

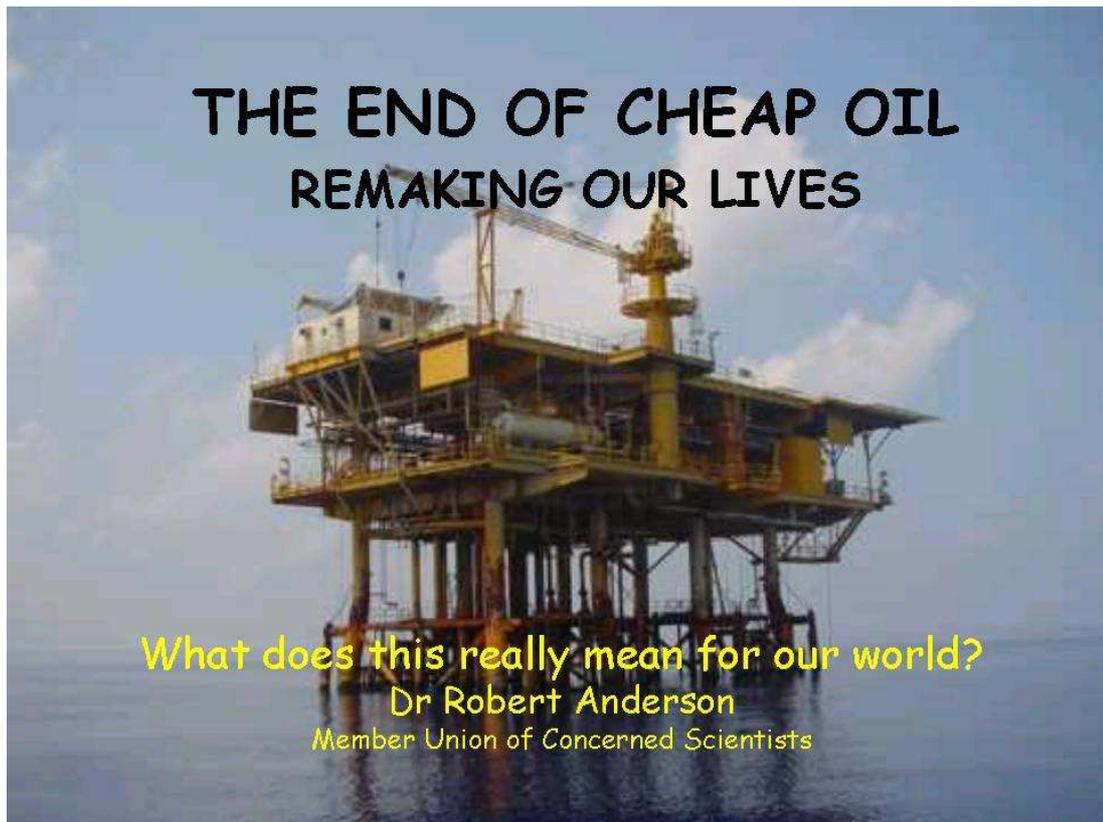
PEAK OIL

The end of cheap oil – remaking our lives

A public lecture given by Robert Anderson
(Length: 41 pages and 67 slides)

The “Peak Oil” lecture was first presented in New Zealand in 2006

Sadly, Robert died on 5 December 2008



I want to talk with you tonight about a subject which will have a very dramatic effect on all our lives. Climate Change and Peak Oil – both of these are inextricably linked. This talk concerns issues that need addressing urgently and there is a definite reluctance at government level to do so.

What will we do when oil runs out?

Let us recap and remind ourselves about this non-renewable resource.

Slide 2 – Where does oil come from?

PETROLEUM & NATURAL GAS FORMATION

OCEAN
300-400 million years ago

OCEAN
50-100 million years ago

Sand & Silt

Plant & Animal Remains

Sand & Silt Rock

Oil & Gas Deposits

Tiny sea plants and animals died and were buried on the ocean floor. Over time, they were covered by layers of silt and sand.

Over 50 - 100 million years these remains were buried deeper and deeper, the enormous heat and pressure eventually turning them into oil and gas.

Today, we drill down through these layers of sand and rock to reach the rock formations that contain these oil deposits. 2

Slide 3 – An alternative view point

We can of course take the humorous alternative offered by 9-year-old Susie Green when asked by her teacher where oil came from.

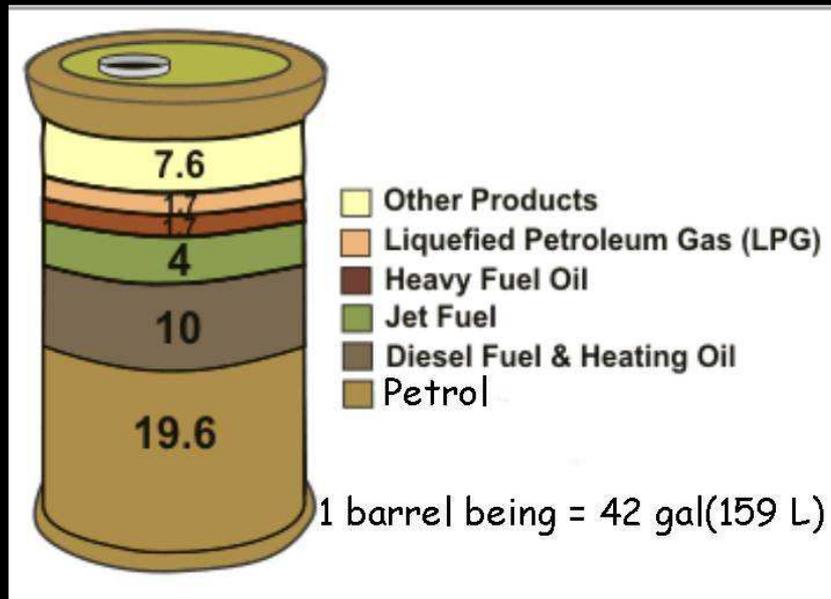
"Many dead animals in the past changed to fossils, but others preferred to be oil." 3

Whatever explanation we accept, this valuable resource *is* running out.

The media constantly remind us of the increased price per barrel, etc. So what is a barrel?

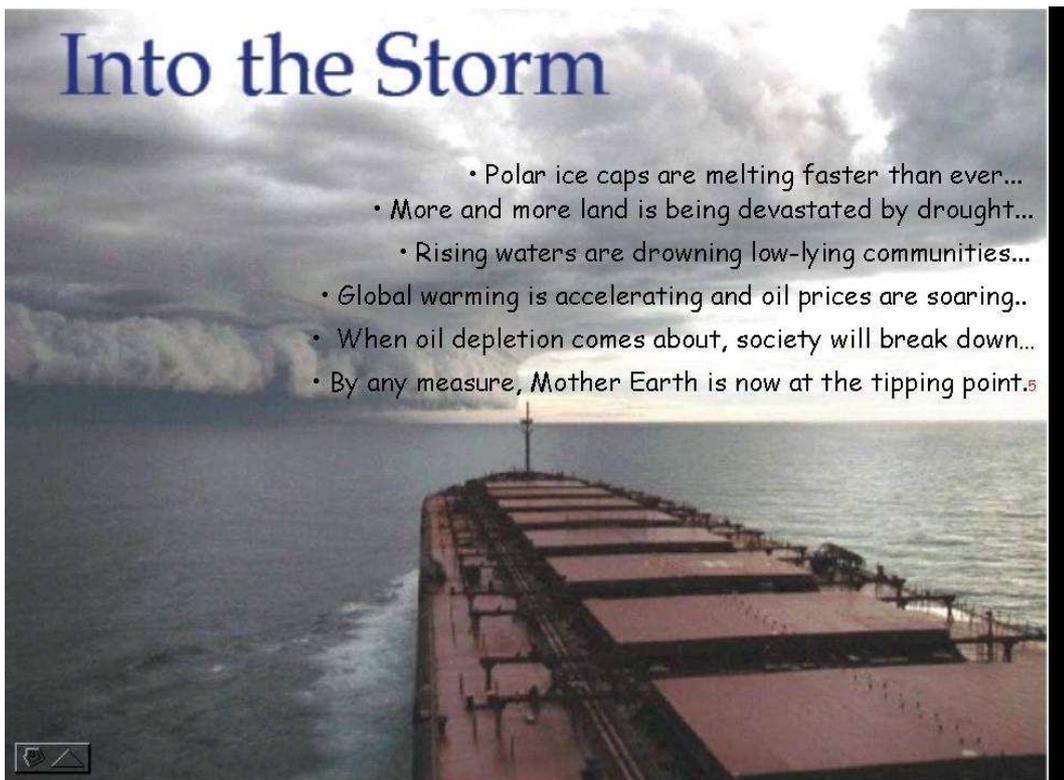
Slide 4 – The barrel

So what do we get from "cracking" a barrel of crude?



Like popcorn, we get slightly more when oil is *cracked*.

Slide 5 – Sailing into the storm



Into the Storm

- Polar ice caps are melting faster than ever...
- More and more land is being devastated by drought...
- Rising waters are drowning low-lying communities...
- Global warming is accelerating and oil prices are soaring..
- When oil depletion comes about, society will break down...
- By any measure, Mother Earth is now at the tipping point.⁵

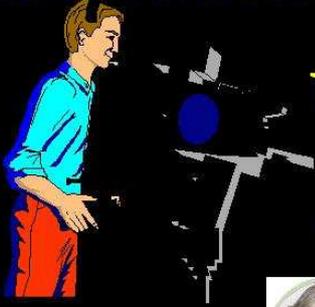
New Zealand was not called the “half-gallon, quarter-acre, pavlova-paradise” for nothing. When I arrived almost 40 years ago I felt I had reached a paradise. And we have had it good in comparison to many other countries. Unfortunately, things are about to change.

We can no longer afford to just sit and continue to enjoy the status quo. And, apart from the Green Party and a few others, we are not doing anything to allow for a soft landing.

Slide 6 – What will the storm bring?

This storm will cause an economic, political and social crisis.

If you leave this talk and go home with no worries, I have failed to clarify the significance of the problem.



The information is *not* to be found in the mainstream media or government announcements apart from those from the Green Party.



<http://www.greens.org.nz/searchdocs/PR9100.html>

Let me show you Mr average New Zealander.⁶

Let me show you the average New Zealander.

Slide 7

I'm sure you all know the story of the frog.



Well, we're doing exactly the same!⁷

Like the frog, we sit in an ever growing critical situation. The definition of critical is a series of events that, if neglected, becomes terminal. We need to get out of the pot and start rethinking our life styles. We are no only heating the planet, but ourselves as well. Let's take a look at the situation here.

JUST A FEW HEADLINES TO MAKE THE POINT:

"The End of Cheap Oil" - National Geographic - June 2004

"World Oil and Gas Running Out" - CNN -10/02/03

"Fossil-Fuel Dependency: Do Oil Reserves Foretell A Bleak Future?" - San Francisco Chronicle 4/02/04

- **"Oil Reserves Falling"** - The Economist - 21/6/03

"Energy Crisis Will Limit Births" - BBC News 13/2/04

Debate Rages on Oil Output by Saudis in Future"
- The New York Times -25/2/04

The End of the Oil Age: Ways to Break the Tyranny of Oil are Coming into View. Governments Need to Promote Them" -AAP -23/10/03 8

So what are we doing wrong?

