

# The state of New Zealand's exploration and production industry

Chris Hall, Chair, Petroleum  
Exploration and Production Association  
of New Zealand

The New Zealand Petroleum  
Conference 2008

# Contents

1. About PEPANZ
2. Government policy
3. In the field
4. Gas supply and demand
5. Where are we going?

# 1. About PEPANZ

- **Role:** to publicise, promote and advance the interests of the oil and gas exploration and production industry in New Zealand:
  - participate in policy and legislative initiatives
  - promote awareness on environmental, health and safety, land access and related issues
  - collect, publish and share information on the industry
- **Management:** a full time Executive Director and an Executive Committee

# 1. About PEPANZ (cont'd)

## **Four working committees:**

- **Policy**
- **Fiscal and taxation**
- **HSE and operations**
- **Carbon**

## 2. Government policy (2004 conference)

### (A) Government policy **not encouraging**:

Mike Patrick: “When coupled with small economy and gas market and lack of gas infrastructure:

- Government statements about Methanex being part of the problem
  - Government statements about increased role for renewable energy but increased burning of coal in the interim
  - apparent acceptance of LNG as a long term solution
  - lack of a coherent energy plan and strategy
- ...attractiveness of NZ for explorers is diminished

– Mac Beggs: “The Government needs to move from enabling to promoting”

## 2. Government policy (2004 conference)

### (B) Government policy: **more encouraging:**

- **MED:** gas has an important role to play in New Zealand; the prospects for gas exploration and development have improved considerably; government is looking to remove any undue barriers to timely exploration and development
- **Associate Minister:** the government is looking to increase gas supply; the time to invest has never been better

## 2. Government policy (2006 conference)

- Associate Minister:
  - Prospectivity is good, but we need more active drilling
  - Government initiatives include adjustments to tax, reductions in royalties for new discoveries, additional funding to promote investment, Government funded seismic data
  - “Has never been a better time for exploration and production here”
- Minister of Energy:
  - The Government is developing a national energy strategy
  - The oil and gas sector is encouraged to input

## 2. Government policy key messages

- For at least 6 years industry has been expressing concern about government policy signals
- For at least 6 years government has been telling us that the industry is important, that we need more activity and that government is looking to help achieve that by removing barriers, facilitating investment and increasing gas supply

# 3. In the field (2004 conference)

- **Exploration:** 21 new onshore permits issued; offshore offer disappointing response; deepwater blocks offer failed to draw interest beyond the shelf margin; activity outside Taranaki haphazard
- **Appraisal / development:** Tui and Karewa discovered; Pohokura and Maari appraised
- **General:** The reality of international competition for E and P resources starting to bite; focussed risk taking was the order of the day (Swift); prediction of a future with many small fields rather than one big one (Westech); Shell exited exploration, ConocoPhillips and Preussag exited altogether but OMV, Tap and Indo Pacific had arrived

### 3. In the field (2006 conference)

- **Exploration:**
  - 69 wells drilled
  - 12 discoveries (?)
  - GSB bidding to open soon
- **Appraisal / development:** Pohokura, Tui, Maari, Kupe
- **Generally:** access to resources, especially drilling rigs, now biting deeply

