



Gas Distribution Asset Management Plan Update

Information Disclosure 2014

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1. INTRODUCTION

This Asset Management Plan (AMP) Update (the Update) has been prepared to inform Vector's customers and other stakeholders of material changes and updates to our asset management planning since 30 June 2013, when the last full Gas Distribution AMP (2013-2023) was published.¹ In particular the update contains updated 10-year capital investment and maintenance programmes for the gas distribution network. These have been revised to reflect new improvement programmes initiated over the course of the last year, ongoing analysis of the performance and condition of the network assets, as well as additional information received from third parties, such as Auckland Council's projections on forecast housing growth across the network over the next 5-10 years.

In addition, this Update fulfils our regulatory disclosure requirements, as set out under Clause 2.6 of the Commerce Commission's Gas Distribution Information Disclosure Determination 2012 (IDD).

As part of Vector's ongoing operation, the AMP, and this AMP Update are important components of our network growth, maintenance and investment planning processes. It also forms a key input into the annual capital and direct operating expenditure budget. However, when reading these documents, it is important to note the following:

- While the AMP and the Update present Vector's best view of its asset management and network investment intentions at the time of publication, it does not commit Vector to carrying out any of the individual projects or initiatives described within the document. These may be amended to reflect changes to Vector's regulatory or operating environment, customer energy demand trends and requirements, customer or network technology, or Vector's commercial priorities;
- Projects and initiatives described in the AMP or the Update are still subject to internal governance procedures, including meeting financial approval requirements before they can proceed. This may lead to changes in the scope of works or the overall programme; and
- Uncertainty associated with the regulatory regime that applies to the gas distribution business remains a significant factor weighing on the ability to and appetite for investing in line with the forecasts reflected in this Update. The potential for adverse changes to the regulatory regime, the most imminent being the potential review of the allowed regulatory rate of return on investments, is damaging to incentives to invest. Concerns about housing affordability may also put pressure on the acceptable level of up front customer contributions to the forecast capital expenditure; the potential for Vector to have to carry a larger proportion of the capital expenditure, coupled with potentially adverse regulatory outcomes, therefore represents a disincentive to Vector's ability to deliver growth to the gas network.

2. UPDATE TO NETWORK DEVELOPMENT PLANNING

This section discusses factors that lead to material changes to the network development plan described in section 5 of Vector's 2013 AMP.

¹ A copy of this AMP is available on the Vector website, at <http://vector.co.nz/gas-asset-management>

2.1 Gross new connections

A number of significant Council and Government documents have been published since planning was completed for Vector’s 2013 AMP, including the [Auckland Housing Accord](#) and the draft [Auckland Unitary Plan](#). Although the forecast growth described in these documents is not fully translatable to gas distribution network growth (as gas is an optional commodity in the residential market), we are conscious that there will be some impact on network growth if these Council and Government forecasts come to fruition. In order to understand this impact and the impact of other economic indicators on our new connections growth analysis, Vector commissioned Covec to conduct an independent forecast of connection rates on the gas distribution network.

In its review, Covec verified Vector’s own internal information, and identified that the key drivers for the future increase in new connections were primarily linked to the Statistics New Zealand 2013 Census data (such as population growth projections and household size), GDP growth forecasts (as provided by the RBNZ). Housing growth was also an indicator, but less influential. Their review included three forecast scenarios as shown in Figure 1.

The base case forecasts in this AMP Update are based on Covec’s ‘medium’ growth forecast, based on advice from Covec that the high forecast was less likely to occur.

