Pricing Methodology for Gas Transmission Services

Effective from 1 October 2014

Pursuant to: the Gas Transmission Information Disclosure Determination 2012, NZCC24, 1 October 2012.

Contents

Glossary

Act: the Commerce Act 1986.

Allowable notional revenue: the revenue Vector determined under the GDPP that Vector is allowed to earn during the pricing year.

Authorisation: the Commerce Act (Vector Natural Gas Services) Authorisation 2008.

Connection Point (CP): an aggregation of one or more Delivery Points (DPs) for cost allocation purposes.

COSM: Cost of Supply Model.

CPI: the Consumers Price Index, a measure of changes to the prices for consumer items purchased by New Zealand households giving a measure of inflation.

CRF: Capacity reservation fee, a charge applied for reserved capacity.

Delivery Point: means a point at which a shipper's gas is taken (or made available to be taken) from a pipeline into another pipeline, another transmission pipeline (whether owned by a shipper or a third party), a shipper's gas consuming facility or a distribution network.

Determination: the Gas Information Disclosure Determination 2012.

DP: Delivery Point.

GDPP: Gas Transmission Default Price Path.

GJ: Gigajoule, a unit of energy.

GTPM: Gas Transmission Pricing Methodology.

Incremental Cost (IC): the cost of providing a defined service to an additional consumer or group of consumers given that service is already provided to other consumers.

NGC: Natural Gas Corporation.

NSFA: Non-system fixed assets.

Price Component: the various tariffs, fees and charges that constitute the components of the total price paid, or payable, by a consumer.

Pricing Principles: the pricing principles specified in clause 2.5.2 of the Gas Transmission Services Input Methodologies Determination 2010 (Commerce Commission Decision 712, 22 December 2010).

Pricing Strategy: a decision made by the Directors of a gas transmission business on the gas transmission business's plans or strategy to amend or develop prices in the future, and recorded in writing.

Pricing Year: the annual period beginning on 1 October and ending on 30 September.

RAB: Regulatory Asset Base, the regulated value of the assets that Vector uses to provide gas transmission services.

scm/h: a measure of gas consumption "standard cubic metres per hour".

SFA: System Fixed Assets.

Stand Alone Cost (SAC): the cost of providing a defined service or group of services to a particular consumer or group of consumers, without providing any other services or serving any other consumers.

Target revenue: the revenue Vector expects to receive from prices during the pricing year.

TOU: Time of use.

TPF: Throughput fee, a charge applied to gas conveyed.

VTC: the Vector Transmission Code.

Executive summary

This document describes Vector's Gas Transmission Pricing Methodology (GTPM). It provides information for interested parties to understand how our gas transmission prices are set and provides context about the development of our GTPM in a transparent manner. Our focus is to provide our customers with a cost efficient, high quality service and this document explains how we recover the cost of providing this service to our customers.

Vector's overall revenue level is subject to the Gas Transmission Services Default Price-Quality Path Determination 2013 (the Determination) that requires an initial starting price adjustment applied in 2013 and a CPI-X plus pass-through price path. The Cost of Service Model (COSM) used by Vector identifies the revenues that would be necessary from each consumer group within the constraint of the GDPP.

Vector has also adopted a framework where the costs allocated to each consumer group are tested against both the cost of a "stand alone" network and the cost of alternative energy supplies. This ensures that cost allocations do not arbitrarily result in prices that are sufficiently high that consumers have an incentive to disconnect and use alternative energy sources. This benefits all consumers of natural gas transmission services by providing a pricing structure that encourages broad uptake of distributed natural gas, thereby resulting in shared network costs being spread across as many consumers as possible.

At the same time, the pricing principles require that Vector demonstrates that prices are not less than incremental cost, that is are "subsidy-free". This has not been achieved for all prices, and Vector is working towards improved estimates of incremental cost for locations where prices are potentially below incremental costs, as well as considering a long-term strategy that takes account of the options available to affected consumers.

Vector recognises the impact of price changes on its consumers. The development of the GTPM was subject to an extensive consultation process in 2012 and 2013, with changes to pricing structure only been made after considering feedback from shippers and directly connected consumers. Vector's prices from 1 October 2014 will increase by an average of 20%. Combined with the 34% reduction in prices from 1 October 2013, prices will be on average 21% lower than 2012/13 prices. To minimise the impact on consumers, the price change has been applied uniformly across all prices. Non-standard contracts have been increased as per their contractual terms.

Section 1 Overview

1.1. About Vector

Vector is a leading New Zealand infrastructure group. We own and manage a unique portfolio of energy and fibre optic infrastructure networks in New Zealand. Our assets perform a key role in delivering energy and communication services to more than one million homes and businesses across New Zealand. We are a significant provider of:

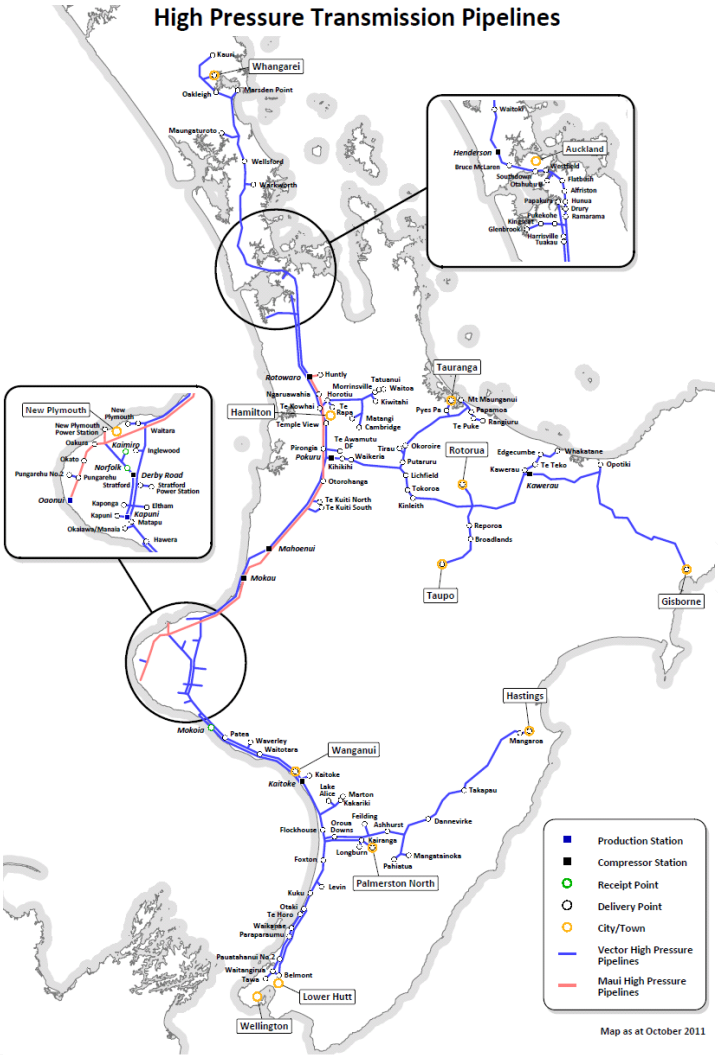
a) Electricity distribution
b) Gas transmission and distribution
c) Electricity and gas metering installations and data management services
d) Natural gas and LPG, including 60.25% ownership of bulk LPG distributor Liquigas
e) Fibre optic networks in Auckland and Wellington, delivering high speed broadband services.
f) In addition to our energy and fibre optic businesses we own:
    i) A 50% share in Treescape, an arboriculture and vegetation management company
    ii) A 22.11% share in NZ Windfarms, a power generation company.

Vector is listed on the New Zealand Stock Exchange. Our majority shareholder, with a shareholding of 75.1%, is the Auckland Energy Consumer Trust (AECT). The trust represents its beneficiaries, who are Vector's electricity customers in Auckland, Manukau and parts of the Papakura region. The balance of Vector's shares are held by individual and institutional shareholders. Vector acquired the gas transmission system from NGC in 2005.

1.2. Background

Vector provides gas transmission services in the North Island over a network that comprises 2,400km of pipeline. The system was largely built between 1968 and the mid-1980s by the Natural Gas Corporation (NGC) and was purchased by Vector in 2005. The map below shows the Vector Transmission System in blue:

Figure 1 Vector's gas transmission system:



Gas is taken from Vector's transmission system at over 130 Delivery Points (DPs), all of which are owned by Vector. They supply both distribution networks and single consumers such as industrial plants and power stations. Vector generally contracts with only a small number of shippers who use the transmission system. It is the shipper's gas that Vector moves from its source (typically in Taranaki) through the transmission system to where it is finally consumed.

In April 2009 the Commerce Act 1986 (the Act) was amended to incorporate a price constraint on gas transmission businesses to increase weighted average prices by no more than CPI between 1 January 2008 and 30 June 2012. This was intended to limit prices until the Commerce Commission made a determination on how price-quality regulation would apply moving forward. Under the Act, Vector was limited in its ability to rebalance the prices that had been inherited from Natural Gas Corporation which, while originally based on a cost allocation model, had long since ceased to be cost-reflective.

From 1 July 2013, Vector's Transmission system is subject to regulation under the Gas Transmission Services Default Price-Quality Path Determination 2013 (the GDPP) that requires an initial starting price adjustment (applied in 2013) and a CPI-X plus pass-through price path. In addition, the Gas Transmission Information Disclosure Determination 2012 (the Determination) also requires Vector to demonstrate how (and if not why) prices have been set consistent with prescribed pricing principles.

From December 2011 through to the publication of final prices in 2013, Vector engaged in an extensive review of the Gas Transmission Pricing Methodology (GTPM). The outcome of this process was a GTPM that more closely aligns with the regulated pricing principles.

1.3. Applicable regulations

This disclosure is prepared in accordance with clause 2.4 of the *Gas Transmission Information Disclosure Determination 2012*, Decision NZCC24, 1 October 2012 (the Determination). Compliance with the requirements of this clause is demonstrated in the compliance matrix in Section 6.

