



AIDE MEMOIRE

Ban on future offshore petroleum exploration: impact on Methanex

Date:	10 April 2018	Priority:	Urgent
Security classification:	Sensitive	Tracking number:	2870 17-18

Information for Minister

Hon Dr Megan Woods
Minister of Energy & Resources

Contact for telephone discussion (if required)

Name	Position	Telephone	1st contact
Tim Townsend	Acting Manager, Resource Markets Policy	04 896 5242	✓
s 9(2)(a)	Principal Policy Advisor, Resource Markets Policy	s 9(2)(a)	

The following departments/agencies have been consulted

N/A

Minister's office to complete:

- | | |
|---|--|
| <input type="checkbox"/> Approved | <input type="checkbox"/> Declined |
| <input type="checkbox"/> Noted | <input type="checkbox"/> Needs change |
| <input type="checkbox"/> Seen | <input type="checkbox"/> Overtaken by Events |
| <input type="checkbox"/> See Minister's Notes | <input type="checkbox"/> Withdrawn |

Comments

RELEASED UNDER THE OFFICIAL INFORMATION ACT



AIDE MEMOIRE

Ban on future offshore petroleum exploration: impact on Methanex

Date:	10 April 2018	Priority:	Urgent
Security classification:	Sensitive	Tracking number:	2870 17-18

Purpose

To provide you with advice on the potential impact of a ban on future offshore petroleum exploration on Methanex New Zealand Ltd.