Slide 9 – CO₂ pumped out



In 2004, we pumped about 15,000,000,000,000 pounds of carbon in the form of heat-trapping CO₂ into the atmosphere - ditto millions of tons of other greenhouse gases. This is about 40 times the combined total weight of the entire world population.

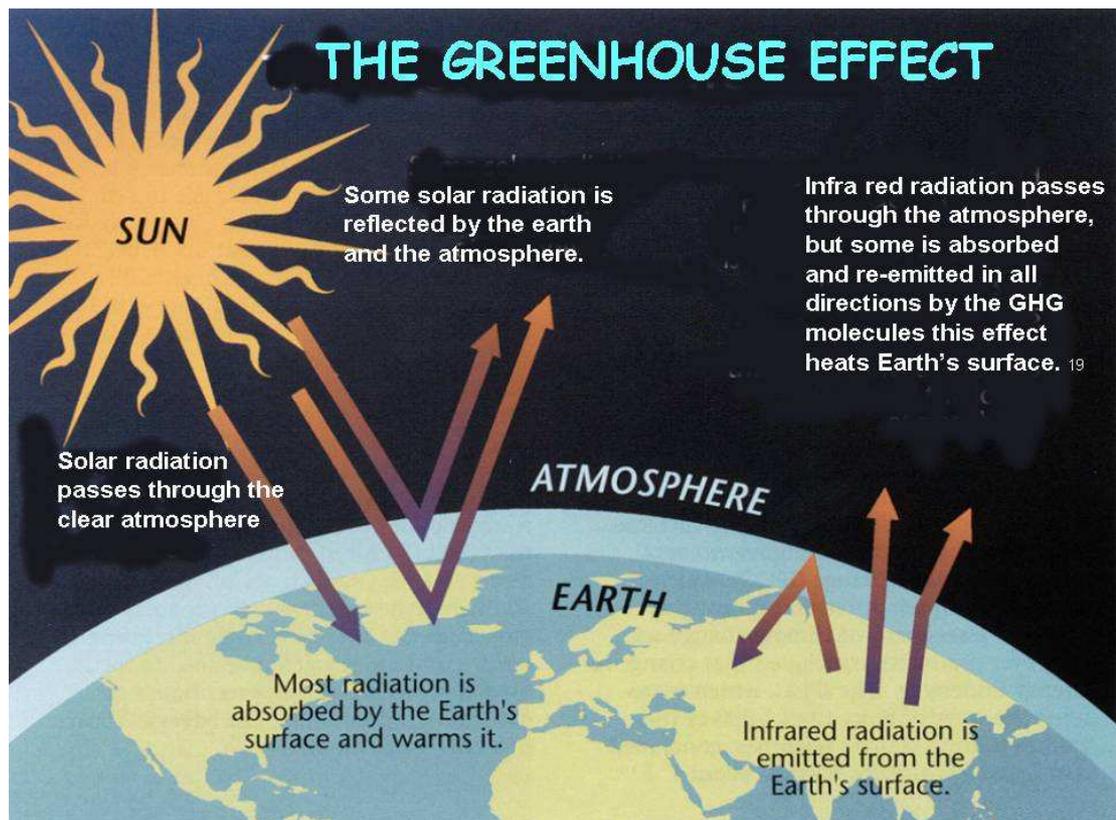
Unnecessary, unsustainable hyperconsumerism and over consumption are tearing the fabric of life on Earth apart. We are converting thousands of tons of materials to garbage, which is rapidly engulfing us - like sinking into quicksand.



There is now evidence aplenty to support this argument. So how did we get to this point without the media even questioning the economic and political system that has now, according to Dr Lovelock, pushed us over the edge of the abyss? He is amply backed up by thousands of top scientists worldwide.

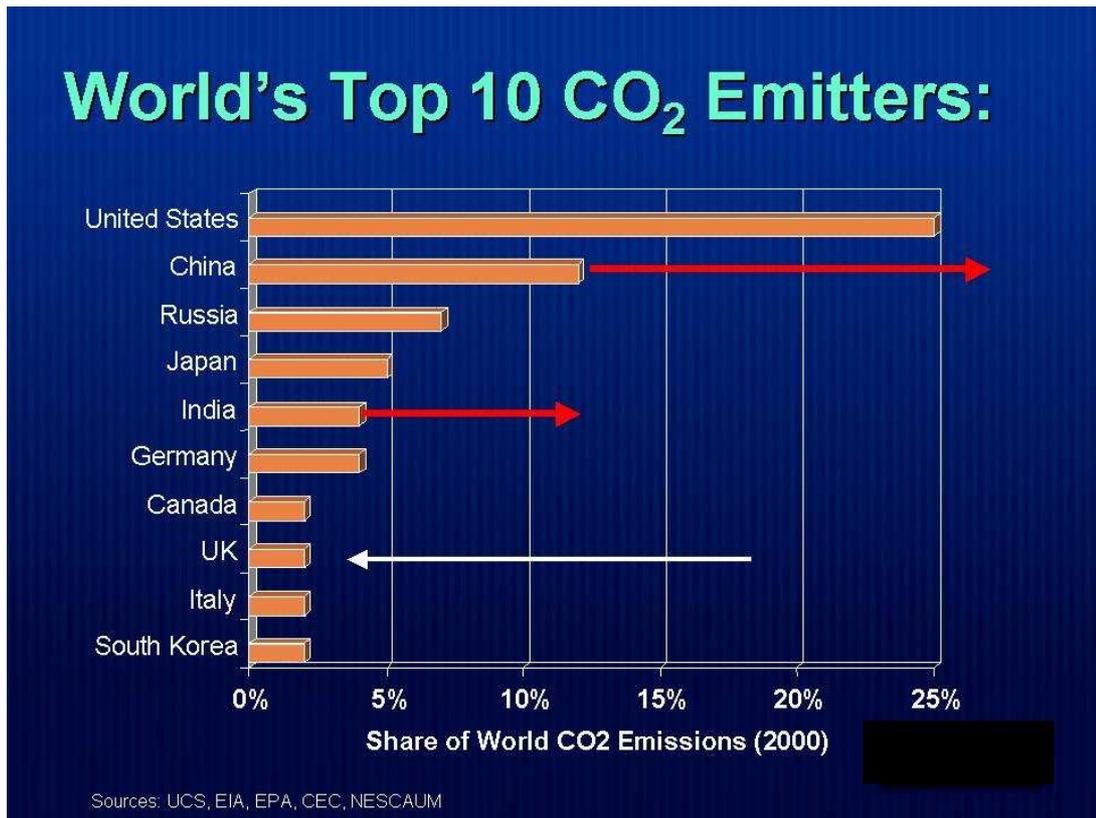
Just to remind you how this works ...

Slide 10 – How global warming works

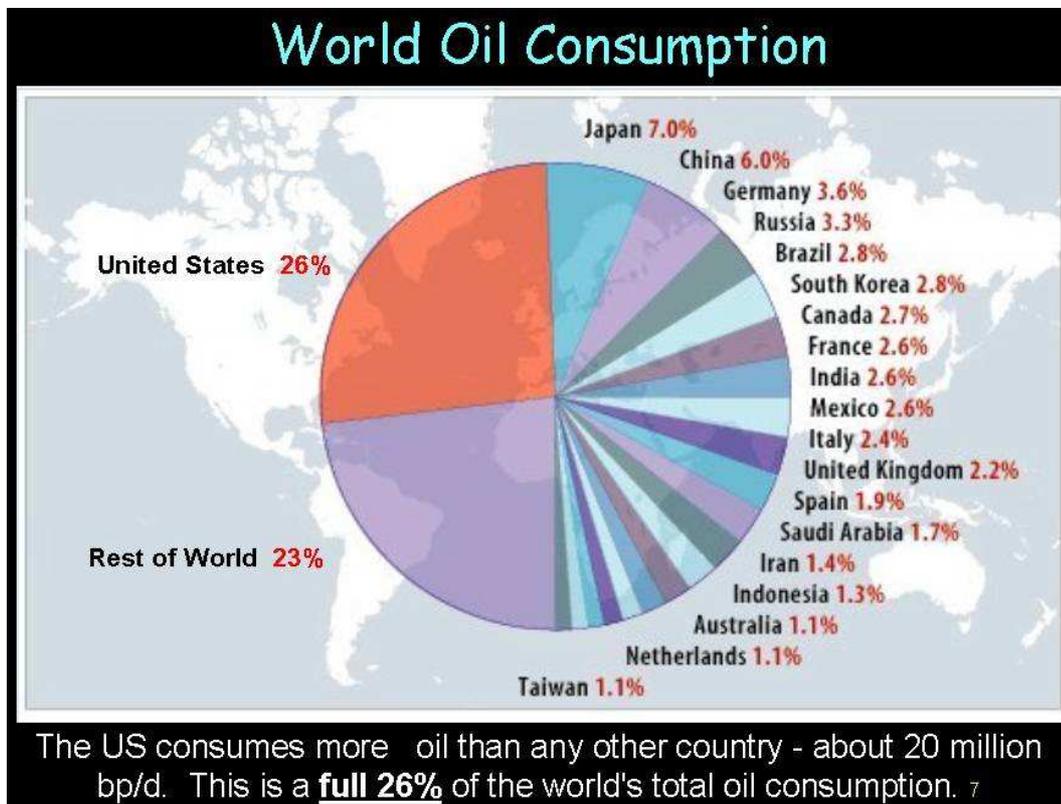


Thus the thicker our CO₂ blanket, the hotter we will get. This is where the term Greenhouse effect originates. So who are the guilty?

Slide 11 – World's top CO₂ emitters (N.B. as at the time of the lecture.)