Vector's revenue for gas transmission services is set in accordance with the *Gas Transmission Services Default Price-Quality Path Determination 2013*, [2013] NZCC5, 28 February 2013 (the GDPP).

The pricing principles are specified in clause 2.5.2 of the *Gas Transmission Services Input Methodologies Determination 2010* (Commerce Commission Decision 712, 22 December 2010) (the Input Methodologies).

1.4. Additional disclosures

Vector's gas transmission prices are subject to annual approval by the Board of Directors, and are set to comply with the GDPP and deliver the target revenue.

Vector's Board of Directors have not recorded in writing any decision on plans or strategies to amend or develop prices beyond the pricing year ending on 30 September 2015 and accordingly have not approved a pricing strategy.

1.5. Price setting policy framework

1.5.1. Economic, commercial and practical drivers

In this section we highlight some of the key factors that have influenced the design of Vector's proposed pricing approach. The foundation of the development of the proposed prices is based on an application of economic pricing principles, given practical, physical and commercial constraints. It is useful to have an understanding of these factors up front, as it assists in understanding various decisions Vector has reached in establishing the pricing methodology.

The majority of costs to be recovered are shared costs, which cannot be specifically attributed to particular consumers except at high levels of aggregation

The transmission system can be described as a radial network of pipes originating from a single geographic location in Taranaki and supplying multiple connection points along each pipes length. Given that gas must pass through each pipe from its source to supply connections along its length a key feature of a gas transmission system is that many of the assets used to convey gas are used by multiple shippers and many consumers.

The shared use of a significant portion of assets has had significant implications for the development of transmission prices. First, it means that there are substantial common costs, so a substantial proportion of the prices paid are a recovery of common costs rather than being directly attributable to the provision of a specific service to a connection. There are inevitably judgements that have to be made in determining appropriate allocation approaches. This feature has constrained the scope of the cost of supply model to high levels of aggregation, with more general "cost reflectivity" principles applying to the manner in which prices have been developed consistent with the aggregated cost allocations.

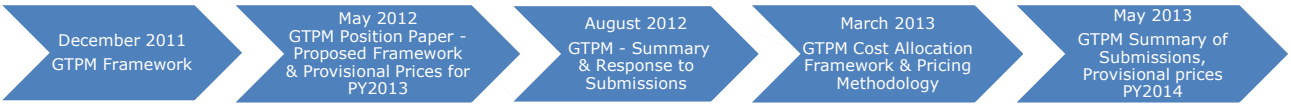
There are practical limits on the sophistication of prices to improve efficiency

Vector generally contracts indirectly with consumers through gas shippers and in effect provides a wholesale transmission services to shippers. Shippers are then free to repackage the cost of Vector's transmission service, meaning it is not necessarily the case that price signals inherent in Vector's prices make their way through to the consumer. In any event, gas transmission costs make up only a small portion of the average consumer's bill, so any price signal at the transmission level will tend to be overwhelmed by energy and distribution charges[1].

1.6. Consultation process

The new GTPM was been developed as part of a lengthy consultation process with consumers. The process of the GTPM Review is summarised in Figure 2 below.

Figure 2 Gas transmission consultation process



The December 2011 Framework paper communicated the context and objectives of the review together with an outline of the indicative process.

The 31 May 2012 GTPM Position Paper developed an Assessment Framework to guide the development of the GTPM. The Assessment Framework included the pricing principles that applied under the Input Methodologies, and continues to be relevant under the GDPP. Vector applied this framework to determine provisional price changes for 2013 which involved an adjustment (under the existing GTPM) to improve the balance between the fixed and variable components of charges:

- uniform 25% increase in (fixed) Capacity Reservation Fee ($/GJ of reserved capacity); and
- uniform 11% reduction in (variable) Throughput Fee ($/GJ of delivered capacity).

On 31 August 2012, Vector published a Summary and Response to Submissions by Interested Parties on the Position Paper. This included confirmation of final prices which took into account submitter concern regarding the re-distributional impact of the provisional price proposal on Auckland and Wellington DPs:

[1] Note that gas transmission charges are paid for directly by shippers who are generally also gas retailers.

- uniform $25/GJ increase in (fixed) Capacity Reservation Fee; and
- uniform 5.7% reduction in (variable) Throughput Fee.

Relative to the percentage increase, the absolute dollar increase in Capacity Reservation Fee (CRF) has a larger proportional impact on the lower CRFs. This applied a larger relative increase to CRFs in (more congested) Auckland. These changes were driven primarily by a desire to rebalance the fixed and variable charge components to better reflect underlying costs, but also took into account the need to minimise distortions to incentives (and in particular incentivise less consumption in constrained Auckland). The interim price change takes the fixed:variable revenue split from approximately 60%:40% to 65%:35%.

On 28 March 2013, Vector published a consultation paper on the cost allocation framework and methodology to apply within the pricing methodology. This paper introduced the approach specified in sections 3.2 and 3.3 of this document. Cost allocations and prices were prepared on a Connection Point basis.

On 31 May 2013, Vector summarised feedback received on the 28 March paper and notified provisional prices using the revised Pricing Regions described in section 3.1.

In June 2014, Vector notified provisional prices for the 2014/15 year to shippers. The provisional prices incorporated uniform increases to all prices. Shippers provided no feedback on the provisional prices.

Section 2 Commercial price-setting framework

2.1. Competitive pressures on pricing

The starting point for establishing prices for gas transmission services is a consideration of the role of gas as a fuel. Unlike electricity, for most consumers the choice to take gas in the first instance and at discrete points in time is discretionary. Given the substantial costs of laying the transmission system, there is a strong commercial drive on Vector to maintain and improve economies of density (more consumers per unit of pipeline) and economies of scale (more GJ delivered per unit of pipeline). Improved economies of scale and density mean that Vector can use its capital more efficiently and consumers ultimately benefit from the sharing of common costs across a wider number of consumers or GJ delivered. A more diverse consumer base is also in Vector's commercial interests as it mitigates asset stranding risks.

2.2. Pricing against alternative energy sources

A key part of Vector's pricing methodology is testing proposed prices against the lowest cost alternative energy source.

In 2012 Vector asked PricewaterhouseCoopers (PwC) to calculate an implied cap for gas transmission based on the cost of alternative fuels using the approach summarised in Figure 3. The implied cap on gas transmission cost is a proxy for the maximum price that could be charged for gas transmission before the cost of an alternative fuel is less than the cost of natural gas.

Figure 3 Calculation of implied transmission cost

All-in delivered cost of alternative

Less

– GST

– replacement capital expenditure (annualised)

– gas cost

– retailer margin

– gas distribution cost (if relevant)

– other costs

= Implied cap on gas transmission cost

Bottled LPG, biomass, and coal were the alternative fuels examined. For each consumer group the lowest implied transmission cost was selected across the three fuels. As shown in Figure 4, bottled LPG provides the implied transmission cap for domestic and commercial consumers, and coal provides the implied transmission cap for industrial consumers.

Figure 4 Implied transmission caps based on the cost of alternative fuels

Consumer type	Alternative fuel	Implied transmission cap ($/GJ 2012)
Small domestic	Bottled LPG	39.05
Medium domestic	Bottled LPG	31.57
Large domestic	Bottled LPG	27.75
Small commercial	Bottled LPG	20.22
Medium commercial	Bottled LPG	15.24
Large commercial	Bottled LPG	20.09
Large industrial	Coal	4.20
Very large industrial	Coal	4.90

Vector has used the above to derive weighted average transmission caps for Connection Points. The distribution of consumer types at each DP was informed by institutional knowledge, time of use (TOU) metered consumer ratios obtained from the transmission allocation agent as well as sample actual consumer breakdowns obtained from the Vector distribution business line.

The implied transmission caps are incorporated into Vector's price-setting process, with stand-alone cost (SAC) being set to the lesser of the Implied Transmission Cap from alternative fuels and the cost of an alternative network solution.

There are limits to the extent to which a standardised pricing schedule can take account of the particular circumstances of individual consumers, so in certain circumstances consumers are able to enter into a non-standard contract as described in Section 5.

Section 3 Methodology for standard prices

This section describes the methodology that Vector has applied for calculating prices for controlled gas transmission services.

Within the gas transmission system gas is delivered at 'delivery points' (DPs). However, for pricing purposes Vector allocates costs by "Connection Point", which is an aggregation of one or more DPs and then into Pricing Regions. Section 3.1 provides the rationale for the use of Connection Points and Pricing Regions, and lists all of the Pricing Regions and Connection Points which encompass multiple DPs.

Section 3.3 describes the operation of the Cost of Service Model (COSM) that Vector uses to allocate costs to Connection Points and pricing regions. Because Vector operates under a revenue cap, the costs that are inputs to COSM will not necessarily add to the amount of the revenue cap. The allocated costs are therefore used to establish the proportion of the target revenue that is recovered from each consumer group. The allocation of target revenue is described in Section 3.4 and any resulting price changes in Section 3.5.

3.1. Pricing regions

In its March proposals, Vector aggregated DPs at the same or close geographical location into a single "Connection Point" on the transmission system, e.g. Edgecumbe Connection Point combined Edgecumbe dairy factory DP and Edgecumbe town DP into one Connection Point with a single price. This approach means that DPs which are adjacent (or nearly adjacent) do not have different prices simply as a result of an artefact of how the cost allocation methodology and pricing methodology work.

Figure 5 below lists all Connection Points which have multiple DPs mapped to them. The remaining CPs have only a single DP mapped to them.

