



Nelson Tasman Civil Defence and  
Emergency Management

***Nelson Tasman Regional  
Fuel Study 2020***

Confidential

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### Frequency of Updates

The National Fuel Plan 2020 requires Nelson Tasman Civil Defence and Emergency Management (CDEM) to provide the latest version of their regional fuel plan to NEMA every three years, with the first delivery prior to the end of April 2021.

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## Disclaimers and Limitations

This report (**Report**) has been prepared by WSP exclusively for Nelson Tasman Civil Defence and Emergency Management (**Client**) in relation to preparing an updated version of the 2009 Regional Fuel Plan (**Purpose**) and in accordance with the Minor Services Contract for Nelson Tasman Regional Fuel Plan dated January 2020. The findings in this Report are based on and are subject to the assumptions specified in the Report. WSP accepts no liability whatsoever for any reliance on or use of this Report, in whole or in part, for any use or purpose other than the Purpose or any use or reliance on the Report by any third party.

In preparing the Report, WSP has relied upon data and other information provided by third parties. WSP has not verified the accuracy or completeness of the information provided by third parties. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in this Report are based in whole or part on the information provided by third parties, those conclusions are contingent upon the accuracy and completeness of the third-party information. WSP will not be liable in relation to incorrect conclusions or findings in the Report should any third-party information be incorrect or where information has been concealed, withheld, misrepresented or otherwise not fully disclosed to WSP.

## Confidentiality

This report, the Fuel Register, and associated GIS mapping include information that may be commercially sensitive and must remain confidential. This information is only to be used by CDEM for emergency planning and response.

## Abbreviations

CDEM	Civil Defence and Emergency Management
IEA	International Energy Agreement
LUC	Lifelines Utilities Co-ordinator
NCC	National Co-ordination Centre
NCCM	National Crisis Management Centre
NEMA	National Emergency Management Agency
NESO	National Emergency Sharing Organisation
MBIE	Ministry of Business, Innovation and Employment
SCE	Sector Co-ordinating Entity

## Glossary

Controller	As defined in the CDEM Act 2020, this 'means the person who is the National Controller in accordance with section 10, or a Group Controller appointed under section 26'.
Emergency	A fuel disruption may cause, or be part of, an emergency under the CDEM Act 2002. A fuel disruption may also trigger the declaration of a Petroleum Emergency under the International Energy Agreement (IEA) Act 1976
Fuel haulers and distributors	Fuel haulers and distributors are contracted by fuel companies to supply fuel to service stations and/or may also operate as fuel retailers.  As example of this is Nelson Petroleum Distributors Ltd (NPD) which is both a fuel hauler and distributor, and a fuel retailer.
Fuel Retailers (named and unnamed)	Retail outlets that supply fuel to the general public, businesses etc.
Fuel Sector Co-ordinating Entity (SCE)	The Fuel SCE is the national organisation, established as per the role of SCEs defined in the National CDEM Plan 2015, to plan for and co-ordinate a response to, a major fuel disruption.  During response, the Fuel SCE provides a single point of contact to the lead agency and co-ordinates the sector's response in a fuel emergency.
Lead Agency	The lead agency is responsible for co-ordinating the overall management of the emergency and will be dependent on the fuel disruption.  Generally, MBIE is the lead agency for fuel infrastructure failure, and CDEM is the lead agency when a (national or regional) state of emergency is declared.
Lifeline Utilities	Defined in Schedule 1, Part B of the CDEM Act 2002. In terms of petroleum, this means "An entity that produces, processes, or distributes to retail outlets and bulk customers any petroleum products used as an energy source or an essential lubricant or additive for motors for machinery".
National Controller	The Director of Civil Defence Emergency Management or person delegated by the Director to deal with any state of national emergency.
National Fuel Plan 2020	Refers to The National Emergency Management Agency's 'National Fuel Plan: Planning and Response Arrangements for Fuel Supply Disruptions and Emergencies Supporting Plan [SP 04/20]', dated March 2020.



## Introduction

This Plan gives effect to the National Fuel Plan 2020<sup>1</sup> for the Nelson Tasman region and supports the Civil Defence and Emergency Management (CDEM) Group Plan. The primary purpose of the Plan is to set out arrangements to promote continued fuel supply to critical customers who may be involved in a response to an emergency under the CDEM Act 2020.

This Plan is split into two parts; Section A which outlines the key considerations in planning for an emergency event; and, Section B which outlines the key considerations in responding to an emergency event. This report is accompanied by a Fuel Register and Geographic Information System (GIS) mapping which can be searched and used to determine fuel suppliers, critical customers, their needs, limitations, and appropriate transport routes on a case-specific basis.

This plan does not include natural gas (addressed under the First Gas Critical Contingency Management Plan) or Liquefied Petroleum Gas (LPG), except where this information has been readily provided by third parties and is of value for regional-level emergency planning and response (e.g. LPG may be of value for emergency heating and cooking purposes).

Note that, some of the information held in this report, the Fuel Register (Appendix 1), and associated GIS mapping (Appendix 2) may be commercially sensitive and is to be treated as confidential. This information is only to be used by CDEM and Lifelines personnel for emergency planning and response purposes.



(Image Source: WSP Graphic Design Team)

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<sup>1</sup> The National Emergency Management Agency, March 2020, *National Fuel Plan: Planning and Response Arrangements for Fuel Supply Disruptions and Emergencies Supporting Plan [SP 04/20]*

# Section A: Planning for a Fuel Emergency

## 1 Planning Framework

There is an International Energy Agreement (IEA) – made between fuel importing countries in response to the 1973-74 fuel crisis – which requires IEA countries (including New Zealand) to take the following measures if necessary, to preserve fuel supply in the event of an international oil supply disruption:

- Release oil stocks;
- Restrain demand;
- Switch to other fuels;
- Increase domestic productions; and/or,
- Share available oil.

There is a National Fuel Plan 2020 – developed jointly by the National Emergency Management Agency (NEMA) and the Ministry for Business and Innovation (MBIE) under Section 9(3) of the Civil Defence and Emergency Management Act 2002 – for the purpose of minimising the effects of fuel supply chain disruption in New Zealand as far as reasonably practicable.

The Nelson Tasman Regional Fuel Plan (this Plan) sits under the National Fuel Plan 2020 (as depicted in Figure 1 below) and sets out arrangements to promote continued fuel supply to critical customers who may be involved in a response to an emergency in the Nelson Tasman region.

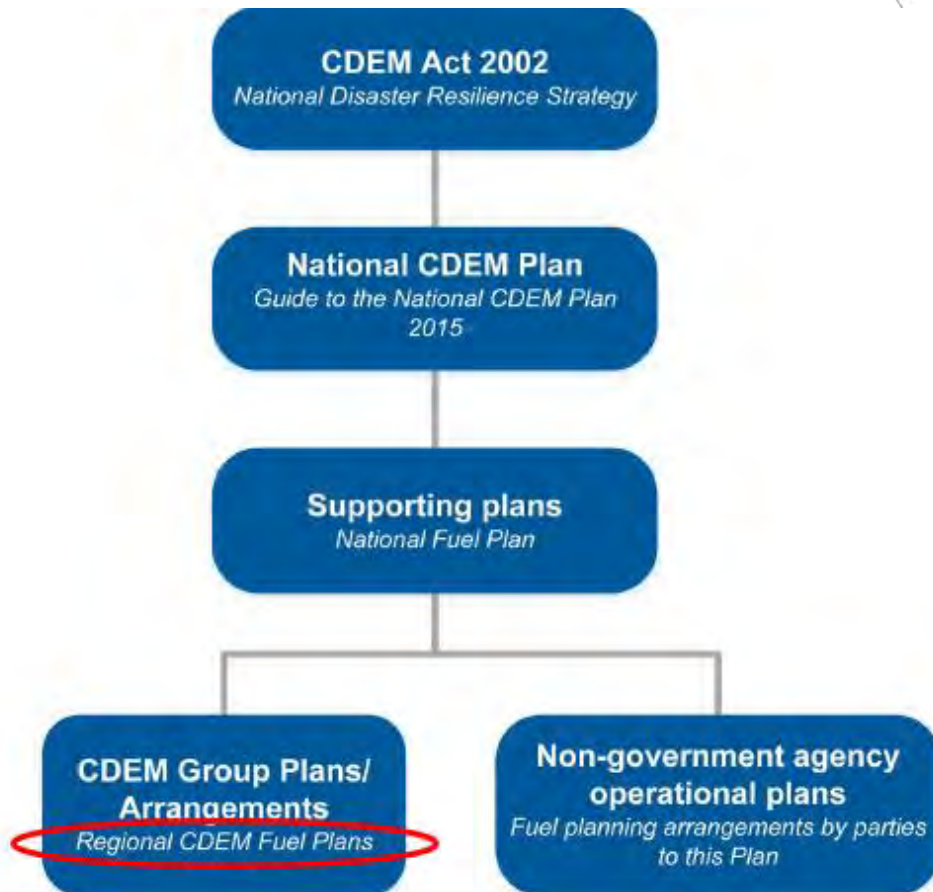


Figure 1: Legislative Framework (image adapted from the National Fuel Plan 2020)

Other relevant legislation includes the International Energy Agreement (IEA) Act 1976, the Petroleum Demand Restraint Act 1981, and the National Civil Defence Emergency Management Order. The key roles and responsibilities under these legislative documents are included in sections 2 and 8 of this report.

## 2 Planning Roles and Responsibilities

The roles and responsibilities of the key parties involved at a national and a Nelson Tasman regional level in planning for a fuel emergency are outlined below.

### 2.1 Fuel Sector Co-ordinating Entity (SCE)<sup>2</sup>

- Co-ordinate fuel sector planning for major fuel emergencies;
- Undertake the role of the National Emergency Sharing Organisation (NESO) under the IEA;
- Meet, at least annually, to review the National Fuel Plan and supporting arrangements; and,
- Support MBIE in the identification and management of risks and resilience measures.

### 2.2 Ministry of Business, Innovation and Employment (MBIE)

- Maintain the National Fuel Plan in partnership with the National Emergency Management Agency (NEMA);

<sup>2</sup> The Fuel SCE is a national organisation, established to plan for and co-ordinate a response to, a major fuel disruption (as per the role of SCEs defined in the National CDEM Plan 2015).

- Convene and chair the Fuel SCE to co-ordinate fuel sector planning for major fuel disruptions;
- Maintain supporting operational procedures for the Fuel SCE;
- Conduct national exercises that test the arrangements in the National Fuel Plan;
- Monitor, and advise the government on, New Zealand's fuel supply security;
- Ensure New Zealand meets the requirements of the IEA; and,
- Participate in National CDEM exercises.

### 2.3 National Emergency Management Agency (NEMA)

- Maintain the National Fuel Plan, in partnership with MBIE;
- Support operational procedures for the NEMA National Crisis Management Centre (NCMC)/ National Co-ordination Centre (NCC);
- Participate in the Fuel SCE and contribute to co-ordinated fuel sector planning for major fuel disruptions;
- Maintain a central register of regional fuel plans including collated lists of critical customers and priority retail outlets received from regional CDEM Groups and issue updates to fuel companies annually;
- Identify the sector's critical customers;
- Support CDEM Groups with regional fuel emergency planning;
- Represent the Fuel SCE in regional fuel emergency planning; and,
- Plan to co-ordinate support to the fuel sector.

