

**With the country's major gasfield running out in five years' time and the middle eastern situation keeping oil prices high, it is a good time to invest in oil and gas. For before too long, we'll be...**

## Running on empty



*New Zealand's oil industry dropped a bombshell at an energy conference earlier this year. Taranaki's huge Maui gas field, which accounts for most of today's petrochemical resource, is about a fifth smaller than experts had previously thought. The gusher could turn into a trickle as early as 2007. We need to find new gas and oil fields pronto.*

**F**or a small country that relies on cheap energy, the dwindling supply is a worry. The gas and oil condensate, chiefly from this deep sea gas field, connected by a slim pipe to Taranaki, is an energy lifeline. Although 88% of New Zealand's petrol is imported, much industry (like dairy processing, forest products and aluminium smelting) and lifestyle is based on low-cost energy from renewable hydro and cheap gas.

A worst-case scenario, says Alan

John Crawford

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Jenkins, former general manager, Oil and Gas, at the Ministry of Energy, is that: Methanex's gas-to-methanol plants (which use over 40% of Maui) and Comalco's Bluff aluminium refinery would close when Maui goes gazump. Jenkins says New Zealand has historically been slow in discovering and developing new fields and because our other proven fields are pretty small, we could end up importing liquefied natural gas from Australia for other industry, domestic use and power generation.

Methanex, which has several plants located around the world to access cheap gas is planning a new plant in Australia. Its previous owners, Fletcher Challenge mothballed the "Think Big" methanol to petrol plant when the price of oil hit rock bottom a few years back.

With gas now supplying 30% of the national power grid, a shortage of cheap gas in the future could be enough to close the Methanol Plant or the Bluff's smelter. Newly discovered gas will have to be produced at an internationally competitive price in order to maintain the viability of NZ's large industrial users.

The economics of gas exploration are also being pushed from overseas. With oil at over \$US 25 a barrel and with a gas-shortage looming, gas and oil exploration in New Zealand makes economic sense. Given the ready market, explorers now have a great incentive to drill in the full knowledge they can sell it easily.

It's noteworthy that for a long period after the Maui field came on stream there was no real market for new gas discoveries. First the Maui supply was so large. Second, with oil prices dipping to \$US 12 a barrel in 1998, exploration was uneconomic. Today this is not the case.

Other small fields will keep the wolf from the door, after the Maui light expires.

The chief one is the new Shell/Todd Pohokura field in Taranaki, a proven resource high in



**Kapuni gas processing plant**

condensate and propane, but not yet tapped commercially. Analysts note it's close to the sea's surface, so should be relatively cheap to extract. There may also be more gas and condensate trapped in sedimentary structures, deep below the existing discovery.

It's also true New Zealand could use energy more efficiently. Electricity could be produced by other means, and New Zealand, by international standards, wastes power. As the price of power increases, energy conservation, wind power (whose adherents say could supply as much power as today's big power stations) makes more economic sense.

But direct burning of gas in homes and industry is a more efficient use of the gas than centralised power. If anything, gas consumption is part of an energy-efficient future.

The upshot is that there is a need for gas, particularly after Maui runs out (or rather gets



too expensive) after 2007 and even more so about four years later when Pohokura is exhausted.

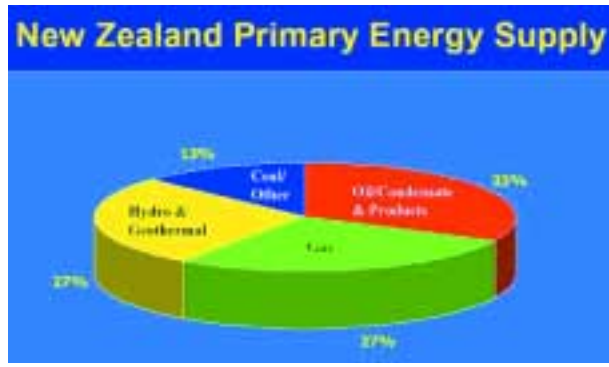
And it's likely sufficient gas will be found to replace existing resources as they are used up.

