Energy Challenges in the 21st Century

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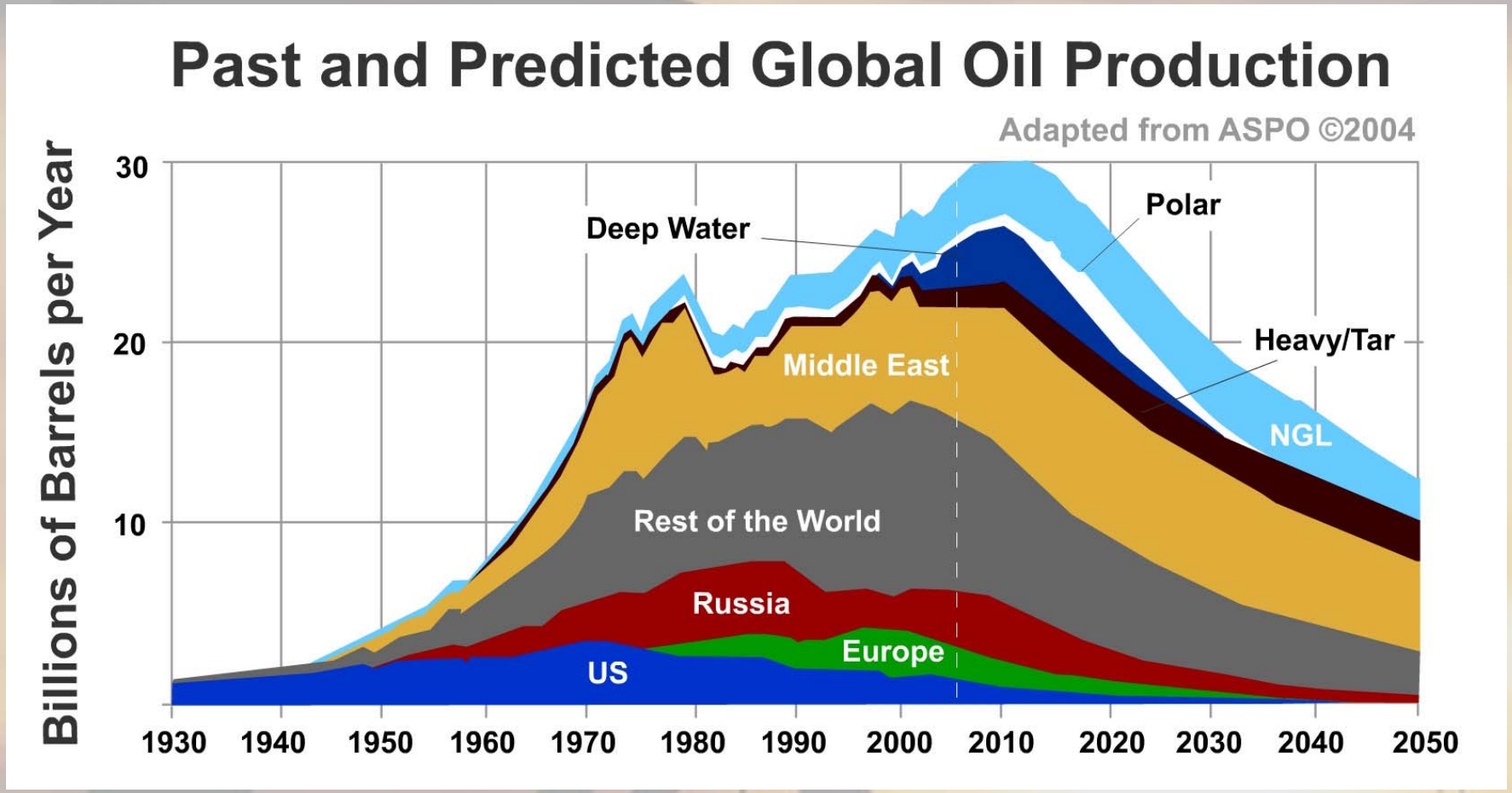
Green Party Co-Leader

Critical issues:

1. Peak oil is close
2. Climate change is accelerating
3. NZ gas has peaked
4. Demand is growing
5. Fuel poverty
6. Improve planning and co-ordination

Peak Oil is Close



Dick Cheney

"By some estimates there will be an average of 2% annual growth in global oil demand over the years ahead, along with, conservatively, a 3% natural decline in production from existing reserves ...
That means that by 2010 we will need in the order of an additional 50 million barrels per day."
(Late 1999)

- **Current consumption:**
  84 million barrels per day

White House photo by David Bohrer

•Current Vice President of USA

•Former CEO of Halliburton, a service provider to the oil industry

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Matthew Simmons

“All the big deposits have been found and exploited. There aren’t going to be any dramatic new discoveries, and the discovery trends have made this abundantly clear”.

