

BITUMEN SUPPLY CHAIN REVIEW AND RECOMMENDATION

Introduction

In October 2020 Waka Kotahi was informed that Marsden Point would stop manufacturing bitumen in New Zealand. Marsden Point accounted for 70% of all bitumen supply and was strategic in its manufacturing and logistical capability of keeping our small coastal tanks topped up with bitumen all year round.

Waka Kotahi initiated a supply chain review, which included bitumen industry stakeholder interviews, a risk log and a market SWOT analysis.

Through this process Waka Kotahi identified potential risks in the future bitumen market. These risks relate to security of supply of quality bitumen in New Zealand, cost-reflective price of bitumen at points in the supply chain, and downstream competitive effects within our contracting markets. To ensure all options were considered to mitigate these risks and identify innovation opportunities Waka Kotahi issued a Request for Information (RFI) to the local and international bitumen market.

Background

Supply chain history

Bitumen is a by-product of the crude oil hydrocarbon refining process producing common fuels such as petrol and diesel. Bitumen is used by road makers in two ways; in chip seals where the bitumen is sprayed and covered with a crushed rock aggregate or mixed with a blend of aggregates in a central plant to make asphalt mixes.

Since the 1960s, bitumen has been produced at Marsden Point refinery in Northland under the auspices of (then) Shell and BP. These petroleum companies invested and installed bitumen storage tanks at coastal ports around New Zealand. The bitumen specification and logistics network that was built and installed were designed around the Marsden Point Refinery small batch manufacturing methods. These small batches were distributed by sea vessel to the tanks around the coast.

Since the early days of the petroleum companies owning and operating the bitumen supply chain, in direct competition with each other, the supply market has evolved from a state of healthy competition to one dominated by a single petroleum company.

Today, Z Energy supplies 84% of the bitumen used in New Zealand and largely controls the price.

Of their total volume, Z Energy used Refining NZ to manufacture 70% locally at Marsden Point and imports a further 30%. RoadScience imports and supplies 13% of the total market with the balance of 3% supplied by Technix imported bitumen.

Z Energy supplies on a consignment basis three significant companies RoadScience (Downer), Fulton Hogan, Higgins who now own the coastal storage tanks. This consignment stock is available for all Z Energy customers to purchase directly, with a throughput fee being charged by the tank owner.

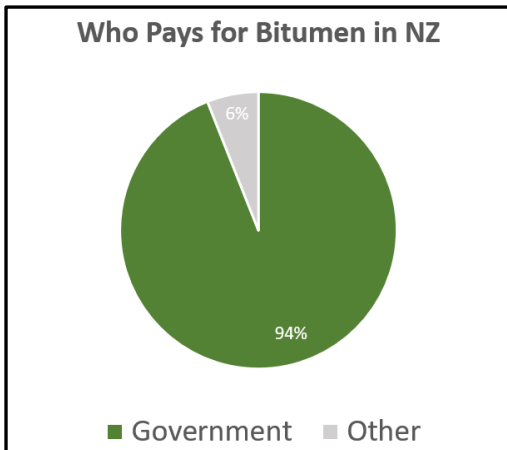
Typically, industry will source bitumen to meet Waka Kotahi and other road controlling authorities' infrastructure needs from industry tanks on a closest proximity to activity basis.

Pricing

Waka Kotahi requests pricing for bitumen to be submitted via project tender processes. There can be some years between the tender close date and the actual physical purchase and use of the bitumen. Over this time, prices may shift due to several factors relating to crude oil, foreign exchange and supply-related cost movements. Currently, Waka Kotahi accepts price movement risk for the period between tender close date and date of install, indexed against the published Z Energy Price List.

Waka Kotahi relies on the competitive tender process to secure best price for bitumen and has no visibility of the actual price paid by industry for bitumen. However, it is understood there is the existence of discounts for off list prices and volume-based rebates.

NZ Inc. is the primary customer



The New Zealand government, through Waka Kotahi and road authority contracts account for 94% of all bitumen consumed in New Zealand.

Specification

The quality and handling characteristics of New Zealand's bitumen is governed by the Waka Kotahi NZTA M01 specification. This specification is unique to New Zealand and describes bitumen in empirical terms that have been found to perform in New Zealand. Currently, M01 mandates the importation of specification compliant materials only and allows for the M01 standard to be achieved through the additional blending of differing grades of imported bitumen feedstock.

Key issues

Waka Kotahi has a unique window of opportunity to take a strategic view of the full bitumen supply chain, and potentially secure reduced prices. This is intended to be achieved through the identification of one or more potential supply chain partners who can enable Waka Kotahi to:

1. Mitigate security of supply risks
2. Improve our cost position in the supply chain

This is best achieved through a procurement process to explore market options around a strategic bitumen supply partner and/or any other innovation that the market may suggest. This procurement process provides a vehicle to consider the commercial aspects of each option.

Objective of the Request for Information (RFI):

- To generate ideas to mitigate potential bitumen market risks of:
 - Security of supply
 - Quality bitumen
 - Cost-reflective market price and
 - equitable access for bitumen,
- To Identify bitumen market participants (potential strategic partner/s)

The inputs from the RFI submissions will be used to help inform our understanding of supply chain solutions across all aspects (manufacture/ shipping/ storage/ distribution) of bitumen from source to roadside project, or aspects thereof as appropriate. The information may also be used to inform next steps and subsequent actions.

Regardless of the bitumen supply chain arrangements and who is delivering products or services, the following factors are important elements required in the supply chain for Waka Kotahi to achieve its security of supply, quality and value for money outcomes:

- A clear and reliable bitumen quality assurance process from source to road
- Robust upstream bitumen feedstock sources to ensure continuity of supply
- Cost-reflective price of bitumen across the supply chain
- Clear and transparent (open book) pricing and price mechanism to adjust price movements across the full supply chain including, as appropriate:
 - Crude feedstock price and movement
 - Foreign exchange movement
 - International Shipping price and movement
 - Storage price and movement
 - Distribution fees price and movement
 - Visibility of financial hedging and hedged price
- Full and equitable access to bitumen across New Zealand for all roading contractors through retention of an “Industry Tank”¹ distribution model, or a model that delivers at least an equivalent bitumen supply and access outcome.

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

¹ Industry Tanks: This is the current operating distribution model in New Zealand where all bitumen customers (roading contractors) have access to most bitumen storage tanks. This has been achieved through a consignment stock model. The roading contractors pay the consignee for bitumen and pay the owner of the tank a throughput fee.

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

Scenario Development

The cross functional team came together in Auckland for a two-day workshop to discuss the RFI responses and to present individual proposals to the group. Team members included:

Waka Kotahi Procurement	Shane Avers Bernie Cuttance	Jaco de Vries Zain Kahn	Callum Pitout
Waka Kotahi Transport Services	Adam Leslie	Grant Bosma	

section 9(2)(i)

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1992

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1882

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 7382

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

Do Nothing Risk

If Waka Kotahi does not take this opportunity to influence the market the following risks have been identified and will impact NZ Inc.:

- Increased price for all of Government bitumen.
- No transparency in bitumen pricing and price movement.
- Two tier surfacing market – those that import and store bitumen, and a second tier that will be serviced by the top tier.
- Increased quality variability and therefore risk in pavement structures.
- Smaller port terminals are likely to have stock outs due to inefficient shipping.
- Increased trucking and carbon footprint (as has already occurred in Northland).

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

section 9(2)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982