# Pohokura development



# Tui offloading first cargo: August 15



Source: Tui joint venture

# Kupe development Ensco 107



Source: Todd Energy

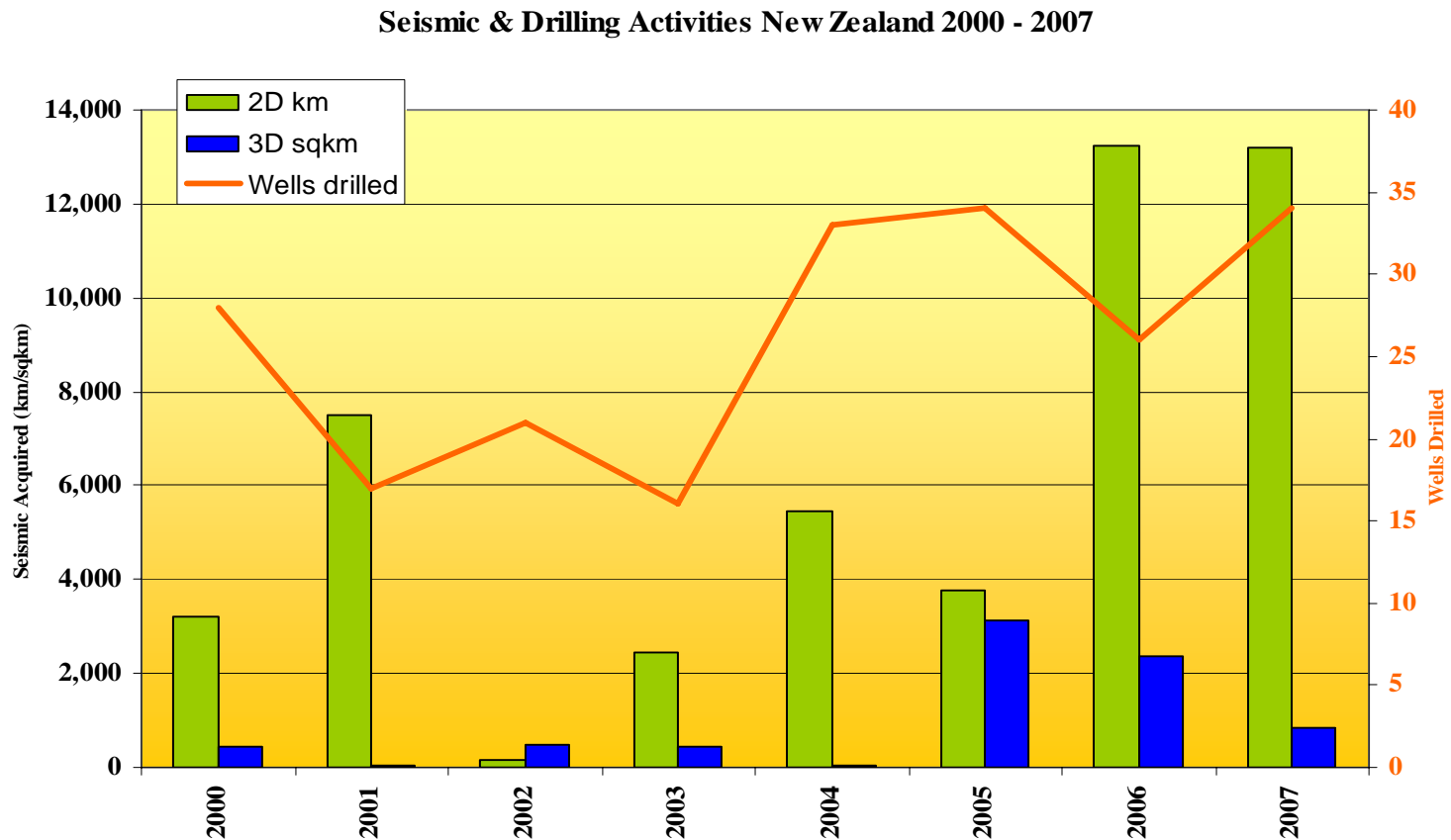
# Maari development



Source Maari joint venture

# 3. In the field in summary

## (a) Exploration / appraisal / development



### Wells drilled in New Zealand from January 2006 – present day

Region	Exploration	Appraisal	Development	Total
Onshore Taranaki	9	9	16	34
Offshore Taranaki	7		15	22
Other	8			8
<b>Total</b>	<b>24</b>	<b>9</b>	<b>31</b>	<b>64</b>

Source: 2006 MED Well statistics sheet + 2007 NZ Energy Data File + Todd Energy records

### Planned / possible wells to be drilled 2008 - 2009

Region	Exploration	Appraisal	Development	Total
Onshore Taranaki		2	7	9
Offshore Taranaki	11		7	18
Other	10			10
<b>Total</b>	<b>21</b>	<b>2</b>	<b>14</b>	<b>37</b>

Source: Todd Energy records

### Seismic acquired in New Zealand January 2006 – present day

Type	2006	2007	GSB	Total
2D km	13,240	13,204	16,935	43,379
3D km <sup>2</sup>	2,360	825	1,342	4,527

