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RODNEY'S RAVINGS

New Zealand faces the prospect of a North Sea oil-style boom/shock

EXECUTIVE SUMMARY

To keep in touch with what is happening at the coalface I monitor developments in a range of industries. The recent flow of news about NZ oil and gas exploration has caught my attention and I believe this is an issue that warrants monitoring because it could have a massive impact on many NZ businesses, including a significant negative impact on non-energy exporters.

Having dismissed the recommendations of the 2025 Taskforce aimed at closing the gap between NZ and Australian incomes as being “too radical” the government needs to pull a rabbit out of the hat. The oil and gas industry appears to offer the government the only silver bullet available to both solve the major fiscal deficit problem and boost NZ economic growth. Recent announcements by Energy Minister Brownlee highlight the massive impact the oil and gas industry could have on the NZ economy and also signal the government’s intention of chasing this opportunity.

I am no oil and gas analyst, but based on my layman’s reading of the tea leaves it seems that it is matter of when not if we strike pay-dirt. So this Raving tries to put this issue in context, including looking at the UK experience with North Sea oil. In net North Sea oil has been a godsend for the UK economy. However, it was not all roses because it is estimated to have boosted the pound sterling by 20%, which had a major negative impact on non-energy exporters.



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How real is the potential of NZ hitting it big on the oil and gas front?

The title to a recent article in The Independent by Kris Hall was: **New Zealand 'set for an oil bonanza'**. The following is taken from that article:

Renowned for his bullish views on New Zealand's petroleum prospects, William Buechler insists New Zealand is set for an oil bonanza that will eclipse Britain's North Sea oil boom. "New Zealand is at the beginning of a country-changing event; the challenge is going to be to embrace the change and get it right. Activity and momentum are increasing but going under the radar screen."

For more than 25 years, New Zealand has thrived on the hydrocarbons produced by its Maui oil and gas field, prompting little in the way of new exploration. However, as global reserves dwindled and the price of crude soared, new exploration has begun in earnest. More offshore wells have been drilled in the last two years than the rest of the decade combined: 35 on and offshore wells were drilled between January 2008 and July 2009 alone.

Helping drive this activity - some \$200 million of exploratory drilling is planned this summer - has been a sea change in government attitude to the petroleum industry's potential, says Buechler, lead portfolio manager of the Kiwi Pacific Fund. "Crown Minerals has been gathering seismic data and offering it for free and that's allowed companies to look at data on a decreased risk basis." Buechler says the scope for economic success from oil is "unquestionable" but investors must act now to get in ahead of overseas backers.

Only last week, Todd Energy chief executive Richard Tweedie confirmed Maari and its adjacent Manaia field in offshore Taranaki were home to 100 million barrels of recoverable oil, making it New Zealand's largest crude oil field and twice the original 50 million barrels found at the Tui fields.

Source: <http://www.nzx.com/news/economy/3060590/New-Zealand-set-for-an-oil-bonanza>

A www.stuff.co.nz article on 19 November reported:

The Government is rolling out the welcome mat to foreign oil explorers as new estimates show the country could be sitting on \$60 billion of untapped black gold. Energy and Resources Minister Gerry Brownlee said yesterday that by 2025 the amount of now untapped oil and gas off the coast could be worth about \$30b a year in export receipts. Mr Brownlee said the tax receipts would amount to about \$10b a year – enough to wipe out the current cash deficit.

Source: <http://www.stuff.co.nz/the-press/news/politics/3076602/60b-of-oil-off-New-Zealand-coast>

There is nothing new in hype about NZ's oil and gas potential, but a number of factors, including high oil prices, are currently aligned that increase the odds of this potential being realized. The government needs a solution to the fiscal deficit problem and a silver bullet to placate concern about our low standard of living vis-à-vis Australia. The 2025 Taskforce recommendations to address the income gap between NZ and Australia, released yesterday, have already been dismissed as "too radical" by the government (see the following story http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=10612654). Dr Brash, who chaired the Taskforce, was reported to have responded to the "too radical" comments by Acting PM Bill English by saying, "there may be some other cunning plan, but I'm not aware of it". The oil and gas industry could be the silver bullet the government has in mind.