### 2.4 Nelson Tasman CDEM

- *'May provide for the conservation and supply of food, fuel and other essential supplies'*<sup>3</sup> if a state of emergency has been declared in the area;
- Develop a regional fuel plan (i.e. this Plan) and provide the latest version to the Fuel SCE every three years; and,
- Maintain arrangements to implement this plan, including:
  - Identifying and maintaining a database of regional / local critical customers and priority fuel retail outlets;
  - Engaging with regional critical customers around their requirements in the National Fuel Plan; and,
  - Engaging with priority retail outlet owners and planning to support the allocation of prioritised fuel to critical customers.

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<sup>3</sup> Pursuant to Section 85(1)(e) of the CDEM Act 2002.

## 2.5 Lifelines Utilities<sup>4</sup>

- Must ensure that they are able to function to the fullest possible extent (which may be at a reduced level) during and after an emergency event<sup>5</sup>; and,
- Must plan for responsibilities in reduction, readiness, response, and recovery<sup>6</sup>. This includes the requirement for Lifelines Utilities to:
  - Analyse hazards and risks to implement reductions strategies;
  - Plan collaboratively with CDEM Groups and Lifeline Utilities;
  - Provide information on network status;
  - Plan response arrangements; and,
  - Establish communications procedures.

## 2.6 Fuel Companies (Producers, Importers, Processors, and Distributors)

- Maintain business continuity plans to identify risks, and steps to eliminate or reduce their likelihood, and to maintain services during an emergency;
- Incorporate the planning and response arrangements in this Plan into their own planning (priority fuel retail outlets, critical customer lists, etc.);
- Participate in the Fuel SCE and contribute to co-ordinated fuel sector planning for major fuel disruptions;
- Participate in regional Lifeline Utilities and CDEM sector planning and exercises (while ensuring compliance with the Commerce Act 1986 and acknowledgement and management of commercial sensitivities); and,
- Oversee the requirements of company-owned fuel retail outlets.

Note: Fuel companies are not required to release customer information to any party during pre-response planning. However, these details should be provided to the lead agency in a timely manner if required in an emergency response.

## 2.7 Fuel Retail Outlets (Including Unmanned)

- Maintain business continuity plans, including testing and procedures for use of backup arrangements (e.g. for power / internet / water supply failure / staffing and any other critical resource);
- Plan for the security of staff in an emergency event;
- Participate in local and regional CDEM planning and exercises; and,
- Liaise with CDEM for the support required to implement prioritised supply to critical fuel customers.

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<sup>4</sup> 'Lifeline utilities' are defined in Schedule 1, Part B of the CDEM Act 2002. In terms of petroleum, this means "An entity that produces, processes, or distributes to retail outlets and bulk customers any petroleum products used as an energy source or an essential lubricant or additive for motors for machinery". Refer to the Glossary for the full definition.

<sup>5</sup> Pursuant to Section 60(a) of the CDEM Act 2020

<sup>6</sup> Pursuant to Sections 59-61 for the National Civil Defence Emergency Management Order

## 2.8 Critical Customers

- Have business continuity arrangements in place relating to fuel supply to maintain essential functions during fuel shortages, including fuel stored for generators, fuel-efficient vehicles, remote working, priority supply arrangements, etc;
- Provide information to support regional fuel planning;
- Discuss priority access arrangement contracts with fuel supplier(s);
- Establish processes for communicating with essential staff / contractors around priority fuel supply arrangements;
- Ensure that the staff and contractors required for critical response functions are aware of their critical customer status and have suitable identification (branded cars, company ID cards and/or a signed letter on letterhead); and,
- Have alternate means of payment if they are unable to use their contracted fuel company (some fuel companies allow company fuel cards to be used as payment at their retail sites if EFTPOS is down).

## 3 Fuel Supply Chain

### 3.1 National Supply Chain

IEA countries are required to hold fuel stocks for 90 days of net demand. New Zealand typically holds between 53 and 64 days supply at normal demand, based on average daily consumption of all products) of commercial crude oil and refined products, and holds contracts for offshore reserve fuel stocks to make up the shortfall. At any given time, there is approximately 15-20 days of demand in transit to New Zealand by ship.

The Marsden Point Refinery located in Northland is a critical part of New Zealand's national fuel supply chain. It holds the largest stock of fuel in the country, with average stockholdings of around 245 million litres of crude oil and 175 million litres of refined products.

On average, approximately 100-150 million litres of crude oil – equating to approximately two-thirds of New Zealand's domestic fuel demand, including 85% of the country's jet fuel demand, 67% of diesel, 58% of petrol and all fuel for ships – arrives in New Zealand at the Marsden Point Refinery every week. This crude oil is refined into petroleum products and is then distributed via pipeline, ship and road (as depicted in Figure 2).

Approximately half of the Marsden Point Refinery's product is transported via the Auckland Pipeline to the Wiri terminal (located in the South Auckland suburb of Wiri). This includes Regular (91), Premium (95), Diesel and Jet-A1 fuel and provides for 95% of Auckland's petroleum demand, and all of the Jet-A1 for Auckland airport. Fuel is shipped from the Marsden Point Refinery to ten ports via two coastal vessels that carry all fuel types and have a maximum capacity of 40-45 million litres each.

The rest of New Zealand's domestic fuel supply is imported by fuel companies directly to select regional terminals and generally takes at least 16 days to arrive via ship from Asia.

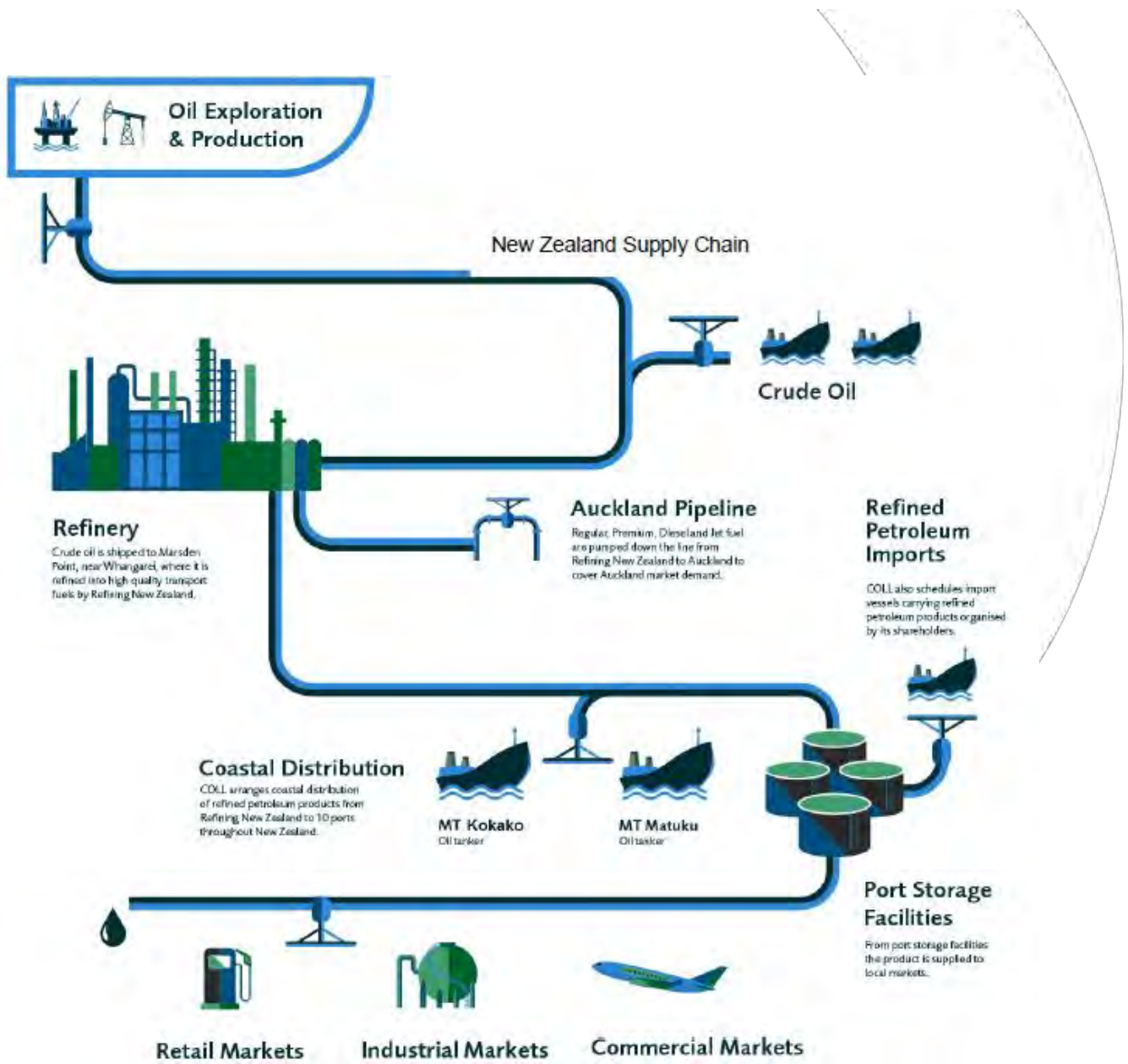


Figure 2: National Fuel Supply Chain (extracted from the National Fuel Plan 2020)

Further details on the National Supply Chain can be found in the National Fuel Plan 2020.

### 3.2 Nelson Tasman Fuel Supply Chain

The bulk of the Nelson Tasman region’s fuel supply arrives via ship at Port Nelson or – to a lesser extent – via truck from Port Lyttelton. This comprises primarily of Petrol 91, Petrol 95, Diesel, AV Gas, Jet A1 and Light Fuel Oil (LFO) and also includes Petrol 98, Petrol 100, and Ad Blue Diesel. The general supply chain is depicted in Figure 3 below.

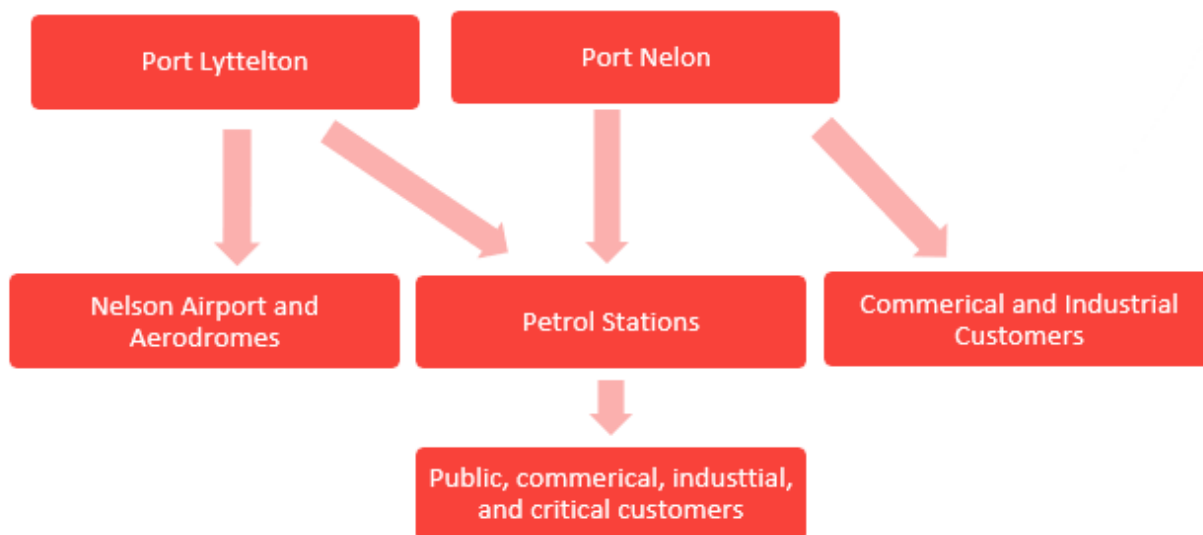


Figure 3: Flow Chart of Nelson Tasman Fuel Supply Chain

Table 1 gives an overview of the fuel supplied to the Nelson Tasman region and provides a rough indication of how much fuel may be available at Port Nelson at any one time.