Founder & CEO of Simmons International - Investment banking for energy services industry

Firm has advised $63 billion transactions

Energy advisor to George Bush

Member of Dick Cheney’s Energy Task Force

Richard Heinberg

“For the next half-century there will be just enough energy resources left to enable either an horrific and futile contest for the remaining spoils, or a heroic cooperative effort toward radical conservation and transition to a post-fossil-fuel energy regime.”

Core faculty member of New College of California – teaches on Energy & Society;Culture, Ecology & Sustainable Community.

- Author of “The Party’s Over” & “Powerdown”

George Monbiot

“We seem, in other words, to be in trouble. Either we lay hands on every available source of fossil fuel, in which case we fry the planet and civilisation collapses, or we run out, and civilisation collapses….”

“our problem is that no one ever rioted for austerity. …. Given a choice between a new set of matching tableware and the survival of humanity, I suspect that most people would choose the tableware.”

Journalist, writing a weekly column for The Guardian

Has held visiting fellowships/ professorships at a number of UK universities

Author of ‘The Age of Consent: a manifesto for a new world order” and “Captive State: the corporate takeover of Britain”.

Peak Oil is Close

- Plan the transition
- Analyse impacts on key sectors
- Inform the public
- Cooperate internationally

Transport with Less 0il

- Fuel efficiency standards for car imports
- Feebates
- Develop biofuels, plug in electric ?

Transport with less oil

- Rebuild rail network
- Develop strong public transport system
- Facilitate walking and cycling

Trading with less oil

- Investigate NZ wind assisted shipping
- Prepare for less air transport

Planning for Less Oil

- Re-think tourism for fewer arrivals, longer stays
- Expect less high seas fishing
- Protect inshore fisheries

Planning for Less Oil

- Reduce energy intensity of agriculture
- Support low energy and organic farming
- What about our markets?
- Work internationally to share oil without war

Climate Change is Accelerating

- Melting of polar ice, glaciers, Greenland
- Gulf Stream weakened by 30% in 12 years
- Oceans acidifying
- Methane release from melting tundra

Climate Change is Accelerating

- Carbon payments (and penalties)for foresters
- Farmers to offset any increase in emissions
- Preparing for peak oil will help...
- As long as we don't turn to coal
- What about carbon capture and storage?

What about carbon capture and storage then?

- We probably can't reduce global emissions enough without it
- NZ doesn't need to rely on it
- Not yet proven or commercial
- Will the carbon stay where you put it?
- Best claimed is 85% capture - of a growing total!
- No new coal till CCS

NZ gas has peaked:

- Gas was 1/3 of our electricity
- Avoid converting gas to electricity
- Investigate biogas feed in
- Move to 100% renewable electricity