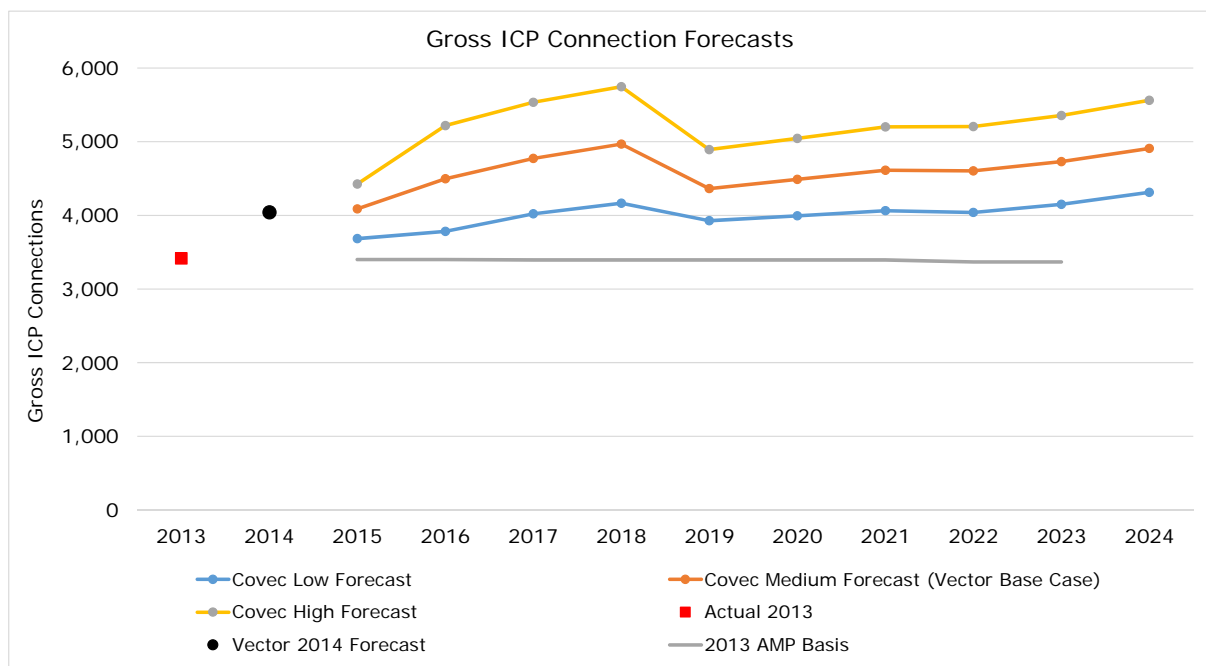


Figure 1 : Total connection numbers, historical and forecast

Forecast new connections	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Low growth	3,682	3,782	4,022	4,163	3,926	3,993	4,064	4,039	4,150	4,312
Medium growth (Vector base case)	4,087	4,497	4,771	4,966	4,362	4,488	4,612	4,603	4,729	4,908
High growth	4,425	5,219	5,535	5,745	4,893	5,044	5,198	5,206	5,356	5,559

Table 1 : Forecast number of connections under different scenarios²

² These figures are fiscal year figures (July to June)

Total connections are expected to peak in 2018 and return to levels only slightly greater than Vector's 2014 forecast (refer Figure 1). This will mostly be driven by increased GDP activity resulting in an increase in conversions of existing homes to gas, although there is some impact from the increase in new housing foreseen in the Auckland plan.

Key assumptions used in the Auckland region (residential) forecast include:

- Conversions of existing dwellings to gas (approximately 60% of new gas connections) are driven by economic activity (GDP). GDP trends were simulated with conversions data between 2007 and 2013 and was found to correlate very closely;
- Vector expands its gas network at the fringes of its existing coverage only;
- Gas connections for new dwellings based on electricity connections forecasts, modified by;
 - Propensity of new dwellings in different locations to get gas (varies widely from 0% to 50% across Auckland)
 - Propensity of new dwellings to get gas over time (increasing slightly)
 - No gas reticulation in the Hobsonville development
- Overall sources of new residential connections, approximately;
 - Conversions 60%
 - Brownfields new dwellings 20%
 - Greenfields new dwellings 20%

Small and medium enterprise connections were found to also correlate closely to GDP and are forecast based on GDP growth. Industrial and commercial connections were forecast based on historical trends.