Figure 5 Aggregation of delivery points into connection points

Connection Point	Delivery Points
Ammonia Urea	Ballance 8201, Ballance 9625, Ballance 9626
Drury	Drury 1, Drury 2
Edgecumbe	Edgecumbe, Edgecumbe DF
Greater Auckland	Westfield, Henderson, Papakura, Papakura B, Bruce McLaren
Greater Hamilton	Temple View, Te Kowhai
Greater Mt Maunganui	Mt Maunganui, Papamoa
Greater Tauranga	Tauranga, Pyes Pa
Greater Waitangirua	Waitangirua, Pauatahanui
Hastings	Hastings , Hastings (Nova) ,
Hawera	Hawera , Hawera (Nova),
Hunua	Hunua , Hunua (Nova), Hunua 3
Kapuni Lactose / 306	Kapuni (Lactose et al), Kapuni 306 Delivery
Kawerau	Kawerau, Kawerau (ex-Caxton), Kawerau (ex-Tasman)
Kinleith	Kinleith 1, Kinleith 2 (Paper mill)
Kiwitahi	Kiwitahi 1 (Peroxide), Kiwitahi 2
Marsden	Marsden 1 (NZRC), Marsden 2
Morrinsville	Morrinsville, Morrinsville DF
Okaiawa \ Manaia	Manaia , Okaiawa
Tawa	Tawa A, Tawa B (Nova)
TCC \ Stratford	Stratford 2 - Peaker, Stratford 3 - Storage, TCC Power Station
Te Awamutu \ Kihikihi	Kihikihi, Te Awamutu DF
Tirau	Tirau, Tirau DF

All stakeholders who submitted on Vector's March 2013 proposals supported greater levels of aggregation. As a consequence, for both the provisional prices notified in May 2013 and the final prices, Vector has adopted a broader aggregation into the Pricing Regions shown in Figure 6. This approach means that DPs in a similar geographic area do not have different prices simply as a result of an artefact of how the cost allocation methodology and pricing methodology work.

Figure 6 Aggregation of delivery points into pricing regions

Region	Delivery points
Northland	Marsden 1 (NZRC), Marsden 2, Kauri DF, Maungaturoto DF, Warkworth, Wellsford, Whangarei
Auckland	Alfriston, Drury 1, Drury 2, Flat Bush, Glenbrook (Steel Mill), Greater Auckland, Otahuhu B Power Station, Southdown Power Station, Harrisville, Hunua, Hunua (Nova), Hunua 3, Kingseat, Pukekohe, Ramarama, Tuakau, Waitoki
Waikato north	Cambridge, Horotiu, Huntly Town, Kiwitahi 1 (Peroxide), Kiwitahi 2, Matangi, Morrinsville, Morrinsville DF, Ngaruawahia, Tatuanui DF, Te Rapa Cogen Plant, Waitoa
Hamilton	Greater Hamilton, Temple View, Te Kowhai
Waikato south	Kihikihi, Kinleith 1, Kinleith 2 (Paper mill), Lichfield DF, Okoroire Springs, Otorohanga, Pirongia, Putaruru, Te Awamutu DF, Te Kuiti North, Te Kuiti South, Tirau, Tirau DF, Tokoroa, Waikeria
Western Bay of Plenty	Greater Mt Maunganui, Greater Tauranga, Rangiuru Te Puke
Eastern Bay of Plenty	Broadlands, Edgecumbe, Edgecumbe DF, Gisborne, Kawerau, Kawerau (ex-Caxton), Kawerau (ex-Tasman), Opotiki, Reporoa, Rotorua, Taupo, Te Teko, Whakatane
Taranaki	Eltham, Inglewood, Kaponga, New Plymouth, Oakura, Okato, Opunake, Pokuru 2 Delivery, Pungarehu No 1, Pungarehu No 2, Stratford, Stratford 2 – Peaker, Stratford 3 – Storage, TCC Power Station, Waitara
Manawatu-Wanganui	Hawera, Hawera (Nova), Kaitoke, Kakariki, Lake Alice, Okaiawa \ Manaia, Marton, Matapu, Mokoia, Patea, Waitotara, Wanganui, Waverley
Hawke's Bay	Ashhurst, Dannevirke, Feilding, Flockhouse, Hastings, Hastings (Nova), Kairanga, Longburn, Mangaroa, Mangatainoka, Oroua Downs, Pahiatua, Palmerston North,Takapau
Wellington	Belmont, Foxton, Greater Waitangirua, Kuku, Levin, Otaki, Paraparaumu, Pauatahanui 2, Tawa A, Tawa B (Nova), Te Horo, Waikanae

3.2. Cost categories

Within the GTPM, costs are categorised into Connection Costs and Shared Costs. Connection Costs are the costs directly attributable to a Delivery Point or a Pricing Region; Shared Costs account for the balance of Vector's Total Allocable Cost.

3.2.1. Total allocable cost

The Total Allocable Costs is a proxy for target revenue, which is based on a building block calculation of cost. The calculation of Total Allocable Cost is shown in Figure 7.

Figure 7 Calculation of total allocable cost

System fixed assets	495,536,981
Non-system fixed assets	6,464,105
Total assets	502,001,086
Discount rate	7.46%
Return on capital	37,433,471
Depreciation	19,502,056
Fuel cost	5,472,854
Maintenance cost	10,606,131
Pass-through cost	2,071,658
Other costs	-
Indirect costs	10,834,894
Total expenses	28,985,537
Regulatory tax allowance	10,716,448
Revaluation system fixed assets	(3,053,323)
Total allocable cost	93,584,189

3.2.2. Connection costs

Connection Costs are the costs directly attributable to each Connection Point. This is determined by means of a "but for" test which identifies all assets dedicated to a Connection Point and all expenses directly associated with a Connection Point. The question underlying the "but for" test is:

"but for the existence of this Connection Point, would these assets exist or these costs be incurred?"

If the assets would not exist or the expenses would not be incurred but for the existence of the Connection Point then they are connection assets and connection expenses allocated to the Connection Point.

Once the connection assets and connection expenses have been identified, connection costs are calculated as:

Connection costs = Discount rate x Asset value – Asset revaluation + Depreciation + Connection expenses + Tax

Grouping DPs into Connection Points or pricing regions ensures that incremental costs are not artificially lowered because connection assets are shared between multiple DPs. Figure 8 overleaf shows the calculation of Connection Costs by Pricing Region.

Figure 8 Calculation of connection costs by pricing region

Pricing region	Dedicated connection assets	Discount rate	Return on capital	plus depreciation	less revaluations	plus maintenance costs	plus regulatory tax allowance	Connection costs
Northland	12,769,666	7.46%	952,215	265,030	(319,242)	181,188	276,156	1,355,347
Auckland	12,009,172	7.46%	895,506	377,060	(300,229)	489,627	259,710	1,721,673
Waikato North	5,748,603	7.46%	428,665	167,583	(143,715)	181,326	124,319	758,177
Hamilton	1,605,323	7.46%	119,707	42,883	(40,133)	59,001	34,717	216,173
Waikato South	9,707,998	7.46%	723,911	263,554	(242,700)	278,671	209,944	1,233,381
Western Bay of Plenty	4,387,835	7.46%	327,194	110,225	(109,696)	99,435	94,891	522,049
Eastern Bay of Plenty	35,471,731	7.46%	2,645,074	630,678	(886,793)	348,932	767,109	3,505,000
Taranaki	12,983,905	7.46%	968,190	371,121	(324,598)	307,245	280,789	1,602,748
Manawatu-Wanganui	3,656,340	7.46%	272,648	152,151	(91,409)	171,139	79,072	583,601
Hawke's Bay	7,197,004	7.46%	536,670	194,434	(179,925)	227,456	155,642	934,276
Wellington	5,210,985	7.46%	388,575	195,770	(130,275)	233,345	112,692	800,109
Total	110,748,563		8,258,355	2,770,488	(2,768,714)	2,577,366	2,395,041	13,232,535

3.2.3. Shared costs

Shared Costs are those costs that are not directly attributable to a Connection Point. The allocation of Shared Costs recovers the balance of Vector's Total Allocable Cost. Shared Costs are calculated as:

Figure 9 Calculation of shared costs

Component	Value
Total allocable cost	93,584,189
less	
Connection costs	13,232,535
Shared costs	80,351,654

Shared Costs are recovered via the Cost Allocation Methodology described in Section 3.3 below.

3.3. Cost allocation model for shared costs

Vector uses a Cost Allocation Model to allocate shared costs to each Connection Point. This enables Vector to set prices in a cost reflective manner.

3.3.1. Expense categories

Regulatory requirement

*2.4.3(4) Where applicable, identify the key components of **target revenue** required to cover the costs and return on investment associated with the **GTB**'s provision of **gas transmission services**. Disclosure must include the numerical value of each of the components;*

The categories of expense allocated by the Cost Allocation Model are:

- Return on capital;
- Depreciation on system fixed assets;
- Revaluations of system fixed assets;
- Fuel cost;
- Maintenance costs;
- Pass-through costs;
- Indirect costs; and
- Regulatory tax allowance.

Costs with a meaningful cost driver

Vector considers that the return on capital, depreciation, revaluations, maintenance costs, and tax expenses can all be allocated on the basis of asset values (both connection assets and allocated shared assets):

- The return on capital, depreciation, and revaluations arise directly as a result of assets and asset values;

- Maintenance is related to assets, and it is common practice in cost allocation to treat asset values as a proxy for assets; and
- Tax expense is primarily incurred because of the Return on Assets and the difference between regulatory depreciation and regulatory tax depreciation.

The allocation of the above costs first requires that assets are allocated to CPs. Connection assets are allocated directly, and shared assets are allocated as described below.

Fuel costs can also be allocated directly, as they are incurred as a direct result of DPs that utilise either heaters or compressors. Consequently, fuel costs are allocated based on the throughput for those DPs.

Costs requiring a proxy cost allocator

Vector considers that the following categories of cost require proxy cost allocators:

- Shared network assets (i.e. System Fixed Assets);
- Non-system fixed assets;
- Contributions and all other revenues;
- Indirect costs; and
- Pass-through and other direct costs;
- Any under- or over-recoveries that arise from imposing the IC and SAC bounds.

