MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

AIDE MEMOIRE

Request for information on gas permits and renewable consents

Date:	6 April 2018	**Priority:**	High
Security classification:	In Confidence	**Tracking number:**	2753 17-18

Information for Minister
Hon Dr Megan Woods **Minister of Energy & Resources**

Contact for telephone discussion (if required)

Name	Position	Telephone		1st contact
Dr Marcos Pelenur	Manager, Resource Markets Policy	04 901 9887	s 9(2)(a)	✓
s 9(2)(a)	Principal Policy Advisor, Resource Markets Policy	s 9(2)(a)		

The following departments/agencies have been consulted

Minister's office to complete:

- ☐ Approved
- ☐ Noted
- ☐ Seen
- ☐ See Minister's Notes
- ☐ Declined
- ☐ Needs change
- ☐ Overtaken by Events
- ☐ Withdrawn

Comments

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Purpose

To respond to a request from your office on 28 March 2018 for "a visual timeline that maps out the key dates for granted gas permits and consented renewable generation".

s 9(2)(a)

Dr Marcos Pelenur
Manager, Resource Markets Policy
Building, Resources and Markets, MBIE
9 / 4 / 18

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Problem definition and context required

1. We understand that you have requested the information to better understand the rate at which consented renewable energy generation will likely supersede current permitted exploration and mining commitments. However, the Ministry cautions against drawing conclusions from the information provided in this briefing. Specifically, information and the expiration dates for existing exploration and mining permits only illustrates a subsection of factors that will influence the future supply/demand balance for natural gas, or future natural gas requirements for future electricity generation. In order to understand the supply/demand balance for both natural gas and electricity, a non-exhaustive list of some of the relevant factors that would need to be considered is provided below.

On the supply side

- The potential for new discoveries in existing exploration permits. Under the Crown Minerals Act 1991 (CMA), a permit holder that makes a commercial discovery has the right to develop it under a mining permit (section 32(3));
- The potential for contingent resources at existing producing fields to be converted to reserves and brought to market;
- The potential for new discoveries within existing mining permits/licences; and
- The potential for new discoveries from greenfield exploration. This will in turn depend on Government decisions around future Block Offers and Government policy decisions around matters such as seismic surveying.

On the demand side

- The outlook for Methanex as the largest single source of demand for natural gas. Methanex is the macro demand-side balancing agent for natural gas and would be the first affected by any tightening of natural gas supply. When gas supply becomes tight, as it did following the Maui reserve redetermination of 2002/03, Methanex is the first to reduce the scale of its operations. Any closure of Methanex's operations in New Zealand would have the direct consequence of increasing global greenshouse gas emissions. This is because New Zealand's methanol supply currently is a lower cost source of supply than methanol produced from coal in China which is three to four times more emissions intensive than methanol produced from natural gas. Approximately two-thirds of methanol produced in China comes from coal, with China in turn making up more than half of the global demand for methanol. Methanol produced from coal in China is the marginal global source of methanol as it is the highest cost to produce;
- The role of thermal electricity plants in providing hydro-balancing. This is difficult to model in light of the significant historical volatility in part driven by hydrology;
- The future of Tiwai Point. A closure of the aluminium smelter would provide a large amount of low cost electricity to the market, displacing higher priced thermal generation;
- The amount of renewable generation consented does not provide a guide as to how much of this generation will ever be built or when. The project economics of each consent varies significantly;
- Renewable consents for power generation need to be split out for the North Island (where thermal generation could potentially be displaced) and the South Island (where there is no power generation from natural gas to back out); and
- Future carbon costs will have an impact on the amount of thermal generation capacity required, although even under a high CO2 price some thermal generation is still likely to be required out to 2040.

Gas permits

2. There are currently 31 petroleum exploration permits (PEPs), of which two are subject to surrender applications, so this number will likely soon drop to 29 PEPs. Expiry dates range from 22 September 2018 to 31 March 2030.

3. In the case of a discovery being made, a permit's duration may be extended by up to 8 years for appraisal purposes. Section 32(3) of the CMA allows an exploration permit holder to apply for a mining permit as a subsequent right over the same area should a commercial discovery be made, subject to meeting a range of other criteria (e.g. technical and financial capability) set out in the Act .

4. The duration of a mining permit will depend on the size of the estimated petroleum reserves and the applicant's field development plan, and can be up to 40 years. Should the resource not be depleted after 40 years, the permit holder has the right to extend it for such period of time as the Minister considers reasonable to enable the permit holder to economically deplete the discovery (section 36(5) of the CMA).