100% renewable electricity

- **Facilitate grid connection for wind**

100% renewable electricity

- Solar water heating to reduce electricity demand

100% renewable electricity

- Training in solar building design

100% renewable electricity

- Waste wood as industrial and domestic fuel

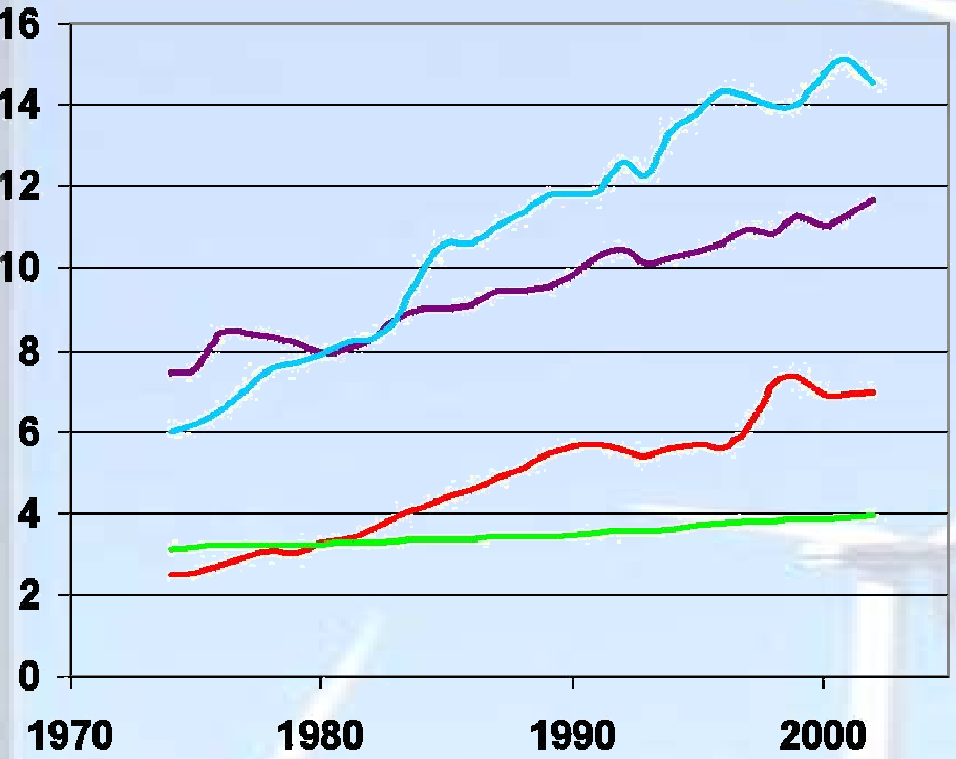
100% renewable electricity

- Research & development into wave, tidal current

100% renewable electricity

- One day, photovoltaic roofs

Demand is growing:



Residential 1.5%

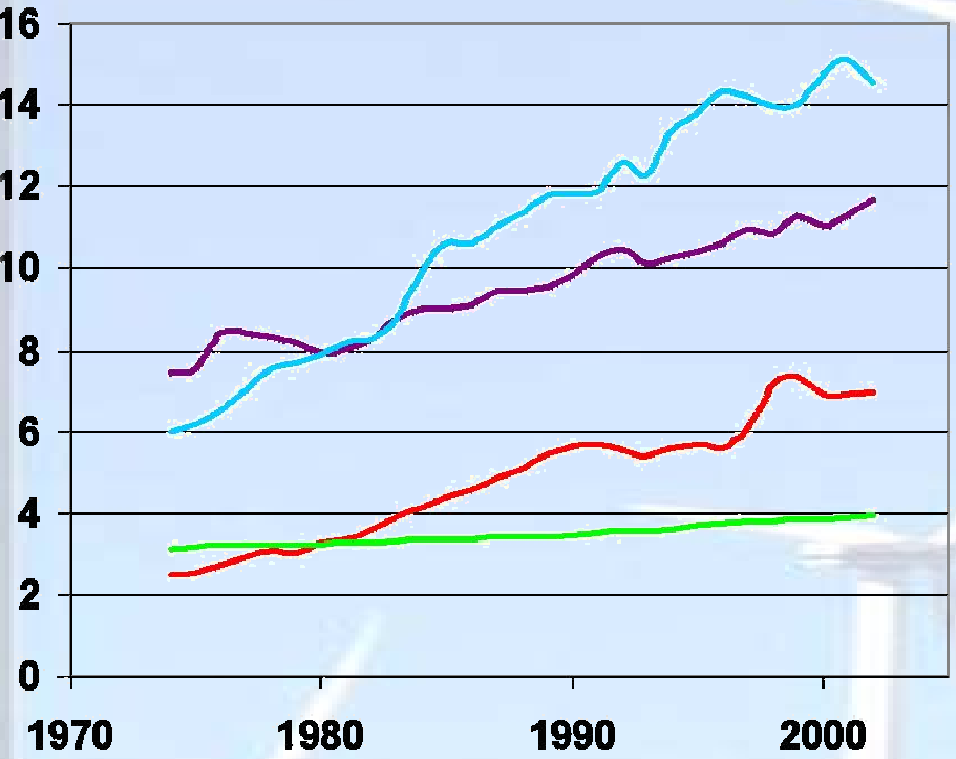
Industrial 3.3%

Commerce 3.9%

Population 0.82%

- Energy Efficiency - "twice as far on a tankful"
- Time of use metering
- Govt leadership - buildings, vehicles
- Standards for commercial buildings

