

World without oil

Science Express @ Te Papa:
Thursday 4 May 2006 6.30pm–8pm,
Location: Espresso Café, Level 4.

The Energy Debate – A World without Oil

This month's discussion investigates the choices we face in New Zealand regarding energy supply. In a world dominated by non-renewable fossil fuels, what would our options be in a world without oil?

Proudly supported by GNS Science and the Royal Society of New Zealand Wellington Branch. Former Austral Pacific Energy chief executive Dave Bennett and NZ Green's Paul Bruce will inform and discuss. Hamish Campbell chairing the discussion with the speakers allowed 10 minutes to present their area of expertise.

Science Express features stimulating science discussion on current and controversial topics every first Thursday of the month.

Good evening, kia ora

A World without Oil!

Tonight, I will begin by looking at our ecological footprint and how passing the peak of oil production will begin us on the road to A World without Oil!

Then I will look at the challenge we face, and finally a Green solution.

Technological progress in this oil age has been phenomenal, Within a century we obtained cars, aircraft, radio, television, telephone, our computers and internet connections. We now have immense knowledge of our ecology, and understand the impact that even small changes in the global mean temperature can have on our earth's species.

However, many have lost sight of the big picture...
...the intricate web and interaction of each one of the earth components and some still believe that we can have never ending growth...

Can an economic system that depends on unlimited growth,

like a cancer that consumes its body - survive?

In only one century we have used almost half our OIL, and 50% of that during the last 22 years; Dinosaur blood from 50 million years ago.

There is no longer any "give" in the world oil supply situation more than three quarters of major oil exporting countries are past their peak crude extraction. This now includes Kuwait, the North Sea, and the second largest well in Mexico and now Saudi Aramco expects oil production to decrease by a net 2% this year, and if Saudi is in decline then global oil production will have peaked.

Have you considered why few new refineries and tankers have been built over the last 25 years? Or why the oil industry greatly reduced its funding of oil well exploration rigs. It appears that 90% of the planet's oil has been **discovered, and** the low hanging fruit, the wells where oil gushed from ground, are all already in production and many in decline. New oil from the deep ocean, from the Arctic, from tar sands is very costly indeed to exploit. Oil exploration rigs' costs have escalated from US\$80,000/day to \$400,000/day. An oil platform setup in New Zealand's coastal waters is said to cost a minimum of \$400 million. There is certainly oil in the southern ocean. That oil, if it is exploited, would sell at international prices, and that price is not high enough yet, and it might never be!

However, the price of crude oil nudged towards \$80 in April. This was more than three times the MED prediction of \$20 in 2004. It is more than thrice the \$19 on which last year's budget (2005) was based. Oil imports cost (early 2006) \$5000/day or almost \$3b/year, and the trade deficit is crippling New Zealand's economy.

Last month (May06), Helen Clarke stated oil prices were higher "because we're probably not too far short of peak production, if we're not already there". Bush II's main legacy may be his statement "U.S. is "addicted to oil."

The Hirsch Report commissioned by the US Dept of Energy examined the likely consequences of the passing global peak and the end of cheap oil.

If we plan for peak oil 20 years ahead, we have a chance of a transition
- if we plan 10 years, it will be difficult
- if we wait for the event, and we can expect a collapse of the economy.

A decline rate of say 5% will mean half as much oil available to us in 14 years. Sweden has opted to wean itself off oil and make the transition in 15 years....

Indeed, the time has come to change course, to move to a post carbon

age where growth is limited to education, health and well being, where the economy becomes a tool that helps us achieve what we want from life enriching communities and individuals, with genuine progress indicators.

The Challenge

About 50% of New Zealand's energy consumption is oil. Domestic transport accounts for 85% (2004) of that.

The rest of the economy is of course also indirectly dependent on cheap oil: Tourism, international trade, manufacturing including electricity generation depends on imported components, agriculture depends on imported machinery, application of fertiliser, transport to distribute the products, and further energy to process. Banking and Financial systems depend on the stability of world economy.

I would like to tell you that there is a Green solution that would make New Zealand energy self reliance, and at the same time protect our climate and environment as well as enhancing our local economy.

The Green solution

Step number one is to establish a high level task force to address how to de-carbonise NZ! And the most important issue it will have to begin with is transport.

As fossil fuels decline, we can re-design our lives and our communities, so that human consumption also declines in a harmonious way.

Light rail extending from Johnsonville through to Courtenay Pl. & Hospital financed by new hub developments with benefits accruing to the wider community.

Cycle lanes and walk ways radically improved, and carriage provided on trains and buses.

Private vehicles, trucks and buses on dual hybrid systems, electric and bio-fuels.

Double tracked rail by tunnel Pukerua Bay through to Paekakariki, and the Transmission Gully road option disappearing into the mists of history.

Solar energy, wind and sea power harvested.

Houses and business designed around transport hubs and urban islands.

Freer, healthier, and more fulfilling lives

With small-scale economies, with technologies powered by renewable energy delivered by cooperative enterprises, with communities, structured to be self-sufficient, tied together by light rail and trolley buses,

With gardens and parks. With social halls, not shopping malls. Conservation, integrated transport systems, solar cities, smart energy & clean heat....Bonus joules and house power.

Smaller, more labour-intensive factories using craftspeople with time-honoured skills: glassblowers, shoemakers, soap-makers, seamstresses.... Zero waste with container deposits and sewage treatment on site. Local permaculture farms utilising less land

And best of all, we would be moving to protect our climate from dangerous levels of human induced greenhouse gases, and consequent climate change.

To conclude:

The solutions to diminishing oil supplies and rising prices are actually ones that we buy into... with economic and environmental solutions that benefit us all because our environment is the infrastructure of our communities.

History tells us, that, it will soon end for all of us in sustainability, living within our local footprint sustainability because that is all our grand children will have to live with...

Paul Bruce
May 2006