Source: 2007 NZ Energy Data File + Todd Energy records

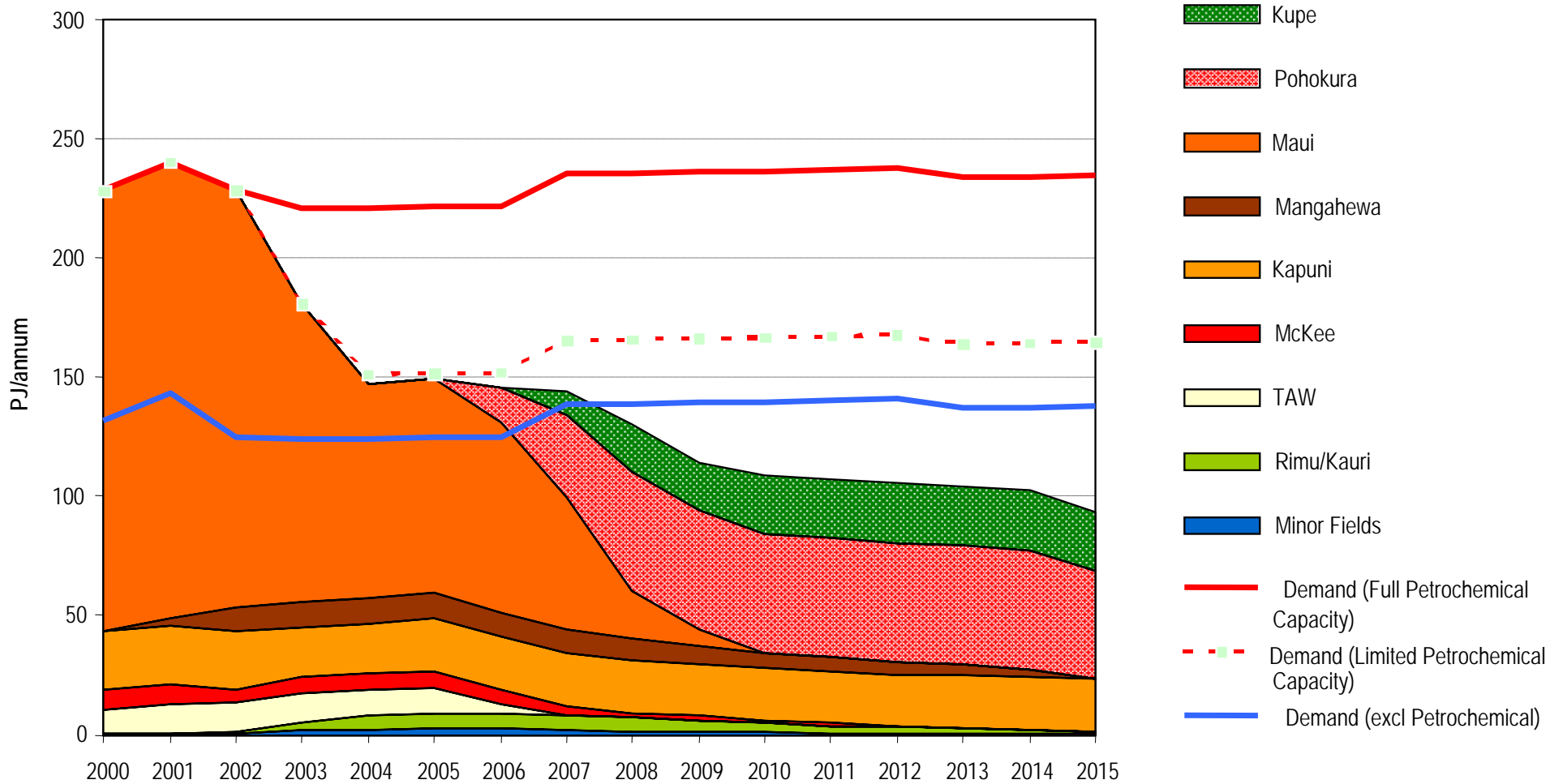
### 3. In the field key messages

- For at least 6 years industry has been expressing concern about government policy signals
- For at least 6 years government has been telling us that the industry is important, that we need more activity and that government is looking to help achieve that by removing barriers, facilitating investment and increasing gas supply
- **For at least 6 years industry has been expressing concern about the costs and risks of doing business in New Zealand**
- **Industry has soldiered on in the meantime; existing discoveries have been developed; but there has been reducing exploration in the face of that uncertainty**