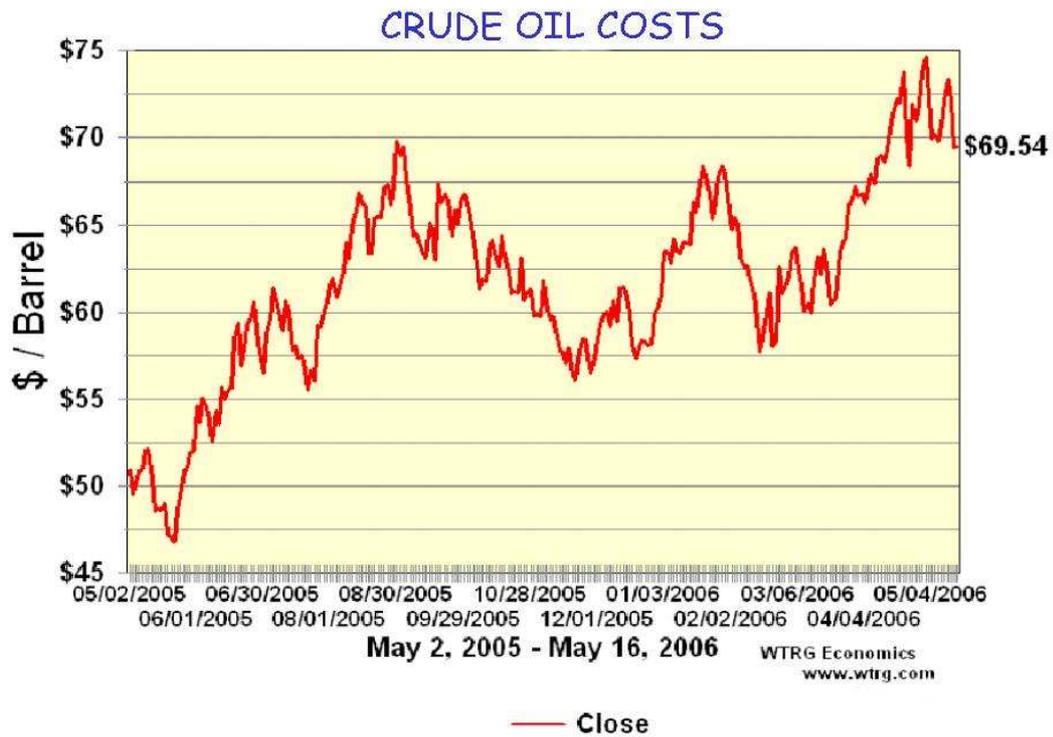


Slide 12 – World oil use (N.B. as at the time of the lecture.)



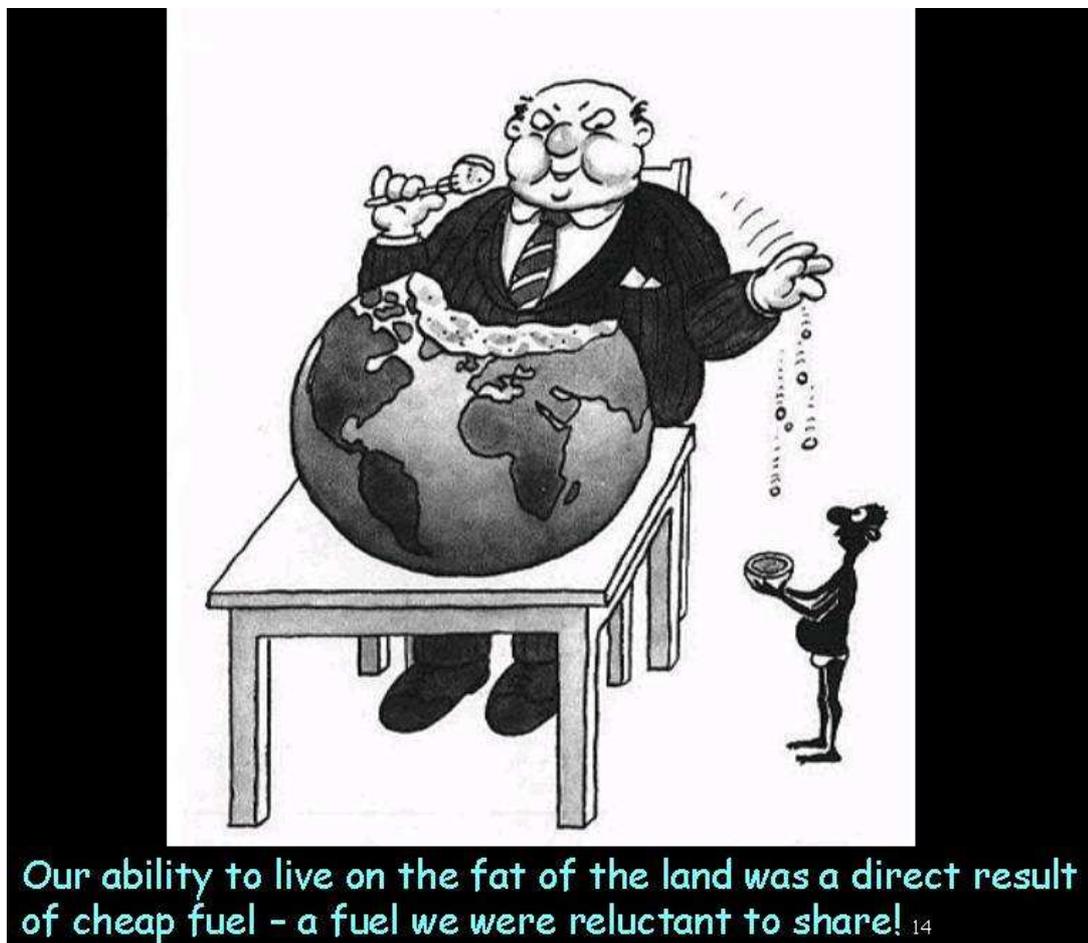
We only have to look at the price of crude oil to realise this is unsustainable.

Slide 13 – Increasing costs of crude oil (N.B. as at the time of the lecture.)



Further, we have not been keen to share this resource.

Slide 14



This has brought us to a precarious position.

Slide 15 – Scientists' warnings

A recent report was backed by 1360 scientists from 95 countries - some of them world leaders in their fields. These scientists warned that almost two-thirds of the natural machinery that supports life on Earth is being degraded by human pressure. The study contains what its authors call "a stark warning" for the entire world.

The wetlands, forests, savannahs, estuaries, coastal fisheries and other habitats that recycle air, water and nutrients for all living creatures are being irretrievably damaged.



Alas, poor world, what treasure hast thou lost!

William Shakespeare¹⁶

We should not ignore this warnings. Scientists are generally a very conservative lot.

Government advisers are generally in tow with industry representatives. They will, and do, often given misleading advice to ministers whose portfolio they hold. Ministers are not really accountable and they often understand little of what they are in charge of. Campaigners know this from dealing with the genetic engineering and pesticide issues. The peak oil crisis is even more complex.

Only independent scientists such as those in the Association for the Study of Peak Oil (ASPO) can be trusted to give unbiased advice.

And, like the report above, it is not good. So how will it affect us?

Slide 16 – Running out of oil



What will it mean for us as oil runs out?

It will be very hard for New Zealanders - lost in the raptures of non-stop infotainment, recreational shopping and compulsive motoring - to make sense of the gathering forces that will fundamentally alter the terms of everyday life in our technological society.

It will need gigantic steps in re-thinking our lives and how we live them in a future running out of oil. ¹⁶

We not only use oil in our cars. World air travel is expanding fast. Airlines are not keen to give out their oil usage, but it is worth looking at some figures here.

Slide 17

A single flight from New York to Stockholm burns 51.5 tonnes of kerosene which produces.....



- 162 tonnes of CO₂**
greenhouse gas
- 100 kilograms of CO**
high-altitude ozone formation: greenhouse gas
- 51 kilograms of SO₂**
acid rain
- 64 tonnes of H₂O**
forms cirrus clouds: more global warming
- 900 kilograms of NO_x**
high-altitude ozone formation: greenhouse gases

Total aviation kerosene we burn annually 130 MILLION TONNES ¹⁷

Obviously, we are not going to be able to continue to flit around the globe. Indeed, we may see more and more of these types of advertisement.

Slide 18 – Real Estate



Bringing Real Estate to YOU

City circle - with character and charm

Very Roomy Family Home - **bargain at \$140,000 negotiable.**
Owner real keen to sell. Walking distance to Manukau Shopping Centre. 59

All joking aside, let us now have a look at peak oil in some detail.

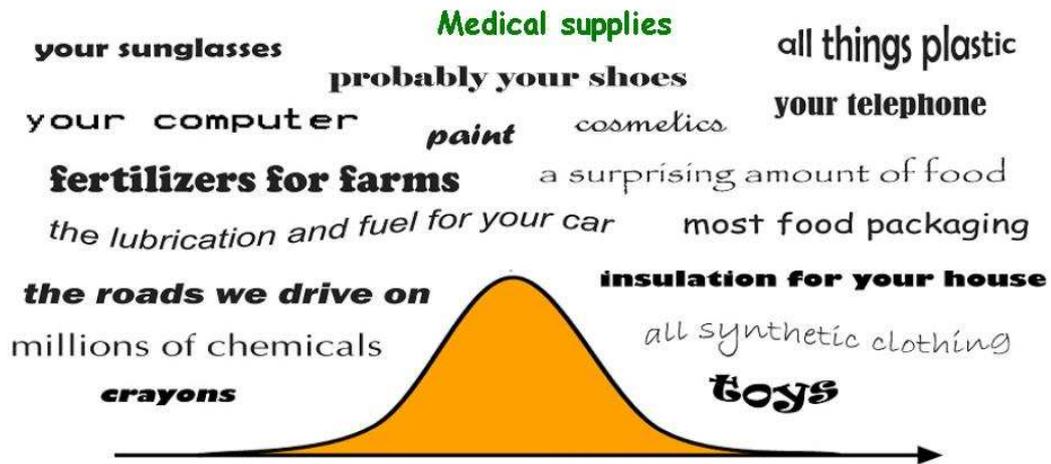
What is Peak Oil?

- **The year that an area's oil production reaches its maximum.**
- Implies that half the oil is gone at that time.
- **It does not mean "running out of oil."**
- It does mean a continuous decline in production.
- **It implies a huge societal change – Oil will be very expensive**
- It refers to "conventional" or "regular" oil – Other sources exist with higher cost and more pollution ¹⁷



I want to look at just how desperate we will be as a society from this sinking resource. We need to look more closely at the importance of oil. What is made from oil?

What's made from oil?



In short, our whole society revolves around OIL. 18

It should be obvious from this that peak oil represents a very real crisis. In light of these facts, it is also worth looking at the food producing issue in particular.

Slide 21 – Food production

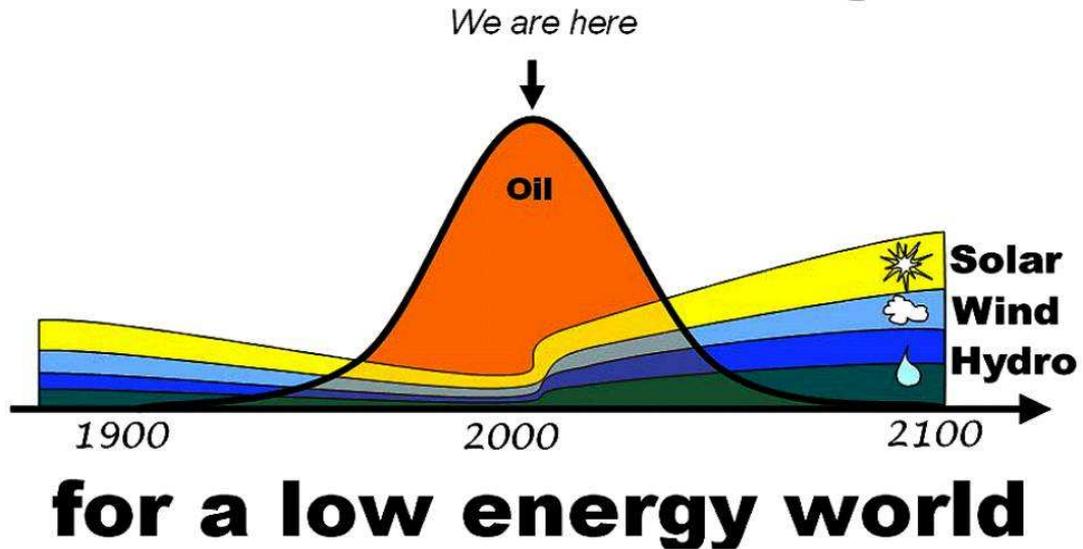
Approximately 10 calories of fossil fuels are required to produce every 1 calorie of food eaten. The size of this ratio stems from the fact that every step of modern food production is fossil fuel powered:

1. Pesticides are made from oil;
2. Commercial fertilizers are made from ammonia, which is made from natural gas, this will peak about 10 years after oil;
3. All our farming implements, tractors, mowers are constructed and powered using oil;
4. Food storage systems such as refrigerators are manufactured in oil-powered plants;
5. In the US, the average piece of food is transported almost 1500 miles before it gets on to a plate. In Canada, food is transported 5000 miles from where it's produced. It's much the same in NZ.