5. There are 23 mining permits/licences, of which 19 supply gas to market. A baseline production profile based on proved plus probable reserves is provided below, alongside gas demand

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projections for power generation drawn from MBIE's 2016 electricity demand and generation scenarios[1]. The electricity scenarios are as follows:

a. **Mixed Renewables:** The Mixed Renewables scenario has a mixture of geothermal and wind plant built, starting in 2020. This scenario assumes an average of 1 per cent annual electricity demand growth, reflecting moderate GDP and population growth, and current views on relative technology cost and expected fuel and carbon prices.

b. **High Grid:** The High Grid scenario assumes higher GDP and population growth rates leading to higher electricity demand across all sectors; with 1.3 per cent per year growth in grid connected electricity demand. Higher gas exploration effort results in higher domestic gas supply with a flat wholesale gas price of around $6/PJ to 2040.

c. **Global Low Carbon:** The Global Low Carbon scenario assumes a high carbon price and lower cost renewable technology (wind and solar) which leads to more renewable build. This scenario assumes high uptake of petrol hybrid vehicles and solar PV systems, and flat electricity demand per household due to efficiency measures.

d. **Disruptive:** In the Disruptive scenario a reduction in technology costs leads to high uptake of solar photovoltaic with batteries and electric vehicles. Both total electricity demand and grid connected demand increases as the additional electric vehicle demand is only partially offset by solar generation. Peak and off peak retail electricity price signals lead to flattening of demand, with a lower peak demand through battery load shifting and off peak electric vehicle charging.

e. **Tiwai Off:** In the Tiwai Off scenario Tiwai shuts at the start of 2018 and lower GDP growth leads to lower electricity demand across all sectors, averaging 0.4 per cent per annum. Some existing thermal generation retires due to the drop in energy demand in the short term. With less capacity on the system more flexible North Island generation is built in the early years to meet peak requirements.

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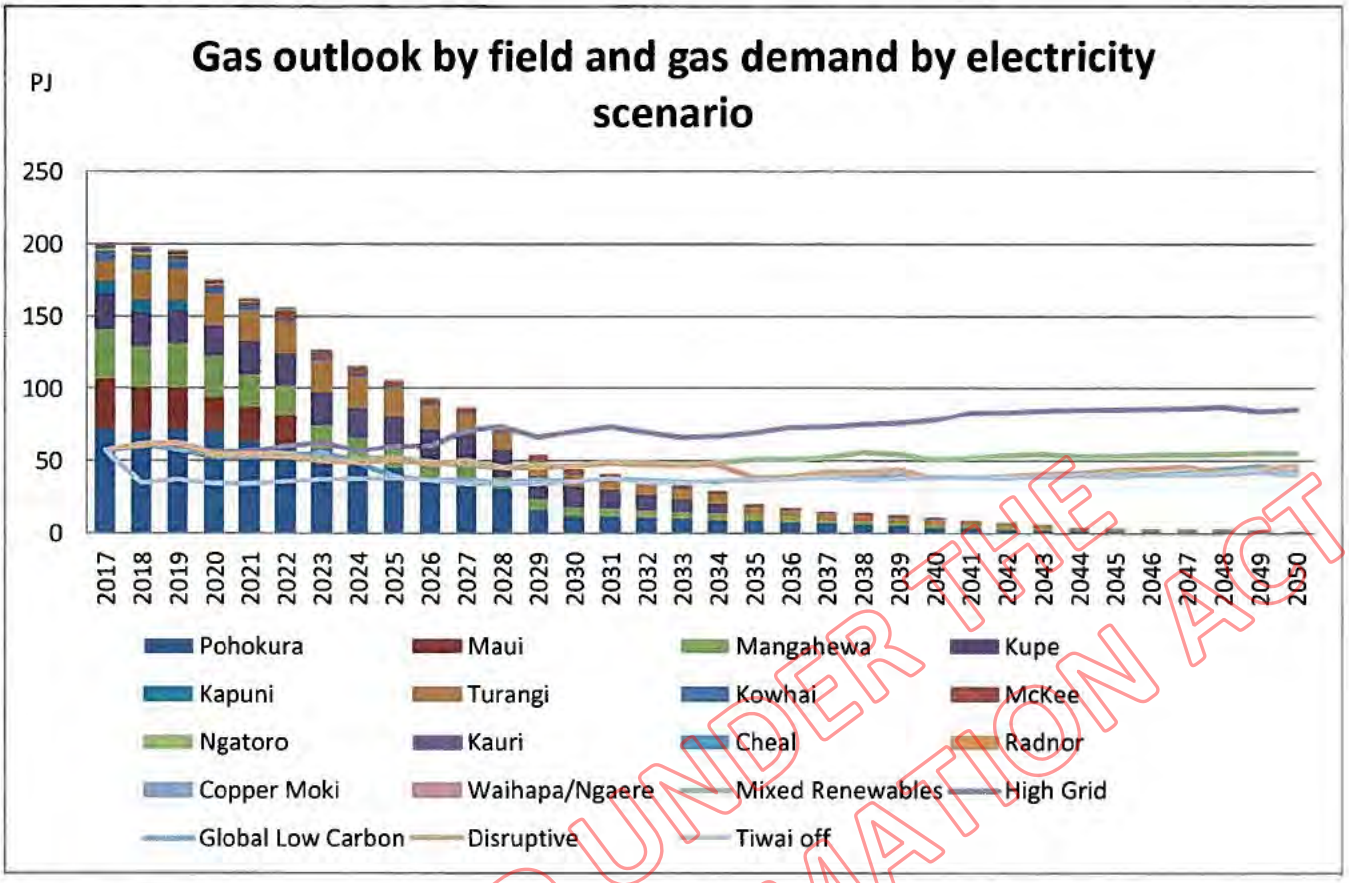
[1] Available at: http://www.mbie.govt.nz/info-services/sectors-industries/energy/energy-data-modelling/modelling/electricity-demand-and-generation-scenarios/documents-image-library/edgs-2016/Scenario%20and%20results%20summary%20report.pdf.