Table 1: Approximate Fuel Volumes and Re-Filling Frequency

Supply Point	Fuel Type	Min Volume	Average Volume	Total Capacity	Re-fill Frequency
Port Nelson	LFO	Generally greater than 300,000L	1,500,000L	2,700,000L	Every 4 weeks (via ship)
Port Nelson	Diesel	Generally greater than 600,000L	2-3,000,000L	5,000,000L	Every 10-14 days (via ship)
Port Nelson	Petrol 91	Hold a minimum of 3-4 days' supply (	2,000,000-5,000,000L	6,000,000L	Every 10-14 days (via ship)
Port Lyttelton (to petrol stations)	Petrol 91	Additional fuel trucked from Port Lyttelton directly to petrol stations as needed.			Every 4-5 days (via truck from Port Lyttelton)
Port Lyttelton (to petrol stations)	Petrol 95	Hold a minimum of 3-4 days' supply	800,000 - 2,000,000L	2,700,000L	Every 10-14 days (via ship)
Port Lyttelton (to petrol stations)	Petrol 95	Additional fuel trucked from Port Lyttelton directly to petrol stations as needed.			Every 4-5 days (via truck from Port Lyttelton)
Port Lyttelton (to petrol stations)	Petrol 98	No storage at Port Nelson. Trucked from Port Lyttelton direct to petrol stations.			Every 4-5 days (via truck from Port Lyttelton)



Supply Point	Fuel Type	Min Volume	Average Volume	Total Capacity	Re-fill Frequency
Port Lyttelton (to Nelson Airport)	Jet A1	Information not provided	Information not provided	Information not provided	Every 2-3 weeks (via truck from Port Lyttelton)
Port Lyttelton (to Nelson Airport)	AV Gas	Information not provided	Information not provided	Information not provided	Every 1-2 weeks (via truck from Port Lyttelton)

### 3.3 Key Supply Points

#### 3.3.1 Port Nelson

##### Fuel Types and Volumes

As outlined above, the bulk of the Nelson Tasman region's fuel supply arrives via ship at Port Nelson. Port Nelson received LFO (every 4 weeks), and diesel, Petrol 91 and Petrol 95 (every 10-14 days) via ship. Port Nelson hold a minimum of 3-4 days' supply (worst case - it is rare for levels to get this low).

The fuel at Port Nelson is distributed to commercial customers including service stations, and industrial users. Fuel from the Port may be supplied to users outside of the Nelson Tasman region (e.g. Marlborough, West Coast). A Fuel Storage Register prepared for the Marlborough region in 2018 found that the majority of the Marlborough region's fuel is supplied by Port Nelson.

##### Shipping Route:

Fuel is shipped to Port Nelson (requiring marine fuel) through the Nelson Haven. A marine pilot vessel is required to bring the supply vessels into the Haven for navigational safety. Currently, there are only 4 staff members in the Nelson Tasman region that are suitably qualified and experienced to pilot the supply vessels into the Haven. Without these staff, supply vessels are unable to enter the Port, with the exception of small vessels or those that frequent Port Nelson regularly and hold a pilot exemption.

The shipping route through the Nelson Haven to Port Nelson could be made unpassable in the scenarios below:

- A seismic event resulting in the failure of the revetments on either side of the cut failing or the Mole (manmade rock structure off Haulashore Island) failing and blocking the channel;
- A seismic event resulting in uplift of the seabed, making the route too shallow for supply vessels;
- A vessel breaking down or sinking in the cut (marine incident); or,
- A large storm event resulting in the accumulation of sand and/or debris, making the route too shallow for supply vessels.

##### Berthing:

The berthing of supply vessels at the wharf could be impacted by:

- Failure of the wharf, rendering it out of service;
- A berthed vessel becoming inoperable and unable to be moved;
- Only having one operational berth and this being in use, resulting in the fuel vessel being delayed; or

- The revetment slopes near the berth pockets failing and slipping into the berth pockets, blocking them. This would mean that supply vessels would be unable to berth.

There is no suitable equipment readily available for clearing any blockages along the shipping route or the berthing pockets, meaning that delays are likely to occur in restoring access to Port Nelson in the event of a blockage.

There is a firefighting system set up to provide protection when a vessel is berthed and discharging fuel. This system has a foam application and requires water to operate. The water pipes in this area are below ground and vulnerable to land stability issues. The water in the pipe comes from Nelson City Council's reticulated system. If water cannot be supplied to operate the firefighting system, then fuel may not be able to be discharged from the supply vessel.

#### Pipeline and Tanks

The Port is constructed on reclaimed land in the Nelson Haven and could potentially be damaged by the likes of seismic activity and liquefaction, tsunami, or coastal inundation. The fuel supply pipes are made from ductile steel, offering some resilience, however, they pass underground through areas that are at risk of instability.

There is one main pipeline which takes fuel from the supply vessels to the fuel platform/sampling hut. This main pipeline is connected to (suspended from) a single wharf. Fuel supply to Port Nelson would be disrupted if the wharf and/or main pipeline were to be damaged or fail.

The fuel platform/sampling hut is a relatively new construction and has been designed to withstand seismic events. The hut has tiebacks into the reclamation behind and piles into the seabed. However, the pipelines entering and exiting the hut are still vulnerable to potential failure.

The BP fuel tank is understood to be located on stable ground. The Z Energy tank is on ground that has some potential land stability issues (the level of vulnerability and seismic threshold are not known).

The fuel pipeline and tanks may need to be inspected following a seismic event or other natural disaster. This inspection would require specialised personnel from outside of the Nelson Tasman region and may cause delays in the fuel supply chain.

#### Hazardous Substances

Port Nelson contains a number of hazardous substances which could present a fire risk and/or make the area un-occupiable for health and safety reasons (e.g. a gas leak) in the event of an emergency. This could also affect the function of Port Nelson and the supply of fuel to the region.

#### Resilience Study

Port Nelson is currently undertaking a resilience study. The final findings of this study are not yet available, however they will be important for any future fuel emergency planning and response and should be incorporated, if possible, into the next version of this regional fuel plan.

### **3.3.2 Port Lyttelton**

#### Aviation Fuel

Aviation fuel (Jet A1 and AV Gas) is received via truck from Lyttelton. Small volumes of fuel are also held at the Motueka aerodrome, while the Tākaka aerodrome have a mobile fuel trailer which they use to collect fuel. Aircraft may also fuel up at airports outside of the Nelson region (e.g. Wellington Airport).

#### Petrol

Petrol 98 is trucked from Port Lyttelton every 2-4 days and delivered directly to petrol stations (as lesser volumes are required). Additional 91 and 95 may also be trucked from Port Lyttelton directly to petrol stations as needed. E.g. there may be less Petrol 91 and 95 available at Port Nelson on occasion if a delivery ship is redirected to another Port to serve a more urgent need.

## Transportation Vulnerabilities

Refer to Section 5.2.

### 3.3.3 Service Stations

Service stations within the region generally receive Petrol 91, 95, 98 and 100, and diesel. Figure 4 depicts the maximum and minimum fuel storage volumes held in service stations throughout the region, based on the information gathered as part of this study.

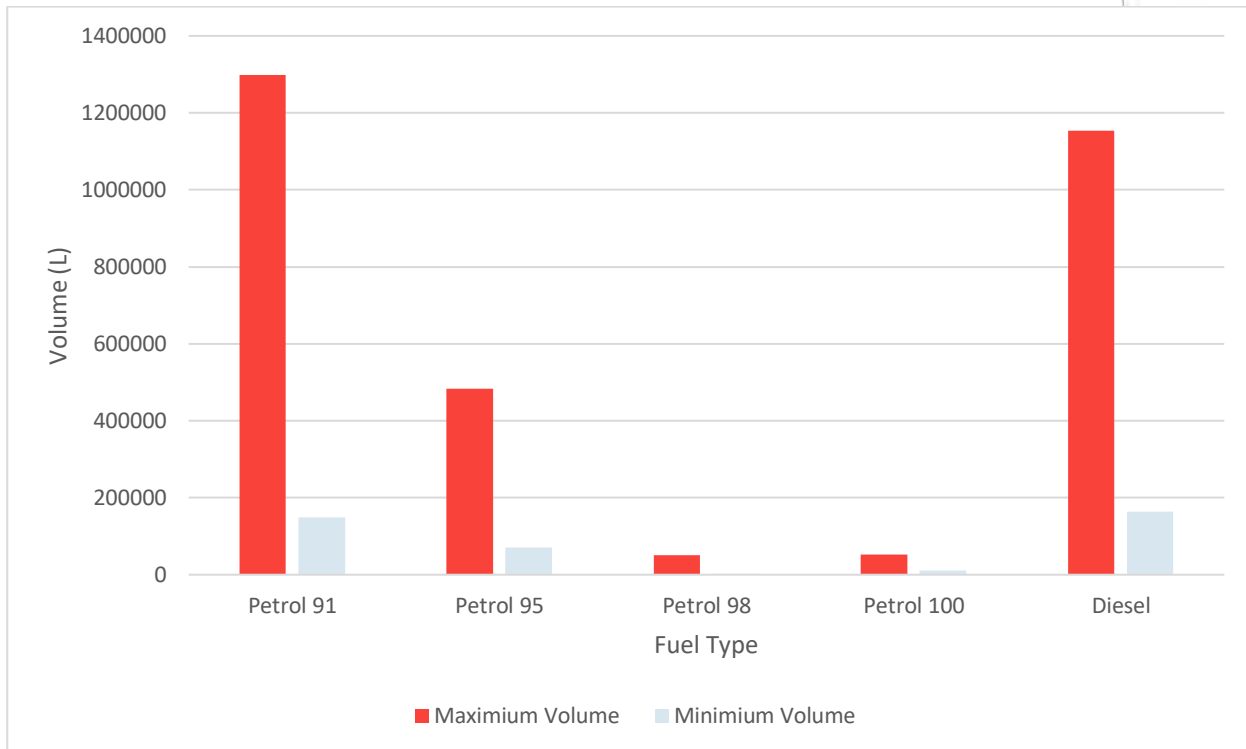


Figure 4: Nelson Tasman Fuel Storage - Service Stations

## 4 Critical Customers

The National Fuel Plan 2020 describes critical customers as 'agencies responsible for the health, safety and welfare of the community and, in an emergency, CDEM response and recovery activities' and states that the following sectors are defined as critical customers, with the right to access priority supply at nominated sites for the purpose of continuing essential functions:

- Health and disability sector (hospitals, public health services, health emergency coordination centres, primary care, ambulance services, aged care facilities);
- NZDF (noting that they hold limited stocks for normal NZDF operations);
- New Zealand Police;
- Corrections;
- Fire and Emergency New Zealand;
- Civil Defence Emergency Management (national/regional/local CDEM Group);
- Local authorities, for Lifeline Utility services, solid waste and other essential functions;
- Lifeline Utilities (major supplies of energy, transportation, telecommunications, water, wastewater services);
- Transport and storage of food;

- Welfare services – e.g. household goods and services, Civil Defence Centres;
- Public transport; and,
- Airlines (where operating to support emergency response operations).

