

# Local Oil and Gas Options

Energy Federation of NZ Workshop  
25<sup>th</sup> November 2005

Chris Stone



McD☼UALL STUART

# A Question

What is it that:

- was once abundant but now in short supply?
- was once cheap but is now expensive?



# A Question

What is it that:

- was once abundant but now in short supply?
- was once cheap but is now expensive?

The answer:

- Goodwill and honesty
- Children (at least, according to demographers)



# A Question

What is it that:

- was once abundant but now in short supply?
- was once cheap but is now expensive?

The answer:

- Goodwill and honesty
- Children (at least, according to demographers)
- ... and Energy



# The Perfect Storm

- Electricity Supply Shortage
- Gas Supply Shortage
- Oil Production Shortfall
- Strained Infrastructure



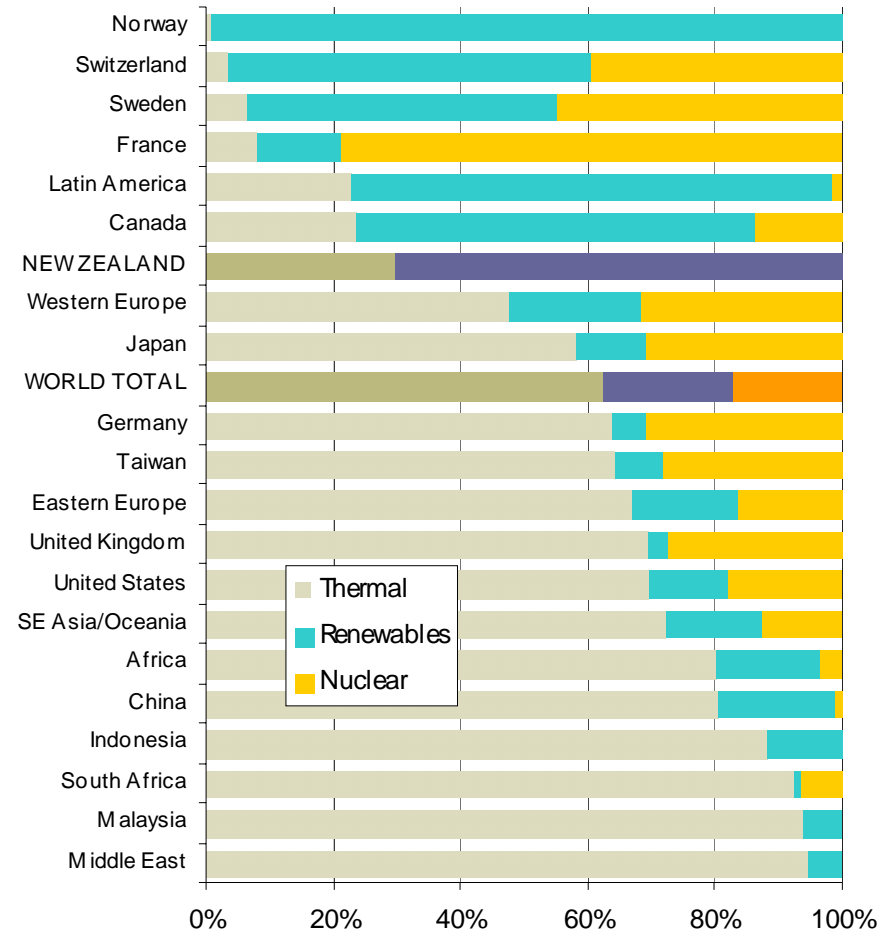
# The Perfect Storm

It's a Thermal World

NZ a world leader in  
renewable electricity  
generation



### Global Electricity Generation

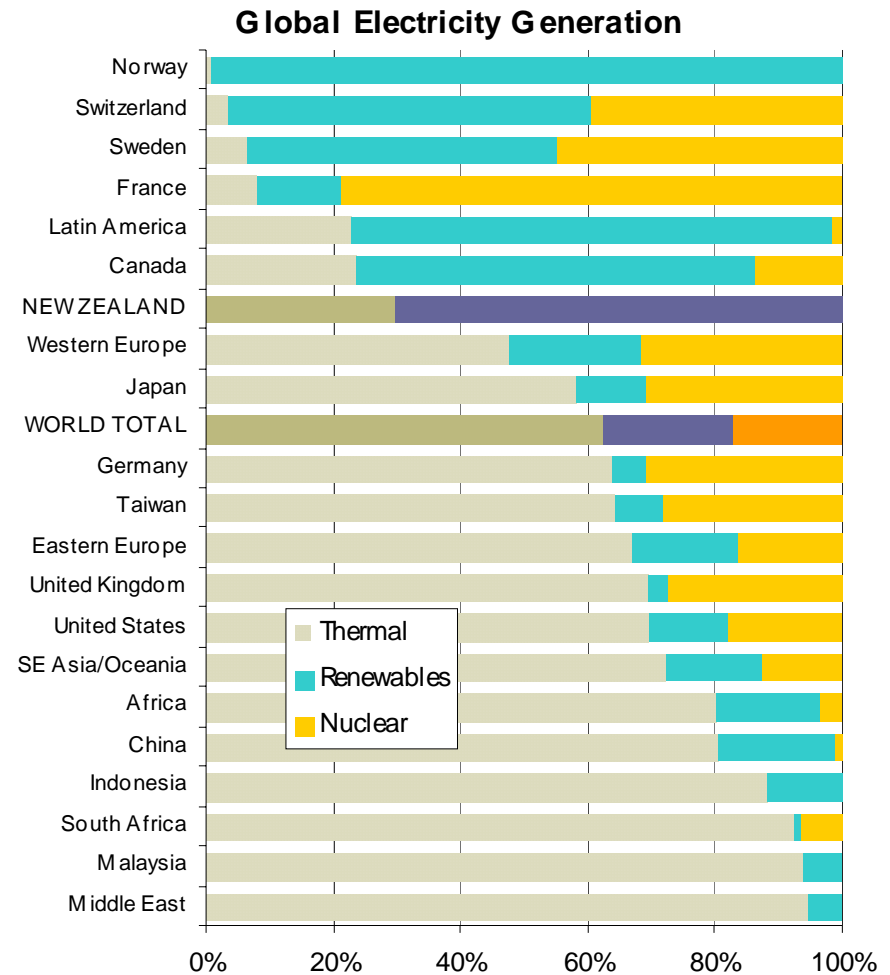


# The Perfect Storm

It's a Thermal World

NZ a world leader in  
renewable electricity  