**Here's why:**

- Geologists say there's plenty of gas under New Zealand and off the coastline. Chances are a plethora of smaller fields to replace Maui at reasonable cost. New Zealand is under-explored for gas, when compared with most countries.
- NZ is ranked among the top 20 - 19th out of 103 countries surveyed by the OECD as a place for oil investors. A favourable tax regime is part of this equation.
- Drilling technology has improved vastly in the past few decades. "The application of improved seismic technology and drilling methods is also facilitating the high exploration and development success rates for the basin," says Crown Minerals. These new methods include the ability to drill at an oblique angle, into offshore areas from onshore.

- Oil prices (currently circa \$US 25) look likely to stay high improving exploration economics here. With an unstable Middle East, including a possible second Iran/Iraq war, the next decade could look like the 1970s, when the 1967 and 1973 Arab-Israeli wars sparked high oil prices. This resulted in Taranaki's so called-'Think Big' projects, which Jenkins says, were based on prices of US \$30.

Turn the clock back another decade, when the Shell-BP Todd consortium, pushed by energy pioneer, Bryan Todd, (whose family petroleum made the country's wealthiest) was drilling for oil and gas and that's arguably where we are today – except that there's much better seismic information about New Zealand and improved technology for getting it out of the ground.



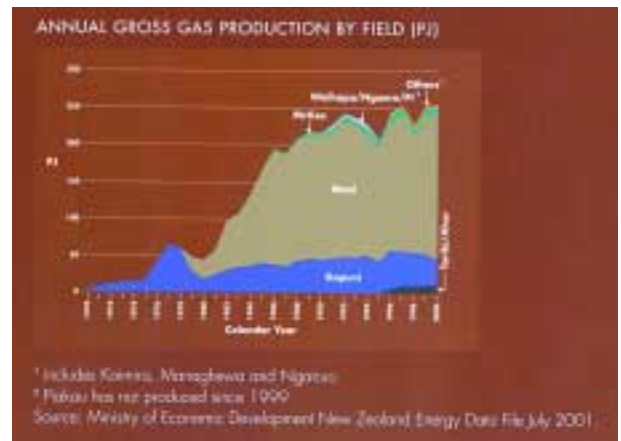


The pace of exploration is currently increasing with about a third more wells drilled this year than last.

Oil and gas is an industry with major growth potential. New Zealand is only 34% self sufficient in liquid fuels (March 2001 year) although the crude oil and condensate (worth \$455 million) exported to Australia is our largest export across the ditch, Crown Minerals says.

Although New Zealand's imports of petroleum currently exceed exports, it might not always be that way. NZ has a huge area of unexplored oil and gas basins where there are good chances of finding more gas and oil in commercial quantities.

The time is right to look for them now. And it's a good time to buy energy stocks. The early bird catches the worm.



## Taranaki tea

TV's Jed Clampett might have called it Taranaki tea. The Taranaki Basin has always been the main focus for New Zealand's hydrocarbon exploration and production. People have noticed signs of oil there since at least the early 19th century. The first well was drilled in 1865 and petroleum has been continuously produced from Taranaki since about 1900. The modern era of exploration and production began in 1959 with the discovery of gas-condensate at Kapuni on the Taranaki Peninsula. Subsequently, the third offshore well drilled in New Zealand discovered the huge Maui gas-condensate field in 1969. Today more than 260 wells have been drilled in Taranaki.

Over 70% of New Zealand's production of gas and oil condensate is derived from the Maui and Kapuni fields, worth many billions of dollars. Smaller fields, all in Taranaki, like the McKee oil field, comprise the balance. Taranaki is the most likely place to find new fields, and much of the infrastructure and downstream customers (like power stations and the country's largest dairy factory) are already set up there.

Most other New Zealand oil basins have been explored to some degree. Exploration began in



The survey ship Polar Duke offshore West Coast



the East Coast and Westland basins before 1900, where shallow wells were drilled near oil seeps. Prior to 1970 most exploration was conducted onshore, but with the acquisition of high-tech 'marine seismic reflection data,' offshore drilling soon followed.