Vector's view is that Maximum Flow is the preferred allocator for shared costs. Network assets are sized to meet capacity requirements. As a measure of the capacity actually used, Maximum Flow presents the strongest link to costs and, in our assessment, moves allocation closest to what might be implied in a market. Relative to the current (distance-based) approach, cost allocations will increase on highly utilised or constrained parts of the network and fall on underutilised or unconstrained parts of the network. While this does not provide a market-based capacity price, it does improve pricing signals on constrained and unconstrained parts of the gas transmission system.

Each component of cost, its value, and the allocator for shared costs are summarised in Figure 10.

Figure 10 Summary of cost category and allocator for shared costs

Cost category	Total	Connection	Shared	Allocator for shared costs
System fixed assets	495,536,981	110,748,563	384,788,418	Maximum flow
Non-system fixed assets	6,464,105		6,464,105	Maximum flow
Total assets	502,001,086	110,748,563	391,252,523	
Discount rate	7.46%	7.46%	7.46%	
Return on capital	37,433,471	8,258,355	29,175,116	Calculated
Depreciation	19,502,056	2,770,488	16,731,569	Maximum flow
Fuel cost	5,472,854		5,472,854	Fuel throughput
Maintenance cost	10,606,131	2,577,366	8,028,765	System fixed assets
Pass-through cost	2,071,658		2,071,658	Maximum flow
Other costs	-		-	Maximum flow
Indirect costs	10,834,894		10,834,894	Maximum flow
Total expenses	28,985,537	2,577,366	26,408,171	
Regulatory tax allowance	10,716,448	2,395,041	8,321,408	System fixed assets
Revaluation system fixed assets	(3,053,323)	(2,768,714)	(284,609)	System fixed assets
Total allocable cost	93,584,189	13,232,535	80,351,654	

3.3.2. Cost allocation

Following from the discussion above and Figure 7, the allocators used to allocate shared costs are:

- Maximum flow – the maximum actual flow rate recorded for the Connection Point;
- System fixed assets – the total value of attributed (Connection) and allocated (Shared) assets for the Connection Point;
- Fuel throughput – the quantity of compressor and heater fuel consumed at a Connection Point.

The value of each allocator by Pricing Region is shown in Figure 11. The table also includes the proportional allocation to each Pricing Region for a given allocator.

Figure 12 shows the resulting allocation of shared costs by pricing region.

Figure 11 Cost allocators by pricing region

Pricing region	Absolute value						Percentage value			
	Maximum flow	Compressor fuel	Heater fuel	Dedicated assets	Allocated shared assets	Total system fixed assets	Maximum flow	Fuel throughput (*)	Shared system fixed assets	System fixed assets
Northland	19,212	3,881,516	3,880,414	12,769,666	11,788,419	24,558,085	3.06%	5.85%	3.06%	4.96%
Auckland	193,519	33,907,104	15,322,511	12,009,172	118,742,731	130,751,904	30.86%	45.72%	30.86%	26.39%
Waikato North	37,293	6,398,477	6,454,796	5,748,603	22,882,860	28,631,462	5.95%	9.66%	5.95%	5.78%
Hamilton	14,233	1,336,207	1,336,207	1,605,323	8,733,321	10,338,644	2.27%	2.01%	2.27%	2.09%
Waikato South	37,255	3,813,404	4,032,426	9,707,998	22,859,543	32,567,541	5.94%	5.81%	5.94%	6.57%
Western Bay of Plenty	7,390	959,687	959,687	4,387,835	4,534,479	8,922,314	1.18%	1.45%	1.18%	1.80%
Eastern Bay of Plenty	25,430	3,927,697	3,927,697	35,471,731	15,603,763	51,075,493	4.06%	5.92%	4.06%	10.31%
Taranaki	199,875	1,043,207	25,202,319	12,983,905	122,642,629	135,626,534	31.87%	8.57%	31.87%	27.37%
Manawatu-Wanganui	15,571	2,111,659	2,108,939	3,656,340	9,554,313	13,210,654	2.48%	3.18%	2.48%	2.67%
Hawke's Bay	27,791	3,726,679	3,708,734	7,197,004	17,052,464	24,249,468	4.43%	5.61%	4.43%	4.89%
Wellington	49,534	4,596,985	2,161,431	5,210,985	30,393,896	35,604,881	7.90%	6.22%	7.90%	7.19%
Total	627,103	65,702,622	69,095,161	110,748,563	384,788,418	495,536,981	100.00%	100.00%	100.00%	100.00%

* The 'Fuel throughput' allocator is calculated as (80% x the proportion of compressor fuel) + (20% x the proportion of heater fuel).

Figure 12 Calculation of shared costs by pricing region

Pricing region	System fixed assets	Non-system fixed assets	Subtotal assets	Return on capital	Depreciation	Fuel cost	Maintenance cost	Pass-through cost	Indirect costs	Regulatory tax allowance	Revaluation system fixed assets	Total
Allocator	**Maximum flow**	**Maximum flow**	**Calculated**	**Calculated**	**Maximum flow**	**Fuel throughput**	**Shared SFA**	**Maximum flow**	**Maximum flow**	**Shared SFA**	**Shared SFA**	
Northland	11,788,419	198,035	11,986,454	893,812	512,590	320,128	245,970	63,468	331,939	254,936	(8,719)	2,614,122
Auckland	118,742,731	1,994,773	120,737,504	9,003,215	5,163,233	2,502,229	2,477,615	639,298	3,343,565	2,567,922	(87,828)	25,609,248
Waikato North	22,882,860	384,412	23,267,271	1,735,006	995,004	528,635	477,460	123,199	644,337	494,863	(16,925)	4,981,578
Hamilton	8,733,321	146,712	8,880,033	662,171	379,747	110,210	182,224	47,019	245,913	188,866	(6,460)	1,809,691
Waikato South	22,859,543	384,020	23,243,563	1,733,238	993,990	317,997	476,974	123,073	643,680	494,359	(16,908)	4,766,403
Western Bay of Plenty	4,534,479	76,175	4,610,654	343,810	197,171	79,154	94,614	24,413	127,682	98,062	(3,354)	961,552
Eastern Bay of Plenty	15,603,763	262,129	15,865,892	1,183,096	678,491	323,954	325,579	84,009	439,372	337,446	(11,541)	3,360,405
Taranaki	122,642,629	2,060,288	124,702,917	9,298,910	5,332,810	468,760	2,558,988	660,294	3,453,378	2,652,261	(90,713)	24,334,688
Manawatu-Wanganui	9,554,313	160,504	9,714,817	724,419	415,446	174,125	199,355	51,439	269,031	206,621	(7,067)	2,033,369
Hawke's Bay	17,052,464	286,466	17,338,931	1,292,938	741,484	307,090	355,807	91,809	480,164	368,775	(12,613)	3,625,454
Wellington	30,393,896	510,591	30,904,487	2,304,501	1,321,603	340,574	634,181	163,637	855,833	657,296	(22,481)	6,255,145
Total	384,788,418	6,464,105	391,252,523	29,175,116	16,731,569	5,472,854	8,028,765	2,071,658	10,834,894	8,321,408	(284,609)	80,351,654

3.3.3. Adjustments

Comparison against incremental cost

Any CP that has a total allocated cost less than Short Run Incremental Cost has the value of allocated cost reset to Short Run Incremental Cost.

Comparison against least cost alternative

As described in section 2.2, the total cost allocated to each CP is compared to the weighted average SAC for that CP to ensure that cost allocations do not result in prices that would provide an incentive for consumers to disconnect from the gas transmission system. Any CPs that have a total allocated cost greater than SAC are reset to the SAC (i.e. set to the lesser of the total allocated cost and SAC).

Reallocation of shortfall

The comparison against SAC results in a total reduction in cost allocated to some CPs of approximately $10m. This amount is reallocated amongst CPs using Maximum Flow as the proxy allocator, subject to the constraint that total costs allocated to each CP must not be greater than SAC.

3.3.4. Total allocated costs by pricing region

Figure 13 shows the total allocated costs by pricing region. The allocated cost before adjustments is the sum of connection costs (Figure 8) and allocated shared costs (Figure 12). Allocated costs are then reduced by an aggregate $9.8 million as a result of imposing the SAC constraint. These costs are then reallocated as described above.

Figure 13 Total allocated costs by pricing region

Pricing region	Connection costs	Shared costs	Allocated costs before adjustments	Impose SAC constraint	Recoveries	Allocated cost after adjustments
Northland	1,355,347	2,614,122	3,969,469	(19,125)	663,865	4,614,209
Auckland	1,721,673	25,609,248	27,330,921	(21,000)	6,681,021	33,990,942
Waikato North	758,177	4,981,578	5,739,755	(2,226,589)	372,960	3,886,126
Hamilton	216,173	1,809,691	2,025,864	(1,169,809)	0	856,054
Waikato South	1,233,381	4,766,403	5,999,784	(21,948)	1,285,397	7,263,233
Western Bay of Plenty	522,049	961,552	1,483,601		255,167	1,738,768
Eastern Bay of Plenty	3,505,000	3,360,405	6,865,404		1,388,644	8,254,049
Taranaki	1,602,748	24,334,688	25,937,436	(10,805,301)	580,403	15,712,538
Manawatu-Wanganui	583,601	2,033,369	2,616,971	(90,753)	531,631	3,057,849
Hawke's Bay	934,276	3,625,454	4,559,730	(39,153)	955,984	5,476,561
Wellington	800,109	6,255,145	7,055,253	(31,355)	1,709,961	8,733,860
Total	13,232,535	80,351,654	93,584,189	(14,425,033)	14,425,033	93,584,189

3.4. Price setting and the allocation of target revenue

3.4.1. Target revenue

Regulatory requirement

*2.4.3(3) State the **target revenue** expected to be collected for the **pricing year** to which the pricing methodology applies;*

Vector sets its prices to recover an amount less than the Allowable Notional Revenue under the GDPP. Compliance with the Allowable Notional Revenue requirement is determined using current year prices multiplied by quantities lagged by two years. Once price are set to comply with the GDPP, Vector then determines how much revenue these prices will deliver based on forecast quantities in the forthcoming pricing year (target revenue). Due to the difference in quantities between the GDPP and target revenue the amount of target revenue differs from the amount of Allowable Notional Revenue under the GDPP. Target revenues for the 2014 pricing year are included in Figure 14 below.