generation

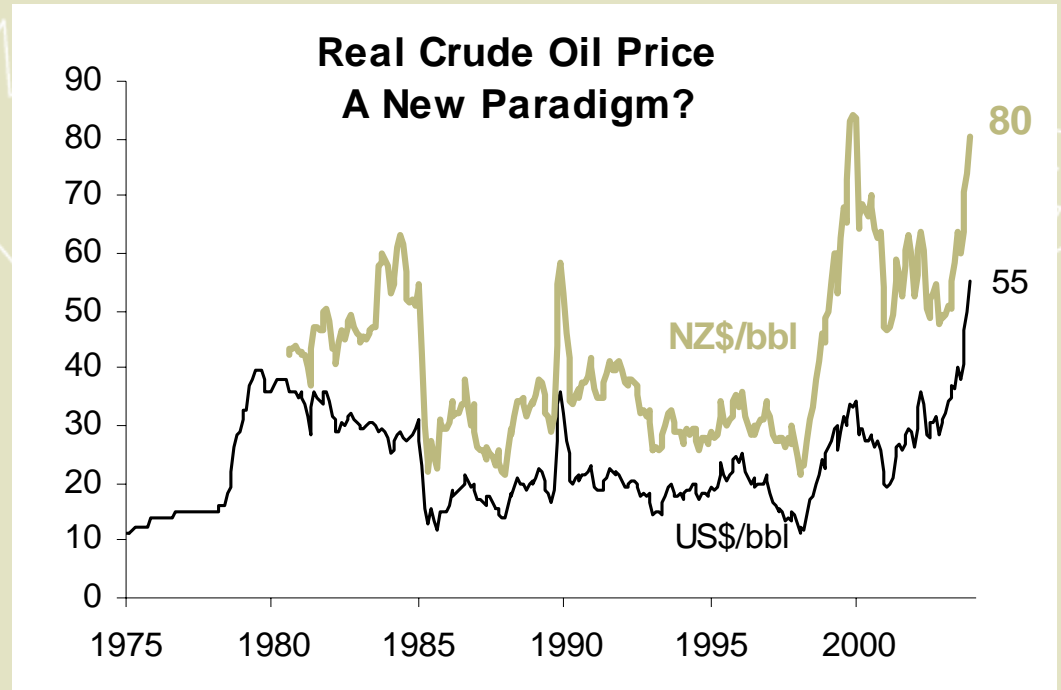
Yet hydrocarbons still  
provide 70% of NZ's  
energy needs



# Implications for New Zealand

We too are facing ...

- record Oil prices
- record Gas prices
- rising Electricity prices ...

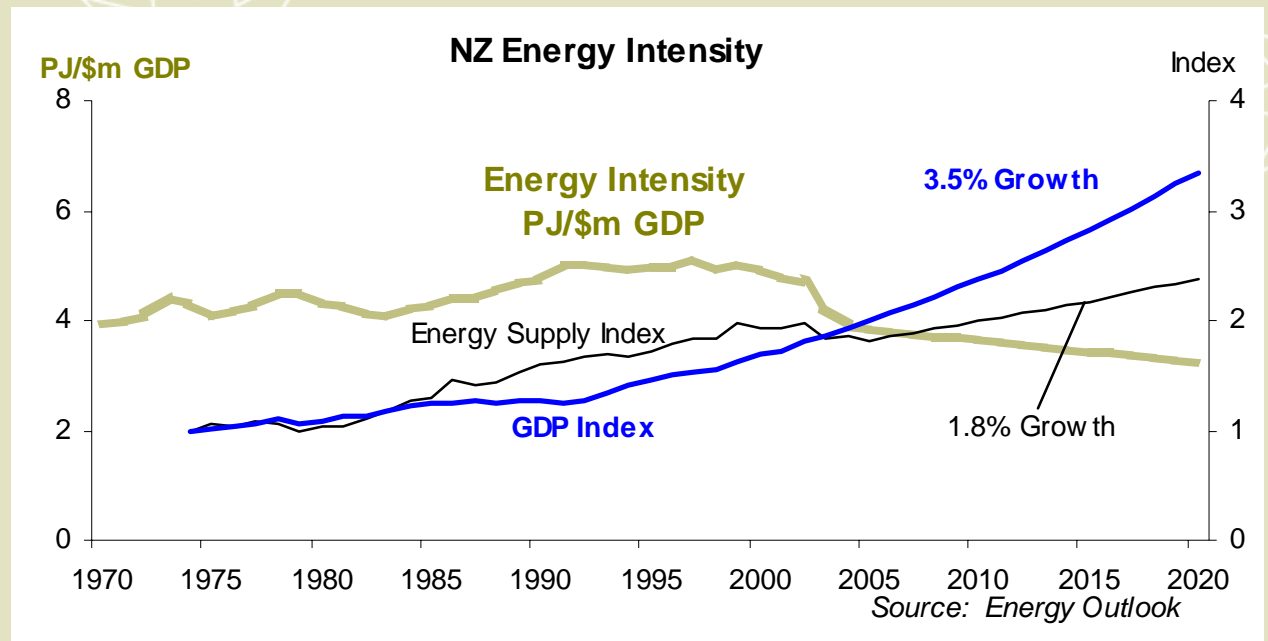


# Implications for New Zealand

Rising energy demand

Will intensity really fall?

If so, at what economic cost?



# Local Energy Options

## Oil and Gas

- NZ remains very prospective for both,
- Exploration has barely scratched the surface
- Reserves and self sufficiency are falling

## Coal

- 3000 years reserves at current rate of domestic consumption

## Renewables

- A stellar record of utilising water and geothermal
- Rising investment in wind and geothermal



# Imported Energy Options

## Importing Oil

- Rising dependency
- Cost 1998 \$1bn, 2003 \$2.2bn, 2005 \$3.0bn?

## Importing Gas

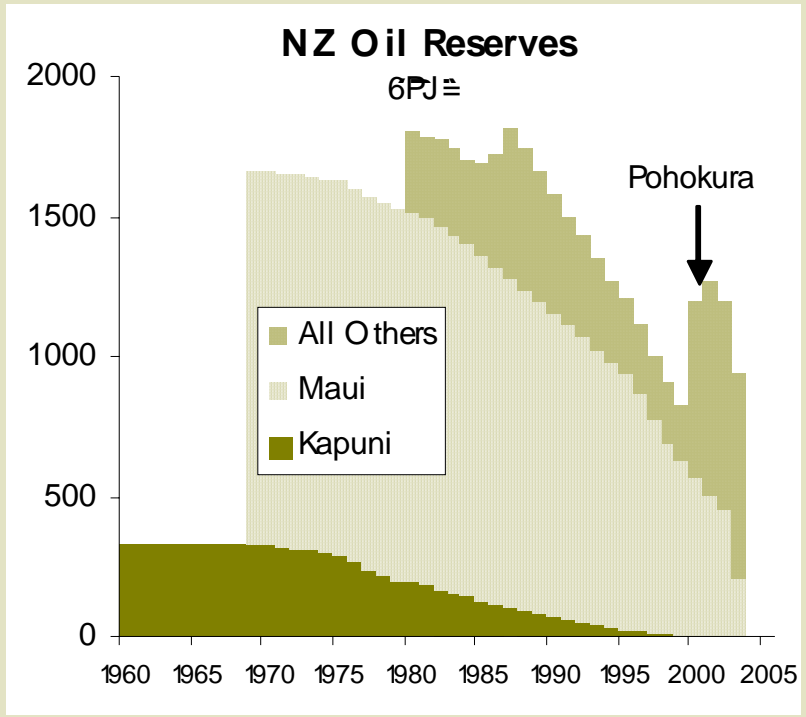
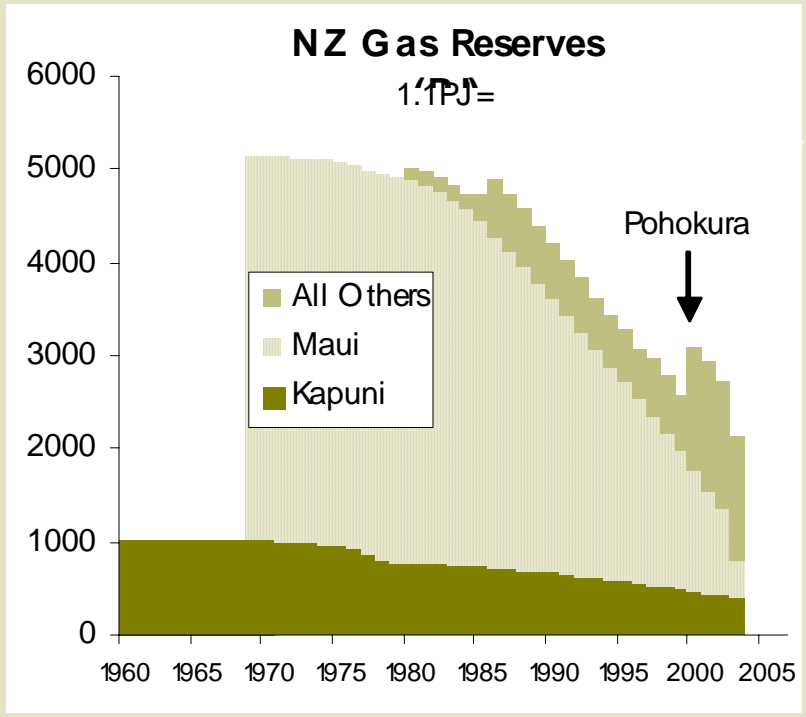
- Several proposals for LNG importation, what about CNG?
- Will satisfy energy supply certainty
- Vulnerable to global energy markets (pricing, currency)