## 4. Gas supply and demand (2004 conference)

- Maui redetermination / Strawman dominated
- Perception of gas shortfalls within 5 years
- A paper on gas supply and demand from Energy Link Ltd contained supply assumptions of Maui producing until (i) 2007; or (ii) 2009

# Contact Energy 2004: supply outlook is uncertain

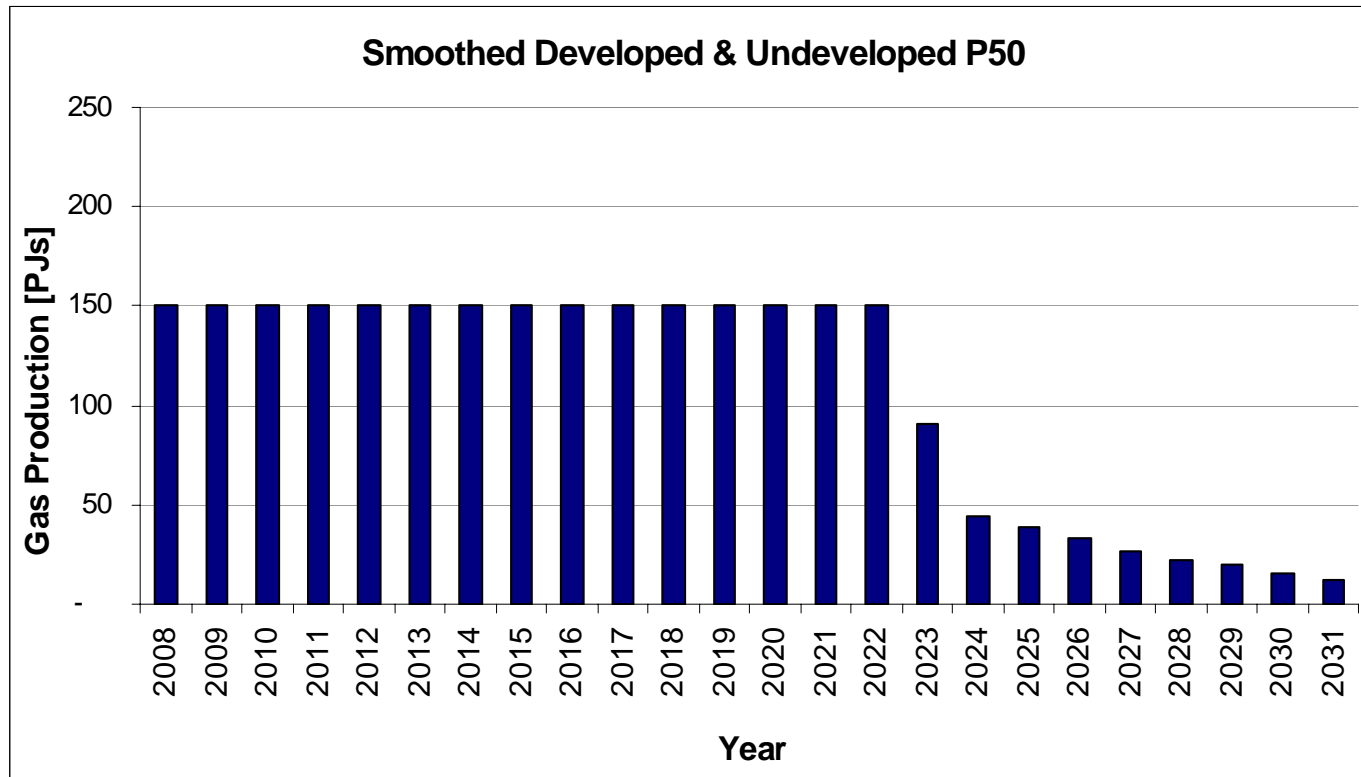




## 4. Gas supply and demand (2006 conference)

- Confidence in gas supply is fragile
- Gas market has declined significantly
- Reliable information is limited
- Exploration activity and success are limited
- Firm supply availability is poor
- Flexibility in take has disappeared
- Contact graph shows a large shortfall 2002-2006, again from 2011
- **But** Genesis unveils Rodney and E3P