6. Excluding Methanex, and assuming a constant 2017 level gas demand for other petrochemicals, industrial, commercial and residential demand over the outlook period, the supply/demand balance for gas under base case scenarios is shown in the graph below.

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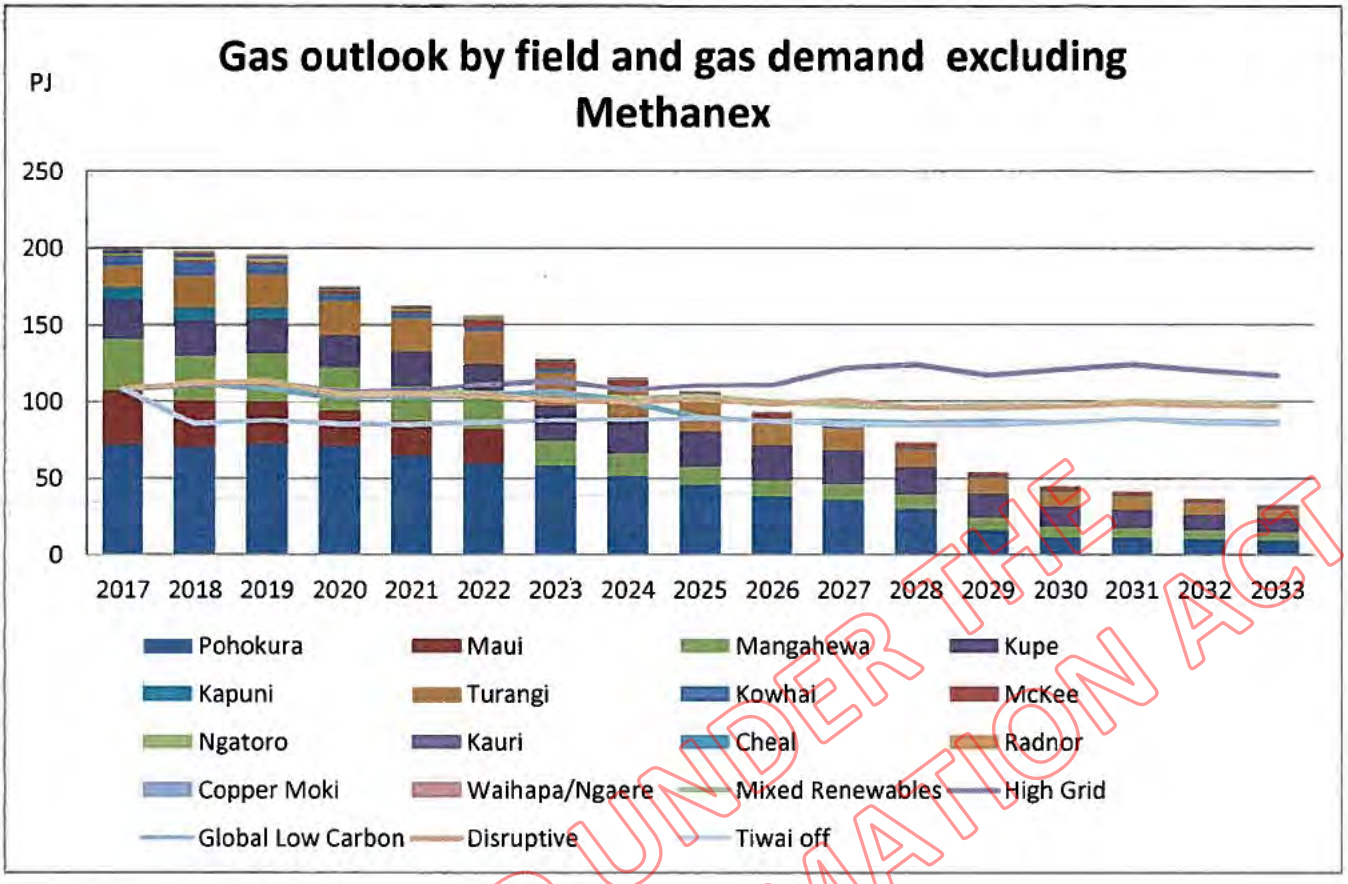
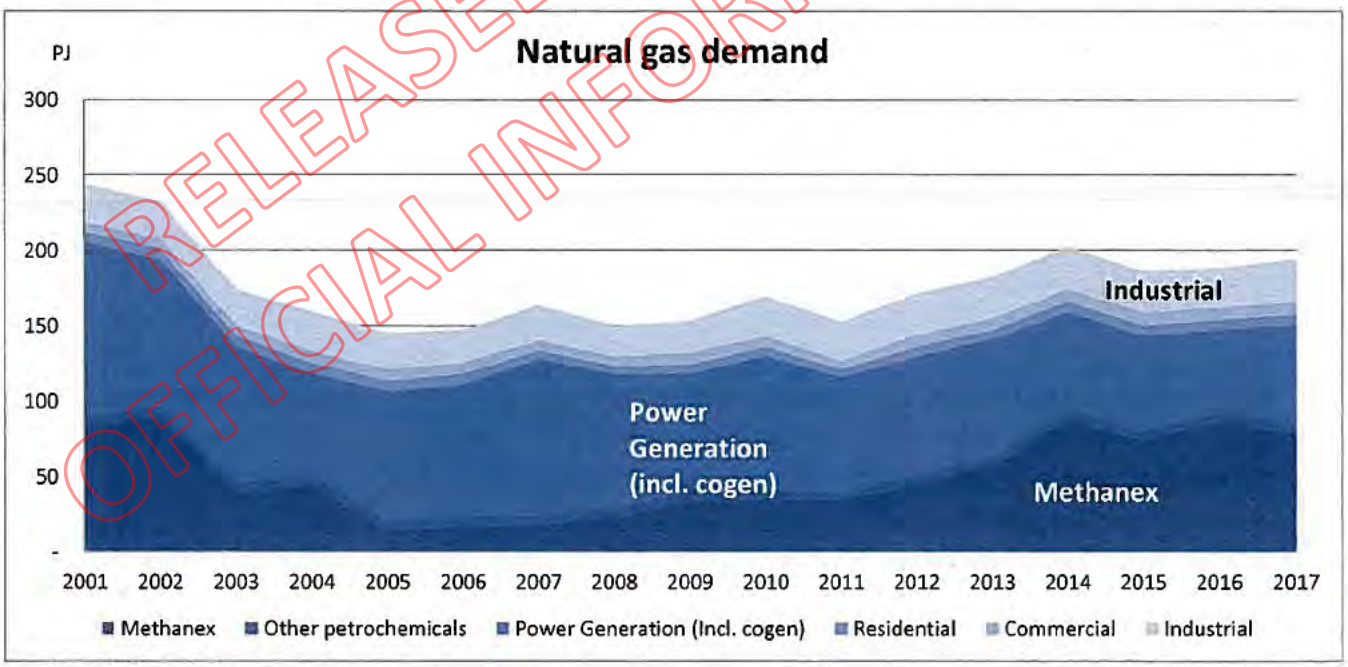