The following extracts from a Businesswire.co.nz article on www.sharechat.co.nz on 20 November makes interesting reading in the context of the idea that the government sees the oil and gas industry as the answer to both the fiscal deficit problem and boosting NZ economic growth prospects:

A partially privatised, government-backed oil and gas exploration business emerges as a practical option for kick-starting a higher level of activity in the New Zealand oil and gas sector, says a report prepared for Energy Minister Gerry Brownlee by broking firm McDouall Stuart.

The report was released with a speech from Brownlee this week showing the government is intent on making a bigger oil and gas sector part of its efforts to achieve a "step change" in New Zealand's economic performance



It canvasses options rather than making firm recommendations, but dwells in detail on how a part-privatised exploration and production business would have relatively lower risk than other "significant stretch" options, while building on a range of other actions the government is already taking to boost oil and gas activity.

What makes the McDouall Stuart report particularly interesting is the fact that it identifies nine "minimal stretch option" actions that the government could take to encourage oil and gas discoveries, all of which the government is either undertaking or will do in coming months, in the eight point plan of action outlined this week by Brownlee.

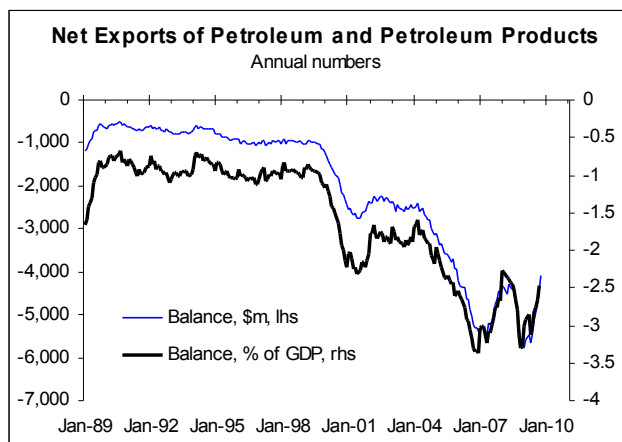
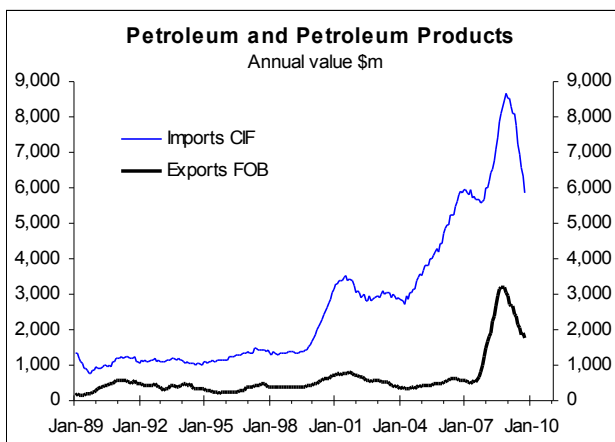
On top of this, Brownlee also released this week a report from Aberdeen University Petroleum Economics Consultants suggesting that preferential tax treatment under the royalties regime for gas-only reservoirs could be used to make such finds commercially viable. At present, gas is only mined as a by-product of an oil find.

Source: <http://www.sharechat.co.nz/article/4d27c2a1/new-soe-based-on-kupe-gasfield-would-boost-nz-oil-sector-says-mcdouall-stuart.html>

The government has motive to try and find a silver bullet, while Energy Minister Brownlee has shown intent to seek it in the oil and gas industry, but does the industry have the capacity to deliver? I am no oil and gas analyst, but based on my layman's reading of the tea leaves it seems that it is matter if when not if we strike pay-dirt. The appendix contains a selection of related the articles.

Putting NZ's oil and gas potential in perspective

The left chart below shows the annual value of NZ imports and exports of petroleum and petroleum products, while the right chart shows the net balance of trade in petroleum and petroleum products in both \$m and as a % of GDP. Swings in the oil price have a major impact on both import costs and export earnings, but the left chart confirms the claims that energy is now one of NZ's major exports. If oil and gas exports get even close to the \$30bn a year level Brownlee has flagged then it would make oil and gas by far NZ's largest export. To put it in perspective, in the year to June 2009 NZ's total export earnings from all goods and services was \$56b.