Key assumptions used in the North Island region (residential) forecast include:

- Due to the diverse range of regions and limited information available with respect to the North Island gas distribution network, population trends from the 2013 census data were used to forecast connection growth;
- Limited information was available to complete the connection forecast with respect to the North Island gas distribution network. Approximately 70% of all new connections on this network are in greenfield locations;
- Analysis was conducted in the Census Area Units (CAU), that overlap Vector's gas distribution network coverage areas.
 - Expansion of gas network into edge CAUs over time is provided for
 - Total population & dwellings for relevant CAUs were calculated from 2013 Census data
 - Statistics NZ CAU population forecasts were modified to reflect 2013 Census results
 - Household size trends were calculated from Census data and extrapolated
- A new dwellings forecast for each area is generated from population and household size forecasts;
- Gas connection propensity from conversions and new dwellings is calculated from 2012 & 2013 connections data for each region. This assumes that conversions are in

proportion to population growth in a region (using population growth as a proxy for regional economic factors); and

- Forecasts were modified slightly to account for recent connections trends.

Small and medium enterprise, and industrial and commercial forecasts are based on trends in employment, business units, and building consents. These trends were forecasted using correlations to GDP.

Total connections for the medium case are summarised below:

2014 AMP Update	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Auckland Region	2,676	3,123	3,433	3,665	3,100	3,150	3,201	3,112	3,152	3,240
North Island Regions	1,411	1,374	1,338	1,301	1,262	1,338	1,411	1,491	1,577	1,668
Total Customer Connections	4,087	4,497	4,771	4,966	4,362	4,488	4,612	4,603	4,729	4,908

Table 2 : Total customer connections forecast (medium case)

2013 AMP	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Auckland Region	2,079	2,079	2,074	2,074	2,074	2,074	2,074	2,049	2,049	
North Island Regions	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	
Total Customer Connections	3,399	3,399	3,394	3,394	3,394	3,394	3,394	3,369	3,369	

Table 3 : Forecast disclosed connections in Section 5 of the 2013 AMP

2013/2014 AMP Variances	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Auckland Region	597	1,044	1,359	1,591	1,026	1,076	1,127	1,063	1,103	
North Island Regions	91	54	18	-19	-58	18	91	171	257	
Total Customer Connections	688	1,098	1,377	1,572	968	1,094	1,218	1,234	1,360	

Table 4 : Major variances between 2013 and 2014 connections forecast

2.2 Peak Demand Update

Based on the latest connections growth information (section 2.1), the total demand forecast of the Vector gas distribution network at gate station level for the 10 year planning period to 2024 is not anticipated to materially change.

3. LIFE-CYCLE ASSET MANAGEMENT CHANGES

This section discusses aspects that have led to material changes to Vector's asset life-cycle management practices previously described in section 6 of the 2013 AMP.

3.1 Pre-1985 PE pipeline replacement strategy

Polyethylene (PE) pipe manufactured up to the mid-1980s is known to be susceptible to the risk of premature brittle-like fracture due to the resin type that was used at the time of pipe manufacture. As indicated in the last AMP, Vector regularly reviews fault data to monitor the performance of its pre-1985 PE pipelines. The most recent review was completed in early 2014 and covered the July 2011 to June 2013 period; It identified a

marked increase in the rate of squeeze-off failures (i.e. fractures at the point of previous squeeze-off locations) when compared to the results of a previous review covering the September 2009 to June 2011 period.

The review also included a comparison of the overall performance of pre-1985 PE systems with other parts of Vector's distribution system and showed that the rate of Public Reported Escapes of gas (PRE) for the pre-1985 PE systems was approximately 2.5 times the rate of PRE for the entire distribution network. The comparison however also indicated that the rate of PRE for the pre-1985 PE systems is still significantly lower than the rate of PRE for Auckland LP cast iron systems and the Hamilton LP and MP1 steel systems. Both the latter systems are in the final stages of replacement.

The review also indicated that the PRE rate for MP4 pre-1985 PE (400kPa pressure) was significantly higher than the rates for LP, MP1 and MP2 pre-1985 PE systems (3kPa – 200kPa pressure).

As indicated in the last AMP, Vector's strategy for mitigating the risks associated with pre-1985 PE included targeted leakage survey of pre-1985 PE pipelines, the monitoring and regular analysis of pre-1985 PE faults and targeted pipeline replacement based on the results of the analysis. The results of the latest review indicate that a more proactive strategy is now appropriate. Whilst the review has confirmed that there has been a marked increase in the level of pre-1985 PE failure, it does not suggest that an immediate full-scale replacement of all pre-1985 PE pipelines is required at this time. A ten year programme to target the replacement of higher risk (i.e. based on operating pressure, failure consequence etc.) sections of the pre-1985 PE system has therefore now been included in the 10 year forecast.