7. Historic natural gas demand is provided in the graph following.



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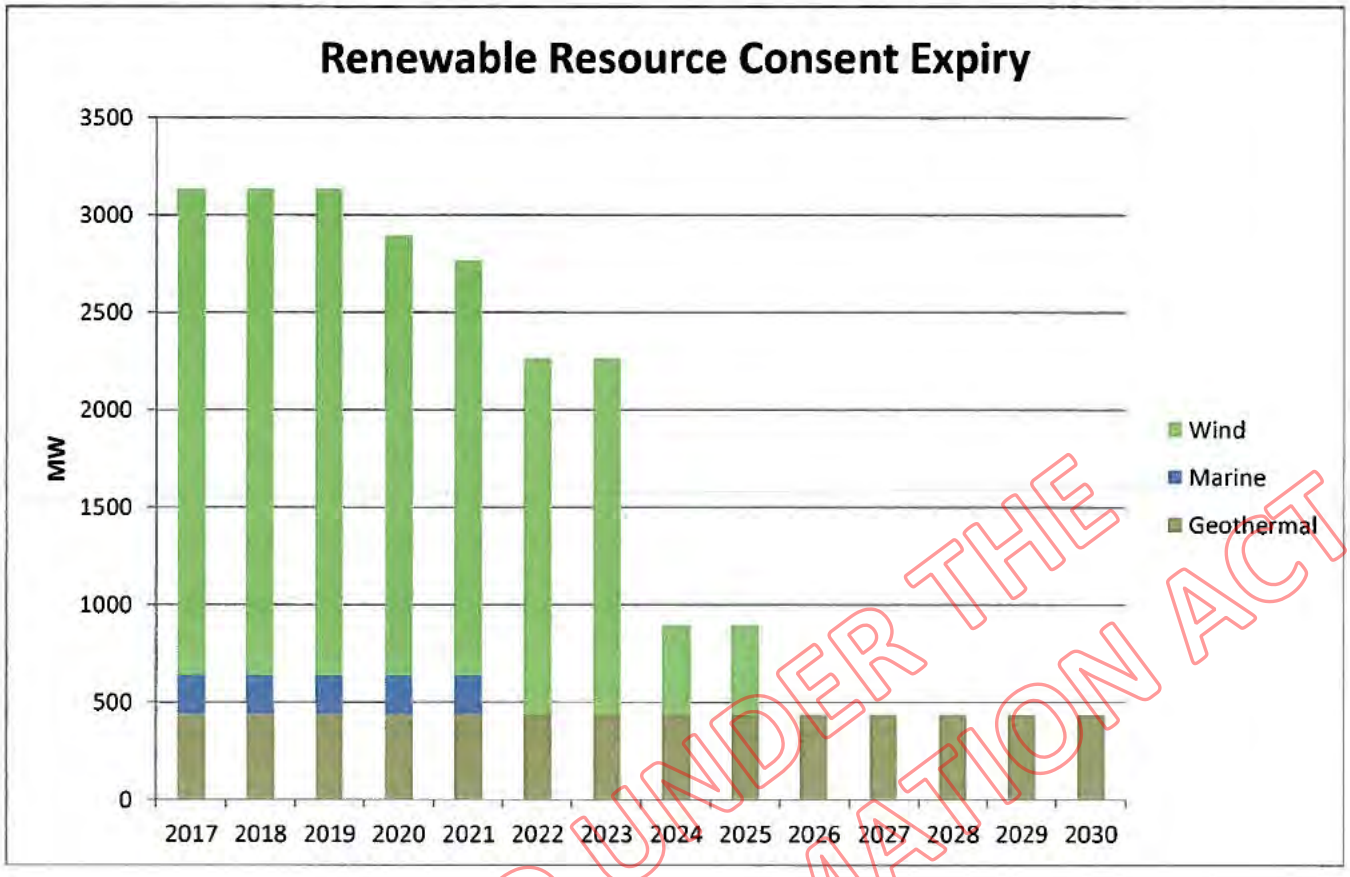
Renewable generation consents