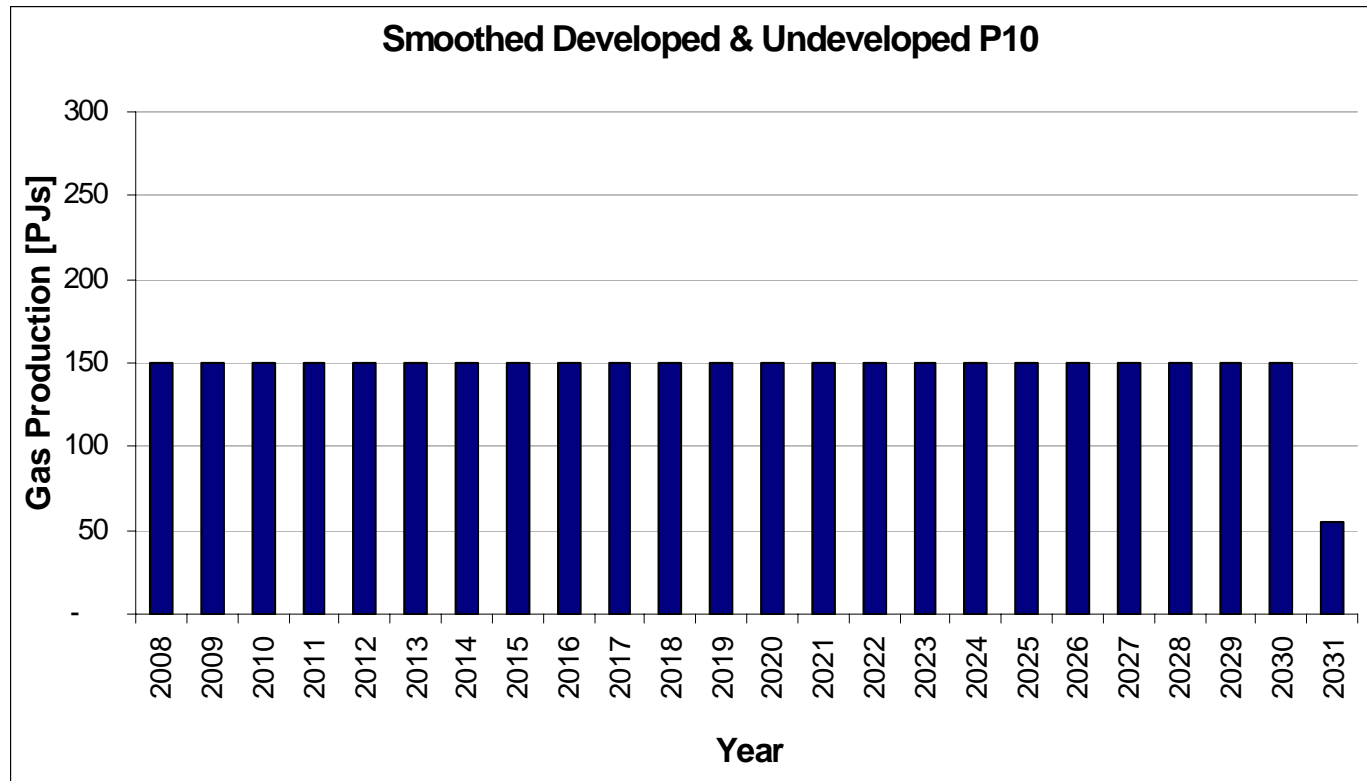
# P50 developed & undeveloped reserves



P50 basis, no ETS, no Methanex, 32PJ pa incremental thermal generation

Source: Todd Energy

# P10 developed & undeveloped reserves

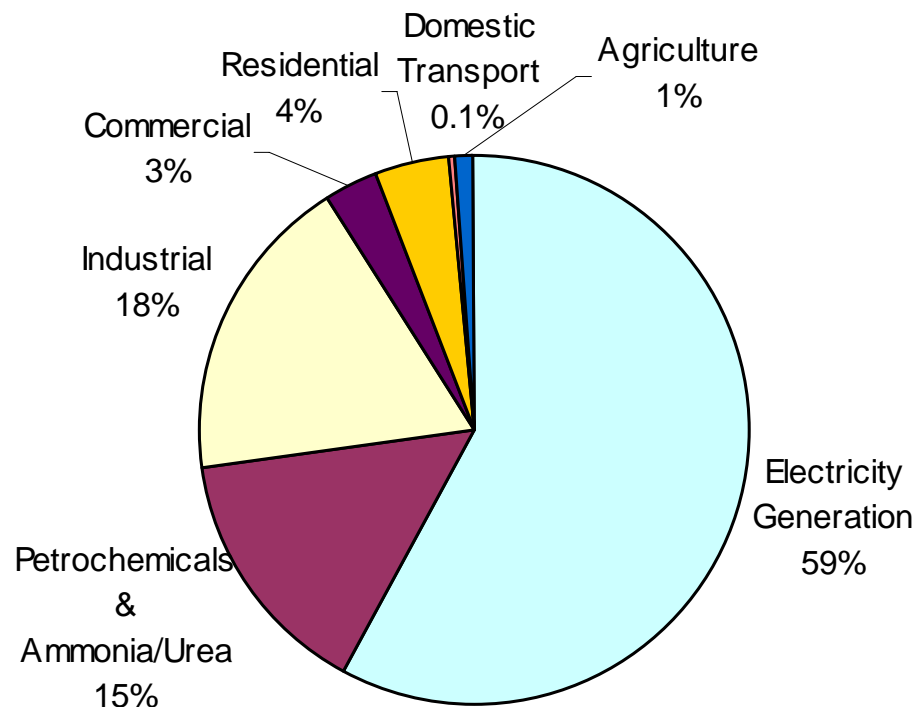


P50 basis, no ETS, no Methanex, 32PJ pa incremental thermal generation