A list of the Nelson Tasman region’s critical customers, their fuel requirements and other relevant details is included in the Fuel Register in Appendix 1. This study has also considered non-critical commercial and industrial fuel users which may have key resources (e.g. generators, mobile tanks) and/or may be able to act as fuel suppliers in an emergency event. While all efforts have been made to ensure the completeness of this list, there may be some suppliers and/or critical customers which have not been included or details that have not been provided.

## 4.1 Key Requirements and Limitations

### 4.1.1 Aged Care Facilities, Schools, and Boarding Houses

Early discussions with aged care facilities and schools indicated that they do not generally use or hold fuel. Some schools indicated that they required fuel for heating and/or cooking however, with the exception of boarding houses (i.e. Salisbury School, Garin College, Nelson College, and Nelson College for Girls), they do not anticipate needing to operate for long during an emergency event. Based on this early feedback, these groups were not actively pursued for information however, schools were still included in the Fuel Register and GIS mapping, even when no fuel data was provided, as potential community lead centres and/or as part of the CDEM information network.

### 4.1.2 Nelson Airport

#### Fuel Type and Use

Based on the information provided, Nelson Airport has approximately 18,000-165,000L of Jet A1 (between Z Energy and BP) and 3,000-28,000L of AV Gas (Z Energy) available onsite at any one time. This fuel is held onsite by Z Energy and BP and is transported from Port Lyttleton via truck. Aircraft may also be refuelled at other airports.

Z Energy estimated an average daily use of 15,000L of fuel per day prior to the COVID-19 lockdown in New Zealand (unclear if this is Jet A1 or AV Gas or a combination of them both). This may increase during emergency events e.g. approximately 30,000L per day was used when responding to the Pigeon Valley Fire in early 2019. The emergency fuel requirement could also be increased if aircraft is used to fly emergency supplies, fuel etc., into the region.

#### Storage

- Aviation fuel is stored onsite (and in temporary storage tanks at Port Nelson).
- There is a tanker on a trailer used for fuelling helicopters.
- Nelson Airport also holds some petrol for re-fuelling onsite vehicles. The petrol tank for this has recently been removed and replaced with a small pump.

#### Vulnerabilities

The Nelson Airport is located in a coastal area, susceptible to potential liquefaction, storm surges and tsunamis. The airport has only one vehicle access location, with all road access via Tahunanui, and could be cut off via road in an emergency event.

The runway is short and has a low weight level due to the underlying sandy soils. This means that some larger aircraft are unable to land, which may be an issue if Nelson Airport needs to be used as a main airport and/or be used to fly in supplies during an emergency event (e.g. alpine fault rupture).

#### 4.1.3 *St John, Police, and Fire and Emergency NZ*

St John, the Police, and Fire and Emergency NZ require petrol to fuel their emergency vehicles and respond in an emergency event. They all rely on petrol stations for their supply and will be impacted if petrol stations have been damaged in an event, are experiencing a power outage or are otherwise unable to supply fuel. All three are most vulnerable in the remote townships of Tapawera, Murchison, Motueka (and surrounds), Tākaka, and Collingwood.

St John have a national Memorandum of Understanding with Z Energy which states that Z will prioritise supply to St John in an emergency event if a CDEM declaration hasn't already been put in place.

The Police have approximately 35-40 vehicles in Nelson Tasman region, including diesel fuelled prison vehicles, admin/unmarked vehicles and Armed Offenders Squad/Command Unit vehicles.

Fire and Emergency NZ have approximately 40 vehicles in total, all of which are diesel fuelled.

#### 4.1.4 *Nelson Hospital*

Nelson Hospital (99 Waimea Road, Nelson) use Landfill Gas (LFG) for heating and for sterilising theatre equipment. LFG is supplied by Pioneer Energy Ltd and is electrically pumped from the York Valley landfill. If there is an electrical fail at the landfill, a generator comes from Industrial Marine at Port Nelson.

The LFG pipeline (depicted in Appendix 5) from York Valley to Nelson Hospital is a 90mm diameter medium-density polyethylene (MDPE) pipe. Nelson Hospital do not anticipate any difficulty in sourcing materials in the event of needing to repair the pipe, however the repair works could be hazardous and would require appropriate health and safety protocols.

Nelson Hospital does not have the means of accessing LFG without electricity. In the event of a power outage, the Hospital would:

- Use their onsite generator – the Hospital holds 15,000-20,000L of diesel for their electric generator, and estimate that they would use 500-800L per day in an emergency situation; or,
- Revert to coal – Coal is transported via road from Reefton. It is estimated that approximately two to three trucks of coal would be needed per week.

#### 4.1.5 *Manuka Street Hospital, Nelson*

The Manuka Street Hospital (36 Manuka Street, The Wood) holds up to 5,000L of diesel (delivered weekly) to run the boilers (electrically pumped) and for an emergency generator (manually fuelled). They also hold approximately 100-270kg of LPG (filled weekly by Rockgas) for laundry and kitchen purposes and are in the process of increasing this volume to 320kg.

#### 4.1.6 *Toi Toi Medical*

No fuel.

#### 4.1.7 *Tahunanui Medical Centre*

No fuel.

#### 4.1.8 *Stoke Medical Centre*

The Stoke Medical Centre (470 Main Road Stoke) hold up to 500L of diesel (delivered every 2-3 weeks only during April-October) to operate boilers for underfloor heating in winter. They do not consider fuel essential for their operation as they have other means of heating (provided that there is power). They do not have an emergency generator.

#### 4.1.9 *Richmond Health Centre*

No fuel.

#### 4.1.1 *Alexandra Hospital, Richmond*

The Alexandra Hospital (5 Alexandra Grove, Richmond) has a portable generator for emergency lighting and heating, however, would need fuel to run this.

#### 4.1.2 *Mapua Health Centre*

No fuel.

#### 4.1.3 *Friends of Motueka Hospital Trust*

The Motueka Hospital (15 Courtney Street, Motueka) holds approximately 150-1,000L of diesel for hot water, heating, maternity and health care purposes, and has an estimated emergency use of 40L per day. It is not known whether they have an emergency generator.

#### 4.1.4 *Golden Bay Community Health Centre, Tākaka*

The Golden Bay Community Health Centre (10 Central Tākaka Road) uses wood pellets supplied by Azwoods in Nelson and hold approximately two weeks supply of pellets at any one time. The centre has a 100kVA generator onsite, however, do not hold any fuel onsite to run this.

#### 4.1.5 *Wakefield Community Health Centre*

No fuel.

#### 4.1.6 *Murchison Community Hospital and Health Centre*

The Murchison Community Hospital and Health Centre (58 Hotham Street, Murchison) have a 100kVA Generator on site, however, would need fuel to run this. They hold approximately 100L of diesel in 20L storage containers and 500L in the generator tank (600L in total). Their emergency fuel requirement is unknown.

#### 4.1.7 *Nelson City Council*

##### Sewerage

Nelson City Council have a sewer treatment plant at 162 Boulder Bank Drive, and the following sewer pump stations:

- Neale Park (entry off Sovereign Street);
- Corder Park Pump Station (entry off Atawhai Drive/State Highway 6); and,
- 45 Vanguard Street, Nelson (behind in Oxford Street alley).

The pump stations have backup generators. In the event that there is no electricity or fuel available and the pump stations are unable to operate, sewer would overflow into the streams, ocean, and eventually into residential streets (as previously seen when pipes are broken etc). This is an environmental and public health concern.

The pump stations have a Supervisory Control and Data Acquisition (SCADA) alarm system which runs using a battery if there is a power outage (note: information has not been provided on whether electricity or fuel is required at a remote receiving location for Council or their contractors to receive the alarm signal). The pump stations could be physically manned (for monitoring purposes and limited manual functioning) by a contractor if all alarm systems failed.

Council contractors involved in the operation of the pump stations (Nelmac, Fulton Hogan) need to be considered as critical customers for their role in maintaining Council assets.

##### Potable Water

Water is extracted from the Maitai and Roding water reserves, then piped to the Water Treatment Plant at 2 Tantragee Road. Both the Maitai and Roding pipelines cross over fault lines and could be at risk of damage in a seismic event. Nelson City Council do not currently have an alternative system for getting 'raw' untreated water to the Water Treatment Plant in the event that both supply pipelines are damaged.

Water is treated at the Water Treatment Plant, then supplied (as potable drinking water) to the region using both electric pumps and a gravity fed system. The pipeline from the Water Treatment Plant to Marsden Valley is electrically pumped, and the pipeline to Brook Street and Nelson City is gravity fed. It is estimated that approximately 90% of the city customers could be supplied at least some water via the gravity fed system if needed.

Stormwater

If there is no electricity or fuel to operate the pumps in Nelson’s stormwater system, stormwater is likely to run off surfaces into nearby waterways.

Civic House

Nelson City Council primarily operates from Civic House (110 Trafalgar Street). This building has a diesel-operated generator with a 21,500L tank which may be able to keep critical sections of the council operating, depending on the event. Details of fuel storage and refuelling for the generator have not been provided.

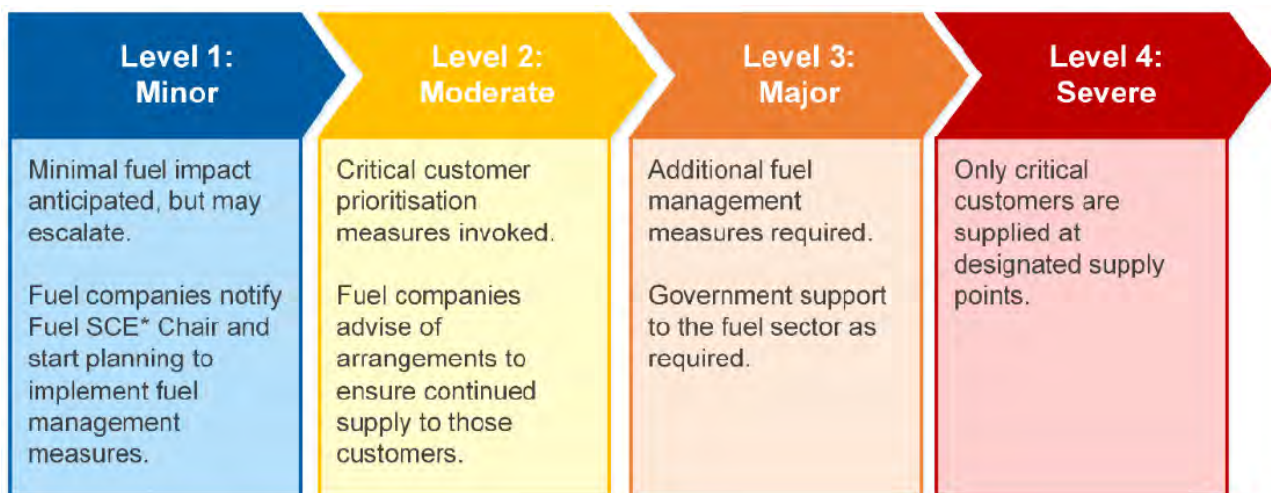
4.1.8 Tasman District Council

Information not provided.