s 9(2)(a)



Tim Townsend
Acting Manager, Resource Markets Policy
Building, Resources and Markets, MBIE

10/4/18

Overview of Methanex's operations

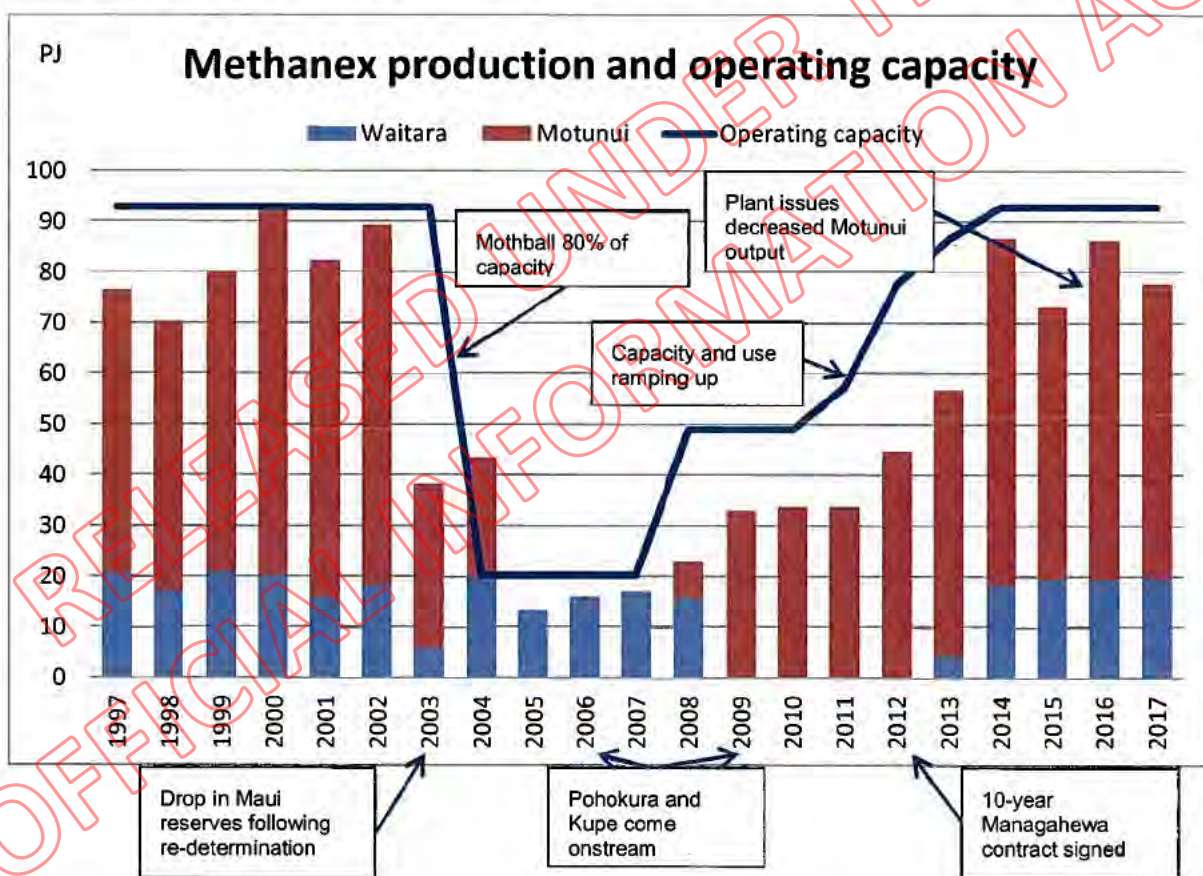
1. Methanex is the world's largest producer of methanol, accounting for approximately 14 per cent of global methanol supply. Based in Canada, Methanex operates 10 plants in six countries. It has a market capitalisation of NZ\$ 7.2 billion.
2. Of Methanex's total operating capacity of 8.5 million tonnes per annum of capacity, of which 2.4 million tonnes per annum are located in New Zealand. It has two trains of 950,000 tonnes per annum each at Motunui, and the smaller 530,000 tonne per annum facility at Waitara. Collectively, these facilities can consume approximately 92 PJ of natural gas, making it by far and away the single largest user of natural gas in the country. In 2017, it consumed 41 per cent of the total natural gas produced.
3. In 2017, Methanex had 270 staff in New Zealand (earning twice the average Taranaki wage) and around 100 contractors. It contributed \$640 million to the Taranaki economy, accounting for 8 per cent of the region's economy, and a \$834 million to the national economy.

