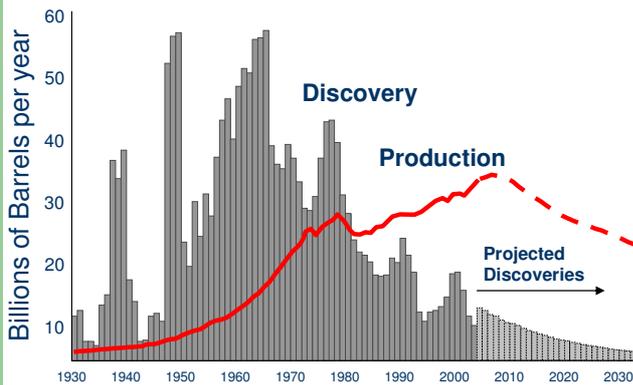
- Access to Activities
- Health, Safety, Wellbeing



Let's try in the all-important transport area.

Relevance: What must change?

Global Oil Production has Peaked and Will Decline



Level 1 Myth-Identification

- Relevance
- Market
- Delivery
- Existence

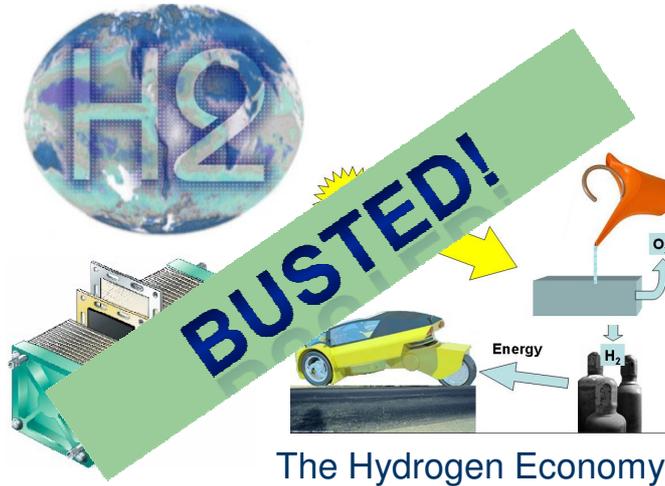
The advertisement features a blue car and a large green diagonal stamp that reads "BUSTED!". The text in the ad includes:

- "I saved over \$130 last month!" - Kara S.
- Run Your Car on WATER**
- ...as to **Double** Mileage!
- ...car into a water-burning hybrid!
- Conversion works on 99.9% of Motor Vehicles.
- Are you **TIRED** of high gas prices?
- Want to **DOUBLE** your gas mileage?
- Want a **CLEANER** emissions Vehicle?
- 

Here is an easy one. Run your car on water! Yes, it would reduce oil consumption. Yes, people would buy it, but... no you can't get one, and there isn't even a picture of the device. So, that one is busted.

Level 2 Myth Identification

- ☒ Relevance
- ☒ Market
- ☒ Existence
- ☒ Delivery

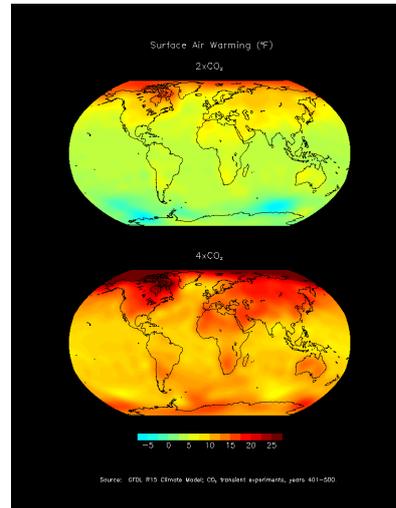
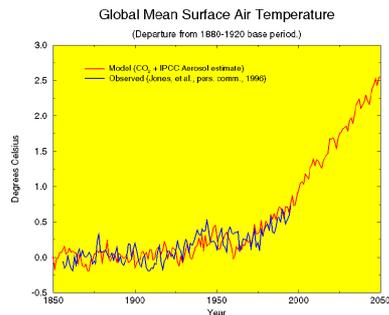


Let's try one that is a bit harder. Probably as many of you have heard of "the hydrogen economy" as have heard of Friday the 13th. It rolls off the tongue of politicians and economists with ease. And there are always "people working on it", companies announcing a big project, Honda does an advert in a magazine for a product that you cannot buy. You probably don't recall, but Daimler-Chrysler were going to have a fuel cell engine in a car and on the market by 2004? Remember Ballard Power Systems?