## Coal

- Ironically, import coal may be cheaper than local coal



# Local Oil and Gas – is there a trend?



# Local Oil and Gas

## Reserves are falling

- Apparent for all of the last 30 years
- Reaction galvanised in 2003 (Maui redetermination)

## Self Sufficiency falling

- Gas peak production in 2001, now supply-constrained
- Oil peaked at 45% in 1987, now 25% and falling fast

NOT due to any lack of prospectivity



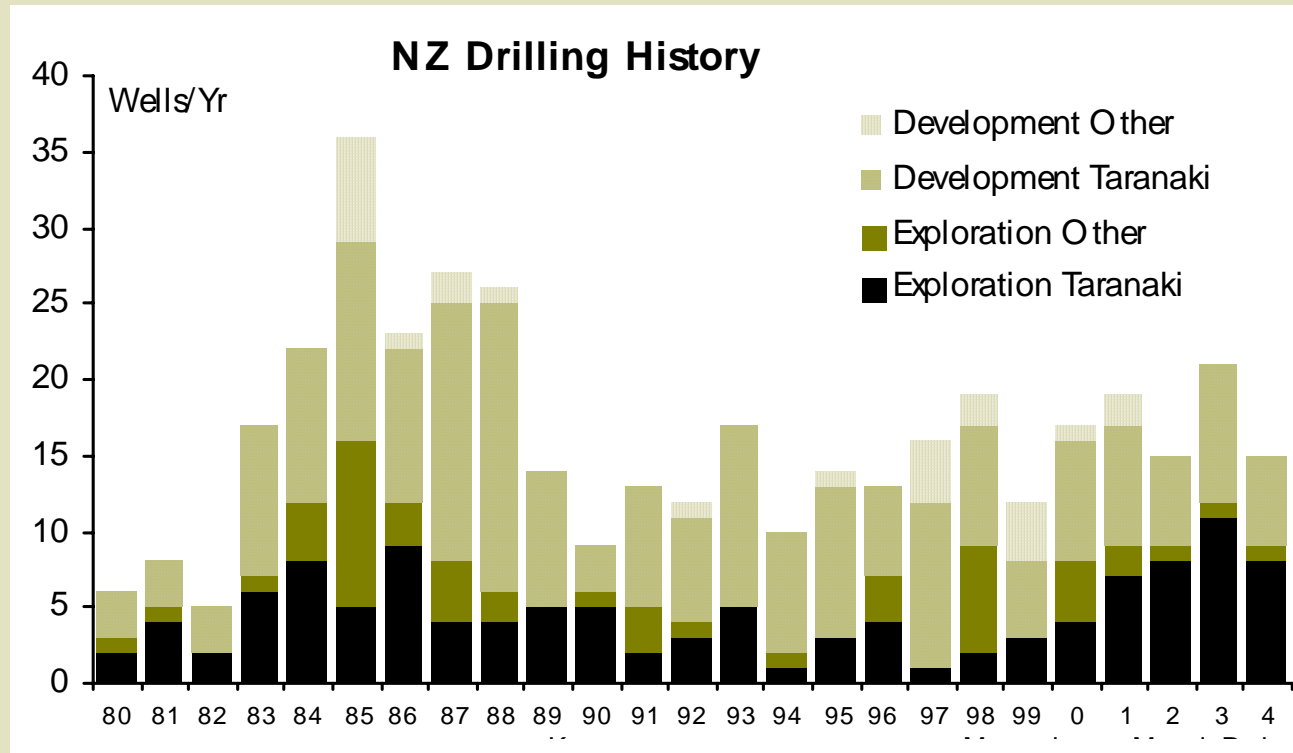
# NZ is Prospective



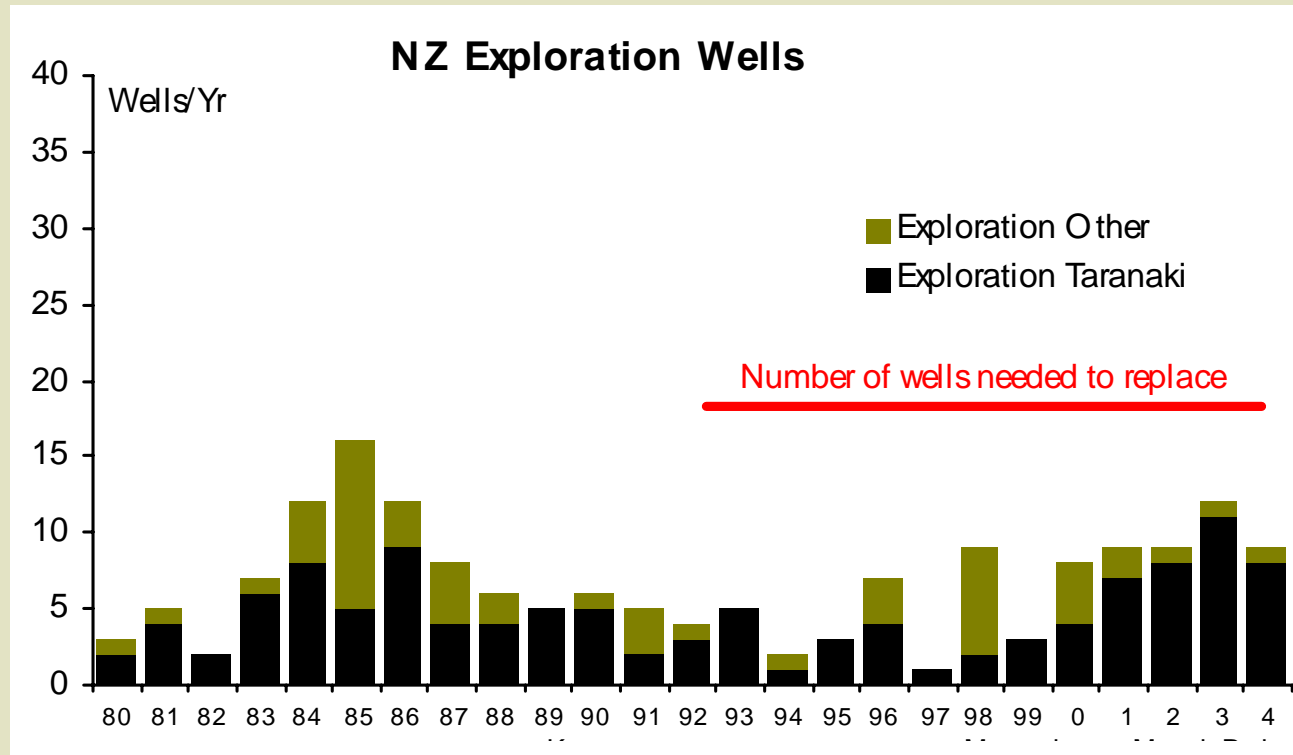
Sedimentary Basin	Area (000sqkm)		Wells Drilled		Density (sqkm/well)	
	Total	Onshore	Total	Onshore	Total	Onshore
Taranaki	100	5	352	259	284	19
Westland/Nelson	30	10	38	34	789	294
Great South/Solander	100	5	27	13	3704	385
East Coast	120	30	50	48	2400	625
Wanganui	30	15	25	20	1200	750
Northland	120	5	6	4	20000	1250
Canterbury	55	20	11	5	5000	4000