The cost of the programme will be \$200k per annum for each network (i.e. Auckland and North Island) initially and increase to \$1M per annum for the latter part of the programme. The total programme expenditure will be \$7.4M for each network (i.e. Auckland and North Island).

This strategy will also be augmented by the adoption of other risk mitigating measures - e.g. the avoidance of applying squeeze-offs on pre-1985 PE pipes where possible, and the use of pipe reinforcement fittings at pre-1985 PE squeeze-off locations. The performance of these pipelines will continue to be closely monitored.

3.2 Restoration of cathodic protection on the Hamilton MP4 steel services

The restoration of cathodic protection (CP) to MP4 steel service pipes is being carried out as part of a larger programme to restore CP to the Hamilton MP4 steel system as disclosed in the last AMP. Field tests indicate that where CP has been restored to the mains pipelines within a given CP upgrade project area, an estimated 50% of connected steel services will still have inadequate levels of CP. This only became evident following the commissioning of the upgraded CP system on the mains pipes.

The primary reason for the lack of CP on the steel service pipes has been found to be the presence of mechanical connections (i.e. as opposed to welded connections) at the mains tie-in connection and at joints along the service pipeline (the use of mechanical joints was prevalent at the time that the Hamilton MP4 steel pipelines were constructed but has since been discontinued). The preferred options to address the lack of adequate CP on the effected steel service pipes include installing a cross-bond over the mechanical joint, or where this is not practical the relaying of the service in PE.

As the Hamilton MP4 CP upgrade programme has progressed it has become evident that use of cross-bonding to restore CP to steel services is typically not a practical option due to the difficulty in identifying the location of all mechanical joints on a particular service pipe. In addition the average cost of relaying a service in PE is typically significantly more than originally estimated due to the actual costs associated with surface reinstatement, meter relocations and associated customer outlet pipework alterations etc.

As a consequence of this, the timeline and budget for the steel service CP upgrade portion of the overall Hamilton MP4 CP upgrade programme has been reviewed and adjusted. The completion of the steel service CP upgrade programme has been extended from FY15 to FY17, and the estimated cost of the remainder of the steel service CP upgrade programme (i.e. FY15 to FY17) has been increased from \$425k to \$1M.

4. ASSET MANAGEMENT MATURITY CHANGES

Although a number of initiatives to improve overall Asset Management maturity were initiated over the course of the last year, the majority of these initiatives are longer term programmes that will not immediately result in a material change to the overall AMMAT score provided in the previously published AMP. These initiatives will continue to be progressed and tracked over the next reporting period, with the AMP being updated as required during the next review cycle.

5. PROJECT PROGRAMME UPDATE

This section presents the changes to Vector's gas distribution network capital works programme over the 10-year planning period.

These changes reflect the updated planning as influenced by the connections and demand forecasts (see section 2) and asset life-cycle management improvements (see section 3). The following table shows the target completion dates of these projects, the previous target completion dates and the reasons for any changes proposed.

2014 AMP Forecast	Network	Project and Programme Description	2013 AMP Schedule Date	Reason for Change
FY15	Auckland	NorSGA Development, Hobsonville - Northside Drive Bridge (future proof ducts 200mm PVC)	FY14	Change in conjunction with road construction programme
FY15	Auckland	IP reinforcement: Upgrade DR0085	FY22	This project has been advanced to meet additional load requirement of an existing industrial gas user in Mt Wellington
FY15	Auckland	IP20/MP7 DRS to replace Tuakau gate station #1	N/A	New project
FY16 / FY19	Auckland	George Bolt Drive/Kirkbride, Mangere – Intersection Upgrade, Mangere.	FY15	Change in conjunction with road construction programme
FY16	Auckland	Smales-Allens-Springs-Harris Roads, Intersection Upgrade. Manukau.	FY15	Change in conjunction with road construction programme