Lessons from the UK experience with North Sea oil

It was a drawn out process getting North Sea oil on stream. The following Wikipedia link gives a good history http://en.wikipedia.org/wiki/North_Sea_oil. The salient points from the Wikipedia article are below, although the last two points are from a different source:

- Commercial extraction of oil on the shores of the North Sea dates back to 1851.
- The UK Continental Shelf Act came into force in May 1964. Seismic exploration and the first well followed later that year.
- BP's Sea Gem rig struck gas in the West Sole field in September 1965. The celebrations were short-lived because the Sea Gem sank with the loss of 13 lives.

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- The situation was transformed in December 1969, when Phillips Petroleum discovered oil in Norwegian waters. The same month, Amoco discovered the Montrose field about 217 km (135 miles) east of Aberdeen. The discovery of Ekofisk prompted BP to drill what turned out to be a dry hole in May 1970, followed by the discovery of the giant [Forties oilfield](#) in October 1970 - production from the field peaked in 1979 at 500,000 barrels per day. The following year, Shell Expro discovered the giant [Brent oilfield](#) in the northern North Sea east of Shetland. Oil production started from the [Argyll field](#) (now Ardmore) in June 1975 followed by Forties in November of that year, in a 17-year period the Argyll field produced 72.6 million barrels of sweet, light crude.
- The largest field discovered in the past 25 years is Buzzard, found in June 2001 with producible reserves of almost 64×10^6 m³ (400m bbl) and an average output of 28 600 m³ to 30 200 m³ (180,000-190,000 bbl) per day.
- Now, the North Sea is regarded as a mature province on a slow decline. However, thanks to ever more sophisticated technology, important amounts of oil and gas could be drawn for anything up to 50 years. New discoveries are still being made and the industry is now well established west of Shetland in the Atlantic. Source: <http://www.abdn.ac.uk/oillives/about/nsoghist.shtml>
- Two of the key centres of the industry have been the Great Yarmouth/Lowestoft area, centre of operations for the Southern North Sea gas industry, and subsequently, Aberdeen, now regarded as the oil capital of Europe. Other centres of the industry have been the northern isles of Orkney and Shetland. Source: <http://www.abdn.ac.uk/oillives/about/nsoghist.shtml>

The following is from an article by Philip Thornton, economic correspondent to The Independent in 2005. The article is dated in some respects but it is useful in terms of looking at the broader impact of North Sea oil on both the UK economy and on Aberdeen.

The impact of North Sea oil on the UK economic come via economic growth, the current account, sterling, employment, innovation, corporate profitability and the public finances

In 2004, for example, oil and gas extraction amounted to £32bn or around 3 per cent of total GDP.

Schlumberger Professor of Petroleum Economics at the University of Aberdeen who has written numerous articles about the prospects for North Sea oil, says the discovery of energy reserves has transformed the local economy.

He has calculated that while the population of the Aberdeen area fell by 32,000 to 436,000 in the 20 years up to 1971 it jumped back up to 533,000, an increase of almost 100,000, by 1995. However employment in the sector gyrated according to movement in oil prices and the timing of new oil field discoveries.

According to a research project led by Andrew Cumbers of the University of Glasgow and funded by the ESRC, the rapid growth of the North Sea oil industry fuelled the development of a cluster of oil-related activities around Aberdeen.

A survey of 192 companies and face-to-face interviews with 34 firms showed that there was a relatively high level of innovation among small- and medium-sized enterprises. More than three-quarters (77%) claimed to have developed new products and services in the previous five years.

Meanwhile a separate research project at the University of Strathclyde, also funded by the ESRC, found the global nature of the oil industry created potential opportunities for Scottish suppliers, as the same major oil-gas production and oil-related companies can be found in all the key international markets for the industry.

Until North Sea oil came fully on stream towards the end of the 1970s, sterling had traditionally been a weakening currency. But rising production of oil and gas from the North turned around the UK's trade deficit in fuels from a peak of 4% of GDP in 1974 into a balance in 1980 and a surplus of 2% of GDP in 1983, leading to a 20% appreciation of sterling's effective exchange rate.

The side-effect on the economy in the early 1980s was unfortunate, the rise in the pound's exchange rate had a detrimental impact on the bulk of non-oil manufacturing as factories found their products rising in price in their key export markets.

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Sir Michael Edwardes, then chairman of British Leyland, was reputed to have said he wished Britain would “leave the bloody oil in the ground”. Lady Thatcher, then Prime Minister, did not take that advice.