In short, people gobble oil like two-legged SUVs. 19

So we have to get ready for a low energy world.

Get ready



It is worth looking back at a little history. One of the scientists who first pointed out the peak oil issue was Dr King Hubbert. When he originally warned governments that there would be a peak in oil production, they simply laughed at him. Including his employer, Shell Oil.

When the US oil supply peaked in the 1970s, the laughter quickly died away. The US, for the first time, became profoundly dependent on other countries for her oil. Only after this did they realise just how frighteningly correct Hubbert was.

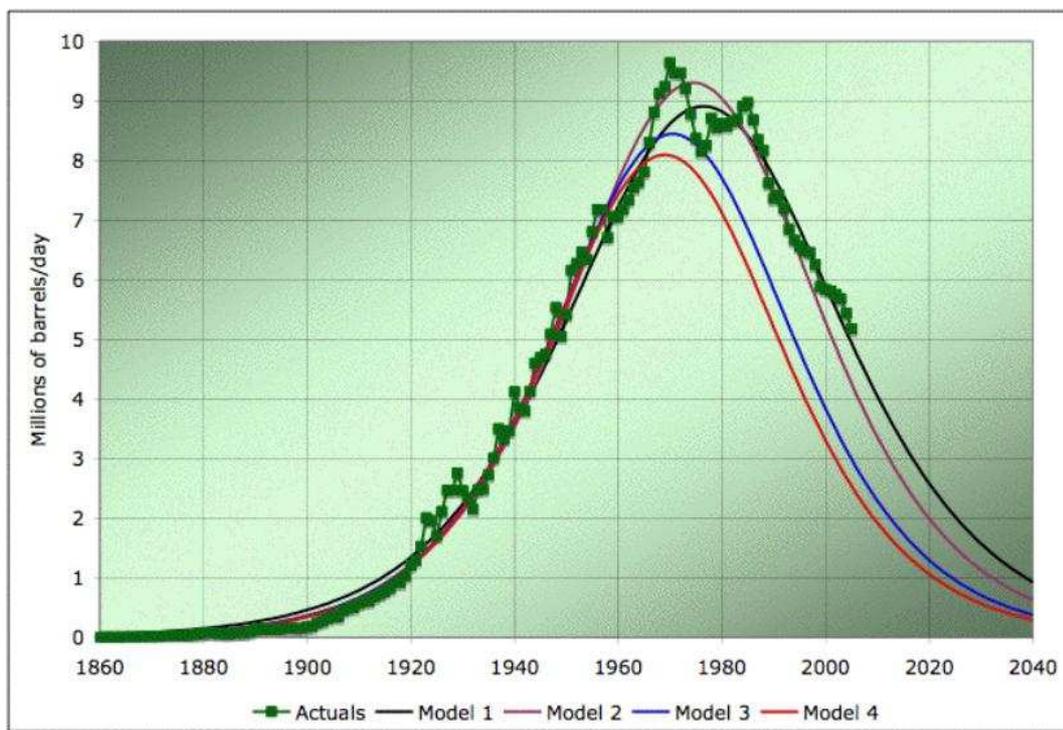
Slide 23

Peak Oil Discoverer - Dr King Hubbert 1903-1989

- Shell Oil Geologist/Petroleum scientist – Highly qualified and very courageous.
- In 1954 he predicted 1970 as US Peak oil year.
- Universally criticized at the time – After 1970 he became highly respected.
- In 1984 he predicted the WORLD's peak oil would occur during the early 2000. ²¹



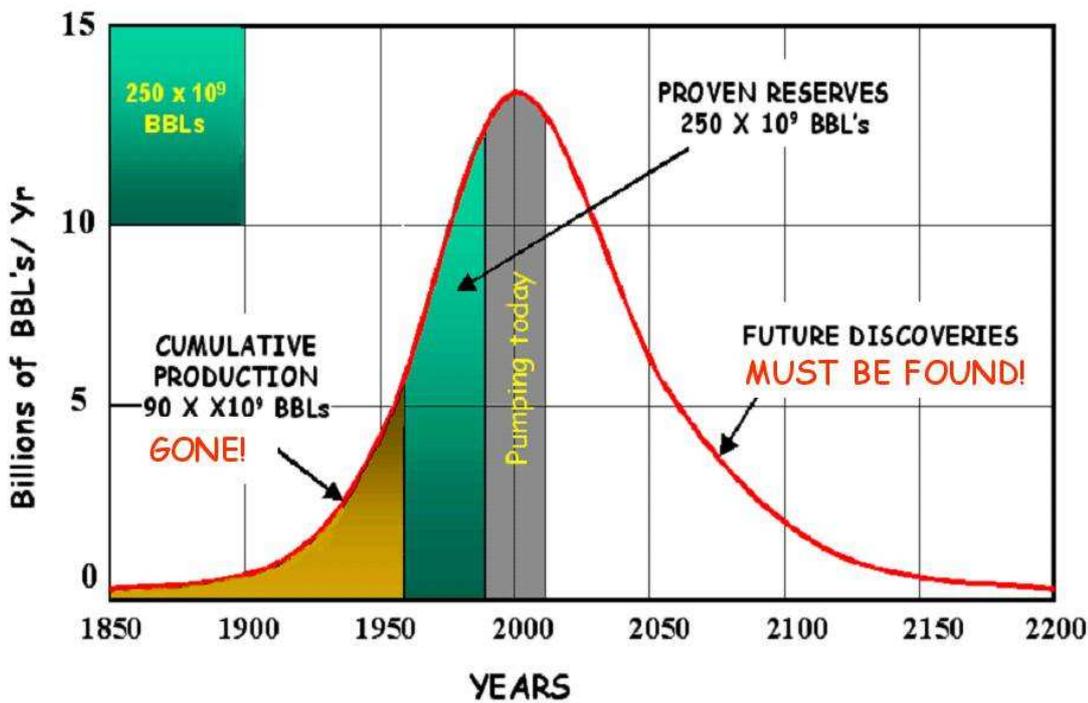
Slide 24 – What the US curve looked like



This is the famous "Hubberts Curve" for US oil.

If we look now at the world's shortfall, also predicted by Hubbert, we get the following graph.

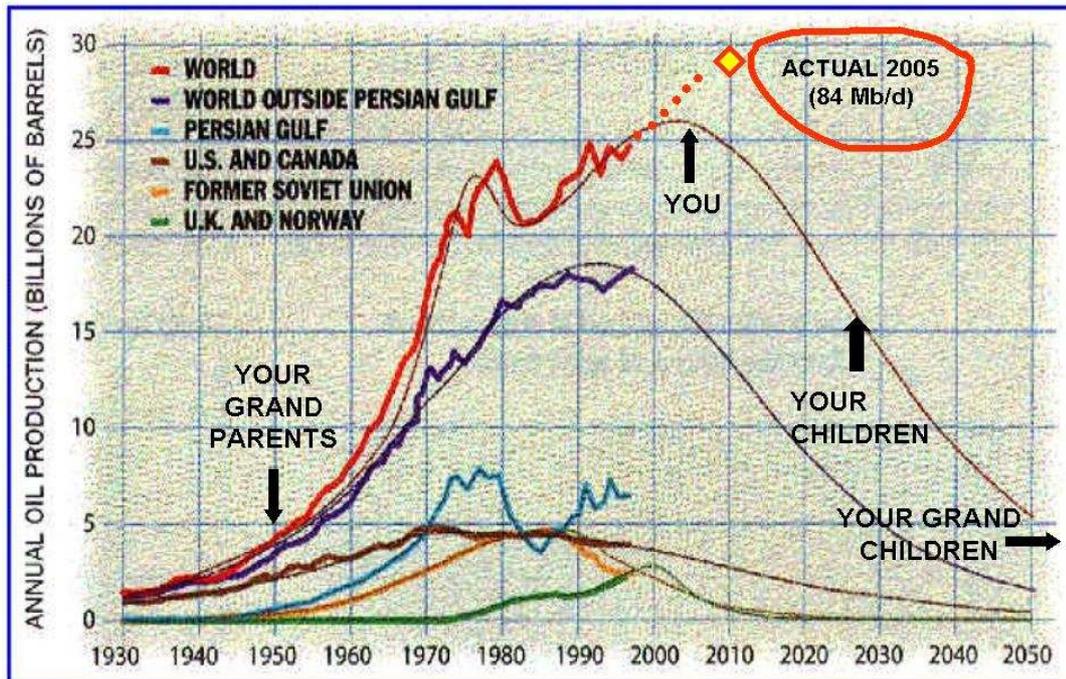
Slide 25 – Hubbert Curve



HUBBERTS CURVE FOR WORLD PRODUCTION.

From this curve, we can see some scary facts starting to emerge.

Slide 26 – World curves with historical significance



Looking at world production – some scary facts!

What does this mean?