The role of Methanex in New Zealand's natural gas market

4. Methanex's preponderant role as the largest gas consumer in the country means that it has a unique role in the country's petroleum exploration and production. Methanex is as dependent on producers of natural gas to supply it with sufficient gas at affordable prices, as producers of natural gas are dependent on Methanex to provide a major demand outlet with a flat demand profile. Methanex serves to de-risk exploration activities in onshore and Taranaki, and could potentially serve the same role if a significant discovery were to be made

in another region by building additional methanol producing facilities. Methanex has been open to exploring other opportunities in New Zealand should a major discovery be made.

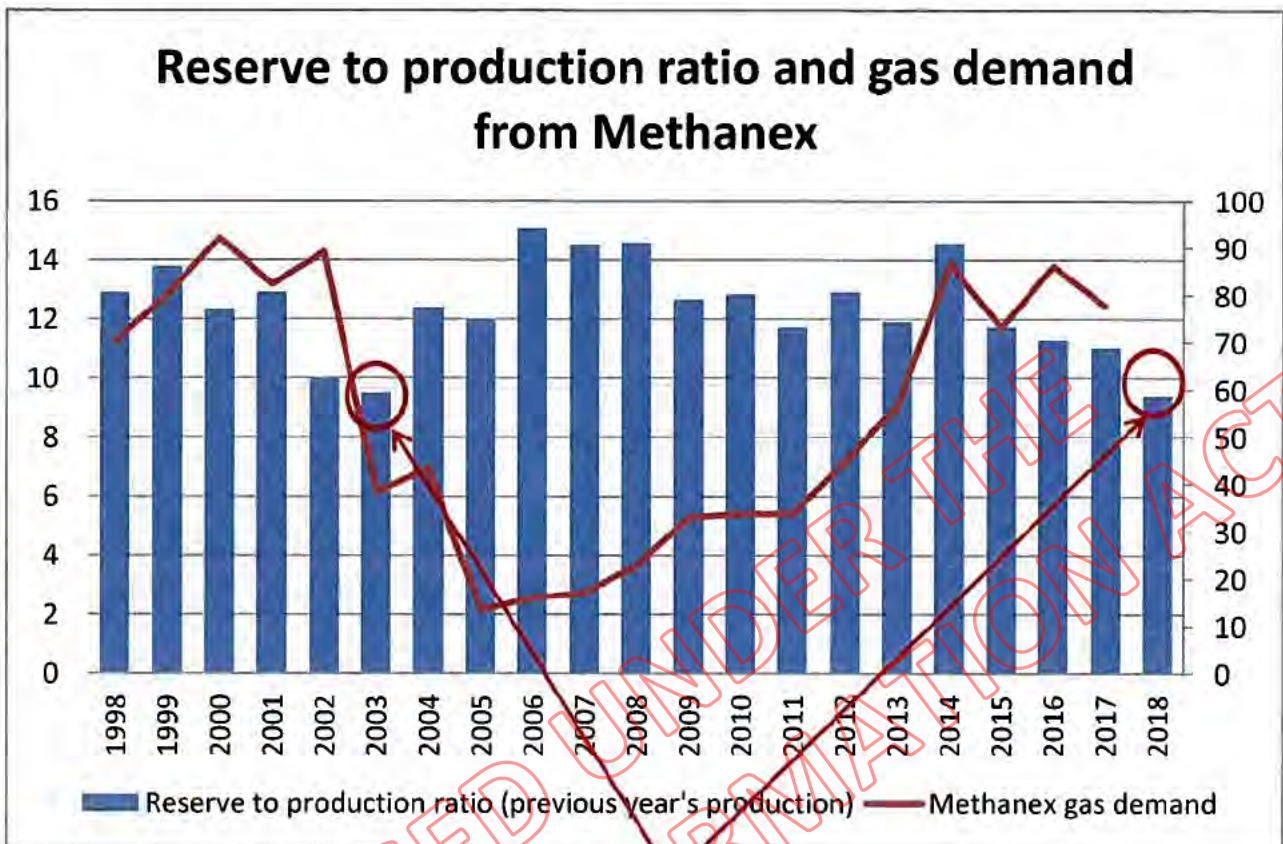
5. Methanex's market making role harks back to the original reason the Motunui and Waitara plants were built. Both plants were built as part of the Think Big projects of the early 1980s. They were intended to serve as a major demand sink for the natural gas overhang created by the Maui gas/condensate field brought onstream in 1979. At that time, the Crown was a direct participant in the Maui field (thereby taking on some of field development risks) and the Crown also took on all of the demand side risk¹ as there was simply no other potential buyer that could purchase the sort of quantities of gas required to underwrite the development of the Maui field.
6. When natural gas supply becomes tight, as it did after the Maui reserve re-determination of 2003, Methanex is the first to be affected. In 2004 it mothballed more than 80 per cent of its production capacity, only bringing back one train at Motunui once the Pohokura and Kupe fields had commenced production. In 2012, it signed a 10-year gas sales agreement with Todd Energy. This agreement underwrote a major development programme of the Mangahewa field and allowed Methanex to operate all of its facilities at full capacity.



7. Based on permit holders' annual summary reports for 2018, it appears as if there will be a significant decline in gas reserves as of 1 January 2018. This is primarily due to a 19.5 per cent reduction of reserves at the Pohokura field which is New Zealand's largest producing field. s 9(2)(b)(ii)

¹ This demand risk was largely in the form of "take or pay" provisions in the 30-year Maui contract – with the Crown committing to take, and if not take then pay, for a minimum contract quantity of gas each year.

8. Data provided in the annual summary reports have yet to be thoroughly audited with permit holders. A preliminary aggregation of reserves provided, however, indicates the lowest reserve to production ratio since the Maui reserve re-determination in 2003.