Figure 14 Determining target revenue

Allowable notional revenue	89,949,229
Pass-through and recoverable costs	2,071,658
Subtotal	92,020,887
Pricing and quantity adjustments	1,563,302
Target revenue from prices	93,584,189

The post-allocation adjustments occur as part of the price setting process described in section 3.4.2 below.

3.4.2. Setting prices

Prices do not mechanistically flow from cost allocations. A decision must be made on the appropriate fixed and variable charges based on the cost allocations. Following stakeholder consultation, for the 2015 pricing year Vector set:

- A Throughput Fee (TPF) of $0.06/GJ across all standard consumers; and
- A Capacity Reservation Fee (CRF) for each region.

The TPF and the CRF have been increased by 20% and 25% respectively for the 2015 pricing year.

The CRF is expressed in whole dollars and is generally set at a level that will comply with the GDPP and recover approximately the same target revenue as implied by the cost allocations plus a pro-rata allocation of pass-through costs. The two exceptions to this are Auckland and North Waikato where the CRF was set to avoid creating artificial incentives for capacity nominations and consumer location decisions across these two regions. The outcome of this is the regional allocations presented in section 3.4.3 below.

Setting the CRF in whole dollar terms means that prices will not precisely recover the Allowable Notional Revenue plus pass-through costs. To ensure that Vector does not breach the GDPP, the CRFs are set at a level that will slightly under-recover Allowable Notional Revenue.

3.4.3. Target revenue by pricing region

Regulatory requirement

*2.4.3(6) Where applicable, describe the method used by the **GTB** to allocate the **target revenue** among **consumers**, including the numerical values of the **target revenue** allocated to **consumers** and the rationale for allocating it in this way;*

The target revenue for gas transmission services is not directly allocated to consumers. Instead, it is allocated using the cost allocations described in Sections 3.2 and 3.3 above, and subject to the pricing adjustments described in section 3.4.2. It is neither appropriate nor possible for Vector to publicly disclose the target revenue for individual consumers. The cost allocation approach described above allocates costs to Connection Points and Pricing Regions; multiple shippers may take delivery at any given Connection Point or Pricing Region, and it is the allocation for the Pricing Region that is relevant. The outcome of the pricing methodology is the allocation between Pricing Regions shown in Figure 15.

Figure 15 Target revenue by pricing region

Pricing region	Target revenue from prices (Qi2015,Pi2015)
Northland	4,396,830
Auckland	36,300,407
Waikato North	3,941,485
Hamilton	1,151,955
Waikato South	7,250,595
Western Bay of Plenty	1,821,362
Eastern Bay of Plenty	7,541,260
Taranaki	13,682,863
Manawatu-Wanganui	3,143,100
Hawke's Bay	5,640,192
Wellington	8,714,140
Target Revenue	93,584,189

3.4.4. Revenue by price component

Regulatory requirement

*2.4.3(7) State the proportion of **target revenue** (if applicable) that is collected through each **price component** as **publicly disclose**d under clause 2.4.18.*

The Gas Transmission Information Disclosure Determination 2012 defines "Price Component" as the various tariffs, fees and charges that constitute the components of the total price paid, or payable, by a consumer. The Price Components for Vector's gas transmission pricing are specified in the VTC. The price components are:

- a Capacity Reservation Fee (CRF) based on an annual reservation of GJ capacity;
- a Fixed Fee included as a component of some non-standard contracts;
- a Throughput Fee (TPF) based on GJ consumption; and
- an Overrun Fee set equal to 10 times the CRF divided by 365 days.

The proportion of revenue recovered by each price component is shown in Figure 16. The variable component of Vector's target revenue is comprised of Throughput Fees and Overrun Fees, and is equal to 9% of revenue.

Figure 16 Proportion of target revenue by price component

Price component	Target revenue	proportion
Capacity Reservation Fees (CRF)	$76,268,142	81%
Fixed Fees	$4,949,623	5%
Throughput Fees (TPF)	$6,117,852	7%
Over-run Fees	$2,157,697	2%
Interruptible Contracts	$4,090,876	4%
	93,584,189	100%

3.5. Price changes

Regulatory requirement

*2.4.3(5) If **prices** have changed from **prices** disclosed for the immediately preceding **pricing year**, explain the reasons for changes, and quantify the difference in respect of each of those reasons;*

From 1 October 2014, gas transmission prices will increase by a weighted average of 20%.

This change is a result of a combination of increases to pass through and recoverable costs, a CPI increase to Allowable Notional Revenue and a 'bounce back' effect of a 3 month delay to implementing the July 2013 Starting Price Adjustment.

The CPI increase to Allowable Notional Revenue for the pricing year 1 October 2014 to 30 September 2015 pricing year is 1.30%. From 1 July 2013, Vector's gas transmission system is subject to new regulation under the Gas Transmission Services Default Price-Quality Path Determination 2013 (the DPP). The DPP applies until 30 September 2017.

The DPP included a Starting Price Adjustment (SPA) that resulted in Vector reducing its prices by 34% from 1 October 2013. The deferring of implementing the SPA from 1 July 2013 to 1 October 2013, meant that the extent of the price decrease was exacerbated. Unfortunately this also means a price increase from 1 October 2014.

Figure 17 below shows the price changes by Pricing Region. To calculate changes in average price, target revenue from 2015 prices has been recalculated using updated quantities (Q_{i2013}). The final column of Figure 17 shows the total percentage change in prices for each Pricing Region, assuming the quantities Q_{i2013}.

The GDPP also allows Vector to recover pass-through costs. For the 2015 pricing year pass-through costs are $2,071,658 representing an increase of 2.3% on the Allowable Notional Revenue of $89,949,229.

Figure 17 Price changes by pricing region

Pricing region	Notional revenue		Price change
	Q_{i2013},P_{i2015}	Q_{i2013},P_{i2014}	
Northland	4,320,275	3,751,013	15%
Auckland	35,668,371	30,028,376	19%
Waikato North	3,872,858	3,279,789	18%
Hamilton	1,131,898	908,129	25%
Waikato South	7,124,353	5,709,036	25%
Western Bay of Plenty	1,789,650	1,434,111	25%
Eastern Bay of Plenty	7,409,957	5,967,621	24%
Taranaki	13,444,627	11,931,189	13%
Manawatu-Wanganui	3,088,374	2,517,535	23%
Hawke's Bay	5,541,989	4,442,988	25%
Wellington	8,562,416	6,871,653	25%
Notional revenue	91,954,771	76,841,439	20%

Price change differences between regions, when compared with the uniform changes to standard prices, arise due to the impact of changes to non-standard prices under their respective contractual requirements.

Section 4 Consistency with pricing principles

Regulatory requirement

*2.4.3(2) Demonstrate the extent to which the pricing methodology is consistent with the **pricing principles** and explain the reasons for any inconsistency between the pricing methodology and the **pricing principles**;*

4.1. Pricing principles

The pricing principles are specified in clause 2.5.2 of the Gas Transmission Services Input Methodologies Determination 2010 (Commerce Commission Decision 712, 22 December 2010). Those pricing principles are:

1) Prices are to signal the economic costs of service provision, by-
   a) being subsidy free, that is, equal to or greater than incremental costs and less than or equal to standalone costs, except where subsidies arise from compliance with legislation and/or other regulation;
   b) having regard, to the extent practicable, to the level of available service capacity; and
   c) signalling, to the extent practicable, the effect of additional usage on future investment costs.
2) Where prices based on 'efficient' incremental costs would under-recover allowed revenues, the shortfall is made up by prices being set in a manner that has regard to consumers' demand responsiveness, to the extent practicable.
3) Provided that prices satisfy (1) above, prices are responsive to the requirements and circumstances of consumers in order to-
   a) discourage uneconomic bypass; and
   b) allow negotiation to better reflect the economic value of services and enable consumers to make price/quality trade-offs or non-standard arrangements for services.
4) Development of prices is transparent, promotes price stability and certainty for consumers, and changes to prices have regard to the effect on consumers

4.2. Principle #1: Economic costs of service provision

4.2.1. Subsidy-free pricing

Prices are said to be "subsidy-free" when they are not less than incremental cost (IC) and are not greater than stand-alone cost (SAC). Incremental costs for a consumer (or group of consumers) are those costs that are only incurred because of that consumer's (or group of consumers') connection to and use of the gas transmission system. Stand-Alone Cost is the cost of a gas transmission system providing service to just that consumer (or group of consumers).

The revenue allowed under the GDPP includes an allowance for certain costs (such as administration costs) that is based on an allocation of common and shared costs across Vector's regulated businesses rather than an estimate of the magnitude of those costs on a stand-alone basis. This means that the SAC for the provision of gas transmission services is higher than the Allowable Notional Revenue under the GDPP. This also means that, in aggregate, prices set to recover the Allowable Notional Revenue are, by definition, less than the SAC for the provision of gas transmission services.

At a theoretical level, demonstrating that prices are subsidy-free requires that the regulated supplier demonstrates that, for every consumer and every consumer group, the price is not less than the incremental cost of supplying that consumer or consumer group and is not greater than the SAC of supplying that consumer or consumer group.

Stand-alone cost

Stand-alone cost (SAC) is normally defined as the cost of providing a service or a group of services and nothing else. In a perfectly competitive market, goods are perfect substitutes, so the cost of the alternative is the cost of obtaining exactly the same good or service elsewhere. In the context of gas transmission, this would mean the construction of another gas transmission pipeline. In a workably competitive market however, goods are not necessarily perfect substitutes, and an alternative energy or fuel source might provide an equivalent service. In the case of gas (which is a discretionary fuel), consumers can choose from a number of alternative sources of delivered energy.