8. A graph of renewable consented power generation is provided below.



Annexes

Annex One: Map of active petroleum permits in New Zealand as at 20 March 2018

Annex Two: Table of active petroleum permits in New Zealand at 20 March 2018

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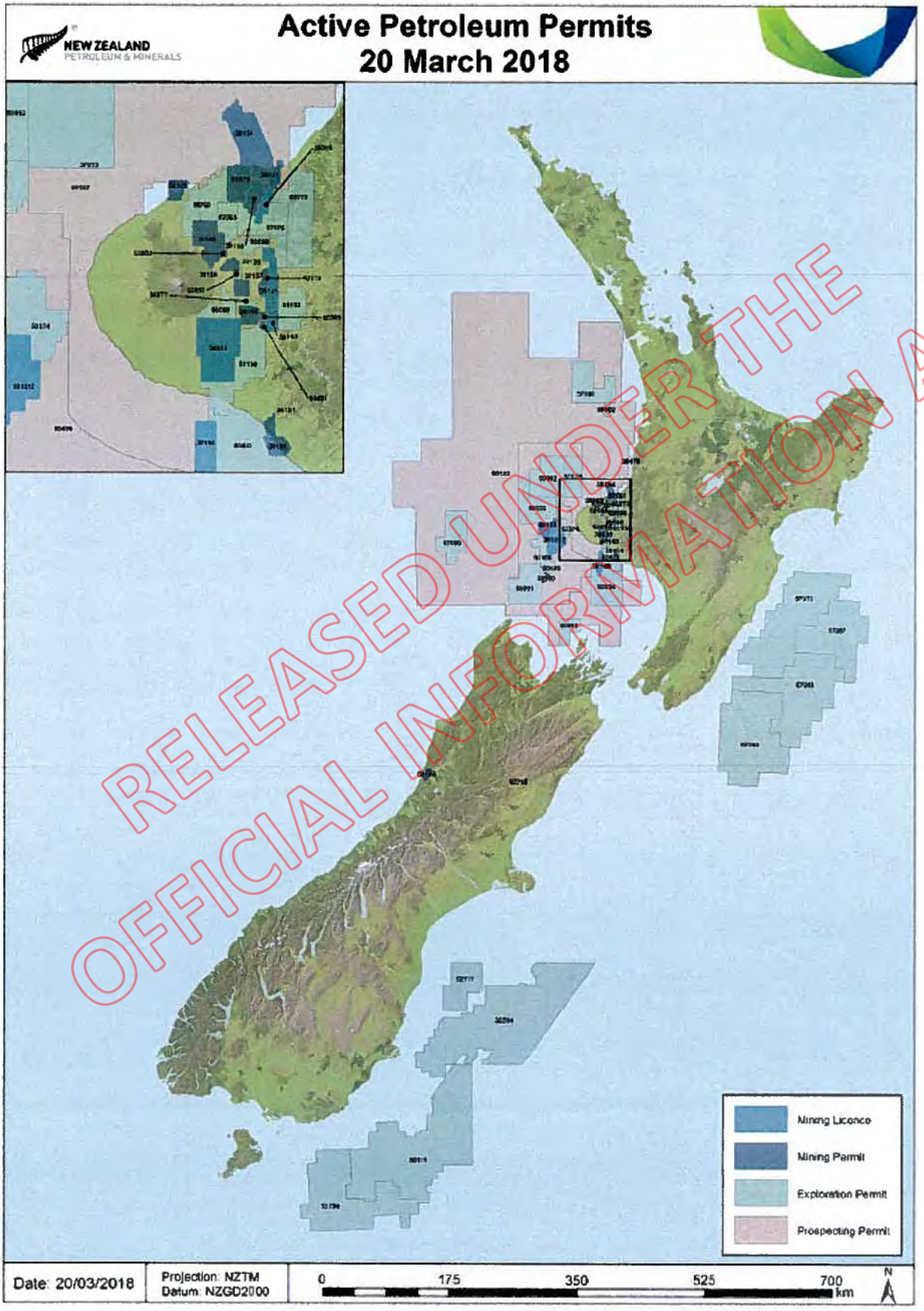
Annex One: Map of active petroleum permits in New Zealand as at 20 March 2018



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Annex Two: Table of active petroleum permits in New Zealand at 20 March 2018

Permit ID	Permit Type	Permit Operator	Other Permit Participants	Onshore/ Offshore	Expiry Date	Operation Name
60402	Exploration Permit	Westside New Zealand Limited (100%)		Offshore	31/03/2030	Kaheru
60409	Prospecting Permit	SCHLUMBERGER NEW ZEALAND LIMITED (100%)		Offshore	27/11/2019	
60291	Mining Permit	Cheal Petroleum Limited (70%)	East West Petroleum (NZ) Limited (30%)	Onshore	14/09/2037	Cheal East
60273	Exploration Permit	TODD EXPLORATION MANAGEMENT SERVICES LIMITED (100%)		Onshore	31/03/2027	Tuihu
60215	Mining Permit	Hurunui District Council (100%)		Onshore	29/11/2056	Hanmer Springs
60102	Prospecting Permit	PGS Australia Pty Ltd (100%)		Offshore	16/08/2018	Taranaki MegaProject
60093	Exploration Permit	OMV New Zealand Limited (57.14%)	Mitsui E&P Australia Pty Limited (42.86%)	Offshore	31/03/2028	Toutouwai
60094	Exploration Permit	TODD EXPLORATION MANAGEMENT SERVICES LIMITED (100%)		Offshore	31/03/2028	South Basin Boundary
60097	Exploration Permit	Greymouth Petroleum Mining Group Limited (100%)		Onshore	31/03/2026	York East
60098	Exploration Permit	Greymouth Petroleum Mining Group Limited (100%)		Onshore	31/03/2026	Totara South
60099	Exploration Permit	Greymouth Petroleum Mining Group Limited (100%)		Onshore	31/03/2026	Konini