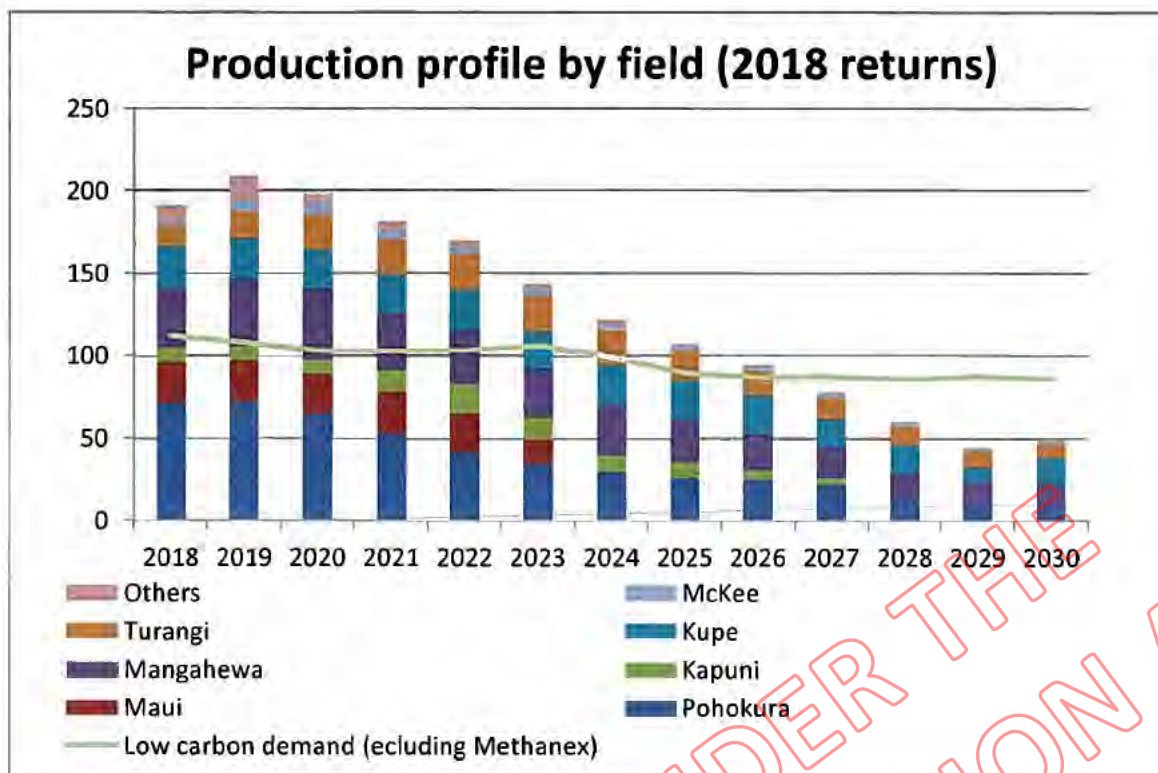


Preliminary reserve estimates for 1 January 2018 show the lowest reserve levels since the Maui reserve re-determination of 2003

9. Compounding the significant downward revision in reserve estimates at Pohokura in the short-term is a subsea pipeline issue. As part of a routine inspection of the subsea pipeline that connects the offshore portion of the Pohokura field to onshore production facilities, some pinhole sized bubbles were detected in a section of pipeline approximately 800m from shore. This has resulted in a curtailment of around 50 per cent of Pohokura's daily gas production. Methanex is the only user affected by the reduced production volume, which is expected to continue for several months before the problem can be fixed.

Difficult outlook for Methanex

10. The aggregated production profiles of each producing field shows production levels broadly holding at existing levels through to 2020 and then falling into decline from 2021. As with the reserve figures, these numbers are preliminary and have yet to be audited with permit holders. A proxy demand profile for natural gas has been developed using the Ministry of Business, Innovation and Employment's (MBIE's) "Global Low Carbon" electricity scenario and using 2017 demand figures for all other gas demand excluding Methanex. Assuming this production and demand profile is broadly accurate, then Methanex would not be able to operate at full capacity from 2021 onwards, and not at all after 2026.