# Exploration Activity Building ...



# ... But Is It Enough?



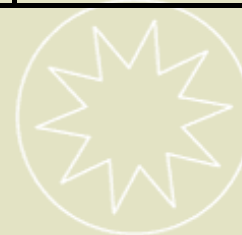
# Discovery Rate - good

Drilling Statistics	Post 1980								
	All Wells	post-1950	post-1980	Apprsl & Dvlpt	Net Expln	Reserves PJ		Reserves PJ/well	
						Oil	Gas	Oil	Gas
Taranaki Onshore	288	259	234	170	64	958	1622	9.3	8.3
Taranaki Offshore	93	93	64	30	34	1695	4828	16.2	31.9
Other	238	155	81	37	44	0	0	0.0	0.0
<b>Total</b>	<b>619</b>	<b>507</b>	<b>379</b>	<b>237</b>	<b>142</b>	<b>2654</b>	<b>6450</b>	<b>8.1</b>	<b>11.4</b>

1 Reserves/well calculations exclude Maui (4890PJ) and Kapuni (1450PJ) reserves

2 Kapuni, McKee, Kaimiro, TAWN, Kaimiro, Ngatoro, Mangahewa, Rimu

3 Kupe, Maari      4 Pohokura      5 Maui



# Returns – seem just fine

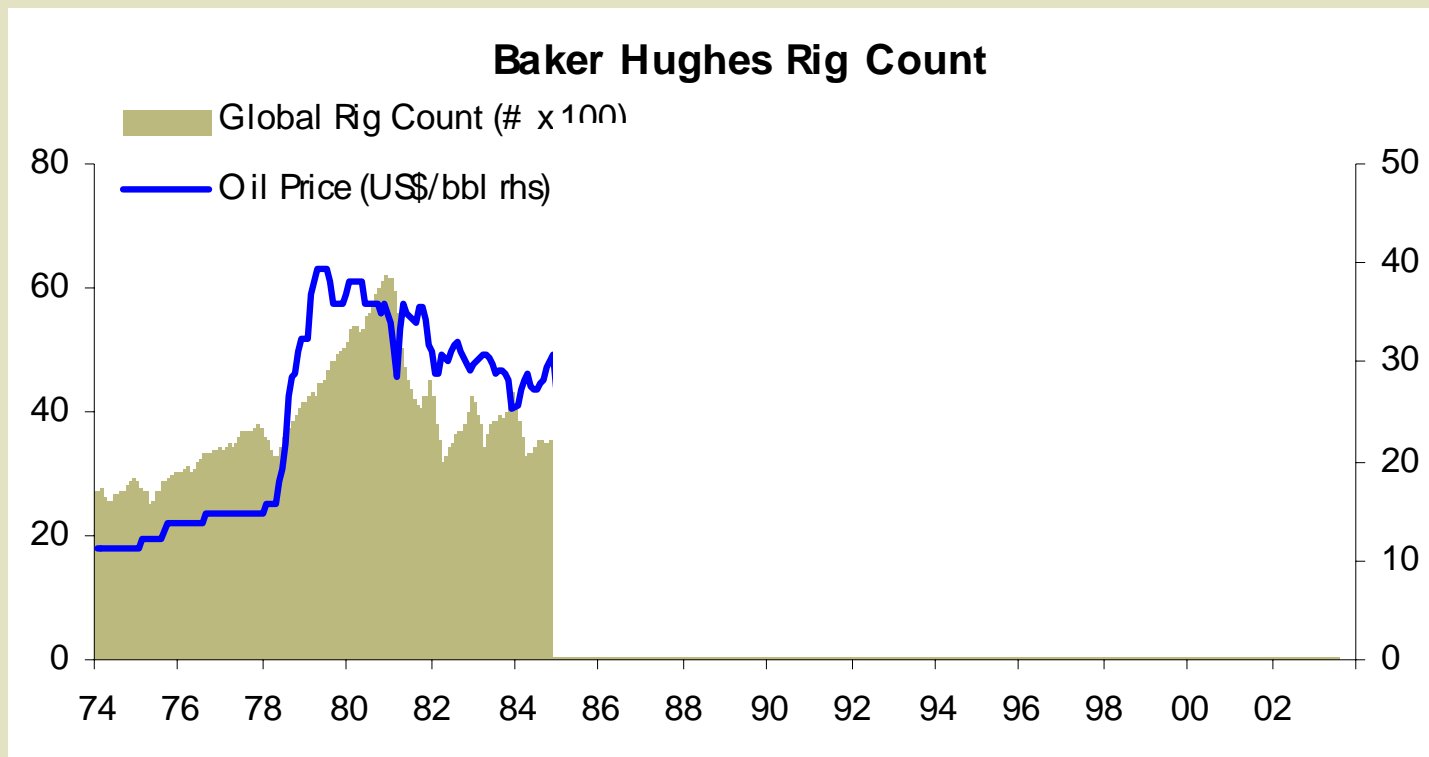
Drilling Economics	Av. Depth m	Est. Cos NZ\$m	Reserves PJ		Unit Value \$/PJ		Sales Value \$m		Sales/ Cost
			Gas	Oil	Gas <sup>1</sup>	Oil <sup>2</sup>	Gas	Oil	
Taranaki Onshore	2400	4.5	9.3	8.3	4.0	8.7	37	72	24
Taranaki Offshore	2400	25.0	16.2	31.9	4.0	8.7	65	277	14
Other Onshore	2800	2.0	0.0	0.0	4.0	8.7			
Other Offshore	3500	25.0	0.0	0.0	4.0	8.7			