Source Todd Energy

## 4. Gas supply and demand now

### Uses of Primary Gas Production (2006)

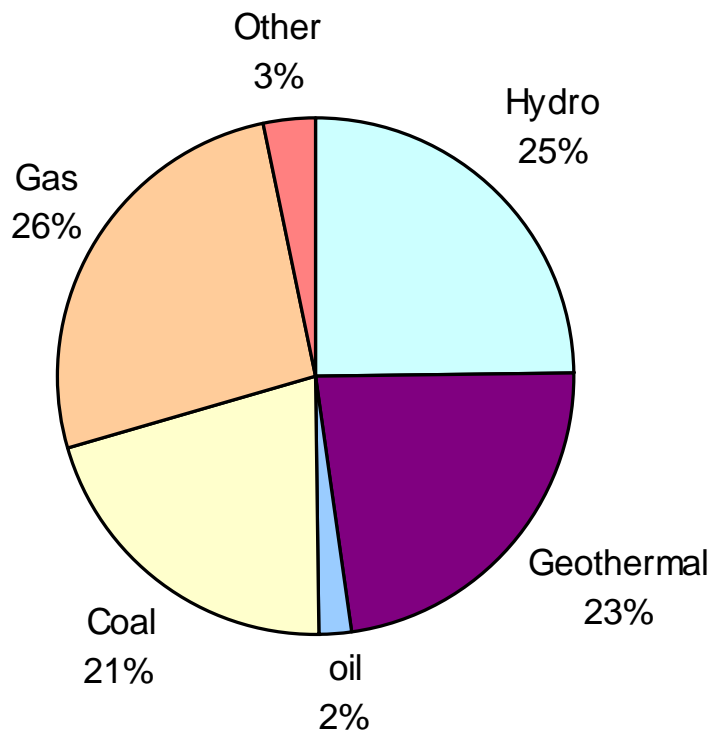


- 59% of gas production (89.5 PJ) used for electricity generation
- 15% (23 PJ) used for petrochemical & ammonia and urea production