Source: http://www.esrc.ac.uk/ESRCInfoCentre/about/CI/CP/Our_Society_Today/Spotlights_2005/oil.aspx

Appendix – Selection of oil and gas related articles

\$60b of oil off New Zealand coast?

By COLIN ESPINER - Stuff.co.nz

Last updated 05:00 19/11/2009

The Government is rolling out the welcome mat to foreign oil explorers as new estimates show the country could be sitting on \$60 billion of untapped black gold.

Energy and Resources Minister Gerry Brownlee said yesterday that by 2025 the amount of now untapped oil and gas off the coast could be worth about \$30b a year in export receipts.

Mr Brownlee said the tax receipts would amount to about \$10b a year – enough to wipe out the current cash deficit.

The data is in a series of reports released by the Government yesterday. Chief among them is a survey of oil and gas reserves by GNS Science, which says there could be as many as 6.5b barrels of undiscovered oil in 10 areas off the coast, stretching from the Great South Basin to Cape Reinga.

At current market value, that is worth about \$67b.

The oilfields would dwarf anything previously discovered in New Zealand. The Maui and Tui fields, whose output last year made oil the country's third-largest export earner, hold about 150 million barrels.

GNS also believes there could be about 40 trillion cubic feet of natural gas in the same 10 areas.

The most lucrative areas are thought to be the Great South Basin, Deepwater Taranaki and Canterbury.

Another report to the Government by private sector analysts McDouall Stuart recommends setting up a national oil company, owned by the Crown, to manage the potentially enormous resource.

Other options suggested include the Crown underwriting oil drilling equipment and infrastructure, directing state-owned energy companies such as Genesis or Solid Energy into oil exploration, and requiring the Superannuation Fund or ACC to invest in oil futures.

Mr Brownlee said it was too early to make decisions on how the Government would proceed, but he had called for a review of the Crown's ability to manage the petroleum estate.

He also announced the Government was reconsidering the tax and regulatory framework of the petroleum sector to make investment more attractive for foreign oil explorers.

"New Zealand's largely unexplored petroleum resource could be one of the country's most significant economic opportunities," Mr Brownlee said. "The industry has been neglected by successive governments for far too long, and when you see the potential that's there it's sort of a little bit of a surprise."

Mr Brownlee's enthusiasm for oil exploration comes hard on the heels of moves to open up parts of the conservation estate to mining, which the minister also believes could put billions into the Crown coffers.

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Mr Brownlee said the Government saw oil and gas playing a big role in getting the economy out of deficit. "We very much want to send the message that New Zealand is prospective for hydrocarbons and open for business."

This summer would see the most oil exploration yet undertaken in New Zealand waters, and the Government wanted to encourage more.

NZ Oil and Gas said any moves to open up the possibility of joint ventures with foreign investors were good news. Drilling for oil was risky and expensive, but the potential benefits were huge.