1 gas price of \$4/GJ lower than the current price, apparently > \$6/GJ

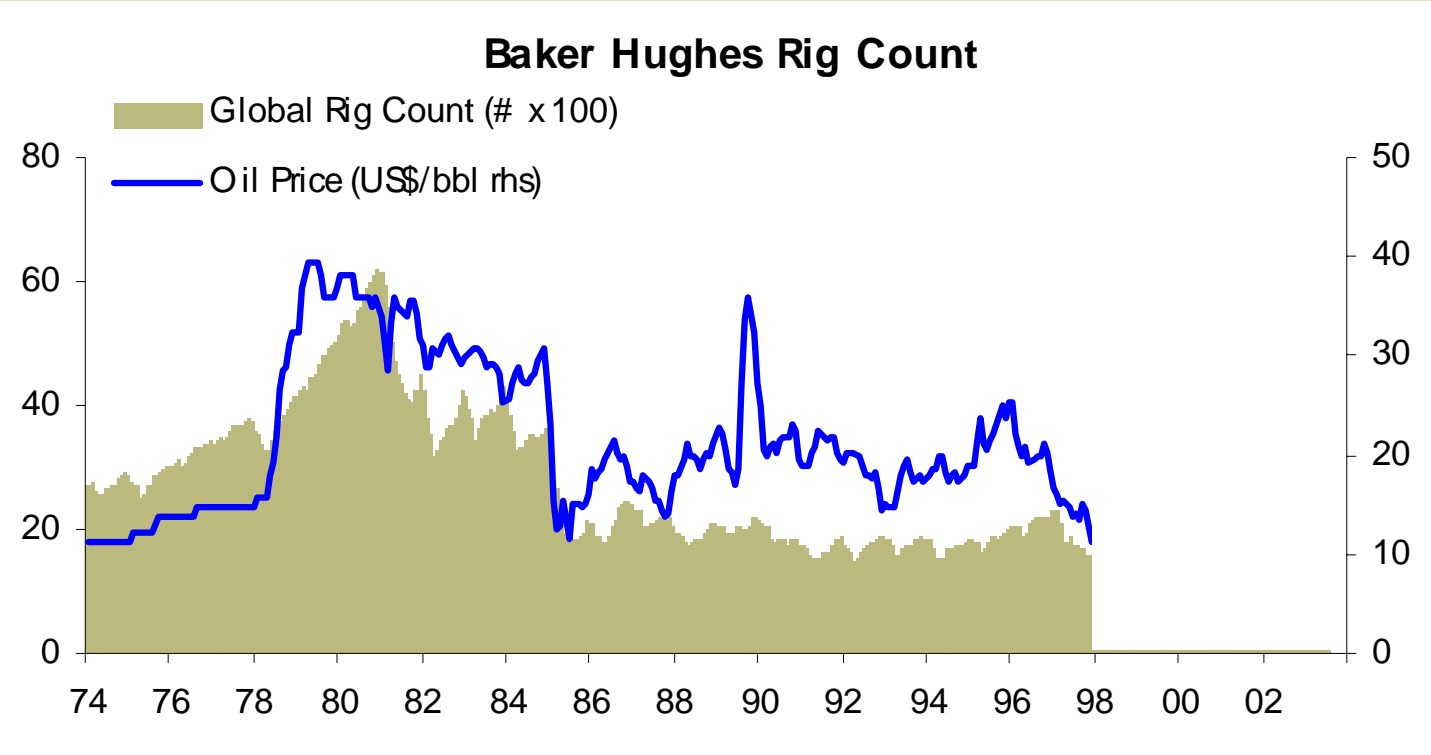
2 oil price of US\$25/bbl lower than current spot rates of US\$55/bbl



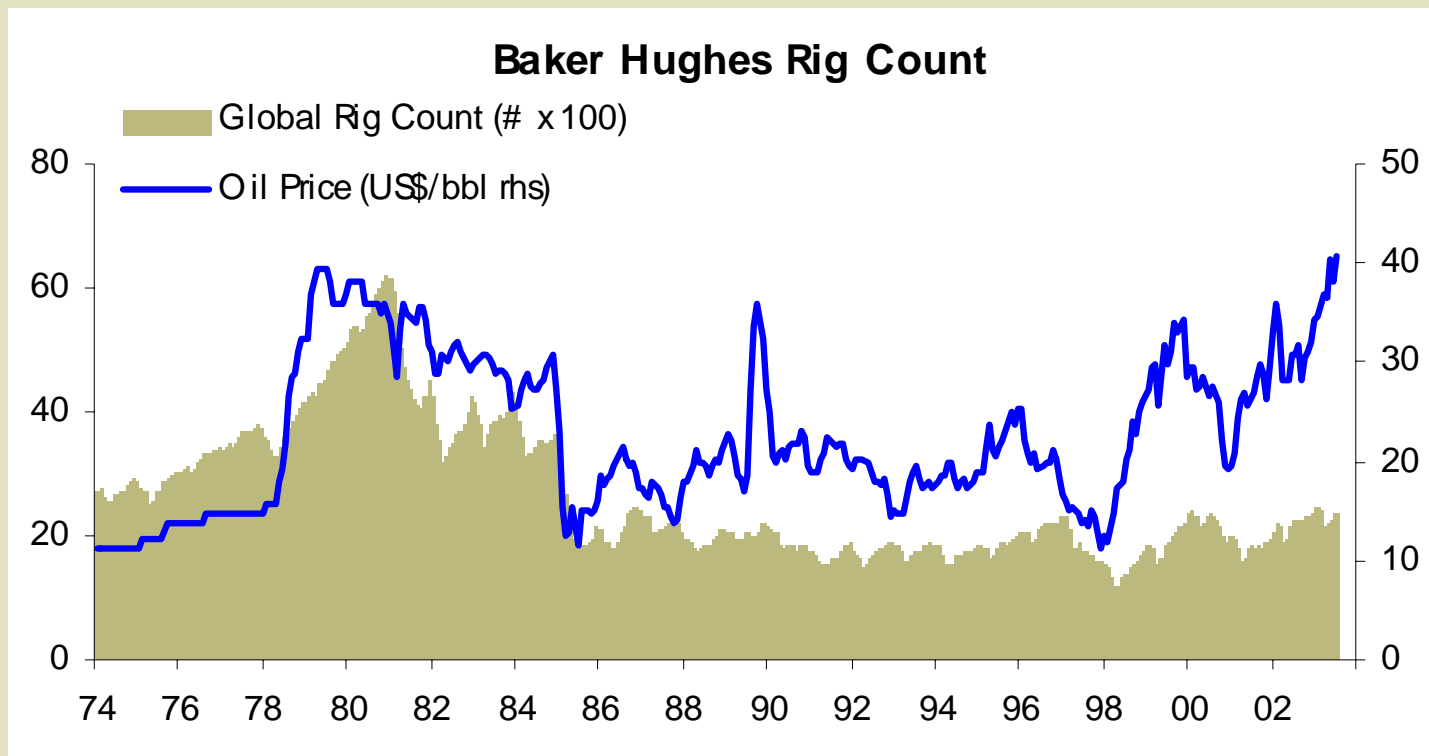
# Global E&P Activity - spiked



# Global E&P Activity - flattened



# Global E&P Activity - flat



# Prospects for Local E&P - excellent

- A market for gas – finally
- Strong returns for oil
- Attractive Fiscal Regime and Political Stability



# Prospects for Local E&P - excellent

- A market for gas – finally
- Strong returns for oil
- Attractive Fiscal Regime and Political Stability
- And great trout fishing



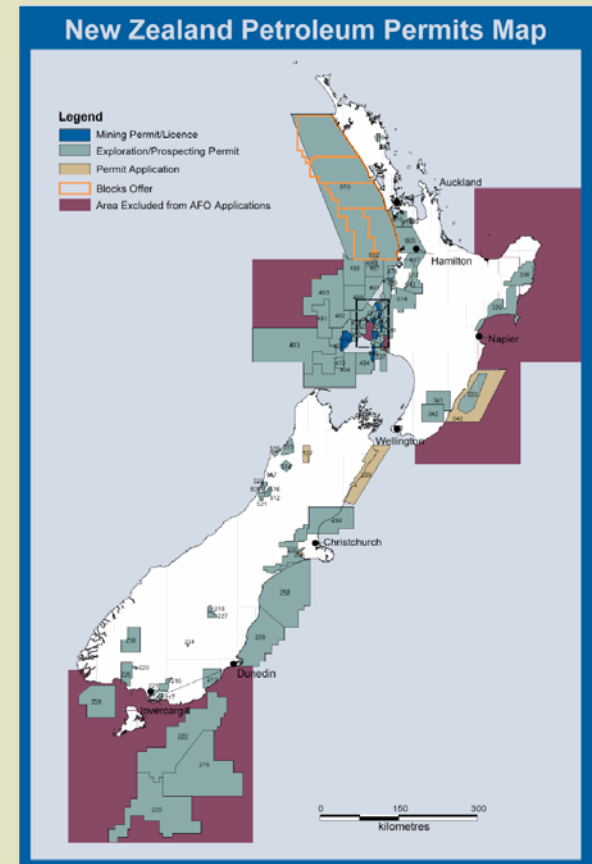
# Prospects for Local E&P - excellent

Plenty of Open Acreage

Farm opportunities for E&P companies with:

- Deep pockets
- Long arms
- Good character

Downstream players have cash to burn



# Impediments to E&P

## Small domestic gas market (160PJ/yr)

- It could be flooded by one major discovery
- Methanex acts as a crucial release valve

## Capital

- NZ needs \$200m/yr of high risk-high return capital
- Currently attracting less than half that
- Global E&P activity not responding to high oil prices
- Downstream investment into E&P improving



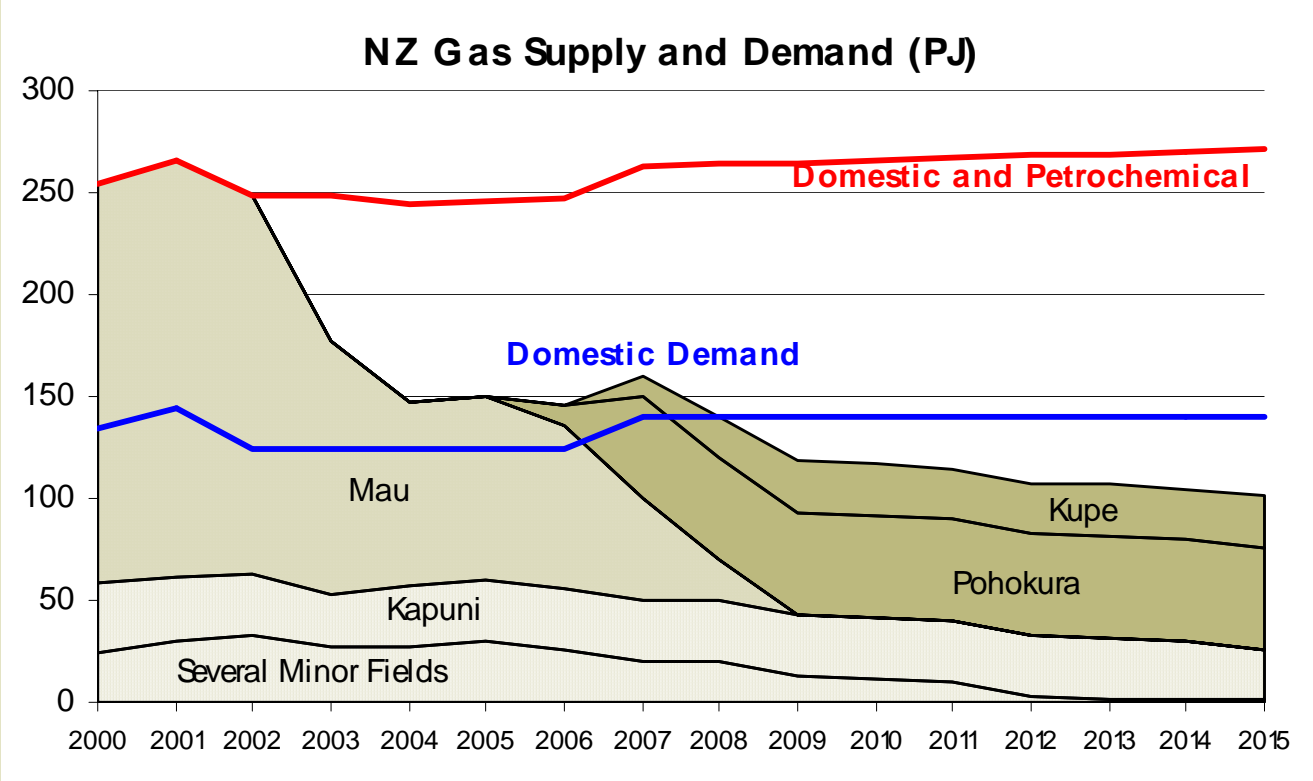
# Impediments to E&P

## LNG

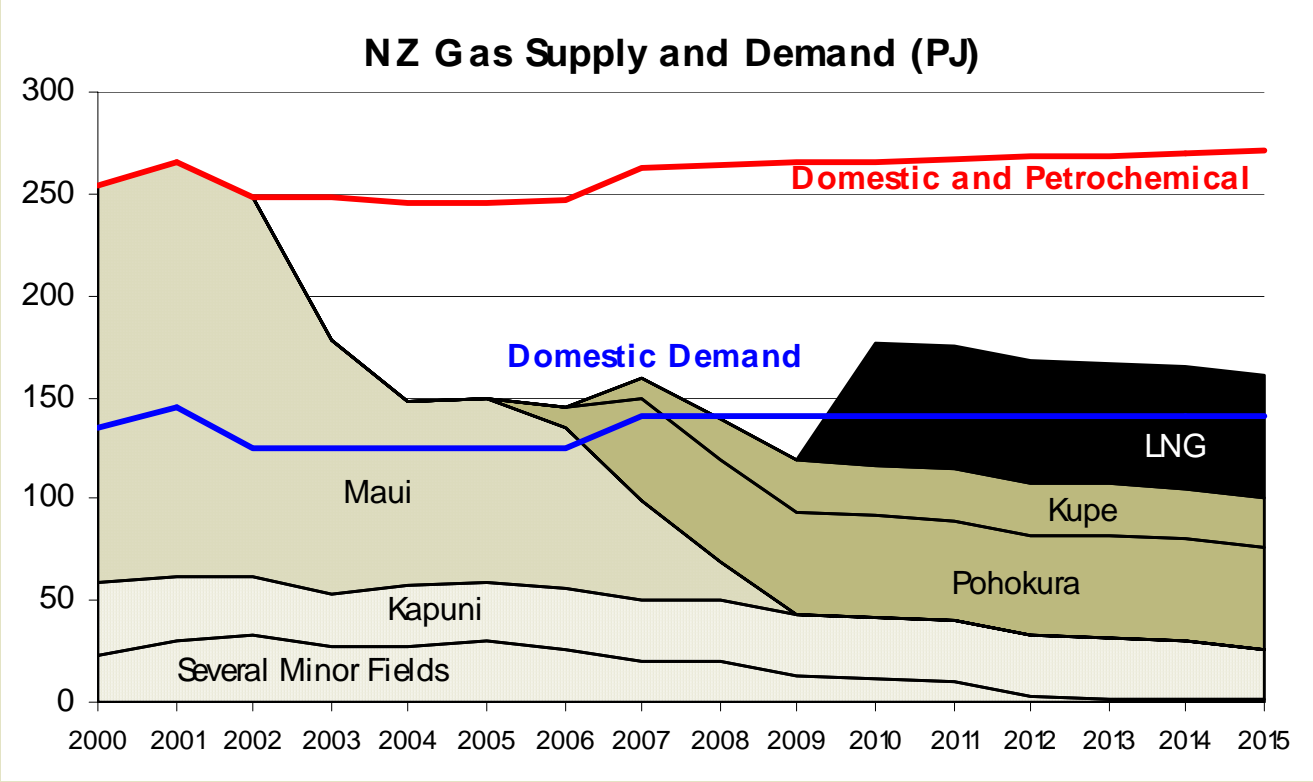
- As acknowledged, it is not the optimal solution
- Nevertheless, a prudent option to ensure supply security
- Carries substantial risks for the importers
- Could devastate gas exploration
  - Deprivation of market
  - Hasten the exit of Methanex
- The luxury of time has passed