2014 AMP Forecast	Network	Project and Programme Description	2013 AMP Schedule Date	Reason for Change
FY16	Auckland	Te Atatu Corridor - carriageway realignment, Henderson.	FY15	Change in conjunction with road construction programme
FY16	Auckland	Redoubt Road - Mill Road	FY15	Change in conjunction with road construction programme
FY24	Auckland	Targeted replacement of pre-1985 PE pipe	FY15	Programme expanded to include higher level of pipeline replacement and timeline extended
-	Auckland	Bruce McLaren to Waikumete Gate Station IP pipeline link and DRS	FY14 / FY15	This project has been cancelled
-	North Island	Whangarei MP4 Link: Central Ave between Whangarei West and Woodhill	FY15	Completed as part of a relocation project
FY14	North Island	Whangarei MP4 Link: Between Bank Street and Hunt Street - 210m of 50nb PE MP4	FY15	The project has been advanced. An alternative MP4 link has been identified to facilitate the removal DR-80068-WG due to third party hit
FY14	North Island	Morrinsville MP4 Link - Lorne St (to remove DR-80214-MO FY2017) - 60m of 50nb PE	FY17	The project has been advanced to coincide with other construction projects
FY20	North Island	Hamilton West MP4 Reinforcement - Avalon Drive to Livingstone Avenue - 150m of 50nb PE MP4	FY16	This project has been deferred based on network modelling and analysis
FY20	North Island	Hamilton West MP4 Reinforcement - Roy Street to Livingstone Avenue - 100m of 50nb PE MP4	FY16	This project has been deferred based on network modelling and analysis
FY15	North Island	Whangaparaoa Road Widening, Whangaparaoa.	FY14	Change in conjunction with road construction programme
FY19	North Island	Hairni Link 4 Laning, Tauranga.	FY17	Change in conjunction with road construction programme
FY17	North Island	Wellington Northern Corridor-MacKays to Peka Peka Expressway	FY16	Change in conjunction with road construction programme
FY14	North Island	Limmer & Te Kowhai Road, Hamilton, Part of Ring Road	FY15	Change in conjunction with road construction programme
FY14	North Island	Tuhikaramea Rd, Hamilton	FY15	Change in conjunction with road construction programme
FY17	North Island	Waikao Expressway Cambridge section	FY14	Change in conjunction with road construction programme
FY17	North Island	Restore CP to Hamilton MP4 CS services	FY15	Programme timeline extended due to additional service relay work required

2014 AMP Forecast	Network	Project and Programme Description	2013 AMP Schedule Date	Reason for Change
FY17	North Island	Replacement of the unprotected steel services associated with the MP4 steel	FY15	Programme timeline extended due to additional service relay work required
-	North Island	Replace DRS234, Gisborne	FY15	Cancelled – DRS removed
FY15	North Island	Upgrade DRS060, Whangarei	FY15	DRS060 to be upgraded instead of DRS071
-	North Island	Upgrade DRS214, Morrinsville	FY17	Cancelled – DRS removed
FY15	North Island	Upgrade DRS209, Kihikihi	FY17	Upgrade brought forward
FY24	North Island	Targeted replacement of pre-1985 PE pipe	FY15	Programme expanded to include higher level of pipeline replacement and timeline extended

Table 5 : Gas distribution network 10 year capital works programme

6. CAPITAL AND OPERATIONAL EXPENDITURE FORECAST UPDATE

This section describes the capital and direct operational expenditure forecasts for the gas distribution network assets for the next 10 year period (2014-2024), and provides a comparison with the previous 10 year forecast prepared and disclosed in Section 9 of the 2013 AMP (disclosed in December 2013). These forecasts, are applicable to the development, maintenance, replacement and management of network assets.

6.1 Capital Expenditure

In this section, we present the proposed capital expenditure forecast³ based on the base case (medium network growth) scenario (Table 6). The figures are presented in 2015 prices to reflect the expenditure level of this works programme to be implemented in 2015. For reference purposes we have also included the corresponding capital expenditure forecast disclosed in the 2013 AMP (Table 7), escalated to 2015 prices.

It is acknowledged that there is a level of uncertainty associated with long term network investment requirements in the latter part of this forecast, and especially the lack of visibility on large customer connections and relocation projects beyond a few years into the future. Based on this observation, care needs to be taken when forming any conclusions on long term capital spend projections.