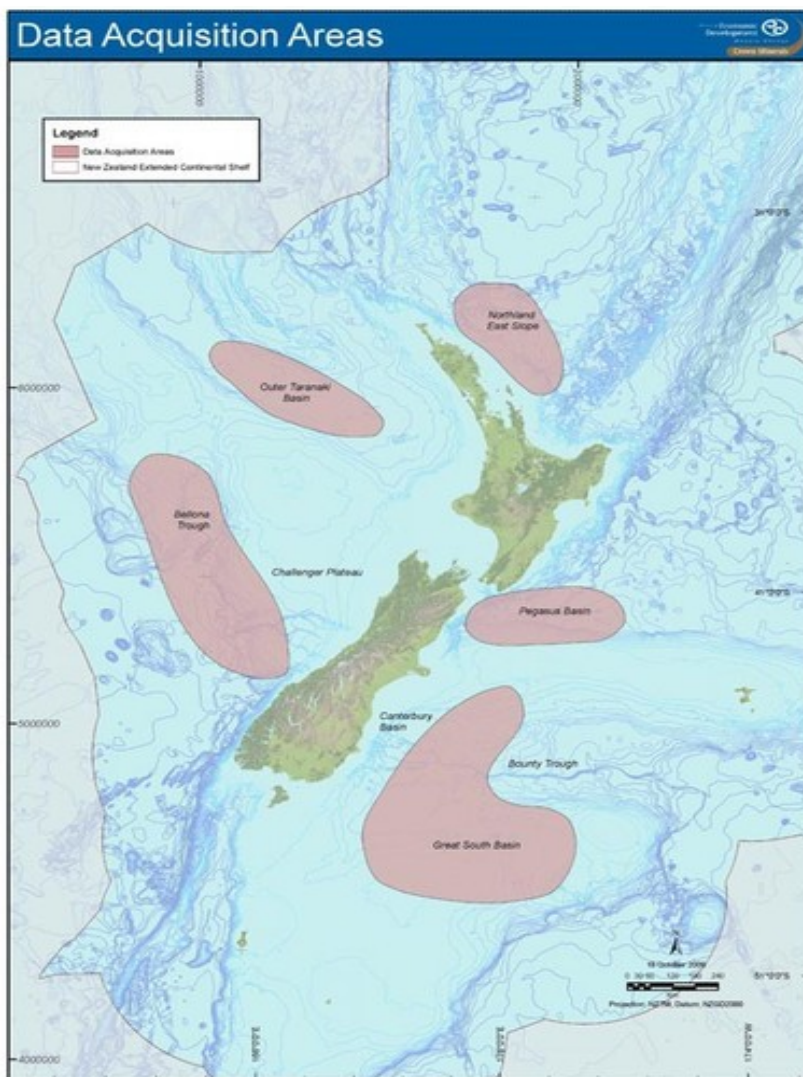
Source: <http://www.stuff.co.nz/the-press/news/politics/3076602/60b-of-oil-off-New-Zealand-coast>

Busy offshore oil and gas exploration season starts

By [Ministry of Economic Development](#)

Crown Minerals has contracted the ship MV Bergen Resolution to conduct an offshore seismic survey this summer.

Areas to be surveyed this summer.



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Subject to the results of the survey, the seismic data collected will be compiled along with various geotechnical reports into data packages to support the promotion of competitive block offers to attract exploration companies. Although the timing is not yet determined, the block offers are likely to occur in 2011.

"In 2008 oil was our third largest export earner and we have the opportunity to increase the value of this industry to our economy. The data acquisition initiative has the potential to open up new areas which are prospective for oil and gas," said Energy and Resources Minister Gerry Brownlee.

In May the Government committed \$20 million to the data acquisition programme as part of Budget 2009.

"This latest seismic data acquisition will increase exploration activity across our frontier basins," said Mr Brownlee. "We have a vast offshore continental area of which New Zealand's frontier basins cover an area of about 1.2 million square kilometres and may be capable of generating billions of barrels of oil."

The Bergen Resolution will make a short port call in Wellington and then head out into the Pegasus Basin to acquire approximately 3,000 km of 2D seismic data. Preliminary studies by GNS Science suggest this basin has considerable hydrocarbon potential.

The Bergen Resolution will then head south to the Great South Basin and Bounty Trough area to acquire approximately 4,000 km of seismic data. Reconnaissance data will also be acquired across the Challenger Plateau and Bellona Trough area, outer Taranaki Basin, and Northland East Slope Basin area where satellite oil seep detection surveys have identified natural oil seeps suggesting active petroleum systems are present in these areas.

Exploration companies will also utilise this vessel to acquire further 2D and 3D seismic data.

In addition to the data acquisition work, a large drilling campaign is due to commence when the Kan Tan IV semi-submersible drilling rig arrives in New Zealand towards the end of this year.

Crown Minerals will also be advancing a variety of detailed geotechnical studies on the Taranaki Basin. The results of this work will assist moving forward exploration in the basin and accelerate the potential discovery of new oil and gas reserves.

Source: <http://www.infonews.co.nz/news.cfm?id=44466>

Oil seeps to surface after earthquake

By [Adam Bennett](#)

5:00 AM Tuesday Mar 13, 2007

www.nzherald.co.nz



Herald graphic

A recent earthquake has brought traces of crude oil to the surface on Stewart Island, strengthening prospects of a significant oil discovery in the nearby Great South Basin offshore area.

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Several natural oil seepages have been detected behind the beach at Thule Bay, said Ministry of Economic Development chief petroleum geologist Richard Cook.

The ministry had been monitoring the area, where seepages had been detected years earlier, for some time but found no fresh activity until after the magnitude 4.8 quake last month.

"We are encouraged the latest information strengthens the case for exploration in the area."