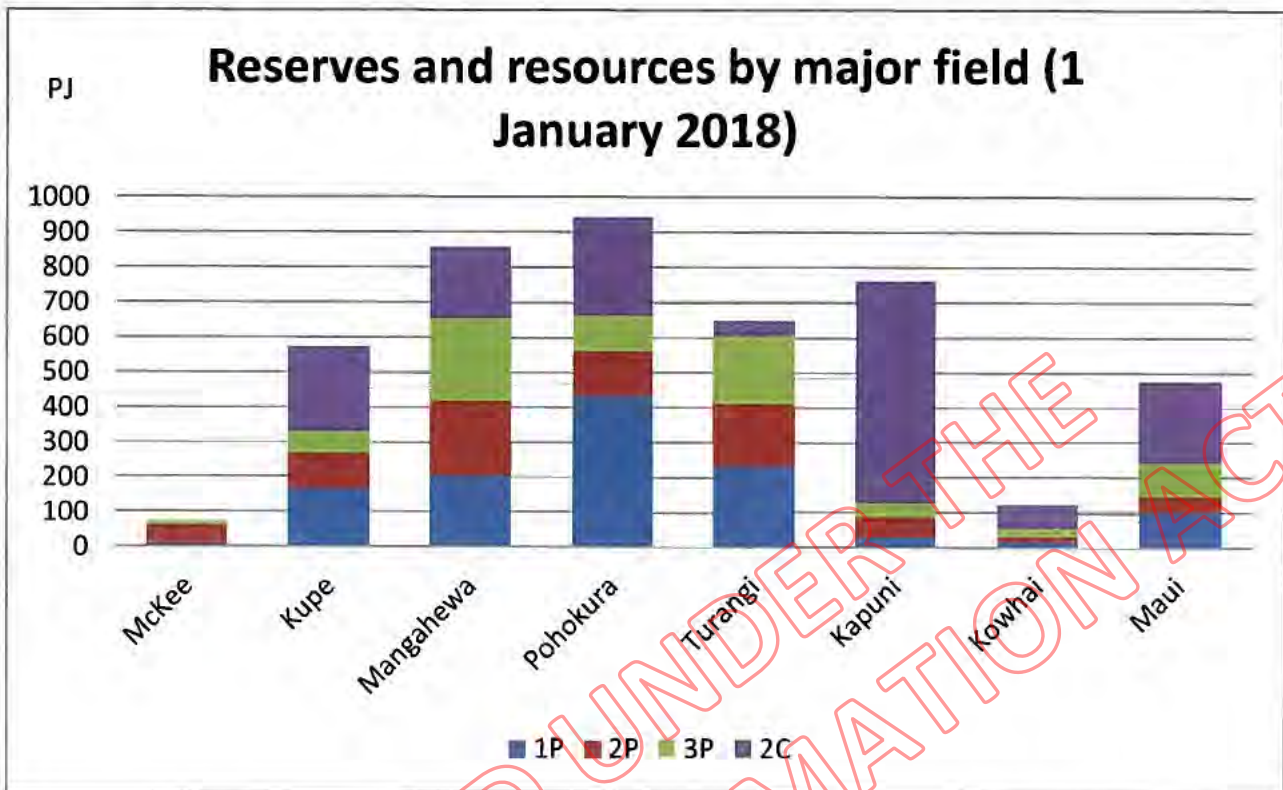


Contingent resources may provide more supply in future

11. Permit holders must report reserves and resources in accordance with the Petroleum Resources Management System.² Accordingly, reserves and resources have a very precise meaning.
12. Reserves are those quantities of petroleum anticipated to be commercially recoverable by application of development projects to known accumulations from a given date forward under defined conditions. Reserves must further satisfy four criteria: they must be discovered, recoverable, commercial, and remaining (as of the evaluation date) based on the development project(s) applied. Reserves are further categorized in accordance with the level of certainty associated with the estimates and may be sub-classified based on project maturity and/or characterized by development and production status. Reserves are typically referred to as proven (1P), proven plus probable (2P), or proven plus probable plus possible (3P). All of the reserves estimates referred to above are on a 2P basis.
13. Contingent resources are those quantities of petroleum estimated, as of a given date, to be potentially recoverable from known accumulations, but the applied project(s) are not yet considered mature enough for commercial development due to one or more contingencies. Contingent Resources may include, for example, projects for which there are currently no viable markets, or where commercial recovery is dependent on technology under development, or where evaluation of the accumulation is insufficient to clearly assess commerciality. Contingent Resources are further categorized in accordance with the level of certainty associated with the estimates and may be subclassified based on project maturity and/or characterized by their economic status.
14. The amount of contingent resources that might possibly make it to market varies significantly by field. Based on annual review meetings with permit holders, officials understand that it is unlikely that more than 25 per cent of the recorded contingent resources at Kapuni are ever

² Available at: http://www.spe.org/industry/docs/Petroleum_Resources_Management_System_2007.pdf.

likely to make it to market. This proportion may be higher at other producing fields, although MBIE does not have a good understanding on the development cost threshold required to bring these resources to market.