Source: Ministry of Economic Development Energy Data File (June 2007)

## 4. Gas supply and demand now

### NZ Primary Energy sources for Electricity Generation (2006)



- 342 PJ of primary energy production and supply used for energy transformation to 141 PJ of electricity
- 89.5 PJ of primary gas production used for electricity generation (59% of total gas production of 152.5 PJ in 2006)

Source: Ministry of Economic Development Energy Data File (June 2007)

## 4. Gas supply & demand key messages

- For at least 6 years industry has been expressing concern about government policy signals
- For at least 6 years government has been telling us that the industry is important, that we need more activity and that government is looking to help achieve that by removing barriers, facilitating investment and increasing gas supply
- For at least 6 years industry has been expressing concern about the costs and risks of doing business in New Zealand
- Industry has soldiered on in the meantime; existing discoveries have been developed; but there has been reducing exploration in the face of that uncertainty
- **There has been significant misinformation about future gas supplies; but today the industry is as well placed as ever to contribute to New Zealand's future energy needs**

# 5. Where are we going fiscal & tax?

## (A) Some encouraging developments

- straight line or depletion amortisation of development expenditure
- treatment of R and D spend (shareholder continuity)
- amendment of onshore / offshore definitions
- deduction of cost of dry and depleted production wells
- elimination of clawback of exploration well expenditure

## (B) Some discouraging developments

- No offset of expenditure through a foreign branch
- Poor process, poor amendment

## 5. Where are we going with CM section?

(A) The objective: by nationalising mineral rights in 1937 the Crown took on an obligation to promote the realisation of its latent value through coherent policies administered by a well resourced and well qualified Crown Minerals section

(B) Permit access and administration:

- Blocks offers - more acreage needs to be freed up
- Permit terms - work obligations must reflect market conditions (cost, timing)
- Renewals - need to be processed faster and work obligations must reflect market conditions
- Retention arrangements must become part of the equation

(C) Other

- Review of Minerals Programme
- Practice statements
- Reporting obligations

# 5. Where are we going on carbon?

## The Emissions Trading Bill

- The objective: to reduce emissions...while ***maintaining economic flexibility, equity, and environmental integrity at least cost in the long term***
- Questions yet to be answered:
  - Is it the right tool?
  - What has been the process?
  - Can ability to pass through be assumed?
  - Is there a case for opt ins?
  - What of the volatility of the international carbon market?
  - A ban on new baseload thermal generation - considered policy or something out of left field?

# 5. Where are we going on carbon?

(A) Is it the right tool? How would we know?

(B) What has been the process?

- Has there been transparency of information?
- Has there been informed debate?
- Why no E and P representation on leadership forum?
- Who will be on the “Technical Advisory Group”?
- Where is the economic analysis?
- Why not a fast follower?
- What have other countries done?
- What of the assumptions about oil and gas - is the “problem” not enough gas or too much?

# 5. Where are we going on carbon?

(C) The point of obligation / can ability to pass through be assumed?

- A key principle is that emitters face the full cost of their emissions. Do E and P companies emit?
- Pass through is assumed but what about older contracts and contracts that allow pass through of a carbon tax?
- Officials advised support - why is it not addressed in the Bill?
- A statutory over ride is the obvious solution

# 5. Where are we going on carbon?

## (D) Is there a case for opt ins?

- Threshold 250,000 tonnes / 2 PJ of gas in a year
- Where did this come from and why?
- Adds considerable uncertainty on management of carbon liability
- Makes capital investment in emissions infrastructure unlikely
- NZIER notes most efficient course is to deal with this by contract

# 5. Where are we going on carbon?

## (E) Volatility of the international carbon market

- New Zealand first cab off the rank
- There must be a liquid market; is there?
- What is the price of carbon?
- How do we protect businesses and the economy from harm?
- Various safety valve mechanisms are available
- A fixed price in CP1 would be appropriate
- Participants should be allowed to roll forward surrender obligations, but be in balance by end CP1
- Penalties should apply only in event that balance date is not met

# 5. Where are we going on carbon?

(F) Thermal generation “moratorium” (i) Where is the analysis?  
What of advice of officials?