While the seepages did not indicate any particular size of oil deposits "the fact that natural oil has been generated out in the basin and seeped up there is encouraging".

"It's just reinforcing the fact that there's oil potential and not just gas."

Crown Minerals has said the enormous potential of the basin, southeast of Dunedin, is "commonly acknowledged" and may even support the large-scale infrastructure needed to produce liquefied natural gas.

It believes the basin may hold more than 5 trillion cubic feet (TCF) of gas, far outpacing the Maui field with 3.5 TCF.

The Government is asking for tenders, offering 40 blocks over 9000 square kilometres in the basin to oil and gas explorers.

The tenders close on April 2 and, despite the relative expense of drilling in such deep and often stormy waters, Mr Cook said several major overseas explorers had shown "significant interest".

Eight wells were drilled in the basin between 1976 and 1984, with hydrocarbons recorded in four.

At the time, water depth and the isolation made gas reserves in one well "non-commercial" and mechanical problems meant that strong oil shows in another were not properly tested.

Mr Cook said the Stewart Island seepages indicated shallower areas around the margins of the basin might also be worth investigating.

With the tender process expected to be completed by mid-year, it would be three or four years before exploratory drilling began.

If significant reserves were found, it could take between 15 and 20 years before gas or oil started flowing in commercial quantities.

However, Mr Cook said an exploration programme would give the area an economic lift.

Black Gold

* Government geologists say the discovery of oil traces is good news for an oil and gas exploration programme in the nearby Great South Basin.

* Drilling is likely to begin within three to four years.

* Any significant discovery is likely to take 15 to 20 years to develop.

Source: http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=10428502&pnum=1

NZ Oil Exploration: Huge Pay-Off From Taranaki Oil

October 14th, 2009

Partners in the Maari joint venture are buoyed by successfully reaching all the objectives in the drilling operations 80km off south Taranaki, with oil being struck in 3 different "plays" (Moki, M2A, and Mangahewa sandstones) on 2 separate structures (Maari and Manaia). A success rate of 100% in a drilling programme is unusual in oil exploration, and has stirred fresh optimism other drilling campaigns planned off Taranaki

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for the summer will add substantially to the country's oil reserves. The \$500m investment in developing Maari could yield the partners over \$10bn gross over the life of the various reservoirs. For the nation, it comes on top of the \$4 to \$5bn gross the Tui field off New Plymouth might yield during its life. Other big pay-offs are coming from the Pohokura gas/condensate field, and the soon to be commissioned \$1bn Kupe gas/condensate project, also off Taranaki.

Operator of the Maari field, OMV NZ Ltd, announced last week the Manaia field located 10km southwest of the producing Maari field will proceed to commercial oil production after the success of an appraisal well. OMV NZ managing director Wayne Kirk, says "it's the icing on the Maari cake. The extra production from the two fields will add to the sizeable benefits the development is already providing the NZ economy."

Source: <http://nzenergy-environment.co.nz/home/free-articles/nz-oil-exploration-huge-pay-off-from-taranaki-oil.html>

Hoki oil prospect could equal Tui

By JAMES WEIR - BusinessDay

Last updated 05:00 30/07/2009

The untested Hoki prospect far off the coast of Taranaki could hold an oilfield to equal the size of the 50 million barrel Tui field, New Zealand Oil & Gas says.

Chief executive David Salisbury said the prospect had the potential to be "a large oil-filled structure, rather than gas". No certainty existed of finding oil, however, as the area was untested, he said.

The Hoki-1, to be drilled by October, was an "exploration well with significant risks" but it could be big. "It could be a Tui lookalike or something similar."

NZOG reported yesterday \$13.9 million in revenues from the Tui oilfield for the June quarter, taking its annual revenues to \$138.7m. NZOG sold its oil for an average price of NZ\$121 a barrel.

The annual profit results will be reported on August 26, but Mr Salisbury said the quarterly figures were "solid in a year of unprecedented turmoil, locally and globally".

The company also announced that shareholders would be able to reinvest part or all of their dividends in future, by taking more NZOG shares at a 2.5 per cent discount to the market price.

NZOG's shares closed yesterday down 2 cents at \$1.60.

Cash-rich NZOG, with about \$175m in hand and no debt, holds 12.5 per cent of Tui.