4.2 Prioritising Supply to Critical Customers

4.2.1 Escalation Levels

The National Fuel Emergency Plan 2020 identifies four fuel emergency escalation levels, as per Figure 5 below.



\*SCE: Sector Coordinating Entity

Figure 5: Event Escalation Levels (source: National Fuel Plan 2020)

Supply should be prioritised to critical customers in accordance with these escalation levels:

- Level 1 – Consider the need for government-mandated fuel supply prioritisation (noting that some emergencies may immediately escalate to Level 3 or 4).
- Level 2 – Fuel prioritisation measures will be in place (designated fuel retail outlets, lanes, etc.). Other customers will continue to be supplied but fuel companies will prioritise re-supply to sites dedicated to critical customers and manage stocks to ensure ongoing supply to those customers.

- Level 3 – As an emergency worsens and more fuel needs to be reserved for priority fuel users, fuel companies will decrease the percentage of stock allocated to their commercial customers and the difference will be allocated to critical customers.
- Level 4 – Only critical customers will be supplied at designated fuel retail outlets or at other designated distribution points (e.g. to refuel generators at critical sites).

#### 4.2.2 Mechanisms to Prioritise Users

##### Memorandums of Understanding/Priority Arrangements

Memorandums of Understanding and other priority arrangements can be developed between fuel suppliers and critical customers to set out the expectation for a particular supplier to prioritise a particular critical customer in an emergency event.

Only two of the critical customers questioned in this study advised that have this type of agreement. This was the Murchison Community Hospital and Health Centre, who referred to priority arrangements in accordance with the NMDHB Emergency Ops Plan (no further information was provided on this), and St John who have a national Memorandum of Understanding with Z Energy.

It is recommended that priority arrangements between fuel suppliers and critical customers are further encouraged. The following priority arrangements are suggested (in no particular order) as a starting point, based largely on geographic location:

- Nelson Hospital – Caltex Bishopdale
- Manuka Street Hospital – Z Energy Rutherford Street
- Nelson Electricity – BP Haven Road
- Nelson City Council – Mobil Dayman Motors Ltd, Collingwood Street
- Stoke Medical Centre – Mobil Stoke/Z Energy Stoke
- Transpower – Mobil Stoke/Z Energy Stoke
- Tasman District Council – BP Connect, Queen Street Richmond
- Motueka Hospital – Caltex Motueka (or another local service station, Talley’s, or Motueka High School)
- Murchison Community Hospital and Health Centre – Mobil Murchison
- Nelson Airport and regional aerodromes – other regional airports (e.g. Wellington)
- Police/Fire and Emergency/St Johns/Chorus (various locations) – nearest petrol stations

Refer to Section 10 for more details on fuel management mechanisms.

## 5 Fuel Disruption

### 5.1 Scenarios

The National Fuel Emergency Plan 2020 outlines the fuel disruption scenarios listed in Table 2 below. The majority of these scenarios have a national-level impact, and all have the potential to cause a disruption in the Nelson Tasman region. The last three scenarios are likely to be of a more regional scale.

Table 2: Fuel Shortage Scenarios

Scenario	Description
External Outage Scenario	



Scenario	Description
International disruption	Natural or man-made disasters, war or other geo-political disruption in significant oil-producing regions, likely to result in an international shortage / price spike.
<b>Internal Supply Breakdown Scenarios</b>	
Long-term refinery outage.	A natural disaster or other event makes the refinery inoperable for several weeks to months. Fuel companies would need to import refined fuel and it is expected to take around six weeks for new “emergency response” imports to arrive. The jetty at the refinery is needed to supply the Refinery-Auckland pipeline.
Short-term refinery outage.	A shorter period of refinery inoperability, less than 1-2 weeks, such that emergency response imports are not required.
Long-term Wiri refinery/ Auckland Pipeline disruption	Long-term disruption at Wiri, making the terminal inoperable. Supply to Auckland and airports in the upper North Island would be impacted. Restoration of petrol and diesel would involve trucking from other terminals.
Short-term Wiri refinery/ Auckland Pipeline disruption	Disruption to the Refinery-Auckland Pipeline. Supply to Auckland region would be impacted. Such disruptions are likely to be resolved within days, except in the case of a major natural disaster (for example, the pipeline outage in September 2017 was resolved within 14 days).
Long-term Wellington disruption	Damage to the Seaview terminal. Supply to Wellington and the lower North Island would be impacted. Restoration of supply to Wellington could involve trucking from other terminals, provided roads into Wellington (SH1 and SH2) remain open.
Long-term Christchurch disruption	Damage to the Lyttelton terminal. Supply to Christchurch and the wider region would be impacted. Restoration would involve trucking from other terminals, assuming roads are open.
Isolation of geographical area or region by road	This is a particular vulnerability for regions potentially without the facilities to import fuel by ship. For example, in a major Alpine Fault disruption, it may be weeks before road access to bring fuel into the West Coast can be restored.
Multiple facility and transport disruptions	A significant natural hazard event (tsunami, earthquake) has the potential to cause damage to multiple terminals as well as isolating regions by roads, cutting off the alternative supply route. This is a particular vulnerability highlighted in Wellington Resilience Planning.
Widespread power outage	There is very little backup generation on site in the retail sector, although capability to ‘plug in’ generators is increasing. The refinery cannot operate without power from the national grid, but some other key facilities (e.g. Wiri Oil Terminal, Refinery-Auckland Pipeline pump stations) have full backup power generation on site.

Figure 6 below outlines the different escalation levels for a fuel emergency.

Escalation Level	Description
Level 1: Minor Impact on Fuel Sector	<ul style="list-style-type: none"> <li>• Potential for escalating fuel supply disruption to Levels 2-3 but minimal current impact on fuel distribution.</li> <li>• Fuel companies notify Fuel SCE Chair and start planning for potential disruption.</li> <li>• Fuel SCE convened to monitor situation and start planning for potential escalation.</li> <li>• NEMA notifies CDEM Groups (noting CDEM ECCs may already be activated if this is part of wider emergency).</li> </ul>
Level 2: Moderate Impact on Fuel Sector	<ul style="list-style-type: none"> <li>• Moderate fuel distribution impacts, most customers still serviced but causing risk of shortages to critical fuel customers.</li> <li>• Fuel SCE activated (<a href="#">Section 4.2.2</a>) to monitor demand levels and re-supply options and coordinate Government support as required for the fuel sector (<a href="#">Section 5.4</a>).</li> <li>• Critical Fuel Customer prioritisation is invoked (<a href="#">Section 5.7</a>). Fuel companies to take steps to ensure critical customers are supplied. Government powers may be used to enforce this.</li> <li>• CDEM ECCs maintain list of critical customers and communicate changes to national LUC and local service stations.</li> <li>• State of emergency may be in place (see note).</li> </ul>
Level 3: Major Impact on Fuel Sector	<ul style="list-style-type: none"> <li>• Serious impact on fuel distribution with severe resource and capacity constraints and multi region and/or major impacts to critical customers.</li> <li>• Actions as above, plus additional demand management measures implemented (<a href="#">Section 5.6</a> and <a href="#">Section 5.7</a>) and coordinated through the Fuel SCE.</li> <li>• State of emergency likely to be in place (see note).</li> </ul>
Level 4: Severe Impact on Fuel Sector	<ul style="list-style-type: none"> <li>• Severe impact on national fuel supplies and resource and capacity limits well exceeded.</li> <li>• Actions as above, plus fuel companies to supply only critical fuel customers and these customers to be serviced by any supplier.</li> <li>• State of emergency likely to be in place (see note).</li> </ul>

Figure 6: Escalation Levels (source: National Fuel Emergency Plan 2020)

Some potential regional-level events, such a natural disaster or regional power outage, are considered below.

### 5.1.1 Natural Disasters:

The Nelson Tasman CDEM Group undertook an assessment<sup>7</sup> in 2016 of the potential impacts on the region's infrastructure during a major natural hazard event. This includes the following natural hazards:

#### Earthquakes

The Nelson Tasman region is a seismically active zone. The region contains part of the Alpine Fault and a number of smaller faults (depicted in Appendix 3). This includes the Waimea-Flaxmore Fault system which runs through the main residential areas of Richmond and Nelson City.

The 2016 Lifelines Project found that –

*'Rupture of the Alpine Fault system is considered to be possible in the next 50-100 years, resulting in shaking intensities of MM8-9 in the immediate vicinity and MM 6-8 elsewhere.*

<sup>7</sup> Nelson Tasman CDEM, *Nelson Tasman Lifelines Project: A Vulnerability Assessment of Lifeline Infrastructure in Nelson-Tasman*, 2016

*Rupture of the Waimea-Flaxmore Fault system is assessed to be in the order of 1:6000 years with potential ground shaking of MM8-9 in the vicinity of the fault and MM7-8 elsewhere in the region.'*

Seismic activity is generally associated with potential liquefaction, surface ruptures and displacement, and shaking, all of which can cause disruption to regional transportation routes, power supply, and the regional fuel supply chain.

### Landslides

Landslides can be caused by seismic activity or heavy rainfall. The Nelson Tasman region has the active Tahunanui Slump in Nelson and a record of historic landslides along the Richmond foothills, Tākaka Hill and in Golden Bay. Landslides have the potential to affect critical infrastructure and cause disruption to the regional fuel supply chain. This may be exacerbated by associated natural hazards (seismic activity and heavy rainfall) occurring within the region at the same time.

Landslides could impact distribution of fuel within the Nelson Tasman region by cutting of key transport routes.

### Tsunami and Coastal Inundation

The 2016 Lifelines Project outlined that *'There have been a number of reported tsunami events in the region in the past 150 years – the largest in 1868 produced waves of up to 1.5m high. Tasman and Golden Bays are not directly exposed to tsunami arriving from the Pacific Ocean and the energy of the waves will dissipate as they pass through the Cook Strait. However, tsunami still pose a risk to the region.'*

The tsunami map in Appendix 3 (extracted from the 2016 Lifelines Project) highlights potential vulnerable areas during a tsunami event, including Collingwood, Pohara, Motueka, Richmond, Tahunanui, Port Nelson and The Glen.

The Nelson Tasman region may also be susceptible to coastal inundation during king tides and coastal storm surge events, particularly when these coincide with heavy rainfall. These events can damage infrastructure and potentially cause disruption to regional fuel supply. The most recent example of significant coastal inundation in the Nelson Tasman region is Cyclone Fehi (February 2018) which caused damage to roads and buildings.

A tsunami or coastal inundation could impact supply and distribution in the Nelson Tasman region by affecting the Port Nelson (a key supply point), Nelson Airport (a potential supply point) and/or key transport routes.

### Extreme Weather

Extreme weather events such as heavy rainfall and flooding can affect infrastructure in any location and disrupt regional fuel supply. A recent example of this is the Cyclone Gita (February 2018) event. This event caused large landslides on Tākaka Hill which took out sections of the Tākaka Hill Highway (State Highway 60) and temporarily cut-off road access to Golden Bay. In this event, Nelson Tasman CDEM transported fuel to Golden Bay via barge (see Section 10.1 for further details).

### Power Outage:

A power outage can occur at any time for several reasons, however, is often associated with extreme weather conditions. Power outages may be localised to a small part of the region, or more widespread. A large portion of the region's fuel stocks are dispensed via electric pumps and therefore require power to operate. There is likely to be a high demand for diesel-powered generators during a major electricity outage.