	Financial Year (\$000)									
2014 AMP Update	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Consumer connection	17,244	14,338	14,358	14,945	13,793	14,002	14,341	14,442	14,706	15,018
System growth	4,443	3,370	3,159	3,551	5,717	8,628	7,275	6,598	3,369	1,220
Asset replacement and renewal	5,086	2,455	2,965	2,305	3,305	3,305	3,280	3,280	3,280	3,280
Asset relocations	4,377	4,816	4,911	4,964	4,918	4,501	4,362	4,362	4,362	4,362
Quality of supply	668	360	127	120	253	120	80	306	80	80
Capital Expenditure on network assets	31,819	25,338	25,521	25,886	27,986	30,556	29,339	28,987	25,797	23,960
Non Network Assets	1,502	2,049	912	966	1,090	1,515	855	886	998	943
Capital Expenditure on assets	33,320	27,387	26,433	26,852	29,076	32,070	30,194	29,873	26,795	24,903

Table 6 : Proposed capital expenditure forecast

	Financial Year (\$000)									
2013 AMP	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Consumer connection	11,045	10,751	10,741	10,741	10,741	10,710	10,710	10,662	10,662	
System growth	5,450	3,491	3,244	3,646	5,871	8,829	7,470	6,775	3,459	
Asset replacement and renewal	4,342	1,628	1,586	1,217	1,114	1,114	1,088	1,088	1,088	
Asset relocations	4,174	3,125	2,462	2,552	3,645	3,645	3,389	3,389	3,389	

³ These figures are different to those disclosed in Schedule 11a which are expenditure on assets.

2013 AMP	Financial Year (\$000)									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Quality of supply	779	431	130	123	260	123	82	314	82	
Capital Expenditure on network assets	25,789	19,426	18,164	18,279	21,631	24,422	22,740	22,228	18,680	
Non Network Assets	1,909	1,763	1,631	1,301	1,344	1,356	1,344	1,247	1,247	
Capital Expenditure on assets	27,698	21,189	19,795	19,580	22,975	25,778	24,084	23,475	19,927	

Table 7 : Capital expenditure forecast disclosed in Section 9 of the 2013 AMP

Table 8 below shows the difference between the 2013 and 2014 expenditure forecasts by expenditure categories. The 2013 forecast has been inflation adjusted (using a PPI of 2.7%) to enable comparison with the 2014 figures.

2013/2014 AMP Variances	Financial Year (\$000)									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
Consumer connection	6,199	3,586	3,617	4,204	3,052	3,292	3,631	3,780	4,044	35,407
System growth	(1,006)	(122)	(85)	(95)	(153)	(201)	(195)	(178)	(90)	(2,126)
Asset replacement and renewal	745	827	1,379	1,088	2,191	2,191	2,192	2,192	2,192	14,995
Asset relocations	203	1,691	2,449	2,413	1,273	856	973	973	973	11,805
Quality of supply	(112)	(71)	(3)	(3)	(7)	(3)	(2)	(8)	(2)	(212)
Capital Expenditure on network assets	6,029	5,912	7,357	7,607	6,355	6,134	6,599	6,759	7,117	59,869
Non Network Assets	(408)	286	(719)	(335)	(255)	158	(489)	(361)	(249)	(2,371)
Capital Expenditure on assets	5,622	6,198	6,637	7,272	6,101	6,292	6,110	6,398	6,868	57,498

Table 8 : Variances between 2013 and 2014 capital expenditure forecast

6.2 Operational Expenditure

In this section, we present the proposed operational expenditure forecast (Table 9). The figures are presented in 2015 prices to reflect the expenditure level of this works programme to be implemented in 2015. For reference purposes we have also included the corresponding operational expenditure forecast disclosed in the 2013 AMP (Table 10), escalated to 2015 prices.