It's a powerful story, is the H₂ economy. We could use renewable energy to make electricity to make H₂ to store, then use it in our homes and cars.... But the energy used to go through hydrogen rather than electricity, which you can currently buy, would be much higher. So there is no reason to do this. It is a mega myth. Yes there are a few fuel cell buses. There are also a few space shuttles, still not relevant to the question of how to use much less fossil energy for transport.

Level 3 – Advanced Mythbusting

Carbon Capture and Storage “CCS” delays needed change



Has anyone heard of carbon capture and storage? You should ask yourself why you would have heard of a particular piece of power plant equipment when you probably can't name the function of any other power plant component.

What is it?

A Story

Who talks about it?

Coal Industry

Why is it relevant?

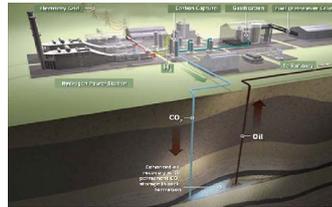
The IPCC says we must have CCS. It is the only hope to reduce CO₂ emissions and avert disaster. This is because nearly 50% of all stationary emissions comes from pulverised coal fired power plants.

So, let's see if it is going to happen, or if we need to start working fast on plan B.

Pulverised Coal Power



- x Relevance
- x Market
- ✓ Existence
- Delivery



Carbon Capture and Storage

Of course it would be relevant to capture the CO₂ from power plants and push it underground and have it stay there. But. The problem is that not even the proponents of CCS will assert that it could be done for pulverised coal fired power plants. There is not one company in the world that makes equipment for power plants (e.g. GE, Alstom, Siemens...) that has even one design engineer working on CCS conversion equipment for existing power plants. See how tricky it is? There are scientists and companies like Solid Energy “working” on some elements of CCS, mostly they are pumping CO₂ into old gas or oil wells. However it is not in any way relevant to the problem!

Does it exist? No. CCS from coal power plants does not exist. It is computer generated mythology. Very, very dangerous mythology. How many researchers are working on reducing electricity demand so that the amount of coal used in power plants can be reduced? CCS is delaying real action and real research on addressing the real problem.

Advanced Myth Identification

- x Relevance
- x Market
- x Existence
- x Delivery



40% Electric Cars by 2030

OK, here comes a hard one.

It's hard because it is both a myth and a truth. Yes, electric cars exist. They are called golf carts. Yes there would be a market for personal automobiles that were cheap and electric and could do what petrol cars do, but that does not and will not exist. Yes, there is a story that we could charge up our cars with wind, and then that power could be put into the grid at peak times, and then... "Power to the People" it is called.

And yes that is a myth of epic proportions generated by one of the master myth tellers of our time, Amory Lovins. But, no, you can't buy such a vehicle. And no, the power grid does not work like the internet.

Yes, we could re-build our cities around electric trams and buses and golf carts with the rest of the oil, and we'd be sweet. But no, we do not need more freeways and roads because we are going to "replace" our petrol cars with electric cars! That is a myth.

Dangerous Transport Myths

People won't give up their cars
We need more roads



We are now driving more than ever before, more freight is being moved by truck than ever before, we own more cars per person than ever before, we use more fuel now than ever before...

These things are all true, and they are all true of the conditions at the peak of a boom-and-bust cycle. The year that the North Atlantic Cod catch was the all-time high was the peak just before the collapse of the fishery. Investing in more roads when you are at the peak is a waste of money.

After the Myth Busting

- What do you do to start making relevant changes now?

There are people working on it, and I'm going to show you some real stuff!

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 **AEMS Lab**
Advanced Energy and Material Systems

Susan Krumdieck
Systems, Energy, Combustion, Fuels, Vehicles

Andre Dantas
Modelling, Networks

Shannon Page
Modelling, Futures Engineering

Mechanical Engineering: Complex

Civil Engineering: Transportation,

Alternative Energy Technology,

Adaptation Research

- Assess your exposure to fuel price rise
- Explore your adaptability
- Assess your car dependence

TACA Sim

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The screenshot shows the TACA Sim website in a Windows Internet Explorer browser. The page title is "TACA Sim" and the URL is "http://www.tacasim.aemslab.org.nz/node/updateProductRequest.do?_productid=10291". The page is divided into several sections:

- 1. Personal Info**
- 2. My Vehicles**
- 3. My Travel Schedule**: A calendar view with days from Monday to Sunday. Monday is highlighted in yellow. Below the calendar is a "Months" dropdown menu set to "Month" and an "Edit my profile" link.
- 4. Analyse Results**: Includes "Save & Resume Later" and "Show All User Data" links.
- Update trip**: A form for updating trip details. It includes fields for "Activity Description" (set to "to work"), "Purpose" (set to "Home"), and "Importance of the activity" (set to "Low").
- Vehicle and Trip Information**: Includes "Mode of Transport" (set to "CRV"), "Your Role" (set to "Driver"), "Number of people in the vehicle (including driver)" (set to "2"), and "Alternative Travel Method" (set to "Bus").
- Trip Distance and Mapping**: Includes "Origin" and "Destination" address fields, "Departure Time" (set to "9:00"), "Arrival Time" (set to "9:20"), "Distance Travelled" (set to "20" km), and "Duration" (set to "20" mins). There is a "Swap" button between the origin and destination fields.
- Show Route**: A button to view the route on a map.
- Map**: A map of Christchurch, New Zealand, showing a yellow route between two points.

You can go onto our website and do a transport self assessment. The program also records your transport data and we can use that to study adaptability to fuel use reduction.