The information gathered as part of this study shows that as many as 89% of the region's fuel supplies are dispensed via an electric pump. Approximately 20% of the region's fuel suppliers, and 35% of the region's fuel users (both critical and non-critical) indicated that they could access fuel

or continue to operate without power. Some critical customers keep small volumes of fuel which were manually accessed.

In many cases, the ability to continue to operate without power was due to having access to a diesel run generator (generally with readily available diesel onsite, however in some cases the generator and/or diesel were not onsite and would need to be accessed in an emergency), having a gravity fuel dispensing method, or relying on the ability to re-engineer their system if needed in an emergency.

Nelson Hospital is a key critical customer. They have an electric generator and 15,000-20,000L of diesel available onsite to operate the generator. Their estimated emergency requirement is 500-800L of diesel per day, meaning that, worst case scenario, they would be able to run the generator to approximately 18.75 days before requiring additional diesel or an alternative fuel source such as coal.

Further information on the ability of fuel suppliers and users to operate without power can be found in the Fuel Register in Appendix 1.

## 5.2 Regional Vulnerabilities

The Nelson Tasman regional fuel supply chain relies heavily on Port Nelson and the roading infrastructure. Damage to these facilities may cause disruption to the fuel supply and may be particularly pronounced in more isolated communities that may be difficult to access in an emergency event. Some of the potential vulnerabilities in the Nelson Tasman regional fuel supply chain are discussed below.

### Port Nelson

Refer to Section 3.3.1.

### Nelson Airport

Refer to Section 4.1.2.

### Roading Infrastructure

A large portion of the region's fuel supply is received via road from Port Lyttelton, either via the State Highway 6/Lewis Pass route or via the coastal State Highway 1 route. These routes are potentially vulnerable to natural disasters and could affect fuel supply to the Nelson Tasman region (e.g. Kaikoura Earthquake, November 2016).

State Highway 6 and State Highway 60 provide key strategic regional transportation routes within the Nelson Tasman region. Sections of these transportation routes are located within the region's low-lying tidal reaches which may be vulnerable to coastal inundation or other natural hazards. The roading network may also be vulnerable to seismic activity and severe storm events, which could take out parts of the road and/or bridges.

Disruption to the roading network could cut-off fuel supply within the region, particularly in more isolated areas such as Murchison, St Arnaud, and Golden Bay. The key vulnerabilities on the roading network are depicted in the GIS mapping, included in Appendix 2.

# 6 Communication

## 6.1 Communication Arrangements

Generally:

- The Nelson Tasman CDEM Group will in most cases co-ordinate with the Fuel SCE via the national Lifelines Utilities Co-ordinator (LUC). However, in an event mainly impacting the Nelson Tasman Region, the Nelson Tasman LUC (or other CDEM representative) will participate directly in the Fuel SCE.

- Fuel companies will engage nationally through the Fuel SCE and are required to provide a communications link to retail outlets that they supply, such as to advise of fuel management requirements.
- Direct communication between Nelson Tasman CDEM and fuel retail outlets may be required where fuel prioritisation arrangements are activated, and retail outlets require support to manage arrangements.
- Fuel sector reports on supply and distribution impacts will be distributed to affected CDEM Groups.

## 6.2 Public Messaging

Public messaging may be required to advise the general public of fuel management mechanisms such as mandatory demand restrictions, or the prioritisation of transport routes. Messaging channels will be determined by the CDEM Public Information Manager (PIM) based on the event and whether there is power and connectivity available. Messaging channels may include:

- Manual signage at fuel stations (if no power);
- The use of established community networks (if no power). E.g. iwi networks, community and local business groups, volunteer support networks, neighbourhood support groups;
- The use of CDEM's Emergency Mobile Alert system which sends a message to capable mobile phones;
- The use of Variable Message Sign (VMS) boards which are digital roadside signs that display official messages. VMS boards may be available through Council, roading contractors (Fulton Hogan currently hold the contract to maintain the Nelson Tasman state highway network) or hire companies;
- Radio communications and the news media;
- Social media and website updates; and,
- Local Councils and Lifelines agencies.

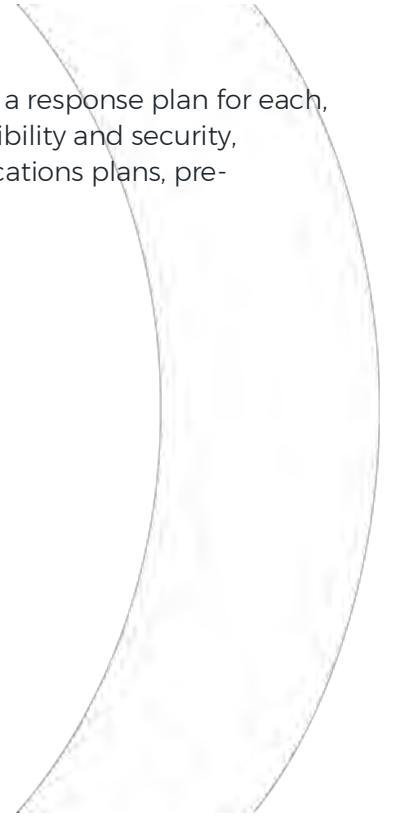
Note: It is generally anticipated that a regional fuel emergency will be associated with either a national-level fuel emergency or with another regional-level event (e.g. natural disaster, power outage) where there will likely be a wider messaging system in place.

## 7 Recommendations

It is recommended that:

- CDEM ensure that they are achieving their planning responsibilities (outlined in section 2) and understand their response responsibilities (outlined in section 8);
- CDEM encourage/assist Lifelines Utilities (including fuel suppliers and critical customer) to achieve their own responsibilities;
- CDEM further develop and maintain the register (and associated GIS mapping) of fuel suppliers and critical customer, their requirements, and limitations;
- CDEM promote the development of Memorandums of Understanding between suppliers and critical customers to ensure priority supply to critical customers. It is recommended that CDEM maintain copies of these agreements and a register to ensure that suppliers are not over-committed and to access this information in an emergency event;
- CDEM encourage fuel suppliers and critical customers to develop relevant business continuity plans and to work through three fuel shortage scenarios; and,

- CDEM run through three mock fuel shortage scenarios and create a response plan for each, including consideration of management mechanisms, fuel accessibility and security, transportation routes, and public messaging (including communications plans, pre-prepared messages and likely messaging channels).



# Section B: Responding to a Fuel Emergency

## 8 Response Roles and Responsibilities

The roles and responsibilities of the key parties involved at both a national and Nelson Tasman regional level in responding to a fuel emergency are outlined below.

### 8.1 Governor-General

- Pursuant to Section 3 of the International Agreement (IEA) Act 1976, the Governor-General may declare a “petroleum emergency” to meet New Zealand’s IEA obligations; and,
- Pursuant to Section 4 of the Petroleum Demand Restraint Act 1981, the Governor-General may – if satisfied that reasonably available supplies of petroleum are likely to be insufficient to maintain a normal level of stock in all or parts of New Zealand – make regulations to restrain the demand for, or ensure the equitable distributions of, petroleum products that are in short supply.

### 8.2 Ministries

- The Minister of Civil Defence may declare a state of national or regional emergency. The National Fuel Plan is then activated under this;
- The Minister of Energy and Resources may activate the authorities under the IEA and/or Petroleum Demand Restraint Act 1981 in order to implement fuel demand measures or to meet the IEA obligations; and,
- The Ministry of Business, Innovation and Employment (MBIE):
  - Chair the Fuel SCE to manage and co-ordinate the government response to a national fuel supply disruption (regardless of the lead agency);
  - Provide advice to the Minister of Energy and Resources on measures to be implemented; and,
  - Collect information from the fuel industry and, where necessary, co-ordinate the implementation of response measures.

### 8.3 National Emergency Management Agency (NEMA)

- Co-ordinate information from other Lifeline Utilities to support response (e.g. road status, electricity status);
- Communicate situational information to CDEM Groups and other response agencies, as per the National CDEM Plan 2015;
- Participate in, and contribute to the role of the Fuel SCE;
- Support CDEM Groups as required;
- Provide logistical support to the fuel sector; and,

- NEMA National Crisis Management Centre (NCCM)/NCC will provide support to Nelson Tasman CDEM and the fuel sector. This includes the co-ordination of information from Lifeline Utilities and the communication of situational information.

#### 8.4 Fuel Sector Co-ordinating Entity

- Provide a single point of contact to the lead agency and co-ordinates the sector's response in a fuel emergency;
- Facilitate sector solutions;
- Request/co-ordinate support from the government;
- Co-ordinate and provide fuel sector situational information to the lead agency;
- Distribute situational information from the lead agency (through members to their sector / organisation / supply chain); and,
- Co-ordinate with other affected sectors, particularly where dependencies exist (e.g. the electricity sector).

#### 8.5 Nelson Tasman CDEM

- Maintain critical customer lists and make available to the National Lifeline Utilities Co-ordinator (LUC);
- Provide logistical support to the fuel sector, including support to manage the allocation of fuel to critical customers (e.g.: confirming critical customer identification, queue management / crowd control);
- Provide situational information (e.g. road access) to support the fuel response;
- Cover costs associated with the provision of security at fuel retail outlets that the CDEM Group has procured;
- Give priority to road use for essential supplies (such as fuel), for example if there is only a single road open to the region; and,
- Assist with prioritisation of Lifeline restoration (e.g. water, electricity, key transport routes).

#### 8.6 Fuel Companies (Producers, Importers, Processors, and Distributors)

- Coordinate their own organisation's response;
- Undertake operational tasks to manage fuel demand or increase fuel supply as part of their normal response and as directed by the lead agency;
- Provide information to the lead agency;
- Provide a communication point for organisations supplied by the fuel company (e.g. dealers, distributors); and,
- Support/advise the government response through the Fuel SCE and jointly undertake Fuel SCE roles with other fuel organisations.

#### 8.7 Fuel Retail Outlets (Including Unmanned)

- Implement demand restraint measures as requested by the lead agency (communicated through fuel companies) or as directed via regulations.



## 8.8 Critical Customers

- Reasonably conserve fuel (to the greatest extent possible, without impacting their ability to maintain core services);
- If requested by the Controller<sup>8</sup>, give priority restoration to support bulk fuel supply. For example, prioritising road restoration on key fuel transport routes or water authorities giving priority to restoring water supplies to fuel depots where mains water is a requirement for them to function;
- Ensure that non-critical staff and contractors do not unnecessarily take advantage of priority status;
- Have a process of identifying staff and/or vehicles to access fuel; and,
- Have a means of payment if normal means (e.g. cards) cannot be used.

## 8.9 Enforcement

- Pursuant to Section 91 of the Civil Defence Emergency Management Act, a Controller or the Police have the powers to direct a person to stop an activity that may substantially contribute to an emergency and request that a person take action to limit the extent of the emergency if a state of emergency has been declared in the area. This provides a legal basis for fuel companies to interrupt their commercial contracts to prioritise critical customers.