2014 AMP Update	Financial Year (\$000)									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Service interruptions incidents and emergencies	3,904	3,909	3,909	3,909	3,909	3,909	3,909	3,909	3,909	3,909
Routine and corrective maintenance and inspection	4,554	4,549	4,595	4,645	4,724	4,727	4,755	4,783	4,811	4,839
Asset replacement and renewal	-	-	-	-	-	-	-	-	-	-
System operations and network support	4,048	4,048	4,048	4,048	4,048	4,048	4,048	4,048	4,048	4,048

2014 AMP Update	Financial Year (\$000)									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Business support	8,277	8,277	8,277	8,277	8,277	8,277	8,277	8,277	8,277	8,277
Total operational expenditure	20,783	20,783	20,830	20,880	20,959	20,961	20,989	21,017	21,045	21,073

Table 9 : Proposed operational expenditure forecast

2013 AMP	Financial Year (\$000)									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Service interruptions incidents and emergencies	4,261	4,261	4,261	4,261	4,261	4,261	4,261	4,261	4,261	
Routine and corrective maintenance and inspection	4,843	4,888	4,824	4,903	4,907	4,936	4,966	4,996	5,027	
Asset replacement and renewal	-	-	-	-	-	-	-	-	-	
System operations and network support	4,582	4,562	4,562	4,562	4,562	4,562	4,562	4,562	4,562	
Business support	9,080	9,080	9,080	9,080	9,080	9,080	9,080	9,080	9,080	
Total operational expenditure	22,766	22,791	22,727	22,806	22,809	22,839	22,869	22,899	22,929	

Table 10 : Operational expenditure forecast disclosed in Section 9 of the 2013 AMP

Table 11 below shows the difference between the 2013 and 2014 expenditure forecasts by expenditure categories. The 2013 forecast has been inflation adjusted (using a PPI of 2.7%) to enable comparison with the 2014 figures.

2013/2014 AMP Variances	Financial Year (\$000)									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
Service interruptions incidents and emergencies	(357)	(352)	(352)	(352)	(352)	(352)	(352)	(352)	(352)	(3,173)
Routine and corrective maintenance and inspection	(289)	(339)	(229)	(258)	(182)	(209)	(211)	(214)	(216)	(2,149)
Asset replacement and renewal	0	0	0	0	0	0	0	0	0	0
System operations and network support	(534)	(513)	(513)	(513)	(513)	(513)	(513)	(513)	(513)	(4,640)
Business support	(803)	(803)	(803)	(803)	(803)	(803)	(803)	(803)	(803)	(7,224)
Total operational expenditure	(1,982)	(2,007)	(1,897)	(1,926)	(1,850)	(1,877)	(1,879)	(1,882)	(1,884)	(17,186)

Table 11 : Major variances between 2013 and 2014 operational expenditure forecast

6.3 Explanation of Major Variances

This section highlights the significant changes to the 2013 disclosed expenditure forecasts⁴. The major changes in capital expenditure over the 9-year period for which the AMP and the AMP Update overlap, reflect:

- \$35 million increase in consumer connection expenditure forecast due to the expected increase in population and new dwelling construction (as discussed in section 2.1), and to provide supply to a large customer connection in Pokeno, South Auckland.
- \$15 million increase in asset replacement expenditure associated with the proposed pipeline replacement of parts of Vector's pre 1985 polyethylene network.
- \$12 million increase in asset relocation expenditure reflecting the latest estimate of relocation activity including the cost of the civil component within relocation projects.
- \$2 million decrease from the cancellation of an FY14 project to link the proposed Waikumete and Bruce McLaren gate stations. Gas Transmission has confirmed that modification of the existing installation, to address a number of hazardous area compliance issues, is likely to be feasible and more economical.

The major changes in operational expenditure include:

- \$12 million reduction in shared cost business support activities and lower professional fees and customer related expenditure.
- \$3 million reduction in service interruptions, incidents and emergencies costs following a review of our historical incidents risk profile and associated risk management strategy.
- \$2 million reduction associated with a change in Vector's approach towards site mark-out and stand-overs process, and additional recoveries associated with third party activities.

⁴ The figures are inflation adjusted.