NZOG is also a 15 per cent partner in the \$1.2 billion Kupe gasfield development, which had been expected to start production in the middle of this year.

Kupe production has been delayed about six months to the end of this year while equipment is tested, delaying the expected cash flows for NZOG.

Full production should start early next year, with NZOG's share expected to be 3 petajoules of gas a year, 15,000 tonnes of liquid petroleum gas and 300,000 barrels of condensate. Gas sells for about \$7 a gigajoule, although NZOG would not say what its gas would sell for.

There are 1m gigajoules in a petajoule.

NZOG bought a 10 per cent stake in Hoki this month from oil company OMV. Hoki is about 150km off New Plymouth.

NZOG is spending about \$10m for its stake in Hoki and share of exploration well costs.



If successful, development of Hoki would cost in the many hundreds of millions of dollars, depending on the number of wells and its complexity.

"But that is jumping ahead we have to find the oil yet," Mr Salisbury said.

The Tui field cost US\$270m to develop, excluding lease costs of a floating tanker.

Fifty per cent shareholder AWE, an Australian firm, will be the operator of the Hoki field. AWE also runs Tui.

Hoki will be drilled by the Kan Tan IV drilling rig, before it moves on to drill at least two prospects near the existing Tui field late this year, with the potential to extend that field.

Quarterly figures showed Tui produced 9.12m barrels in the financial year, just up on forecast. But production is slowing.

LPG plant on stream next year

By JAMES WEIR - The Dominion Post

Last updated 05:00 29/09/2009

More than 100 workers will be involved in Todd Energy's \$65 million liquefied petroleum gas plant in Taranaki at the peak of construction.

The new plant, which will be built next to Todd's existing McKee production station, will produce about 27,000 tonnes of LPG a year as a byproduct of gas extraction. This is enough to supply about 67,000 households. LPG is sold in 45-kilogram bottles for household heating, cooking and water heating, for about \$100 a bottle.

Todd Energy managing director Richard Tweedie said the LPG plant would reduce New Zealand's dependence on imported LPG.

Confirmation of the LPG plant in Taranaki, which was expected to take about 12 months to complete, comes just before the completion of the offshore Kupe gasfield which is expected to produce about three times as much LPG as the Todd plant.

The two LPG sources would roughly equal New Zealand's annual demand of about 150,000 to 170,000 tonnes.

Earlier this year, New Zealand was importing about half its demand. LPG wholesale prices are based on international prices so the new local sources of LPG are not expected to bring cheaper prices for consumers, according to industry sources.

The decision to go ahead with the LPG plant is seen as a "positive sign of confidence" for the region's businesses, according to development agency Venture Taranaki.

Todd has consents for the plant, but is in final negotiations with potential contractors so it could not say yet how much of the \$65m would be spent in New Zealand.

The construction phase of the plant would involve more than 200,000 hours of work, mostly from Taranaki people and businesses over 12 months, Mr Tweedie said.

Venture Taranaki chief executive Stuart Trundle said: "In today's global situation, any investment is a positive sign of confidence."

It showed long-term confidence from the board of Todd Energy.



It was important to maintain the work force to support the energy sector in Taranaki, Mr Trundle said.

"Lots of plant refits require a stable labour force based here."

Todd is also involved in a \$100m oil and gas drilling programme in coming months, with its Mangahewa-4 well just completed after 53 days but still to be tested for its potential production. The next well to be drilled is Mangahewa-6.

The LPG plant will allow Todd to produce LPG from its Mangahewa and Pohokura fields, which will be sold through Todd offshoot Nova Energy.

Pohokura, off the north Taranaki coast, is New Zealand's biggest field with possible reserves of 990 petajoules of gas.

If Mangahewa lives up to its potential, it could hold a similar amount, according to earlier reports from Todd.

New Zealand uses about 150Pj of gas a year. LPG is mainly in areas not supplied by the gas pipeline network, such as Christchurch and the rest of the South Island, with Auckland also a big market.

It is also sold in farming regions.

The price of LPG is set by the Saudi Aramco contract price for LPG in Australia, New Zealand and Asia.

Industry group LPG Australia's website shows that the Saudi Aramco wholesale price of LPG has risen, from about US\$380 a tonne in January to US\$565 a tonne in September.