# 9 Activation of Regional Fuel Plan

The National Fuel Emergency Plan 2020, and subsequently this regional Plan, can be activated through any of the following methods:

1. By a National or Group Controller in a declared state of emergency. If a CDEM state of emergency is in place, IEA Act and PDR Act 1981 authorities are unlikely to be triggered; however, it is possible.
2. Upon the declaration of an IEA oil emergency under the IEA Act 1976. This would only be in response to a global oil disruption. The IEA is required to consult with member countries before declaring, which is likely to allow some time for consideration of response measures.
3. Upon the declaration of a petroleum emergency under the PDR Act 1981 by the Minister of Energy and Resources, on the advisement of MBIE, subject to cabinet decisions and the drafting of regulations and associated ministerial directions. Regulations under the PDR Act 1981 can be made whenever supply is short.
4. Upon the activation of the National Security System, on the advisement of MBIE, NEMA and/or other lead agency.

Fuel companies are required to notify the Fuel SCE Chair of actual and potential fuel shortages and the Fuel SCE will advise affected CDEM Groups via the National LUC. The Fuel SCE arrangements in the National Fuel Plan may be activated at the determination of the Fuel SCE Chair or other lead agency. The Nelson Tasman CDEM Group may seek activation of the Fuel SCE to support a major regional fuel response via the national LUC.

The decision to activate the Fuel SCE will depend on the severity of the impact on the fuel sector and may use activation arrangements. The lead agency (MBIE & NEMA for a national event, or

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<sup>8</sup> As defined in the CDEM Act 2020

Nelson Tasman CDEM for local/regional event) shall determine when to escalate or de-escalate to lower levels or business-as-usual, in consultation with the Fuel SCE.

## 10 Fuel Management Mechanisms

Fuel supply should be prioritised to critical customers in accordance with Section 4.2. Potential fuel management mechanisms are outlined below.

### 10.1 Alternative Transportation

Fuel could be transported by road from other terminals where there is a disruption to the local terminals, or by barge where there is a disruption to the road network.

#### Ports

In the Nelson Tasman region, the bulk of the fuel stock is supplied from Port Nelson and Port Lyttelton. In the event that one of these ports are unable to supply fuel, it may be possible to route a larger volume of fuel through the other port to compensate, or to seek fuel from alternative regional ports.

Note: A Fuel Storage Register prepared for the Marlborough region in 2018 found that the majority of the Marlborough region's fuel is supplied by Port Nelson. As such, Port Marlborough is unlikely to be equipped to provide any substantial or sustained fuel supply for the wider 'Top of the South' area in the event of an emergency.

The Nelson Tasman region includes the smaller ports of Tarakohe Harbour and Port Motueka. Again, these ports are unlikely to be equipped to provide any substantial or sustained fuel supply, however, may be of use for barging fuel internally within the region if the regional roading network cannot be used. This was done to provide fuel to Golden Bay following the temporary closure of Tākaka Hill as a result of the Cyclone Gita February 2018 event.

#### Barging Fuel

A number of issues were encountered when barging fuel following the Cyclone Gita February 2018 event, including:

- Barge availability -

In this case, CDEM/Lifelines contacted local suppliers and industries and found that the Solly's Freight company had access to a large barge. This barge was initially solely to transport milk for Fonterra from Golden Bay to Nelson and to transport dry trucks back. If this barge had not been available, CDEM would have had to arrange a barge from Picton, taking approximately two to three days. A tug was required to pull the barge.

- Permits -

Permits are required to transport dangerous goods via barge. These were obtained within a day with expertise from Wellington CDEM.

- Timing of the tides -

Getting the vehicles on and off the barge had to be timed to occur at mid-tide or above, as only single axle vehicles could access the barge at low tide. Tide cycles are about 12 hours long, meaning that it could take approximately 18 hours for a one-way trip.

- Manoeuvrability -

If trucks drive on the barge in a forward-facing direction, it could be difficult for them to back off at Port Tarakohe (difficulty in towing an articulated vehicle through different

angles). Vehicles were therefore backed on to the barge in Nelson and drove off in a forwards direction at Port Taranaki to get maximum grip driving off.

- Immediate distribution –

The transported fuel may need to be distributed immediately once arriving in Port Taranaki in order for the truck(s) to return to the barge and be able to use the ramp.

- Conflicting interests with individual operators –

In the Cyclone Gita February 2018 event, an issue was encountered with a private contractor who had purchased large volumes of fuel at discount and carted their own fuel by barge, taking up barging capacity.

It may also be possible to transport fuel via aircraft if needed. The Nelson Tasman region includes the Nelson Airport, Tākaka Aerodrome, and the Motueka aerodrome. The approximate locations of these airfields are depicted in Figure 7 below. There is also a Lake Station airport located 8km from St Arnaud which may be of value and a private runway near Brightwater.

The 2018 Marlborough Fuel study found that while transporting fuel via aircraft is possible, it is 'severely limited in practicality' as generally only small volumes of fuel can be transported and the fuel demand for transport aircraft is relatively high.

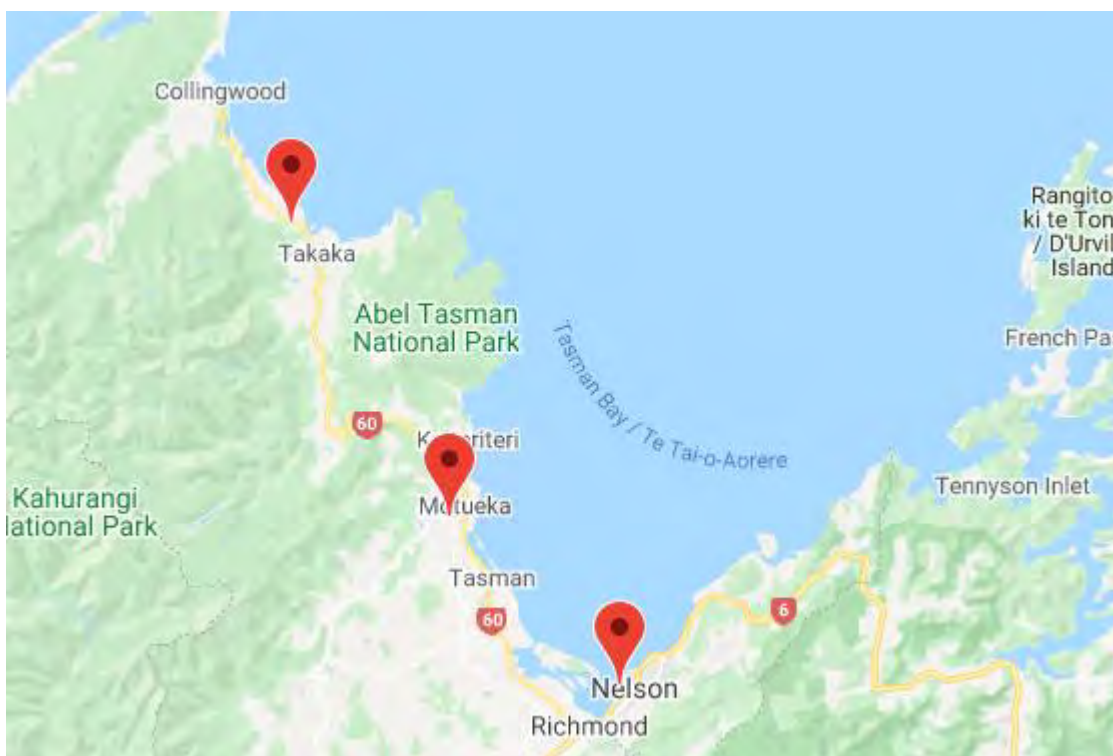


Figure 7: Airfield Locations (source: <https://www.tasman.govt.nz/my-region/transport/aerodromes/>)

The Fuel Register and GIS mapping can be used to filter for particular users/suppliers and/or determine the most appropriate transportation route(s) for case-specific emergency events.

## 10.2 Measures to Improve Supply

Measures to improve supply are likely to be implemented at a national level. This may include relaxing fuel specifications and/or transportation regulations, providing government logistical support, and releasing overseas held oil stocks.

### 10.3 Designating Supplies (all or in part) to Critical Customers

Fuel stocks can be monitored and restricted (entirely or in part) to critical customers until stocks can be replenished. For example, certain retail outlets, pumps/lanes and/or mini tanker could be temporarily allocated exclusively to the supply of critical customers.

### 10.4 Voluntary Demand Restraints

Voluntary demand restraints are co-ordinated through the Fuel SCE and need to be undertaken carefully so as not to cause panic buying.

### 10.5 Mandatory Demand Restraints

Mandatory restrictions on demand are likely to be done at a national level and can be used to invoke critical customer prioritisation arrangements.

It was noted following the temporary closure of Tākaka Hill as a result of Cyclone Gita February 2018 that there was no rationing of fuel supplies in Golden Bay and that the likes of campervans were being fuelled up. In the future, voluntary or mandatory demand restraints may be of value in this type of situation.

### 10.6 Storage and Alternative Supplies

Non-critical commercial and industrial fuel users could potentially be used to supply fuel to critical customers in an emergency. These organisations tend to hold diesel which may be of value for diesel generators.

Mobile storage units could be used to transport and supply fuel where normal supply is unavailable. Several suppliers and commercial/industry users have indicated that they have some capacity for mobile fuel storage and supply.

The Fuel Register and GIS mapping has incorporated these non-critical commercial and industrial fuel users and information on mobile equipment for this purpose

### 10.7 Critical Resources

Nelson Tasman CDEM may support fuel suppliers and critical customers in securing critical resources to enable fuel distribution and emergency use. Critical resources may include, but are not necessarily limited to, the following:

- Generators and diesel to operate (in the event of a power outage);
- Mobile fuel dispensing equipment and storage tanks;
- Transportation provisions (may include road, barge or aircraft); and,
- Physical access and security (e.g. security guards).

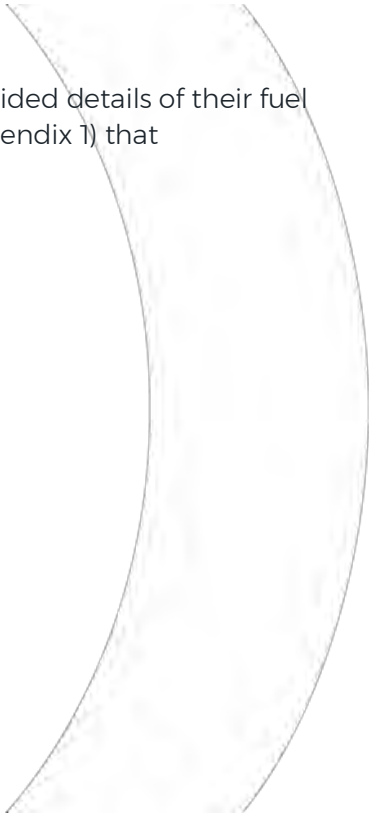
## 11 Tank Inspection

The storage of fuel may require certification of the site, fuel handlers, and of storage tanks over certain threshold quantities in accordance with the Health and Safety at Work (Hazardous Substances) Regulations 2017<sup>9</sup>. Compliance certifiers can be found on the Work Safe website, here: <https://compliancecertifiers.worksafe.govt.nz/>. Fuel tanks may need to be inspected following an emergency event and may no longer be usable if damaged.