Slide 27

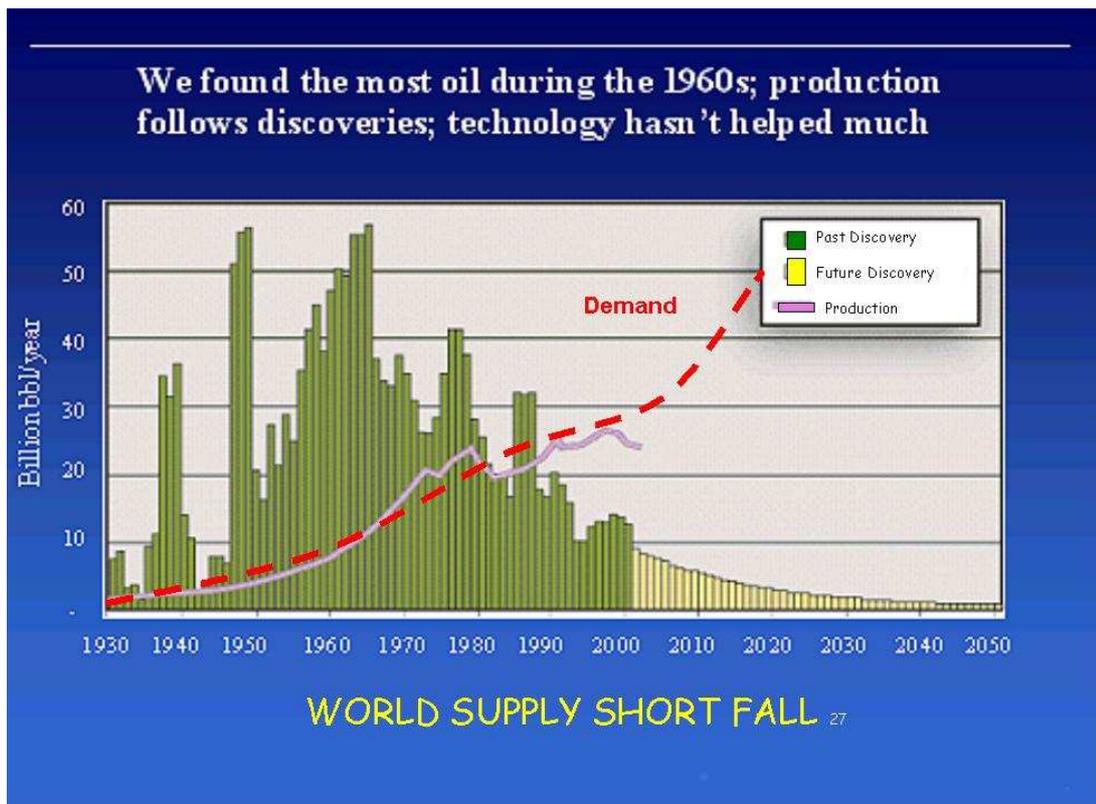


Slide 28 – Underlying facts

THE UNDERLYING FACTS

- World oil discovery peaked in 1964.
- World oil production is declining while world oil demand is rising.
- We are consuming 5-6 barrels of oil for each barrel that is being discovered.
- China and India (over half the world's population) are now rapidly expanding their economies and their fuel use (~8% growth per year)! ²⁶

Slide 29



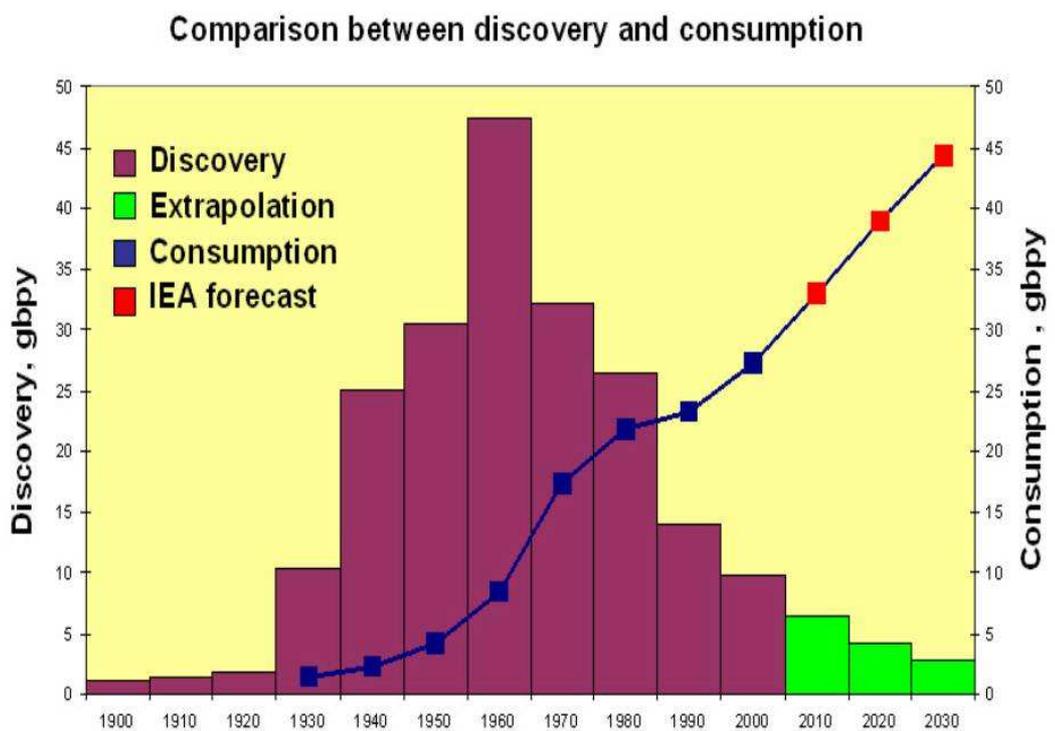
Discovery is falling, but demand is growing. On top of this, as you saw, the production forecast is falling. Even the oil companies realise this.

Slide 30



Let's compare discovery with consumption.

Slide 31



Once again, we see the same trend. A growing demand and a falling supply.

These are the growing needs but -

Oil demand by country (in millions of barrels/day)					
Country	2000	2001	2002	2003	2004
USA	19.70	19.65	19.76	20.03	20.52
China	4.80	4.92	5.16	5.55	6.63
Japan	5.61	5.53	5.46	5.58	5.44
Former Soviet Union	3.90	4.30	4.11	4.18	4.16
Germany	2.77	2.81	2.72	2.68	2.67
India	2.05	2.10	2.10	2.20	2.30
Canada	2.03	2.04	2.08	2.19	2.29
France	2.00	2.05	1.98	2.06	2.04
UK	1.76	1.72	1.77	1.72	1.86
Total World	76.95	78.10	78.44	79.89	82.63

- we simply cannot meet them. We are in the 'evening' of oil production. ³⁰

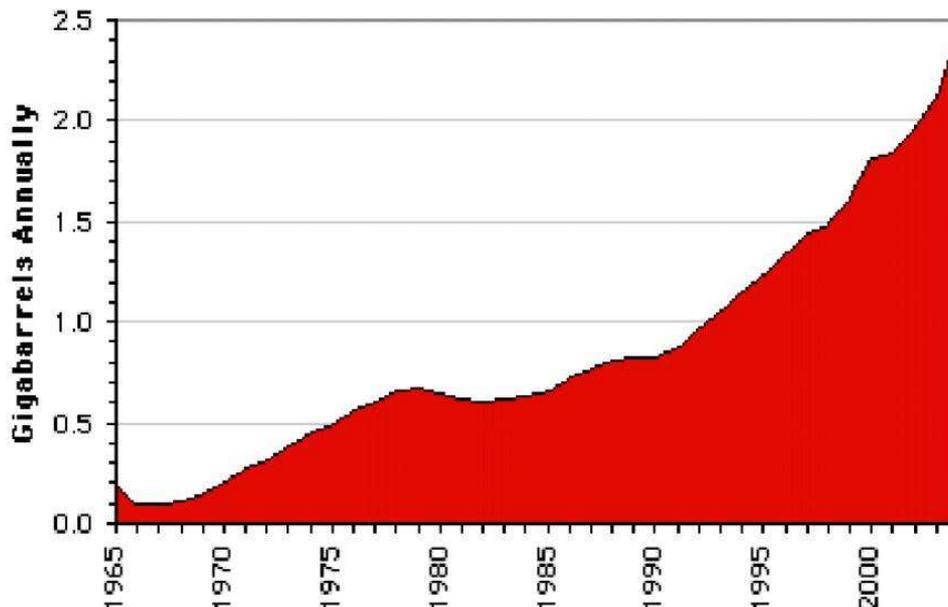


As we saw the largest slice of the energy cake is taken by the US. It is obvious that the growth of demand from the US is huge – from 19.7 million barrels in 2000 to 20.5 million barrels by 2004. This consumption is larger than that of any other industrialised nation. (N.B. as at the time of the lecture.)

What is more, as we have seen, US President, George Bush, and Dick Cheney intend to keep it that way. The real challenge could come from China and India as they each increase the demand from their expanding economy. Their people, too, want cars not bikes. For example, look at China's increase in consumption.

Slide 33

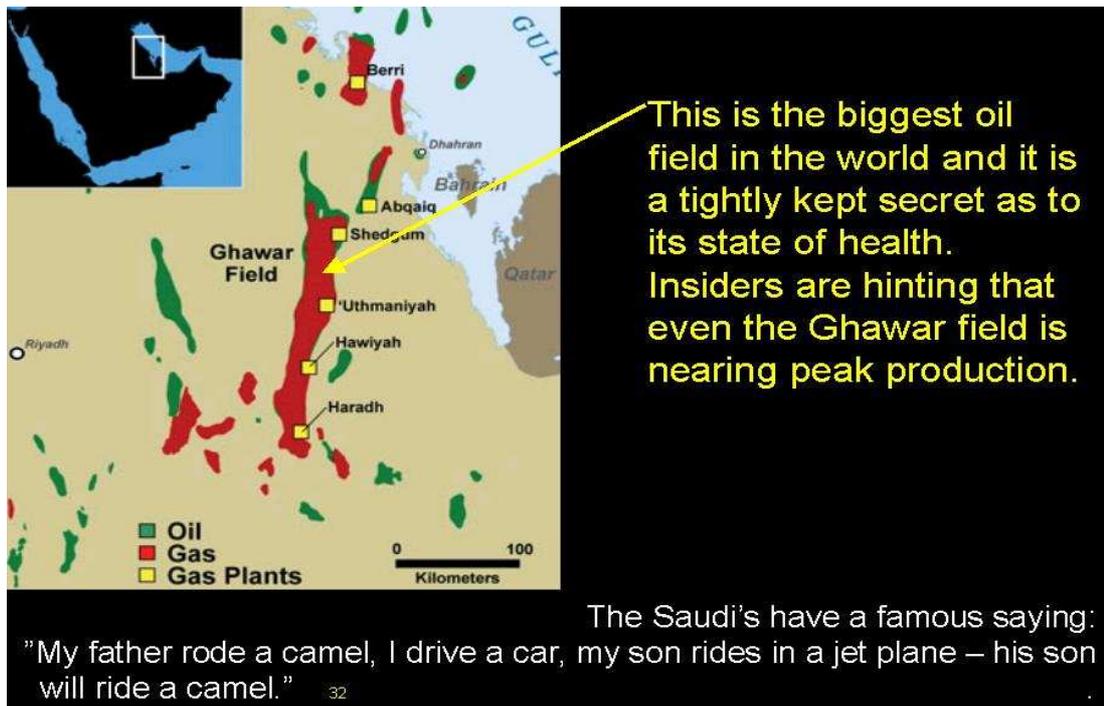
Oil Consumption (China) 1965-2004



China's frightening consumption rise. An increase of 1259%, from 0.19 Gb in 1965 to 2.44 Gb in 2004. It is frightening to extrapolate into the next decade. Source: BP