Current NZTA Research Project



University of Canterbury

- Academic Staff
- General Staff
- Students

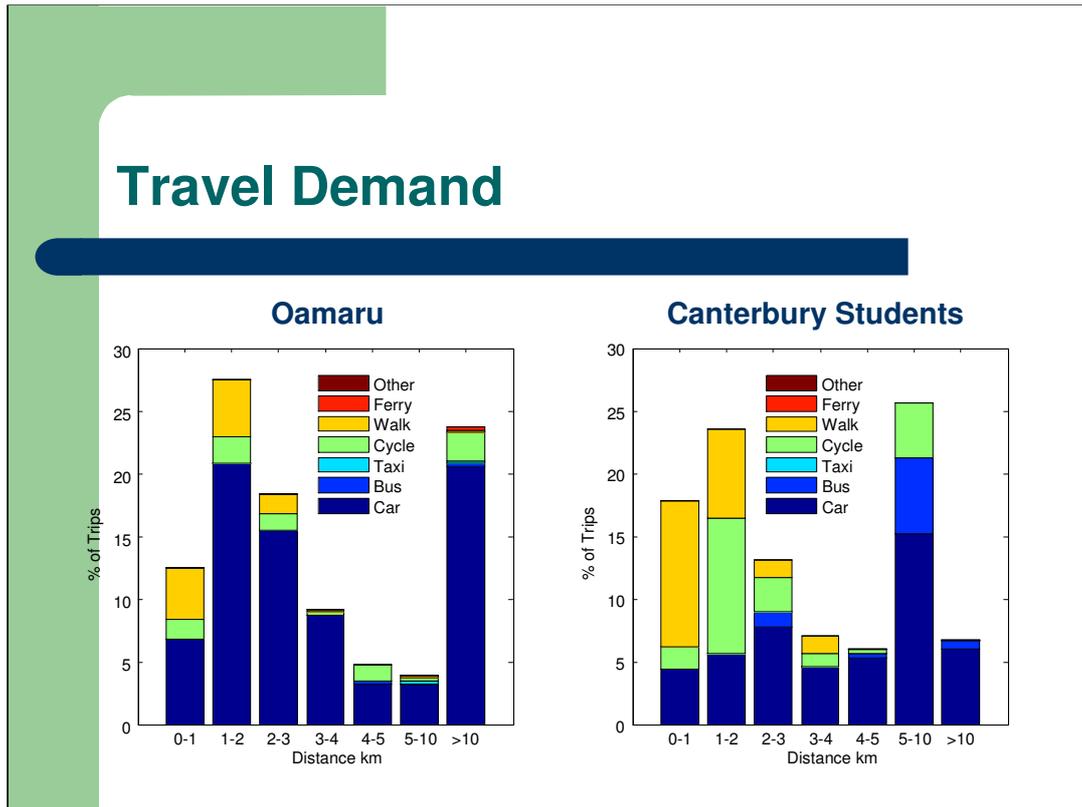


Oamaru

- Rural activity centre
- Income distribution

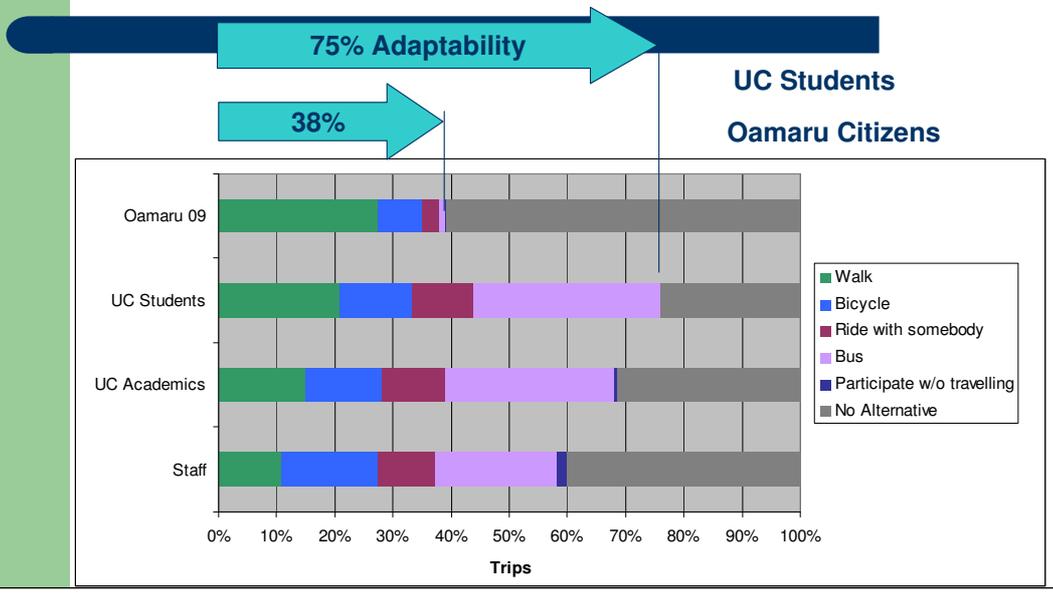
We are currently half way through a study that is conducting the self-assessment and survey in Christchurch and Oamaru.

Travel Demand



The travel demand data is very useful for council planners looking to understand bus usage or plan for putting in bus services. It also tells us a lot about the demand for walking and biking infrastructure. Especially in the future.

Adaptation of Car Use



We asked people for every car trip they put into the system, “do you have another way to make that trip?” The answers are mind-blowing. Of course students are very adaptable, but to find out that 60% of car trips made by staff could be done some other way is a smart bomb aimed directly at the “people won’t give up their cars” myth.

Conclusion?

- Don't leave Myth Identification to the experts
 - No body listens to them
- Be careful, but get out there and start Myth-Busting
- Homework assignment:
 - Biofuels for Transport



Well, where do we go from here? Myth busting is important, because it must be done in order to start work on real solutions and real change.

Anyone can do it, and everyone should!

With the simple techniques I have taught you, you can be a myth-buster, and probably the life of the party! Don't let them call you a dooms-dayer – you are a truth-teller.

What about biofuels? (Hint, see electric cars)

Relevance Test

- If we had biofuels and electric cars, everything would be green?



Abstract

Myths are a fixture of human society, and provide several vital psychological services. People need to make sense of complex situations, and they need heroes with super-human powers. Myths have universal themes that help us understand moral dilemmas, right and wrong. Of course, the meaning of myth that I am referring to is a widely held false belief, or something that is fictitious or nonexistent. The interesting thing about false beliefs is that there is almost always a reason behind them. There is currently a Western Industrial mythology of simple solutions to a complex problem: alternative clean energy sources and technologies that will substitute for fossil fuels to support the lifestyles we are afraid to change. This package of myths includes fuel cells, hydrogen, biofuels for transport, carbon capture and storage, wave and tidal energy, air cars, and electric cars. The myths are easily communicated, easily believed, and once believed, difficult to dispel with facts. The green energy myths are low-cost compared to the loss of income which would be incurred by conventional fuel and transport markets if people started responding en-masse to the imperative of CO2 emission reduction and the reality of fossil fuel depletion. Thus, we discover the purpose behind the creation and propagation of the Green Energy mythology. Every year that the general population can be made to wait for miracles and super-heroes, is another year of car sales, fuel sales, road building, sprawl development, jet-setting ecotourism, entertainment governance and air-freighting of eggs to the USA. It also means another year lost and increased risks, with no changes in urban form or other innovations that would reduce the motorized travel demand and improve wellbeing.