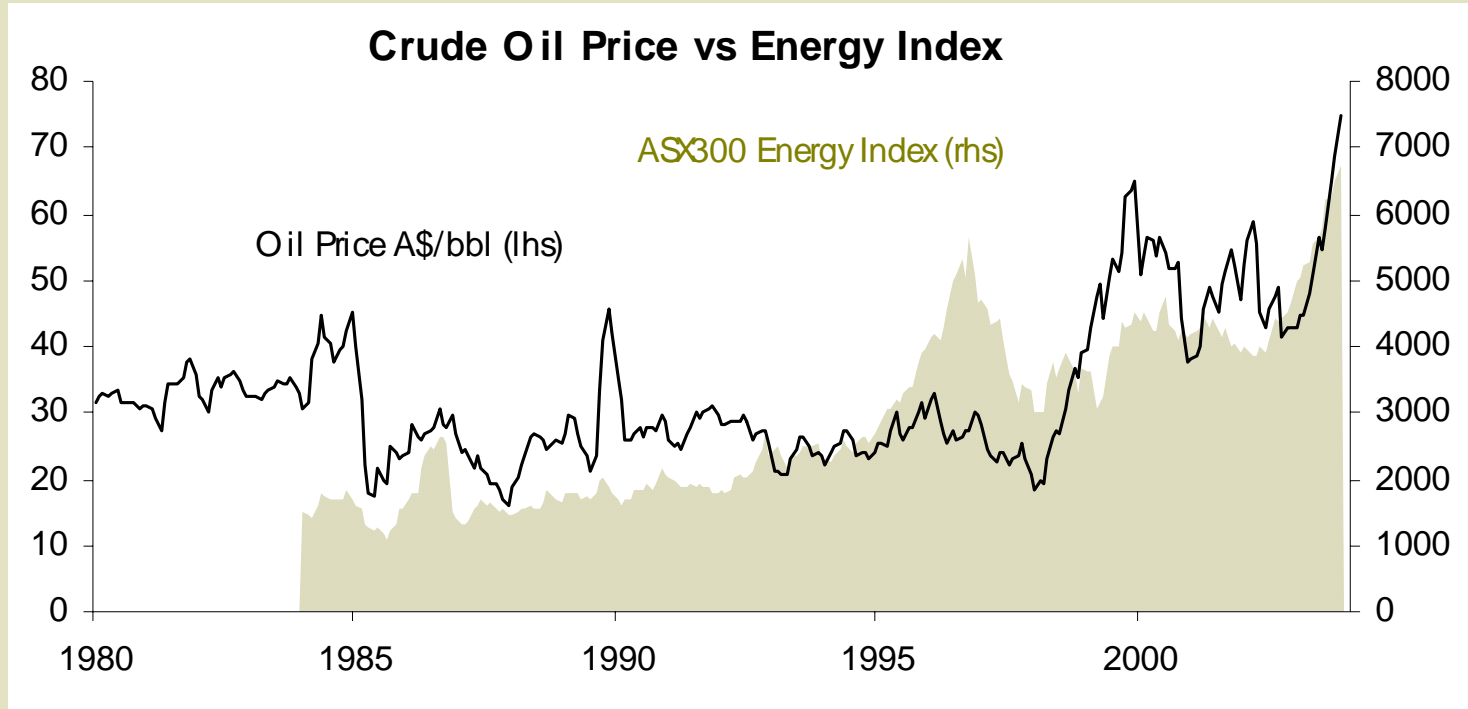
# Gas Demand – gaps appearing



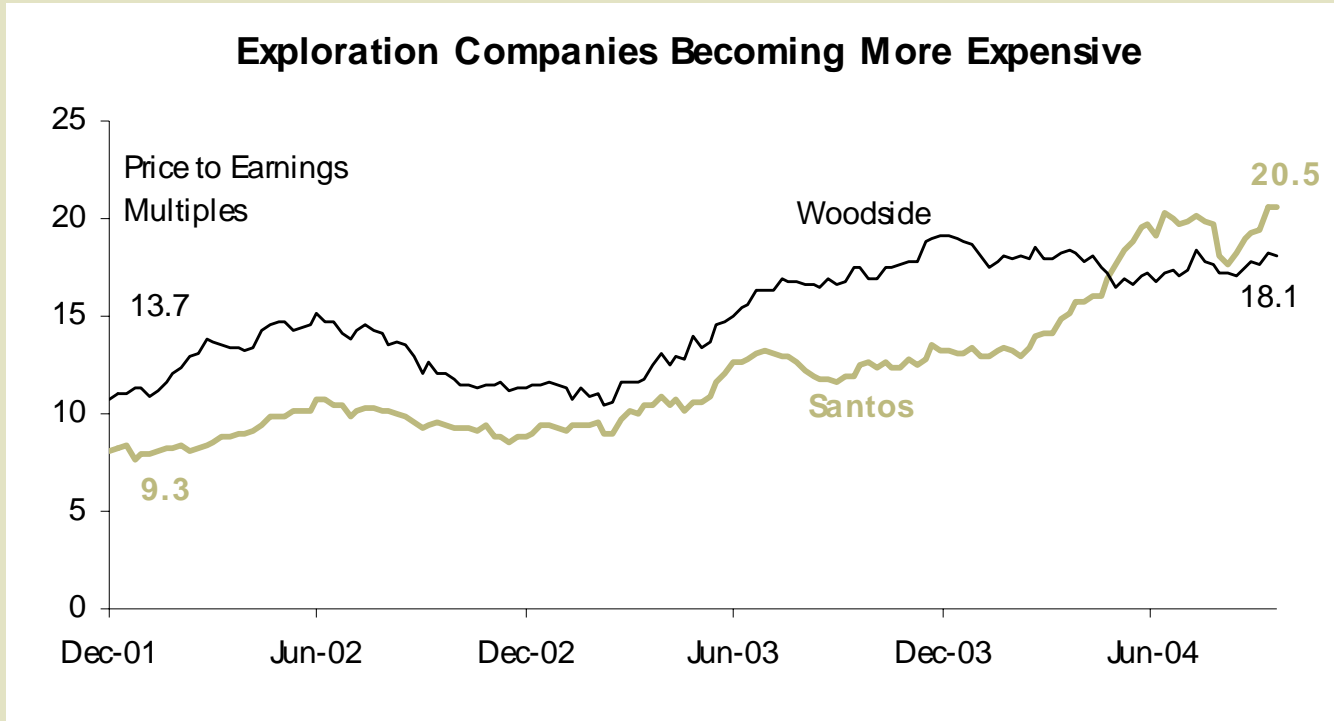
# Gas Demand – gaps appearing



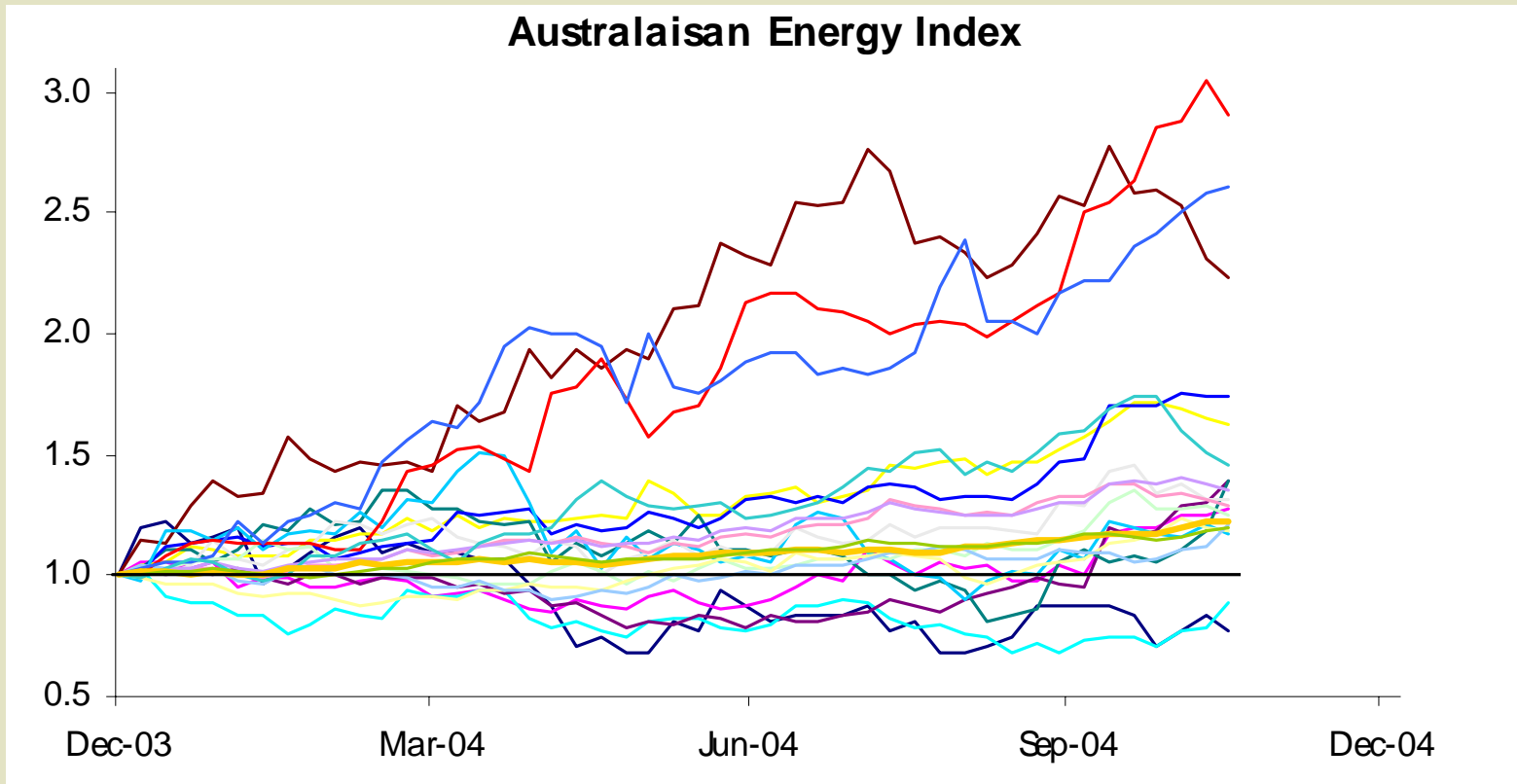
# Investor Demand - strong



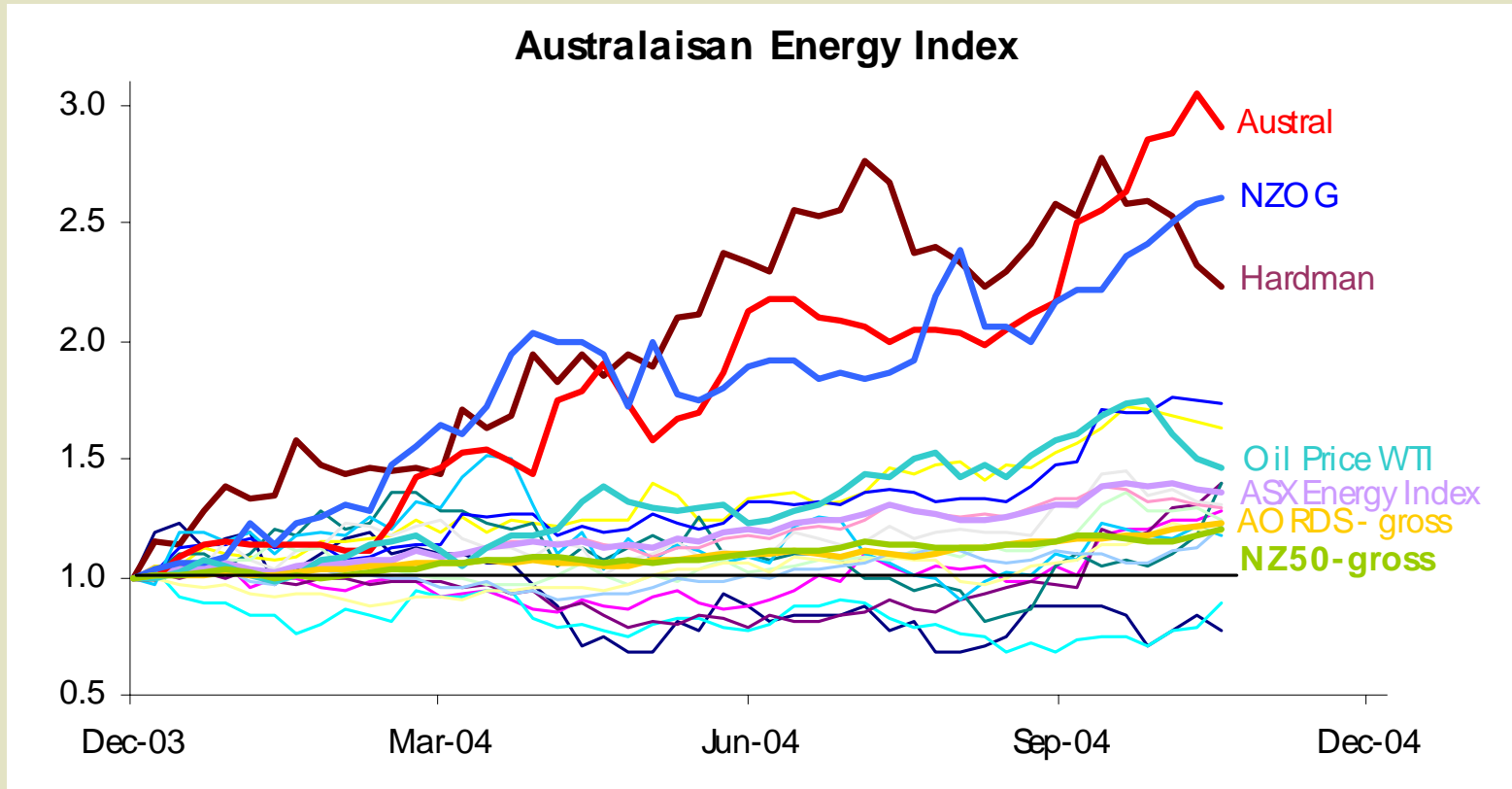
# Investor Demand - strong



# Investor Demand - strong



# Investor Demand - strong



# Local Oil and Gas Options

Energy Federation of NZ Workshop  
25<sup>th</sup> November 2005

Chris Stone



McD☼UALL STUART