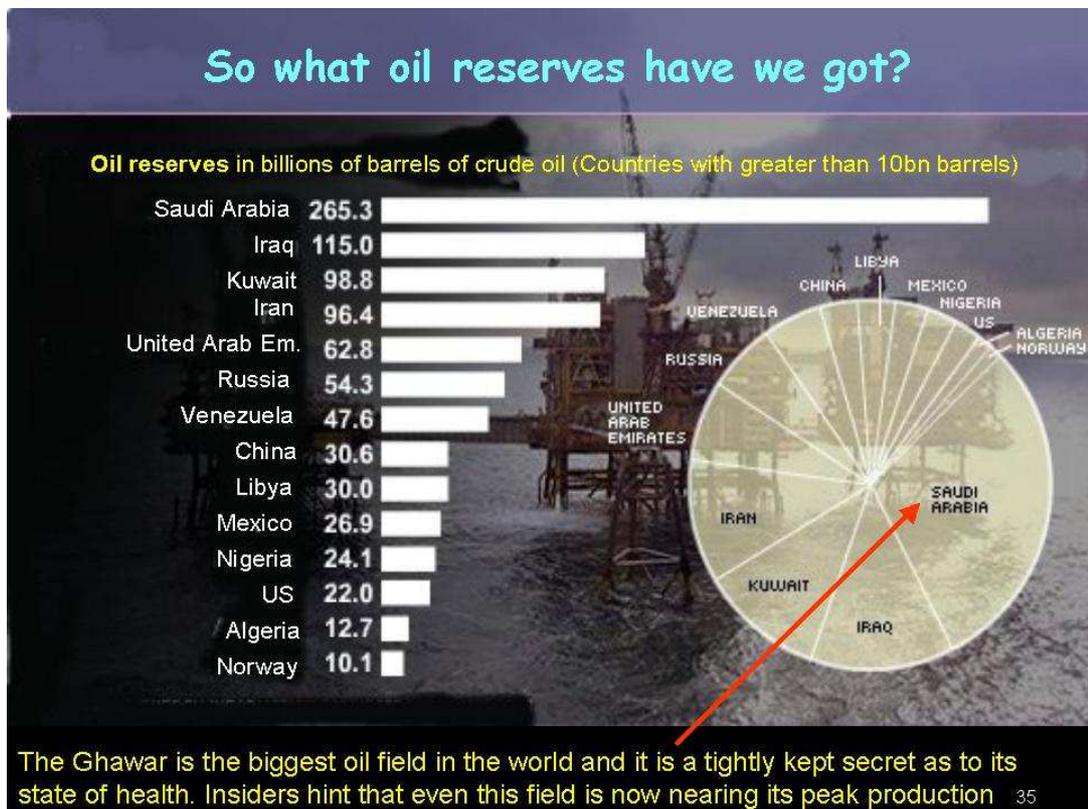
We have not found any more giant oil fields to feed this growing demand. Even the largest Saudi fields are now in question.

Slide 34 – Ghawar field



Media reports claim the Saudi Royal family is in disarray with internal squabbling - including over oil – and is of serious concern, for the US in particular. (N.B. as at the time of the lecture.) If this field begins to dry up, it will have major effects on world oil exports. Let us look at the reserves we have to date.

Slide 35



Obviously, this is a frightening picture in the light of the rates of growth mentioned earlier. We need to look very seriously at a solution to this before it becomes too late. We must ...

"Deal With Reality or Reality Will Deal With You"



Is there a solution?

Civilization as we know it will come to an end soon. This is not the wacky proclamation of a doomsday cult, apocalyptic bible-prophecy sect or conspiracy-theory society. It's the scientific conclusion of the best paid, most widely-respected geologists, physicists and investment bankers in the world. These are rational, professional, conservative individuals who are absolutely terrified by the phenomena of global "Peak Oil." 34

These professionals are only too aware of the consequences of running over to the downside of Hubbert's curve. It will get harder and harder to pump the remaining oil from the ground. The windbaggy of economists, that we simply throw money at boring more holes, is ludicrous. Just as one advisor to the White House said, and I quote, "It's nonsense, we have a 100 years of oil left."

So they may wish.

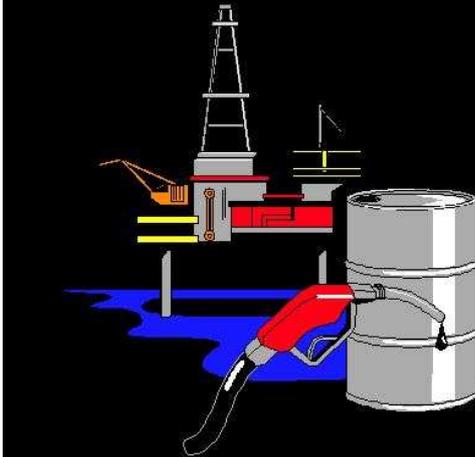
Slide 37 – Oil does not just ‘run out’

As we've seen oil will not just "run out" because all oil production follows the bell curve. This is true whether we're talking about an individual field, a country or the planet as a whole.

Oil is increasingly plentiful on the upslope of the bell curve and increasingly scarce and expensive on the down slope.

The peak of the curve coincides with the point at which the supply of oil has been 50 percent depleted..

Once the peak is passed, oil production will begin to go down while the cost begins to rocket. ³⁵



It is essential that people be told the truth. Not only will oil and other costs rise dramatically unless people understand the real cause, potentially we could have anarchy. People are generally very sensible when told the truth - a simple fact often forgotten by politicians - and they must be told that it is a natural depletion and not the petroleum giants trying to screw them for more profit.

Slide 38



Beware, this is NOT true, they are only too aware that their golden goose IS dying

Slide 39 – Media headlines

Just a few relevant headlines we don't see in Granny Herald.

- * "Kuwait's biggest field starts to run out of oil"**
Kuwaittimes, Thursday, 19 January 2006 It was an incredible revelation last week that the second largest oil field in the world is exhausted and past its peak output. Chairman Farouk Al-Zanki.
- * "Saudi Oil supplies 'over-estimated'"**
4-10-06. Channel 4 News has been told by a top Saudi oil industry insider, Sadad Al Hussein, that the US government's forecast for future oil supplies are "dangerously over-estimated."
- * "Russia to run out of oil in six years"**
13 April 2004, Moscow News. Taking into account today's tempos of oil extraction, existing oil supply in Russia will last only until 2010, stated head of the department of fuel and energy resources of the Ministry of Russian Natural Resources, Rinat Murzin. ³⁷



Do not take my word for these please. Do your own research and make sure it is from non-indentured sources. And just in case you think our government has this in hand, I suggest you read the following.

Slide 40

To illustrate the point:

Oral questions in the house:

Jeanette Fitzsimons:
«What does the Minister understand by the term "Peak Oil" and when does he expect it to occur?»

Dr Michael Cullen:
«I have to confess that, for once, the member has floored me; I do not understand what is meant by the term "Peak Oil".» [Hansard diary 24 August 2004]

It was clear from Dr Cullen's admission that his knowledge in regard to this impending crisis was sadly non-existent. How can the Government possibly plan an infrastructure, an economy, a future for NZ without this knowledge? Continuing to spend billions of dollars on road systems is economic madness, for which those responsible for such wastage of public funds should be held fully accountable. ³⁸

Dr Cullen was Associate Minister of Finance 1987 – 1989, Treasurer 1999 – 2002, Minister of Revenue 1999 – 2005 and Minister of Finance 1999 – 2008 in the New Zealand government.

You can now see why scientists are worried. This was an appalling admission. It makes you wonder just what government advisers are telling our ministers. *Don't worry, it's all okay, we'll use other alternatives.* There is NO combination of alternatives that will allow us to continue to run New Zealand in the way that we run it at present. No amount of solar, wind or even nuclear energy is going to allow us to live in this fast lane much longer. Alternatives are essential, but they represent only small lifeboats to aid our transition. The government needs to act immediately to avert this crisis just as Iceland and Sweden are doing. So what *can* we do?

If you're in shock and want to interact with others about these issues, check out the various websites. Understand being in shock is normal when it comes to learning about these issues.

We all need to tell friends and family, but be forewarned, most people don't take kindly to this information.



Your best bet is to either send them an email with a link to some of the excellent Peak Oil sites or give them a DVD copy of the "The End of Suburbia." ³⁹



I was appalled when a New Zealand MP suggested that, "unlike the Green's, we have no need to panic the public." I have sent the entire Iceland project to Jeannette Fitzsimons, Green Party Leader, and many others are pouring information into government. Let me show you the typical rhetoric going on in the house.

THE PICTURE IN THE HOUSE

JF asking...

TREVOR MALLARD: I think that the Greens are right to put these matters before us, but I don't feel quite the same sense of urgency that they do.

JEANETTE FITZSIMONS: With reference to that last question, is the Minister aware that Goldman Sachs is predicting a price of over US\$100 per barrel shortly and that there has already been a futures trade for US\$100 per barrel for June this year?

TREVOR MALLARD: I am not aware of the Goldman Sachs predictions. I'm aware of the futures trade, and I have my bike out.

PETER BROWN (NZ First): Is the Minister aware that Green members are going around this country talking about Peak Oil; and does the Minister share NZ First's view that there is a difference between high-priced oil and Peak Oil, and that it does a great disservice to NZ as a whole for party members to go scaremongering around the country, as Greens members have been? ⁴⁰

We are a small island nation of very innovative people. If we plan, we can succeed just as Sweden, Iceland and others are doing. They are busily acting now. In case you are unfamiliar with their projects, let us take a look.

Iceland sees the future — in hydrogen.

Thirty years ago, Professor Bragi Arnason of the University of Iceland, developed a plan to run his country on hydrogen energy. This has now become an official objective of his government, to be achieved over the next 30 years

•Oil-free Sweden

The government of Sweden has announced an unprecedented effort to become fossil fuel free by 2020. This is incredible news and is a validation of the "carbon-free economy" established by a national body.

* **The island of Vanuatu** has big ideas about its energy destiny. The economically depressed island, which spends nearly as much on petroleum-based products as it receives from all its exports, hopes to become 100-percent renewable energy-based by 2020.

* **Hawaii** has abundant geothermal and solar energy, which can be used to make hydrogen. This US State has long recognized the need to reduce its dependence on oil, which accounts for nearly 90% of its energy and is mainly imported. In the mid-1980s, Hawaii's State Legislature provided the University of Hawaii with \$50,000 to explore the potential future of hydrogen.

IF THEY CAN DO IT, WE CAN DO IT! 41

We certainly have some challenges to face.

WE NEED INTERNATIONAL CO-OPERATION

We are all in the same boat!



Clearly, we would do better to engage the nations of the world in a competition to achieve sustainability, instead of a consumption contest! ⁴²

GRAND CHALLENGES

Where great challenges are well understood, humanity has proven very adaptable and innovative but there is. . .

- Great need for better and more reliable data
- Urgent need for frank and factual public discourse
 - However . . . it's political suicide . . .
 - Who will step up to the plate?
 - Probably no one until it's too late!
- We are the critical component of Plan B! ⁴³

Let's return now to our ship analogy and see what answers we can come up with.

Quiz answers:

Q. Who is the Captain of this ship?

A. There is no captain - and worse yet, the crew is misinformed about the dangers of the storm.

Q How bad is the storm?