Pricing up to the cost of a dedicated pipeline built specifically for a particular group of consumers is likely to result in prices that are much higher than the true cost of the alternative for many users, and this would likely lead to disconnection. In practice, then, estimating the 'true' upper bound on prices requires information on the costs and bypass options of its consumers (alternative fuels plus alternative transmission connections including bypass to the Maui pipeline).

To establish the appropriate upper bound for prices at each Connection Point, Vector has adopted the lesser of:

- the traditional "alternative network" SAC; and
- the stand alone cost of providing the same delivered energy from an alternative fuel source (we refer to this as the "alternative fuel SAC").

It is important to note that Vector has estimated SAC at individual CPs and not at all combinations of CPs. In this respect the SAC should form a guide only and is not definitive. In some instances other network solutions may yield a lower SACs across a combination of CPs, and a more thorough investigation might be appropriate as part of the non-standard contracting process (see Section 5).

Alternative network SAC

The alternative network SAC represents a dedicated theoretical transmission system which can provide the same current transmission service to a single Connection Point. The alternative network SAC includes a return on and of all network and non-network assets, indirect costs, maintenance costs, compressor and heater fuel costs. The SAC analysis is a highly theoretical exercise involving the construction of hypothetical networks to provide service to each consumer or consumer group – this is a highly labour-intensive exercise that generally (but not always) yields an average SAC higher than the SAC for the system as a whole.[2]

Theoretical transmission system assets: The assets (or System Fixed Assets (SFA)) for each Connection Point are assumed to be a stand-alone network between the current receipt point and the Connection Point. The assets consist of:

- a single pipe following the same route as the existing network but sized to only supply the Connection Point
- one or more DPs sized to supply the current maximum design flow at the connection point

The theoretical pipe size is estimated by means of a simplified general gas flow formula.

Replacement cost of theoretical transmission network assets: The replacement cost of network assets is based on the annualised SAC pipeline and delivery point replacement cost rates. An average allocation of all other network assets including special feature costs, easement costs, compressor and all other types of stations costs are included in the pipeline replacement cost rate.

Replacement cost of theoretical non network assets: An estimate of the non-network assets (or Non System Fixed Assets (NSFA)) is based on the NSFA of the Vector transmission business. Each Connection Point is allocated a replacement cost equal to the total NSFA value of the Vector transmission business divided by the total number of Connection Points.

Expenses are comprised of indirect costs, fuel costs, and maintenance costs:

- *Indirect costs*: An estimate of the indirect costs for the connection Point is based on the total indirect costs of the Vector transmission business. Each Connection Point is allocated an indirect cost equal to the total indirect costs of the Vector transmission business divided by the total number of Connection Points.
- *Fuel costs*: Compressor and heater fuel costs are determined by multiplying the derived compressor and heater fuel rates with the total volume at the connection Point. These costs only apply if the Connection Point has been identified as requiring compression and/or heating.

[2] Because of the economies of scale inherent in gas transmission networks, the average per-consumer SAC for a consumer will generally be greater than the average per-consumer SAC for a group of consumers, which in turn will generally be greater than the average per-consumer SAC for the network as a whole. If prices are less than the SAC for the network as a whole then they are likely to be less than SAC for any given consumer or group of consumers. The exception to this is where a large consumer is located close to the gas transmission line and it would be viable to bypass the existing gas transmission system. This is addressed separately under Pricing Principle 3.

- *Maintenance costs*: Maintenance on network assets is determined by multiplying the derived maintenance rate for all assets with the total replacement cost of the theoretical system.

Alternative fuel SAC

The approach to calculating the alternative fuel SAC was described in Section 2.2.

Incremental cost

The incremental costs (IC) of each Connection Point are determined by exactly the same "but for" test that is used to identify Connection Costs. Two estimates of IC are calculated: short run incremental costs (SRIC) and long run incremental costs (LRIC). The SRIC include compressor fuel, heater fuel and maintenance on the dedicated assets identified by means of the "but for" test. The LRIC includes the SRIC plus a return on and return of the dedicated assets identified by means of the "but for" test. The relationship between Connections Costs, Incremental Costs, and Directly Attributable Costs is:

Connection Costs = Long Run Incremental Costs = Costs Directly Attributable

If consumers are paying a price at least equal to SRIC then they are covering the immediate direct costs incurred in supplying them with gas, and in the short term it is beneficial to retain those consumers. Over the longer term consumers should pay a price at least equal to LRIC so that they cover the full cost of providing supply, including the cost of the assets required to connect to the wider system.

Vector's application of the test

As described in section 2.2, as part of the price-setting process Vector compares proposed prices against the least-cost alternative, whether that is a standalone network or an alternative energy source such as coal or bottled LPG.

Vector cross-checked the individual revenue at each DP based on provisional prices. This allows an assessment of the extent to which uniform CRFs within zones create revenues that fall outside the IC-SAC band at individual DPs. This is illustrated in Figure 18.

Prices at some CPs have historically been less than IC. While the overall framework for Vector's pricing has improved alignment with the pricing principles, there are however a number of CPs where the reduction in prices has either worsened the extent to which prices are below incremental costs, or has moved prices previously in the subsidy free range to a point below incremental costs. Generally the revenue from these DPs is low and we propose further work targeted at assessing each CP and the potential mitigations that may be employed.

Figure 18 Revenues from prices by CP and subsidy free ranges

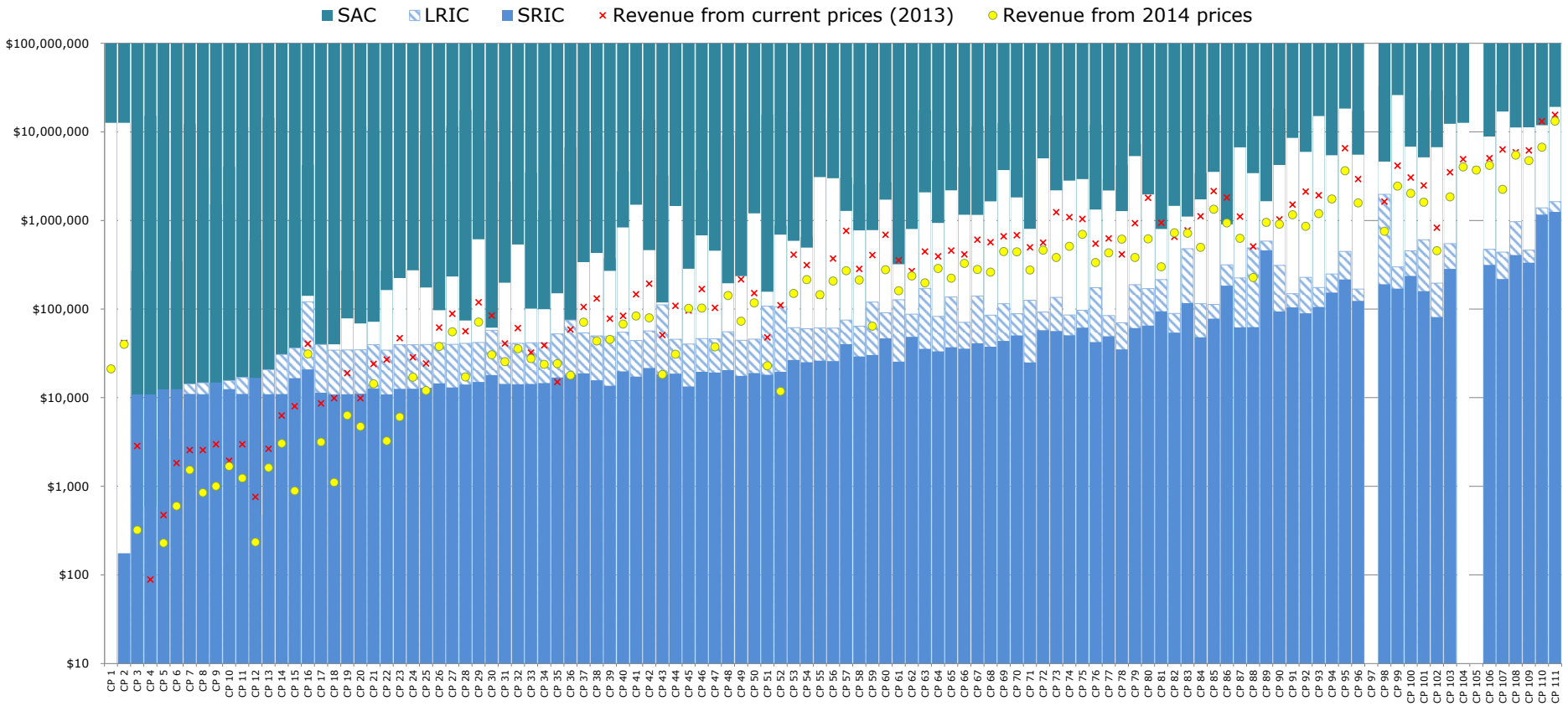
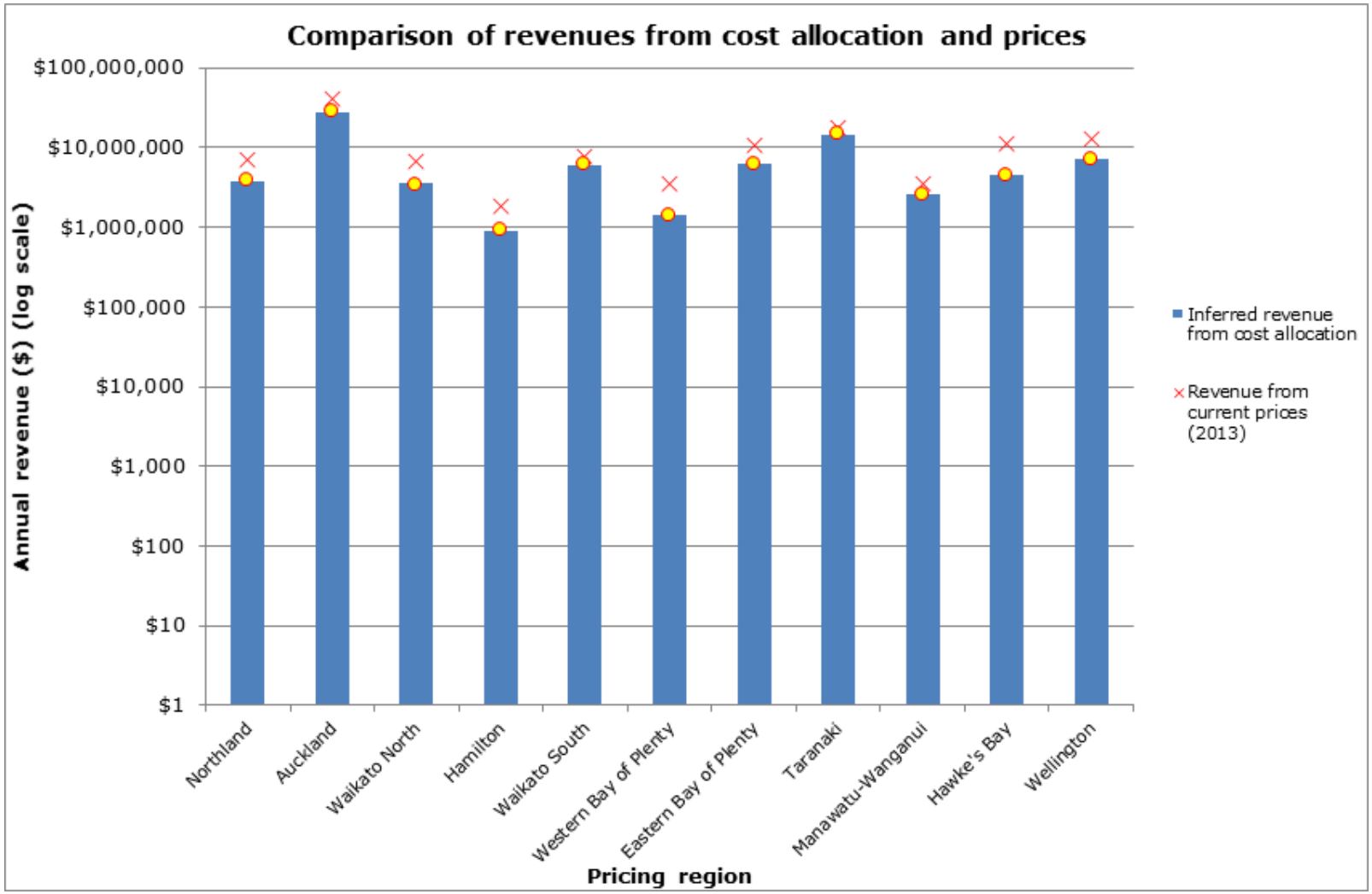