Gas find gives hope to South

By TINA LAW - The Press | Wednesday, 03 September 2008

L&M Petroleum hopes to find enough gas in the depths of Southland to address the South Island's energy shortage, but it could be five years before it is extracted commercially.

The listed exploration company is targeting up to 300 petajoules of coal-seam gas - a natural byproduct of coalification - or about 300 billion cubic feet at its Western Southland Basin permit site.

This is a similar size to the Kupe gasfield in Taranaki.

One estimate is that a find of 300 petajoules could power the entire country for two years. However, exploration manager Steve O'Connor was reluctant to say how long such a find might last because it depended on what it was used for.

He said that it would be an extremely significant energy resource for the South Island.

"We are hoping the establishment of a coal-seam gas resource would go a long way to helping with any potential shortfall."

The South Island needed some backup to its renewable energy when the wind did not blow and the rain did not fall, he said.

"When you are tottering on a single pylon and got lakes that can't fill up because it's too cold to melt the snow ... This is one of the things that the energy industry is a bit concerned about."



L&M plans to drill up to eight wells this year to help confirm the extent of the coal-seam gas potential. Drilling on the first well has reached 108 metres and is expected to be finished this week.

Mr O'Connor said the company was fairly confident of the quality of the coal, but it needed to confirm its extent. Some gas sampling would be done on site, before extensive off-site laboratory testing.

L&M managing director John Bay said a significant discovery of coal-seam gas could provide a suitable fuel source for a power station in the region.

If all went well, it could take three to five years before gas was extracted for commercial use.

Untapped resource could offer energy boost

5:00AM Monday May 12, 2008

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Solid Energy says its Huntly field could provide 300PJ of coal seam gas

Deep in the Waikato, a 3m gas flare is a beacon for what could be a big part of New Zealand's energy future.

Coal seam gas (CSG) now being appraised in test wells west of Huntly could, if commercially viable on a wide scale, provide up to 15 per cent of the country's supply.

In the United States and Australia's eastern states CSG provides 15 per cent of supply and in Queensland the figure is up to 90 per cent, the catalyst for the \$15 billion bid by UK-based BG Group, formerly British Gas, for Australia's Origin Energy.

The bid has turned the spotlight on Australia's reserves of CSG, with the east coast estimated to already have about 30 years of current gas consumption locked away with potentially more to be discovered.

Solid Energy estimates its Huntly field could provide 300PJ of gas - about the same volume as the Kupe field.

The state-owned enterprise joined United States company Resource Development Technology (RDT) in 2004 in exploring areas of the north Huntly coal field covered by an exploration permit granted two years earlier.

Solid Energy's manager of new energy, Brett Gamble, said the partners naturally complemented each other.

From decades of mining, Solid Energy brought detailed knowledge of the coal - its composition, methane content and permeability - while RDT brought well extraction and completion knowledge.

Coal seam gas collects in the coal seam by bonding to the surface of coal particles, whereas other natural gas is stored in the pore spaces between grains of sandstone or similar rock.

Seams are generally filled with water, and it is the pressure of the water that keeps the gas absorbed as a thin film on the surface of the coal.

In ideal fields the fracture pathways of coal are interconnected and permeable.

The more permeable, the easier it is for gas and water to flow freely through them.

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Gamble said the partners looked around the country and settled on Huntly because the coal seam there was well understood, the North Island gas pipeline runs through the coal field and the Huntly Power Station is nearby.

Gamble said another advantage of the Huntly coal field was the lack of interconnection between the coal seam and aquifers, so there would be no impact on the water table.

Drillers have pumped a "milkshake" of fluid and sand into the seam in a 150m radius to open pathways to allow water and gas to flow.

Since November last year, five test wells have been successful in releasing gas in sufficient quantities to flare. The 400m deep wells were producing enough 98 per cent methane gas to power around 300 homes.

Methane was "clean" when burned, said Gamble.

Unlike traditional gas fields where just one well is needed, CSG extraction requires numerous wells dotted around above the seam, typically around 500m apart.

Gamble said the company had spent millions of dollars - although less than \$10 million - on the project so far and had others in the pipeline in Taranaki and the West Coast.

The challenge was establishing what was recoverable and getting the cost of each well down.

"That's what we're trying to get our heads around at the moment. We've done enough to know there's gas there and it's technically feasible to extract it; the next stage is commercial and we would expect to be making a decision on that by the end of the year."

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