A. Highly uncertain - much of the Peak Oil data are highly suspect.

Q. How fast are we closing on the storm?

A. Closing speed is controversial - often argued using sophisticated disinformation campaigns, but it looks as if we are approaching fast! ⁴⁴

Quiz answers:

Q. How strong is the ship?

A. She may not be strong enough - economic and political systems may not be up to the task.

Q. How large is the ship and how quickly can she be turned?

A. She is extremely large and it will literally take decades to bring her about.

Q. What is Plan B?

A. They have no Plan B! ⁴⁵

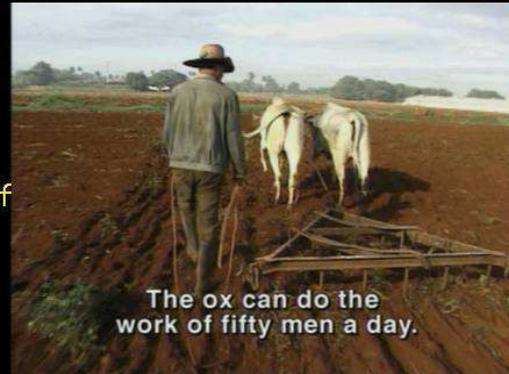
I want to talk here about a remarkable country: Cuba.

Cuba is a prime example of a country that was forced to adjust to having no oil. The US, backed by Britain, made sure that Fidel Castro received no oil. The idea, of course, was to collapse his regime.

Cuba was forced to generate the answer to the oil crisis.

This country is unique in that it experienced rapid oil depletion when its oil supply was cut by 50% in less than a year. It was unique in changing from an industrial to an agrarian society. Cuba's per capita energy usage is now 1/15 of the US! Cuba built an agrarian culture, focusing on building human resources rather than physical ones, and emphasizing biotechnology (not genetic engineering).

In 1992, Cuba wrote the resolutions passed by the **Rio Earth Summit** into its constitution. By 1996, bylaws in Havana allowed only organic methods of food production. Cuba now produces ample food for its population's needs.



In short, Cuba represents E F Schumacher's "intermediate technology." 46

Before any one brings it up ... I know Cuba has problems, but overall I believe they should be congratulated, if only from the point of view that they beat the US bullying efforts to starve them out.

In many ways, Cuba and New Zealand are similar. They are small (111,000 km² for Cuba and 270,000 km² for NZ in land area), 110,000 km² of which is farmable and thus comparable. Both are isolated geographically. New Zealand has a population of four million and Cuba 11 million, and a determined leader.

Cuba has had to deal with a far-reaching US oil embargo which critically affected virtually everything on the island. In the face of these problems, Castro produced a new and discerning revolution – to completely transform the country's agricultural system from an intensive, mono-cultural system to a smaller, more organic one. Production and storage were moved closer to urban areas to reduce transport costs. Urban agriculture was introduced, ranging from personal gardening (similar to allotments in the UK) to organised farms within the urban or greenbelt areas.

Other techniques were used to replace the oil previously used. Oxen replaced tractors and the use of natural pest control was researched and encouraged.

State incentives helped reverse the flow of population from towns to the country. Some of their social services are now certainly an eye opening, as many tourists have seen. Let me show you.

Slide 49 – Cuban statistics

Cubans have free medical care, a lower infant mortality rate than the US, and the same life span as the US. They have more doctors per capita than the US and put much more emphasis on prevention. Doctors generally live in the neighbourhood they serve. US Doctors earn 5-8 times the average wage. Cuban doctors earn 2-3 times the average wage and see medicine as a vocation, not a business.

These remarkable achievements serve as guideposts towards healthier, more environmentally friendly and self-reliant farming at a time when Peak Oil problems will force us into self-reliance.

**The major stumbling block is that we
MUST start now!** 47

So it need not be all gloom and doom. With determination and sensible assistance from government, we can also do it. But we have to wake up government to the urgency of the situation. Waiting for the last man standing is not a sensible option here.

Slide 50 – Putting food in our mouths

Cuba - a lesson: How to feed the family

To produce food, rooftop gardens were keenly promoted, especially in heavily populated cities. Sanatana's garden is an example. His apartment is above a garage. In the mid 1980s, he established a grapevine beside the building, and trained it onto his patio. Sanatana now has a licence to sell the wine he makes, and shares the excess grapes with his neighbours.



He decided to set up a garden. He got old tyres from the garage below and fetched sweepings from the agro-market. soil for the tyres, and vegetable waste for the worm bin. 48

Slide 51



Carrots and leeks, squashes and herbs, all in a tyre's depth of compost



Guanábana is a co-operative of 6 men, all telecommunications workers: manual labourers, technicians and a manager. Guanábana is one of three co-operative run areas in the town which, before the coming urban agriculture, was covered with rubble. 49

Let's now look at some fossil fuel facts.

Fossil Fuels Facts

As Peak Oil and its effects become a reality, it puts the most serious implications into perspective.

Your biggest problem is not that your SUV or BMW might go hungry, it's that you and your children may go hungry.

And don't believe the Oil Industry!

In 2004, Shell was prosecuted and heavily fined for grossly overstating its reserves in order to keep its share price up. The company has since revised its reserves down by 20% and then a further 10%. ⁵⁰

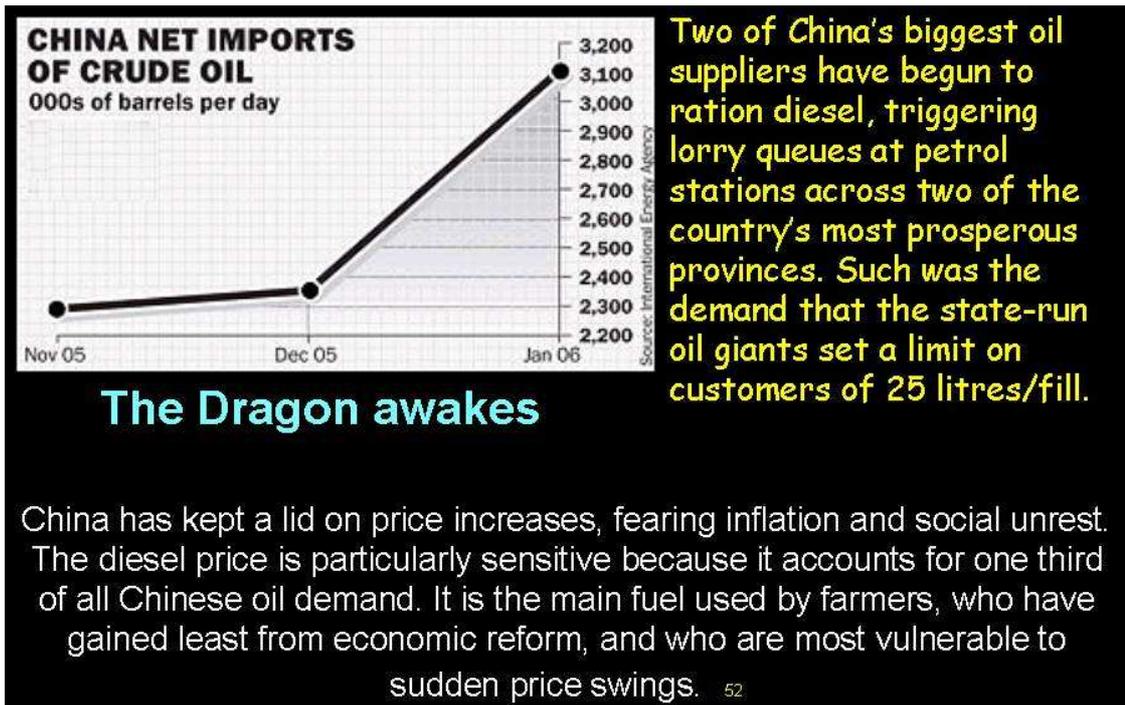
This puts the Gulf Wars into an entirely different perspective. For example:

The plans for the invasion of Afghanistan, the invasion of Iraq, the world-wide deployment of US military forces to control oil reserves, the Patriot Act, Homeland Security, and legislation that sets the stage for biological warfare and complete domestic repression were all in place well before the first plane struck the World Trade Centre. ¹

1. Crossing the Rubicon pp 471



With 11% of the world's oil, Iraq had been in the crosshairs for a long time. ⁵¹



India, too, will be feeling the pinch.

Slide 55 – Ingenuity - overcoming the odds



Kiwi Ingenuity

Earthrace is a bid to break the world record for circumnavigating the globe in a powerboat, using only renewable fuels. It includes an 18-month tour calling at 60 of the world's great cities, promoting fuels like biodiesel, and raising awareness about sustainable use of resources.

Captain Pete, the youthful driving force behind this project is a "retired" oil field scientist with degrees from two NZ universities (Science & Engineering) It's refreshing to see one of our own kiwi guys making such good use of his education, and literally taking on the world from Godzone.

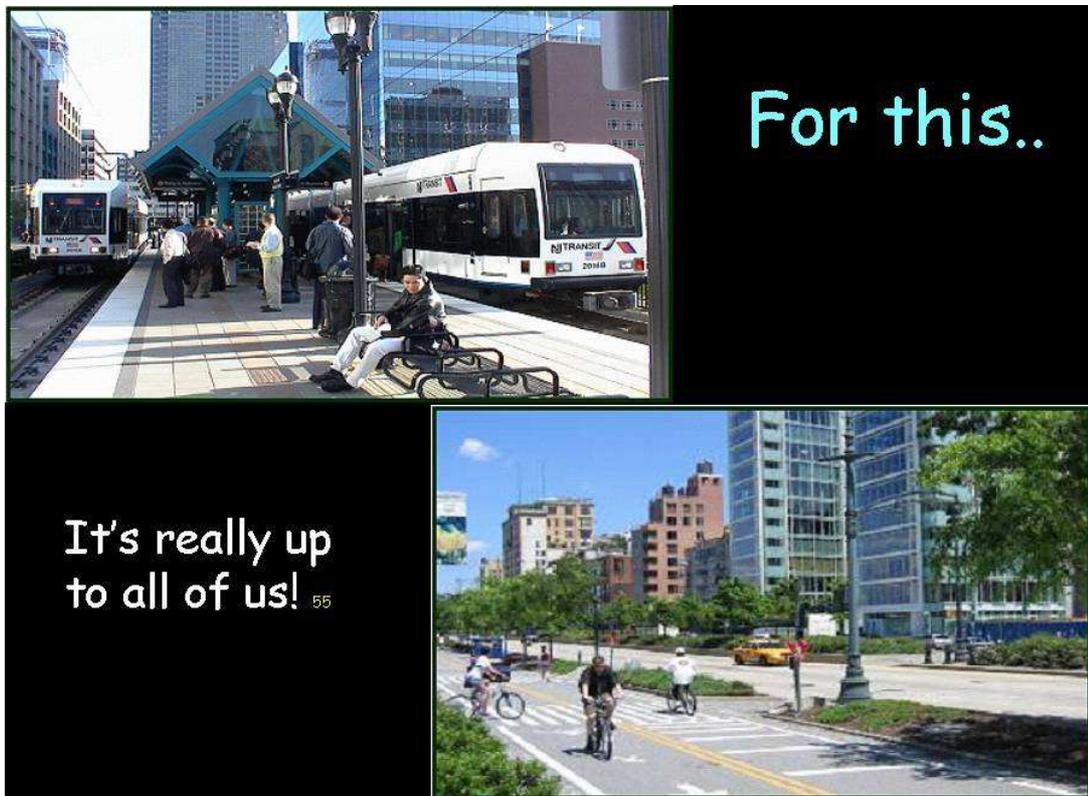
Let's wish him every success. 53

There are many people tackling the issue: one in a shipping container, another in the back yard. What we need are more governments and scientists to take the issue seriously.