Although there have so far been no commercial offshore discoveries outside the Taranaki Basin, there have been other non-commercial discoveries offshore of the Canterbury and Great South basins. In 1998 a significant onshore gas discovery was made on the North Island's East Coast – now being appraised for development. Improved drilling technology now allows exploration of deep water basins around New Zealand, in areas previously considered too difficult.

Despite extensive exploration in Taranaki, it has considerable potential for further commercial discoveries. And in theory, all basins in New



*This wooden rig burned down in the last century. They're drilling again, nearby.*

Zealand have the potential for commercial fields. New Zealand has 19 petroleum sectors it total.

Apart from Taranaki, the more notable are:

**The North Island's East Coast**

Here Crown Minerals notes in particular: During 2001, exploration was mainly concentrated near the coast. The first potentially commercial scale gas was found in Northern Hawke's Bay in 1998. Chances of more oil or gas here are high.

**Canterbury**

There have been no successful onshore finds in Canterbury, but offshore seismic surveys and drilling strongly indicates oil, gas or condensate in commercial quantities.

**Great South Basin**

This is an entirely offshore area, also with good potential. A consortium drilled eight wells there between 1976 and 1984, finding hydrocarbons in half. Crown Minerals says the high rate of hydrocarbon discovery, the large area of thick sediments and 'the large number of potential leads' indicate it's one of NZ's best prospects.

**West Coast (South Island)**

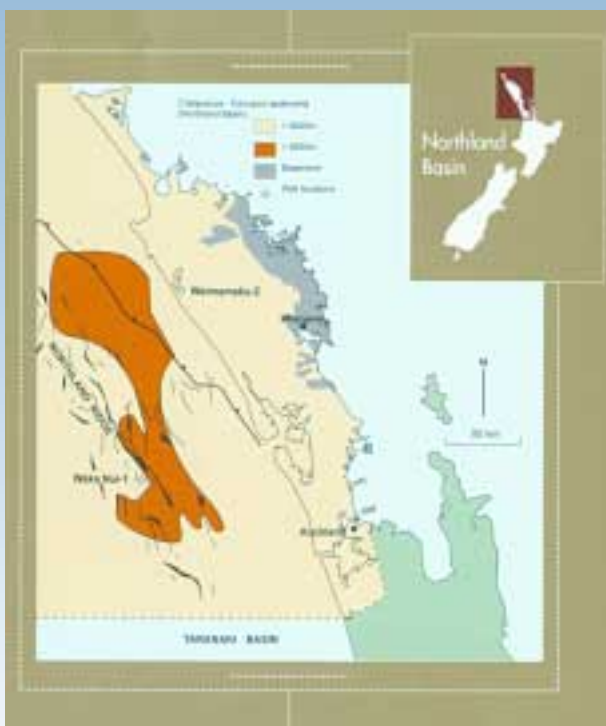
Here there are numerous oil seeps and discoveries of oil and gas from drilling. There have been about 32 wells drilled since 1955. Shell, which bought data obtained from a seismic ship, has sounded very positive in its media comments. Crown Minerals says this was Shell's first-ever venture out of Taranaki.

# Black gold



There are currently 29 exploration wells in New Zealand, (up from 21 last year) owned by a variety of companies, ranging from Shell and Shell Todd, through to Origin Energy (Australian), Swift Energy (American) Indo Pacific (listed in Canada) and New Zealand Oil & Gas, Sydney based Bligh, Pan Continental Oil, Bounty Oil and Gas and Greymouth Petroleum. (See *Sharetalk* for our stock picks)

It generally takes between one and five years for a



well to come on-stream, after initial drilling. The chance of any one of these wells proving to be of commercial value, is about 20%, but higher in Taranaki, near the existing infrastructure. So exploration companies need plenty of equity and some cash. Joint ventures also spread the risk.

With users soon to negotiate over Pohokura, they will be looking for other sources of supply.

There is also a well established drilling supply and consultancy industry. Crown Minerals, part of the Ministry of Economic Development, manages the Crown Estate. It supplies books, a CD ROM and its website is [crownminerals.govt.nz](http://crownminerals.govt.nz).

(Sourced mostly from Ministry of Economic Development.)

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