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Permit ID	Permit Type	Permit Operator	Other Permit Participants	Onshore/ Offshore	Expiry Date	Operation Name
60091	Exploration Permit	OMV New Zealand Limited (57.14%)	Mitsui E&P Australia Pty Limited (42.86%)	Offshore	31/03/2028	Te Whatu
60092	Exploration Permit	OMV New Zealand Limited (57.14%)	Mitsui E&P Australia Pty Limited (42.86%)	Offshore	31/03/2028	Ridgeline
60095	Exploration Permit	Mont D'Or Resources Limited (100%)		Offshore	31/03/2028	
57065	Exploration Permit	TAG Oil (NZ) Limited (100%)		Onshore	31/03/2025	Waitoriki
57073	Exploration Permit	OMV New Zealand Limited (70%)	Statoil New Zealand B.V. (30%)	Offshore	31/03/2030	Offshore Wairarapa
57075	Exploration Permit	OMV New Zealand Limited (100%)		Offshore	31/03/2027	Cloudy Bay
57076	Exploration Permit	Greymouth Petroleum Mining Group Limited (100%)		Onshore	31/03/2025	
57080	Exploration Permit	TODD EXPLORATION MANAGEMENT SERVICES LIMITED (50%)	Beach Petroleum (NZ) Pty. Limited (50%)	Offshore	31/03/2027	
57083	Exploration Permit	CHEVRON NEW ZEALAND EXPLORATION LIMITED (50%)	Statoil New Zealand B.V. (50%)	Offshore	31/03/2030	
57085	Exploration Permit	Chevron New Zealand Exploration III Limited (50%)	Statoil New Zealand B.V. (50%)	Offshore	31/03/2030	
57087	Exploration Permit	Chevron New Zealand Exploration II Limited (50%)	Statoil New Zealand B.V. (50%)	Offshore	31/03/2030	
57090	Exploration Permit	ONGC VIDESH LIMITED (100%)		Offshore	31/03/2027	

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55491	Mining Permit	Taranaki Ventures Limited (100%)		Onshore	27/07/2022	Copper Mocc
Permit ID	Permit Type	Permit Operator	Other Permit Participants	Onshore/ Offshore	Expiry Date	Operation Name
55768	Exploration Permit	AWE Holdings NZ Limited (51%)	Mitsui E&P Australia Pty Limited (49%)	Onshore	31/03/2024	Kohatuka
55794	Exploration Permit	Woodside Energy (New Zealand 55794) Limited (70%)	NZOG 2013 O Limited (30%)	Offshore	31/03/2029	
54877	Exploration Permit	Cheal Petroleum Limited (70%)	East West Petroleum (NZ) Limited (30%)	Onshore	10/12/2022	
52717	Exploration Permit	NZOG Devon Limited (50%)	Beach Petroleum (NZ) Pty. Limited (50%)	Offshore	10/10/2027	Clipper
53374	Exploration Permit	TODD EXPLORATION MANAGEMENT SERVICES LIMITED (100%)		Offshore	8/03/2024	Opunake
53803	Mining Permit	TAG Oil (NZ) Limited (100%)		Onshore	21/02/2022	Sidewinder
52278	Mining Permit	Contact Energy Limited (100%)		Onshore	15/12/2050	Ahuroa UGS
51378	Mining Permit	Greymouth Petroleum Mining Group Limited (20%)	Greymouth Gas Kaimiro Limited (24.08%), Greymouth Gas Parahaki Limited (20%), Greymouth Gas Turangi Limited (20%), Greymouth Petroleum Turangi Limited (15.92%)	Onshore	1/12/2024	Kowhai Mining Permit
50509	Mining Permit	Greymouth Petroleum Limited (48%)	Greymouth Energy Limited (50%), Ngati Te Whiti Hapū Society Incorporated (2%)	Offshore	24/11/2049	Moturoa