New discoveries required for continued operations by Methanex in long-term

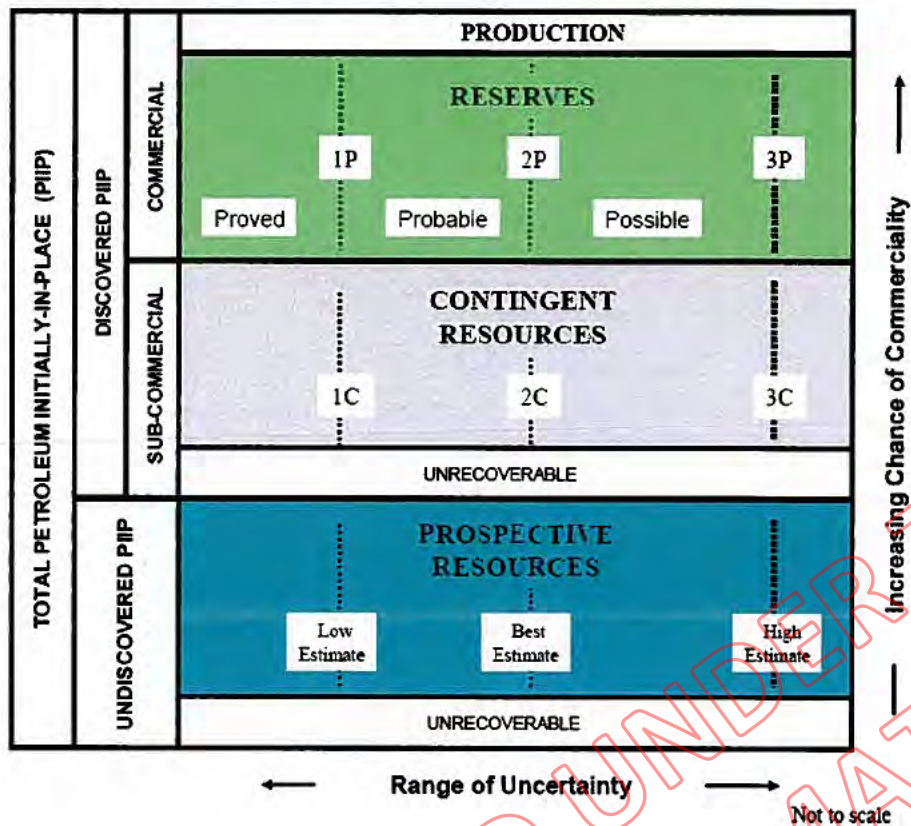
15. The 2P production profiles of existing producing fields indicates Methanex will not be able to operate at full capacity from 2021 onwards. This timeframe might be able to be pushed back should some of the contingent resources at existing producing fields be reclassified as reserves in future. However, toward the mid-2020s, Methanex will require a new discovery if it is to continue operating in New Zealand over the medium to long-term. Given the very significant costs of development, offshore fields need to be of a certain scale to be developed and will typically have much higher daily flow rates than onshore fields. It is typically this larger scale (initially with the Maui field and more recently with the Pohokura and Kupe fields) that has helped sustain Methanex's operations. Kapuni and Mangahewa have been the exceptions with regard to major onshore fields. While there have been some small onshore discoveries over the last decade (Copper Moki, Kowhai, Onaero, Puka), these are far too small to sustain an operation as big as Methanex.

Annexes

Annex One: Petroleum Resource Management System

Annex Two: Petroleum field discoveries and lead times

Annex One: Petroleum Resource Management System



RELEASED UNDER THE OFFICIAL INFORMATION ACT

Annex two: Petroleum field discoveries and lead times

Production lead times for field developments

Field	Discovery year	Production year	Lead time (years)	Reason for lead time
Onshore fields				
Kapuni	1959	1970	11	Establishment of infrastructure
McKee	1979	1984	5	Large scale development
Mangahewa	1997	2001	4	Gas marketing issues
Kaimiro	1982	1983	1	Simple development
Ngatoro	1991	1998	7	Gas flared from 1992-98
Goldie	2002	2002	0	Single flow-line completion
Windsor	2000	2003	3	
Surrey	2002	2003	1	Single flow-line completion
Kahiri	2002	2004	2	Gas sales agreement with NGC
Tariki/Ahuroa	1986	1996	10	Gas marketing issues
Waihapa	1985	1992	7	
Flakau	1997	1997	0	Single flow-line completion
Rimu/Kauri	1999	2002	3	Fast track development
Turangi	2005	2006	1	Fast track development
Kowhai	2008	2009	1	Fast track development
Average lead time			3.7	
Offshore fields				
Maui	1969	1979	10	Offshore, large scale development
Pohokura	2000	2006	6	Partially onshore development
Kupe	1987	2009	22	Market conditions
Maari/Manaia	1998*	2008	10	Fast track development
Tui	2003	2007	4	FPSO development
Karewa	2004	-	-	Uncommercial
Forecast lead time for new developments			6	

*The original Manaia lead was discovered in 1970