Slide 56 – Our choice



Slide 57



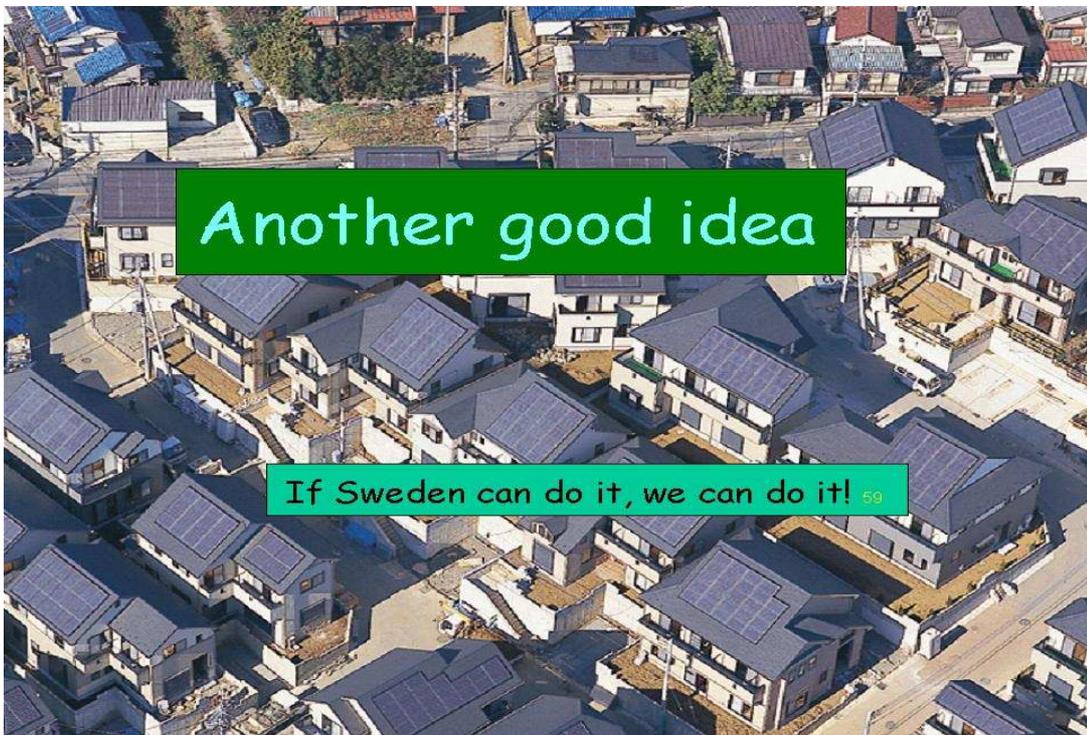
Chocolate biscuit paradox

Germany makes cars, Italy clothes, France wine and Britain pharmaceuticals - and they buy and sell to each other. At least, that's the theory. But, according to the UK Interdependence Report, this is the annual picture.

- Britain exports 1145 tonnes of chocolate biscuits to Germany. And Germany exports 1728 tonnes back to the UK.
- Britain exports 5417 tonnes to fresh, boneless chicken cuts to France and the French export 3952 tonnes back.
- Britain exports 10,000 tonnes of milk and cream - and imports virtually the same amount from France.

Shipping vast quantities of identical goods in this way (1) has serious adverse environmental impact, (2) will exacerbate climate change and (3) wastes oil reserves.

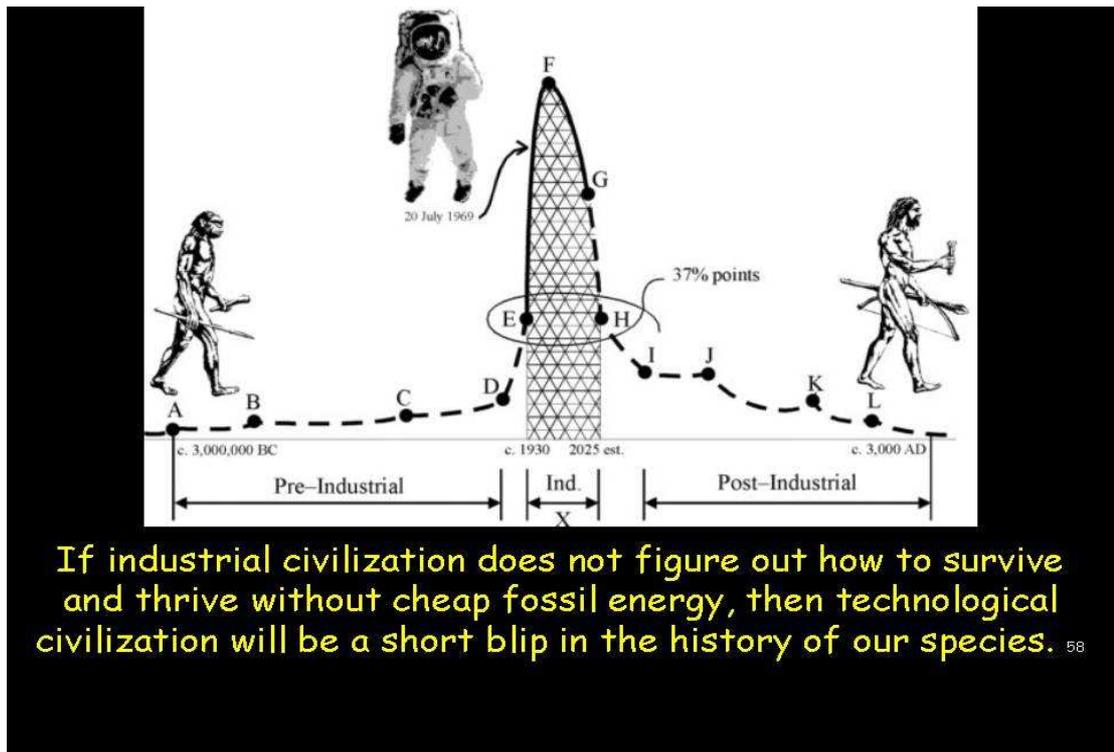
In short, a global economy built on, and blind to, its own fossil fuel dependence simply cannot survive in its current form. Globalisation is dead in the water! ⁵⁶



Why are we not doing this on a much larger scale?

If we continue down the present road, we may be seen in years to come as simply a blip on the historical time scale.

Slide 60 –



If industrial civilization does not figure out how to survive and thrive without cheap fossil energy, then technological civilization will be a short blip in the history of our species. ⁵⁸

There is, however, light at the end of the tunnel.

Slide 61



Slide 62 – What can we do?

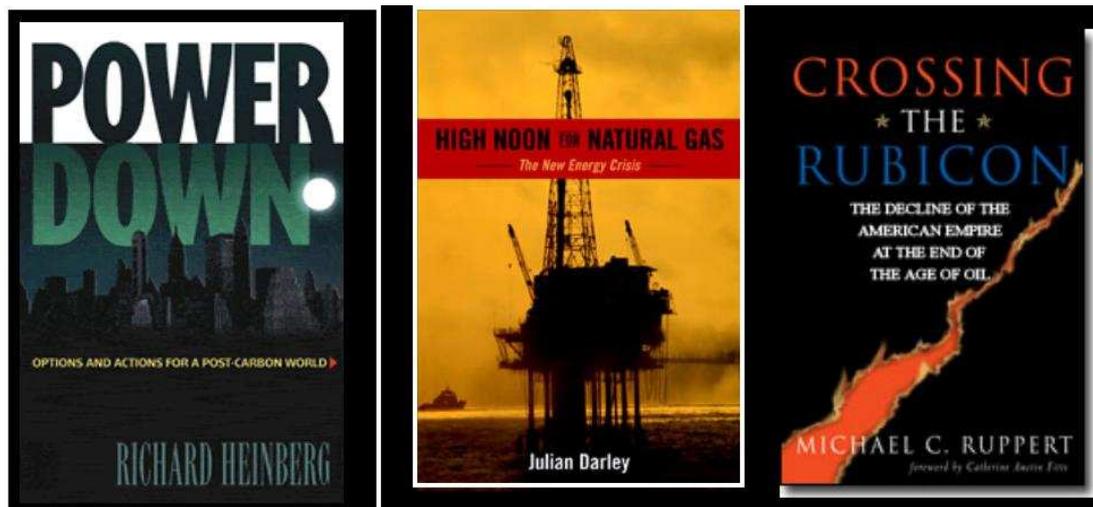
SO WHAT CAN WE DO?

- Become informed: use the internet and alternative media
- Talk to your family and friends
- Write letters to Ministers; they do answer.
Letters to parliament do not require a stamp.
- Encourage people to attend public events like this one; they are good educational strategies.

A demonstration of 100,000 Peak Oil truth supporters at the Beehive next year would be hard for the Media to ignore. ⁶¹



Slide 63 – Read and research



3 Books on Peak Oil:

Power Down by Richard Heinberg
High Noon for Natural Gas by Julian Darley
Crossing the Rubicon by Michael Ruppert ⁶²

Slide 64

**Exploding THE MYTH
OF
CHEAP OIL**

Remaking our lives after Peak Oil



Robert Anderson

Dr Robert Hirsch, senior energy programme advisor at Science Applications International Corp. (SAIC), warned: "This problem is truly frightening. This problem is like nothing that I have ever seen in my lifetime, and the more you think about it and the more you look at the numbers, the more uneasy any observer gets. It's so easy to sound alarmist, and I fear that part of what I'm saying may sound alarmist, but there simply is no question that the risks here are beyond anything that any of us have ever dealt with. And the risks to our economies and our civilization are enormous."

\$3.50 per copy

Enquire for updated details on books by Robert Anderson at blaseco@clear.net.nz

Slide 65

Some useful sites on Peak Oil

www.wolfatthedoor.org.uk

<http://www.oilcrash.com/> A VERY comprehensive NZ Site

<http://www.peakoil.net/>

Info on the NZ Oil Industry: www.crownminerals.govt.nz



**For goodness sake, let's get
the message out there!** ⁶⁴

Slide 66 – On the lighter side ...

A lot of folks still can't understand why we could have an oil shortage here in New Zealand. Well, there's a very simple answer.

The reason for that oversight is purely geographical.

Our OIL TANKS are in Auckland,

Our REFINERY is in Northland,

Our OIL WELLS are located in Taranaki. . . .

And our DIPSTICKS are all in WELLINGTON.

Slide 67



Let's get the message out there.