Demand is growing:



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- Upgrade Building Code, include solar design
- Home energy rating - mandatory on sale
- More and higher appliance standards
- Heatpumps for hot water and space heating

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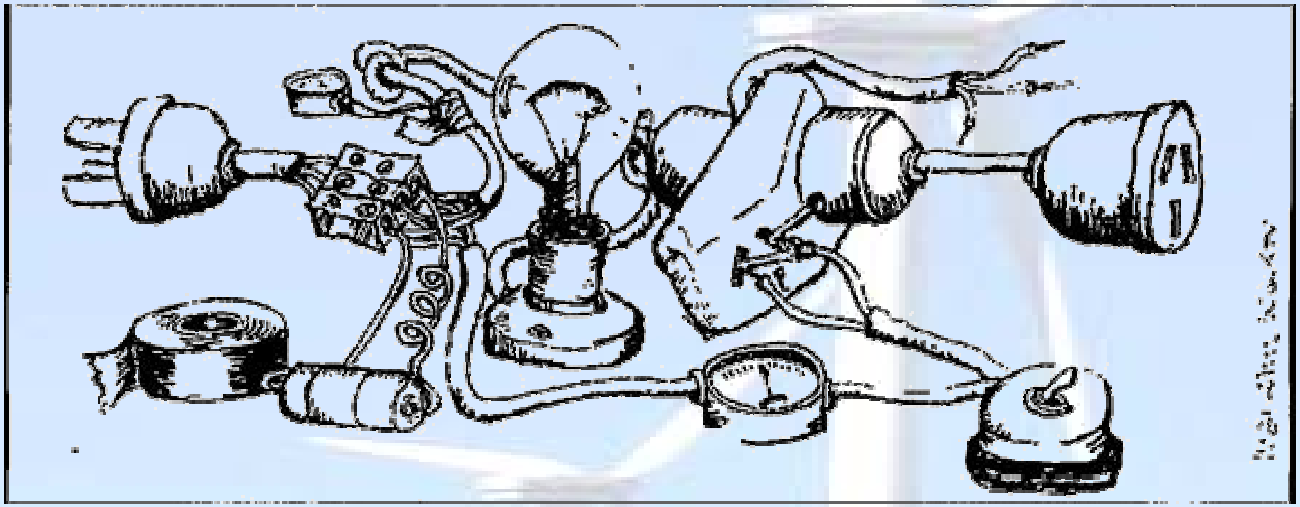
Fuel Poverty:

- No fixed charge for household power
- Local home advisory service
- Insulate and damp proof more homes
- Promote high efficiency low emission wood stoves and heat pumps
- Investigate "progressive pricing"

Planning & Coordination:



Planning & Coordination:

New large capital projects tested against sustainable alternatives

Planning & Coordination:

New electricity market rules

- **Facilitate distributed generation**
- **Net metering or billing**
- **Facilitate demand side participation in market**
- **Dry winter conservation plan**

NZ Energy Strategy

- To what extent can New Zealand reduce its dependency on oil (or fossil fuels) by 2030?
- Whether non-transport energy should be 100% renewable or carbon neutral over the long term?
- What is the scope to reduce primary energy demand by 2030?
- To what extent can renewable (stationary and transport) energy meet primary energy demands by 2030?
- What role should coal play in the transition to more sustainable energy sources?
- What are the pros and cons of different options to fill an indigenous gas supply gap and what if any are the dynamic implications of such choices for New Zealand's domestic oil and gas exploration over time?

National Energy and Conservation Strategy

- Priority for renewable energy
- More aggressive approach to energy efficiency
- Will contain the action plans to implement these objectives
- Drafts out for discussion end October

Climate Change Strategy

- Global emissions must drop 60-90% by 2050 to avoid temp rise of more than 2 deg
- What is NZ's role?
- Liability in 2012 for emissions growth above 1990 levels
- Currently 22 % above, headed for 30%

Energy Policy principles

- Reduce energy demand
- Efficient use
- Renewables
- Coordination
- Fairness


Use the Sun,
Save the Earth