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51906	Exploration Permit	OMV New Zealand Limited (100%)		Offshore	18/11/2021	
51150	Exploration Permit	Taranaki Ventures Limited (100%)		Onshore	22/09/2018	
51153	Exploration Permit	CX OIL LIMITED (70%)	MEO New Zealand Pty Limited (30%)	Onshore	22/09/2018	Puka
50119	Exploration Permit	SHELL GSB LIMITED (50.98%)	Mitsui E&P Australia Pty Limited (17.07%), OMV New Zealand Limited (21.95%)	Offshore	10/07/2022	
38159	Mining Permit	GREYMOUTH PETROLEUM CENTRAL LIMITED (100%)		Onshore	4/04/2017	Surrey
38264	Exploration Permit	Anadarko New Zealand Company (45%)	Discover Exploration Canterbury NZ B.V. (10%), Lattice Energy Resources NZ (Holdings) Limited (45%)	Offshore	7/11/2021	
38156	Mining Permit	Cheal Petroleum Limited (100%)		Onshore	25/07/2027	Cheal and Cardiff
38161	Mining Permit	Greymouth Petroleum Turangi Limited (19.9%)	Greymouth Gas Kaimiro Limited (30.1%), Greymouth Gas Parahaki Limited (25%), Greymouth Gas Turangi Limited (25%)	Onshore	27/04/2036	Turangi
38160	Mining Permit	OMV New Zealand Limited (69%)	Cue Taranaki Pty Ltd (5%), Horizon Oil International Limited (26%)	Offshore	1/12/2027	Maari

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38158	Mining Permit	Tamarind Taranaki Limited (37.5%)	Stewart Petroleum Co Limited (27.5%), Tamarind New Zealand Pty Limited (20%), W M Petroleum Limited (15%)	Offshore	24/11/2025	Tui
38157	Mining Permit	GREYMOUTH PETROLEUM CENTRAL LIMITED (33.3333%)	Bridge Petroleum Limited (41.6667%), Greymouth Gas Kaimiro Limited (7.525%), Greymouth Gas Parahaki Limited (6.25%), Greymouth Gas Turangi Limited (6.25%), Greymouth Petroleum Turangi Limited (4.975%)	Onshore	18/05/2030	Radnor
38155	Mining Permit	Westside New Zealand Limited (100%)		Onshore	13/04/2035	Kauri
38154	Mining Permit	Shell Exploration NZ Limited (48.0003%)	OMV New Zealand Limited (25.99985%), Todd Pohokura Limited (25.99985%)	Offshore	7/10/2036	Pohokura
38151	Mining Permit	Westside New Zealand Limited (100%)		Onshore	29/01/2032	Rimu
38150	Mining Permit	Todd Energy Limited (100%)		Onshore	30/04/2019	Mangahewa
38148	Mining Permit	GREYMOUTH PETROLEUM CENTRAL LIMITED		Onshore	22/12/2036	Ngatoro

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		(100%)¶ ¤				
Permit ID¤	Permit Type¤	Permit Operator¤	Other Permit Participants¤	Onshore/ Offshore¤	Expiry Date¤	Operation Name¤
38602¤	Exploration Permit¤	TODD EXPLORATION MANAGEMENT SERVICES LIMITED (100%)¤	¤	Offshore¤	31/07/2019¤	Kerewa¤
38146¤	Mining Licence¤	Lattice Energy Resources NZ (Kupe) Limited (32.1875%)¤	GP No.2 Limited (11%), GP No.5 Limited (4%), Kupe Holdings Limited (16%), Kupe Mining (No. 1) Limited (17.8125%), National Petroleum Limited (12.75%), Nephrite Enterprises Limited (1%), NZOG TARANAKI LIMITED (4%), Petroleum Equities Limited (1.25%)¤	Offshore¤	26/05/2031¤	Kupe¤
38141¤	Mining Licence¤	NZEC Waihapa Limited (50%)¤	L&M Energy Limited (50%)¤	Onshore¤	19/06/2036¤	Ngaere¤
38138¤	Mining Licence¤	NZEC Tariki Limited (50%)¤	L&M Energy Limited (50%)¤	Onshore¤	20/07/2021¤	Tariki¤
38140¤	Mining Licence¤	NZEC Waihapa Limited (50%)¤	L&M Energy Limited (50%)¤	Onshore¤	20/06/2036¤	Waihapa¤
38086¤	Mining Licence¤	Todd Energy Limited (100%)¤	¤	Onshore¤	10/11/2025¤	McKee¤
38839¤	Mining Licence¤	Todd Petroleum Mining Company Limited (100%)¶ ¶	¤	Onshore¤	31/12/2032¤	Kapuni¤

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Permit ID¤	Permit Type¤	Permit Operator¤	Other Permit Participants¤	Onshore/ Offshore¤	Expiry Date¤	Operation Name¤
381012¤	Mining Licence¤	Shell Taranaki Limited (0%)¤	Energy Petroleum Holdings Limited (18.75%), Energy Petroleum Investments Limited (20%), Energy Petroleum Taranaki Limited (38.75%), OMV New Zealand Limited (10%), Taranaki Offshore Petroleum Company Of New Zealand (6.25%), Todd Petroleum Mining Company Limited (6.25%)¤	Offshore¤	27/06/2036¤	Maui¤

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