- Centre for Advanced Engineering:
  - *“It would appear that the renewable development strategy and moratorium on the construction of new thermal baseload has been carried out without a complete analysis. Economic analysis has not been carried out considering all significant costs and trade offs”*
  - *No comprehensive analysis of transmission requirements [or cost] for intermittent renewables*
  - *Cost of additional system security augmentation (for intermittent wind)... have not been fully costed into any of the current assumptions. Who pays for the provision of standby and back-up capacity for wind is an outstanding issue. It seems likely that current windpower costings are optimistic as they do not take into account these requirements.*

# 5. Where are we going on carbon?

(F) Thermal generation “moratorium” (ii) What is the rationale?

- Minimise the risk of not achieving 90% renewables
  - When is an “aspiration” a done deal?
  - How does that compare internationally?
  - Are we being punished for the sins of the agricultural sector?
- Minimise the risk of undermining public confidence in climate change policies
  - What happened to ***economic flexibility, equity, and least cost in the long term?***
- Conserve or “spin out” available gas reserves. But c.f. Minister of Energy last week
- Reduce the likelihood of LNG imports. Premised on imminent shortfall of gas supply. But:
  - See supply / demand graphs above
  - Rodney and Otahuhu C

# 5. Where are we going on carbon?

(F) Thermal generation “moratorium” (iii) Risk to New Zealand’s gas sector

- Electricity generation is a key market for natural gas
  - 60 of 155 PJ in 2007
  - 21% of electricity generation
- Effects of ban on gas sector: CAENZ identifies
  - suppression of demand for gas from the electricity sector by about 33%
  - a fall in the size of the overall gas market from 155PJ to 120PJ
  - negative impact on exploration, development and reserves discovery
  - loss of flexibility and security in electricity supply
  - ability of gas to reliably back-up renewables jeopardised
  - increased upward pressure on gas prices as reserves decline
  - negative impact on the reticulated gas market
  - Huntly continues to burn coal; reduced security of energy supply (energy and electricity); increased potential for introduction of LNG

# 5. Where are we going on carbon?

(F) Thermal generation “moratorium” (iv) Risk to New Zealand’s gas sector; policy settings required for a viable gas sector will recognise that:

- Gas has a vital role to play
- New Zealand - considerable opportunity for discovery of new gas resources
- Upstream gas industry is in a difficult environment
- Best way of facilitating timely discovery and development of gas reserves is to let market forces prevail
- Business cases for E and P highly dependent on the demand for gas
- Access to opportunities in the electricity generation market is key
- Drip feed of gas to one or two peaking stations is not an option

# 5. Where are we going on carbon?

(F) Thermal generation “moratorium” (v) Risk to energy supply

- Is the EC methodology reliable?
- Where will we get 12,500 wind turbines?
- Is the transmission system up to it; if not how much will upgrades cost; what about energy efficiency (losses)?
- Are the exemption provisions workable:
  - emergency exemption impractical
  - risk of revocation
  - too high a threshold for co-gen (80%)
  - favours incumbent generators
  - thus a reduced incentive to replace

# 5. Where are we going on carbon?

(F) Thermal generation “moratorium” (vi) Risk to the economy:

- Minister: “wind and geothermal are more affordable than gas”
- Its not that hard
- But:
  - No evidence of any adequate cost / benefit analysis
  - Based on \$9 gas price
  - Gas at current price = \$70 Mwh; Waikato wind = \$100
  - Contact has said that electricity prices will need to rise by 35 - 40%
  - CAENZ:
    - At least 15% increase without taking into account additioln backup and transmission costs
    - Increases of 40-50% in real terms within 15-20 years are plausible due at least in part to the moratorium suppressing demand for gas, disincentivising exploration, reducing reserves discovery, decreasing supply and increasing the price of gas

# What does that review tell us?

1. For some years, the industry has been identifying barriers to investment in E and P in New Zealand
2. Government has showed that it has been listening and on some things has engaged
3. Has it delivered?
  - On tax: 1 step forward two steps back?
  - On Crown Minerals policy: resources, certainty, work programmes?
  - On carbon: well considered, economically efficient and even handed?