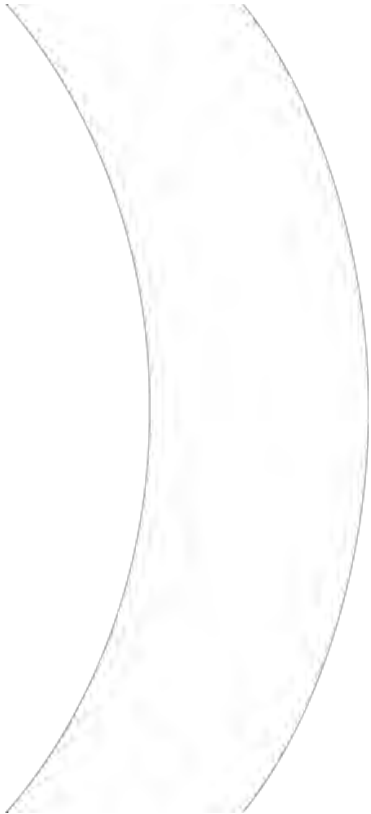
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<sup>9</sup> WorkSafe - <https://worksafe.govt.nz/topic-and-industry/hazardous-substances/certification-authorisation-approvals-and-licensing/>

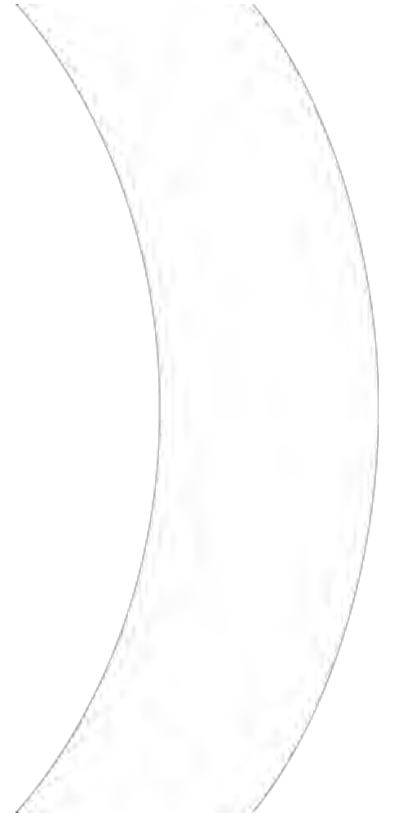
Note: Several of the fuel suppliers contacted as part of this study have provided details of their fuel storage certificate. This information can be found in the Fuel Register (Appendix 1) that accompanies this report.



# Appendix 1 – Fuel Register



## Appendix 2 – GIS Maps



## Appendix 3 – Natural Hazard Maps

Source: Nelson Tasman CDEM, Nelson Tasman Lifelines Project: A Vulnerability Assessment of Lifeline Infrastructure in Nelson-Tasman, 2016

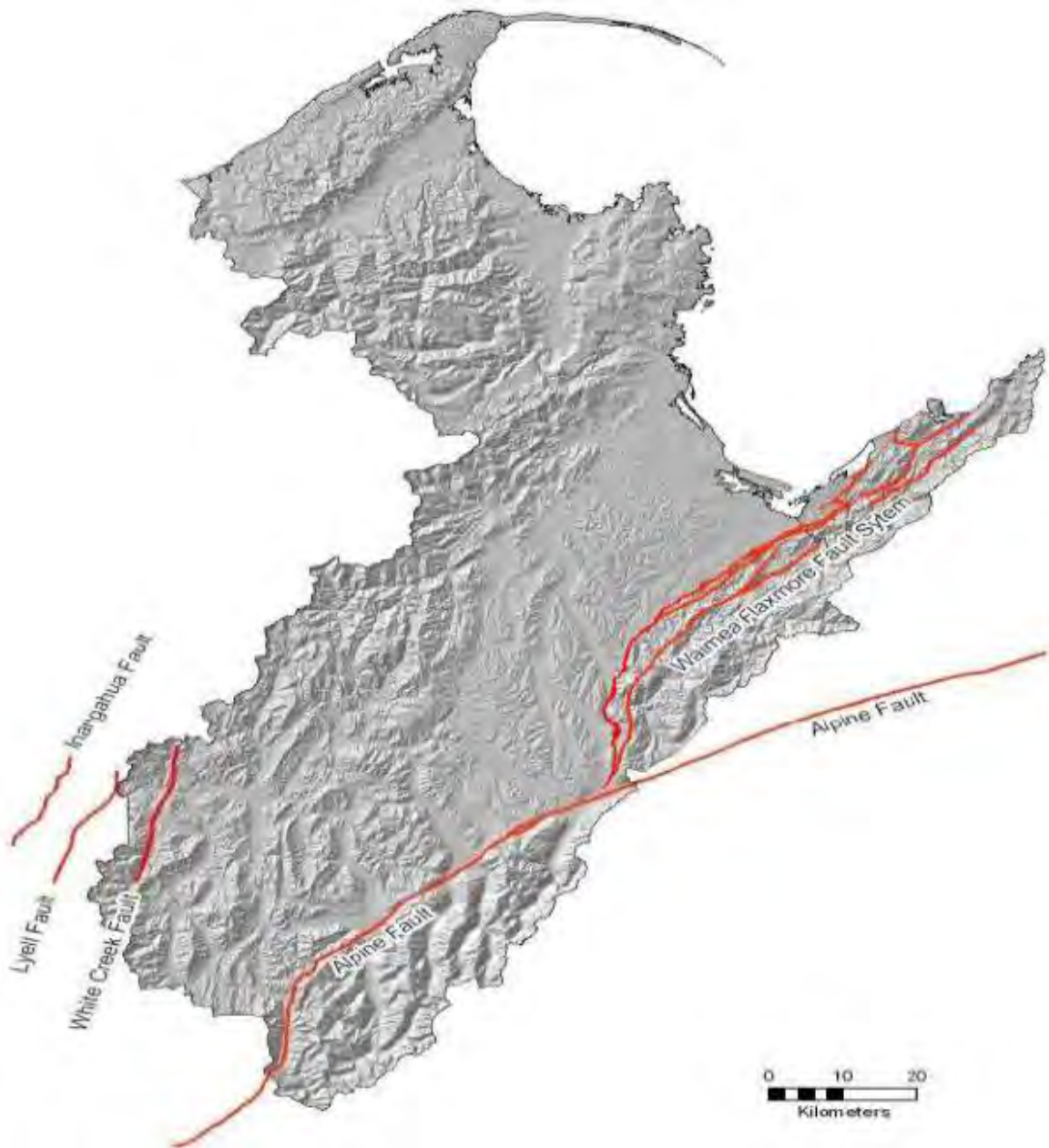


Figure 8: Major Faults in the Nelson Tasman Region (extracted from the 2016 Lifelines Project)



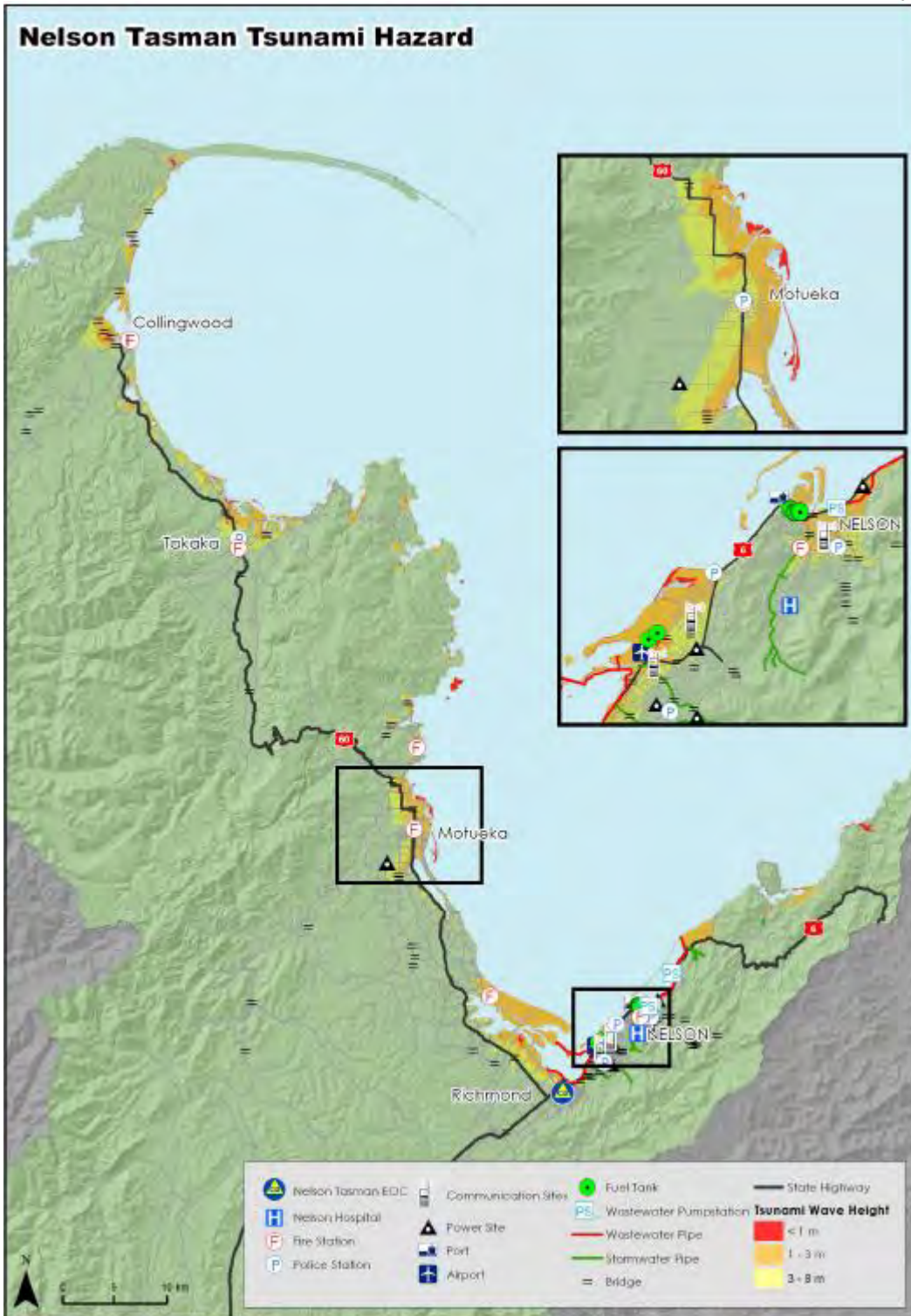


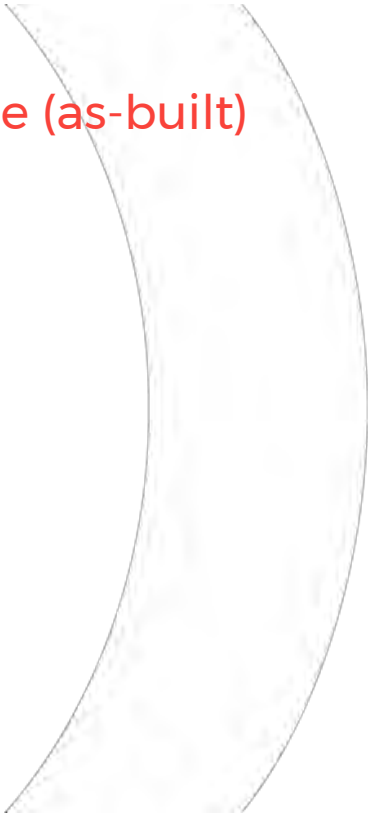
Figure 9: Tsunami Hazard/Infrastructure Map (extracted from the 2016 Lifelines Project)

## Appendix 4 – State Highway Map



Figure 10: State Highways Connecting to the Nelson Tasman Region

# Appendix 5 – Nelson Hospital LFG Pipeline (as-built)



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