Figure 19 Revenues from prices by pricing region



4.2.2. Available service capacity and future investment costs

There are no constraints on available service capacity in the gas transmission system that impact on the economic cost of service provision. Indeed, given the level of available service capacity, it is appropriate that pricing is set in a manner that encourages greater use of the gas transmission system.

There are no significant future investment costs that impact on the economic cost of service provision.

4.3. Principle #2: Recovery of any shortfall

Pricing Principle 2 requires that:

Where prices based on 'efficient' incremental costs would under-recover allowed revenues, the shortfall is made up by prices being set in a manner that has regard to consumers' demand responsiveness, to the extent practicable.

Recovery of any shortfall in a manner that "has regard to consumers' demand responsiveness" suggests the application of Ramsey Pricing. While Ramsey Pricing (which involves pricing higher to those less price responsive) is a useful and well accepted guideline for the recovery of allowed revenues above IC, it is extremely difficult to apply in practice as the information required (meaningful demand responsiveness information) is not readily available. It is also worth emphasising that even if Vector knew something about the demand responsiveness of consumers, Vector contracts with Shippers (together with large directly connected consumers) and is therefore generally not able to price discriminate across consumer groups based on demand elasticities. This information can be used however to inform the approach to non-standard contracts which use an estimated bypass cost as a guide (see Section 5).

Given the practical difficulties inherent in implementing a Ramsey pricing approach, Vector has instead sought to recover any revenue shortfall in as least-distortionary manner as possible. Vector considers that this captures the intent of Pricing Principle #2. Accordingly, the cost of shared assets has been allocated using Maximum Flow as an allocator, which reflects the underlying cost driver for the network. The resulting cost allocations provide improved incentives to utilise the existing gas transmission system in areas that were disadvantaged by the previous distance-based regime. Further, prices have been set on a regional basis to ensure there are no incentives to "game" capacity reservations between neighbouring DPs.

4.4. Principle #3: Responsive to requirements of consumers

4.4.1. Prices discourage uneconomic bypass

Discouraging uneconomic bypass is an extremely important commercial objective for Vector. Gas transmission services have to compete with alternative fuel and energy sources such as electricity, LPG, wood fires, coal, and solar heating.

Traditionally this principle has been interpreted to mean that prices should not be so high for any consumer that it becomes economic for a competitor to supply that consumer using an alternative *network* supply. This principle is based on the economic rationale that it is more efficient for one natural monopoly gas network to serve all consumers itself because of economies of scale/density. If another network tried to compete with the gas network side-by-side it would be less efficient as the economies of scale for those consumers would be lost and total cost would increase.

However, uneconomic bypass may also occur where a consumer uses an alternative energy source instead of natural gas and the incremental social costs of the alternative are higher than the incremental social costs of using the gas transmission system. Vector has included alternative energy sources in our development of SACs and considers these in the development of standard prices. Notwithstanding this uneconomic bypass may still occur. Where Vector is aware of such instances, for example through the consumer approaching Vector, we addresses these through the application of non-standard prices as described in 4.4.2 below.

4.4.2. Negotiation for non-standard prices

Vector considers that the best way to allow consumers to negotiate differing levels of economic value from a service or to mitigate against uneconomic bypass is through non-standard contracts. Large consumers are able to negotiate with Vector for different terms and conditions as long as it is commercially viable and possible for Vector to provide the service.

Typical examples of consumers negotiating to realise economic value of different specific service include reinforcement of the network to allow for greater capacity and the installation and management of specialist equipment and connections. Contracts have been negotiated on non-standard pricing structures to allow consumers to manage their risk, including adjustment in prices to allow for atypical demand loads (e.g. seasonal use patterns) or a preference for pricing that is largely, if not wholly, fixed. Vector is also willing to offer different terms for different length contracts.

Please refer to Section 5 for Vector's policy regarding pricing for non-standard contracts.

4.5. Principle #4: Pricing process

Regulatory requirement

Development of prices is transparent, promotes price stability and certainty for consumers, and changes to prices have regard to the effect on consumers

The development of Vector's GTPM was subject to a lengthy consultation process, described in Section 1.5. This consultation process was an important part of Vector's compliance with Pricing Principle #4. More information on the consultation and process is available on Vector's website at: http://www.vector.co.nz/gas/gas-transmission-pricing-methodology

4.5.1. Development of prices is transparent

The development of the new GTPM has been conducted in a transparent manner with consumer consultation conducted at regular intervals. The approach adopted has been adopted as appropriate based on consumer feedback.

Furthermore, within the GTPM costs are clearly identified and allocated on a simple and transparent basis.

4.5.2. Price stability and certainty

The revised cost allocation methodology reduces the likelihood that changes in consumer behaviour will result in significant changes to cost allocations between Connection Points. The use of Pricing Regions also eliminates the opportunity for arbitrage between Connection Points. Together, these changes mean that prices will be more stable over time.

4.5.3. Effect on consumers

Vector is particularly conscious of the effect of its pricing on consumers and seeks to implement a pricing structure that provides appropriate incentives for consumers to connect to the gas transmission system and continue to use natural gas. Throughout the GTPM Review process Vector has actively modified its proposals to take account of consumer feedback.

Section 5 Pricing for non-standard contracts

This section describes Vector's approach to setting prices for non-standard contracts.

5.1. Extent of non-standard contracts

*2.4.5(1) Describe the approach to setting **prices** for **non-standard contracts**, including-*

*(a) the extent of **non-standard contract** use, including the value of **target revenue** expected to be collected from **consumers** subject to **non-standard contracts**;*

In certain circumstances Vector's published standard prices may not adequately reflect the actual costs of supplying a consumer, reflect the economic value of the service to the consumer or address the commercial risks associated with supplying that consumer. In addition to standard published prices, the GTPM also includes supplementary (non-standard) agreements and interruptible agreements (a form of supplementary agreement) as follows:

a) Supplementary (non-standard) agreements – a bi-lateral agreement between Vector and a shipper that amends parts of the Vector Transmission Code (VTC) for the purposes of delivery of gas to:
    i. A specific consumer and/or specific site; or
    ii. A specific delivery point.
b) Interruptible capacity – a form of supplementary agreement which is provided under the terms and conditions of an interruptible agreement.

These contracts allow tailored or specific prices and contractual terms to be applied to individual points on the transmission system.

There are 37 consumers subject to non-standard contracts with an expected target revenue of $34,113,619.

5.2. Criteria for non-standard contracts

*2.4.5(1)(b) Describe the approach to setting **prices** for **non-standard contracts**, including-*

*how the **GTB** determines whether to use a **non-standard contract**, including any criteria used;*

Vector has a published policy that provides a general guideline of the steps that Vector will follow and the factors that it will take into account when deciding whether or not to offer a non-standard (supplementary agreement) on the transmission system. This document (Supplementary Agreements Policy (March 2012)) can be found on OATIS at:

https://www.oatis.co.nz/Ngc.Oatis.UI.Web.Internet/Common/Publications.aspx

Vector determines whether a consumer is eligible for non-standard pricing on a case by case basis subject to the Supplementary Agreements Policy contained in the Vector Transmission Code.

Between 1 January 2008 and 30 June 2012 during the price controls under the Act, Vector transitioned consumers on non-standard contracts to a one-year term because of a high level of uncertainty about what the conditions of the GDPP might be. Now that the GDPP is in place, Vector is continuing to offer one-year contract terms, but may negotiate longer terms on a case-by-case basis.

5.3. Methodology for non-standard prices

*2.4.5(1) Describe the approach to setting **prices** for **non-standard contracts**, including-*

*(c) any specific criteria or methodology used for determining **prices** for **consumers** subject to **non-standard contracts**, and the extent to which these criteria or that methodology are consistent with the **pricing principles**;*

The prices for non-standard contracts are set to ensure that Vector is able to recover the costs of supplying non-standard consumers. These are determined on a case by case basis and the nature of prices is determined specific to the circumstances of the shipper/consumer. However, in all cases prices are tested to ensure that they are not less than incremental cost and not greater than standalone costs, given the characteristics of the consumer.

When an existing contract is due for renewal, Vector assesses the pricing in that contract and prices are either set to standard, or renegotiated.

The flexible approach to pricing for non-standard contracts ensures that compliance with the pricing principles is enhanced, as demonstrated in Figure 20 below.

Figure 20 Compliance of non-standard pricing with the pricing principles

Pricing principle	Extent of compliance without non-standard pricing	Extent of compliance with non-standard pricing
1) Prices are to signal the economic costs of service provision, by- a) being subsidy free, that is, equal to or greater than incremental costs and less than or equal to standalone costs, except where subsidies arise from compliance with legislation and/or other regulation;	Prices are subsidy-free	Prices remain subsidy-free
b) having regard, to the extent practicable, to the level of available service capacity; and c) signalling, to the extent practicable, the effect of additional usage on future investment costs.	There are no capacity constraints to reflect in current pricing. Price structure is set to generally encourage use of spare capacity. However, some spare capacity may be unused in the absence of non-standard pricing if the consumer disconnects from the gas transmission system.	Compliance *enhanced* because non-standard pricing ensures that consumers that would otherwise disconnect from the gas transmission system will remain connected, use available capacity that would otherwise be unutilised. These consumers will continue to pay some portion of the shared costs of the gas transmission system at least equal to or above incremental costs, providing a benefit to all connected parties.

Pricing principle	Extent of compliance without non-standard pricing	Extent of compliance with non-standard pricing
2) Where prices based on 'efficient' incremental costs would under-recover allowed revenues, the shortfall is made up by prices being set in a manner that has regard to consumers' demand responsiveness, to the extent practicable.	If a consumer disconnects because standard prices exceeded their "reservation cost" then those prices did not reflect the demand-responsiveness of that consumer.	Compliance is *enhanced* because the demand-responsiveness of a price-sensitive consumer has been taken into account by the non-standard pricing.
3) Provided that prices satisfy (1) above, prices are responsive to the requirements and circumstances of consumers in order to- a) discourage uneconomic bypass; and b) allow negotiation to better reflect the economic value of services and enable consumers to make price/quality trade-offs or non-standard arrangements for services.	All prices are subsidy-free so meet (1) above. Prices have been explicitly set to account for the cost of alternative sources of energy for the average consumer in a category, but do not account for the specific circumstances of all consumers.	Prices continue to be subsidy-free so meet (1) above. Compliance is *enhanced* because non-standard pricing allows differential prices to be set for the specific consumers where bypass is viable or would otherwise be uneconomic. Compliance is enhanced because non-standard pricing allows prices for gas transmission services to be customised to reflect the economic value of gas transmission services to specific consumers, and allows the consumer to make quality/price trade-offs.
4) Development of prices is transparent, promotes price stability and certainty for consumers, and changes to prices have regard to the effect on consumers		Compliance is *enhanced* because allowance can be made for the effect on particular consumers whose circumstances make them more sensitive to prices.

5.4. Obligations in respect of service interruptions

*(2) Describe the **GTB**'s obligations and responsibilities (if any) to **consumers** subject to **non-standard contracts** in the event that the supply of **gas transmission services** to the **consumer** is interrupted. This description must explain-*

*(a) the extent of the differences in the relevant terms between **standard contracts** and **non-standard contracts**;*

*(b) any implications of this approach for determining **prices** for **consumers** subject to **non-standard contracts**.*

Vector's obligations to consumers and shippers under standard and non-standard contracts for transmission services are identical, excepting those non-standard contracts that are Interruptible Agreements.

Firm transmission capacity provided under shippers' transmission services agreements (reserved capacity) ranks equally with firm capacity provided under non-standard contracts (supplementary capacity) in the event of any emergency or other event that affects Vector's ability to provide transmission capacity. On the other hand, Vector's contracts require the system operator (Vector) to use all reasonable endeavours to curtail consumers on interruptible agreements before restricting consumers' reserved capacity or supplementary capacity.

The main difference between firm transmission capacity and interruptible capacity is the probability of curtailment. In the event curtailment is required, the effect on the consumer is similar under all contracts:

a) if compelled to curtail reserved capacity or supplementary capacity, Vector is generally obliged to rebate fixed transmission fees to affected consumers for the period of the curtailment;

b) under an interruptible agreement, the consumer will not be charged for its interruptible capacity to the extent of a curtailment.

Section 6 Compliance matrix

The table below is included to demonstrate how this disclosure complies with the Gas Transmission Information Disclosure 2012.

2.4.1 Every **GTB** must **publicly disclose**, before the start of each **pricing year**, a pricing methodology which-	See individual clauses below.
(1) Describes the methodology, in accordance with clause 2.4.3, used to calculate the **prices** payable or to be payable;	Section 3
(2) Describes any changes in **prices** and **target revenues**;	Section 3
(3) Explains, in accordance with clause 2.4.5 of this section, the approach taken with respect to pricing in **non-standard contracts**; and	Section 5
(4) Explains whether, and if so how, the **GTB** has sought the views of **consumers**, their expectations in terms of **price** and quality, and reflected those views in calculating the **prices** payable or to be payable. If the **GTB** has not sought the views of **consumers**, the reasons for not doing so must be disclosed.	Section 4.5.3
2.4.2 Any change in the pricing methodology or adoption of a different pricing methodology, must be **publicly disclosed** at least 20 working days before **prices** determined in accordance with the change or the different pricing methodology take effect.	N/A
2.4.3 Every disclosure under clause 2.4.1 of this section must-	See individual clauses below.
2.4.3(1) Include sufficient information and commentary for interested persons to understand how **prices** were set for **consumers**, including the assumptions and statistics used to determine **prices** for **consumers**;	Section 3
2.4.3(2) Demonstrate the extent to which the pricing methodology is consistent with the **pricing principles** and explain the reasons for any inconsistency between the pricing methodology and the **pricing principles**;	Section 4

2.4.3(3) State the **target revenue** expected to be collected for the **pricing year** to which the pricing methodology applies;	Section 3.4.1
2.4.3(4) Where applicable, identify the key components of **target revenue** required to cover the costs and return on investment associated with the **GTB**'s provision of **gas transmission services**. Disclosure must include the numerical value of each of the components;	Section 3.3.1
2.4.3(5) If **prices** have changed from **prices** disclosed for the immediately preceding **pricing year**, explain the reasons for changes, and quantify the difference in respect of each of those reasons;	Section 3.5
Revenue by Consumer Group 2.4.3(6) Where applicable, describe the method used by the **GTB** to allocate the **target revenue** among **consumers**, including the numerical values of the **target revenue** allocated to **consumers** and the rationale for allocating it in this way;	Section 3.4.3
Revenue by Price Component 2.4.3(7) State the proportion of **target revenue** (if applicable) that is collected through each **price component** as **publicly disclose**d under clause 2.4.18.	Section 3.4.4
Effect of Pricing Strategy 2.4.4 Every disclosure under clause 2.4.1 above must, if the **GDB** has a **pricing strategy**- (1) Explain the **pricing strategy** for the next 5 **pricing years** (or as close to 5 years as the **pricing strategy** allows), including the current **pricing year** for which **prices** are set; (2) Explain how and why **prices** are expected to change as a result of the **pricing strategy**; (3) If the **pricing strategy** has changed from the preceding **pricing year**, identify the changes and explain the reasons for the changes.	Vector's Board of Directors have not recorded in writing any decision on plans or strategies to amend or develop prices beyond the pricing year ending on 30 September 2014 and accordingly have not approved a pricing strategy.
Prices for Non-Standard Contracts 2.4.5 Every disclosure under clause 2.4.1 above must-	

(1) Describe the approach to setting **prices** for **non-standard contracts**, including-	Section 5
(a) the extent of **non-standard contract** use, including the value of **target revenue** expected to be collected from **consumers** subject to **non-standard contracts**;	Section 5.1
(b) how the **GTB** determines whether to use a **non-standard contract**, including any criteria used;	Section 5.2
(c) any specific criteria or methodology used for determining **prices** for **consumers** subject to **non-standard contracts**, and the extent to which these criteria or that methodology are consistent with the **pricing principles**;	Section 5.3
(2) Describe the **GTB**'s obligations and responsibilities (if any) to **consumers** subject to **non-standard contracts** in the event that the supply of **gas transmission services** to the **consumer** is interrupted. This description must explain-	Section 5.4
(a) the extent of the differences in the relevant terms between **standard contracts** and **non-standard contracts**;	
(b) any implications of this approach for determining **prices** for **consumers** subject to **non-standard contracts**.	

Schedule 18 Certification for Disclosures at the Beginning of a Pricing Year

Clause 2.9.2

We, Michael Stiassny and Alison Paterson, being directors of Vector Limited certify that, having made all reasonable enquiry, to the best of our knowledge:

a) the following attached information of Vector Limited prepared for the purposes of clause 2.4.1 of the Gas Transmission Information Disclosure Determination 2012 in all material respects complies with that determination;

b) the prospective financial or non-financial information included in the attached information has been forecast on a basis consistent with regulatory requirements or recognised industry standards.

Director

Director

13.08.14

Date