Gas Distribution Asset Management Plan Update

Information Disclosure 2014

Appendix 1 Report on Forecast Capital Expenditure

Company Name	Vector
AMP Planning Period	1 July 2014 – 30 June 2024

SCHEDULE 11a: REPORT ON FORECAST CAPITAL EXPENDITURE

This schedule requires a breakdown of forecast expenditure on assets for the current disclosure year and a 10 year planning period. The forecasts should be consistent with the supporting information set out in the AMP. The forecast is to be expressed in both constant price and nominal dollar terms. Also required is a forecast of the value of commissioned assets (i.e., the value of RAB additions)
 GDBs must provide explanatory comment on the difference between constant price and nominal dollar forecasts of expenditure on assets in Schedule 14a (Mandatory Explanatory Notes).
 This information is not part of audited disclosure information.

sch ref		Current Year CY 30 Jun 14	CY+1 30 Jun 15	CY+2 30 Jun 16	CY+3 30 Jun 17	CY+4 30 Jun 18	CY+5 30 Jun 19	CY+6 30 Jun 20	CY+7 30 Jun 21	CY+8 30 Jun 22	CY+9 30 Jun 23	CY+10 30 Jun 24
7												
8												
9	11a(i): Expenditure on Assets Forecast	\$000 (nominal dollars)										
10	Consumer connection	15,121	17,204	14,704	15,177	16,193	15,318	15,939	16,733	17,271	18,027	18,871
11	System growth	1,653	4,394	3,426	3,310	3,815	6,294	9,736	8,415	7,822	4,094	1,520
12	Asset replacement and renewal	11,452	5,067	2,514	3,129	2,494	3,665	3,757	3,821	3,917	4,015	4,115
13	Asset relocations	2,173	4,311	4,876	5,125	5,310	5,391	5,058	5,024	5,150	5,278	5,410
14	Reliability, safety and environment:											
15	Quality of supply	405	664	368	134	130	280	136	93	365	98	100
16	Legislative and regulatory	-	-	-	-	-	-	-	-	-	-	-
17	Other reliability, safety and environment	213	-	-	-	-	-	-	-	-	-	-
18	Total reliability, safety and environment	618	664	368	134	130	280	136	93	365	98	100
19	Expenditure on network assets	31,017	31,640	25,888	26,875	27,942	30,948	34,626	34,086	34,525	31,512	30,016
20	Non-network assets	1,199	1,492	2,094	961	1,042	1,206	1,764	1,021	1,084	1,252	1,212
21	Expenditure on assets	32,216	33,132	27,982	27,836	28,984	32,154	36,390	35,107	35,609	32,764	31,228
22												
23	plus Cost of financing	140	187	172	169	178	211	249	231	230	192	168
24	less Value of capital contributions	3,700	5,633	5,971	6,233	6,525	6,462	6,379	6,508	6,693	6,919	7,164
25	plus Value of vested assets	-	-	-	-	-	-	-	-	-	-	-
26	Capital expenditure forecast	28,656	27,686	22,183	21,772	22,637	25,903	30,260	28,830	29,146	26,037	24,232
27												
28	Value of commissioned assets	29,155	36,520	28,153	28,006	29,161	32,365	36,592	35,312	35,810	32,924	31,364
29												
30												
31												
32												
33												
34												
35												
36												
37												
38												
39												
40												
41												
42												
43												
44												
45	Subcomponents of expenditure on assets (where known)											
46	Research and development	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
47												

	for year ended	Current Year CY 30 Jun 14	CY+1 30 Jun 15	CY+2 30 Jun 16	CY+3 30 Jun 17	CY+4 30 Jun 18	CY+5 30 Jun 19	CY+6 30 Jun 20	CY+7 30 Jun 21	CY+8 30 Jun 22	CY+9 30 Jun 23	CY+10 30 Jun 24
Difference between nominal and constant price forecasts												
		\$000										
51	Consumer connection	-	450	774	1,228	1,673	1,917	2,335	2,799	3,240	3,739	4,279
52	System growth	-	115	180	267	395	787	1,426	1,408	1,468	849	345
53	Asset replacement and renewal	-	131	132	253	258	459	551	639	735	833	933
54	Asset relocations	-	113	257	415	549	674	741	840	966	1,094	1,226
55	Reliability, safety and environment:											
56	Quality of supply	-	17	19	11	14	35	20	15	68	20	22
57	Legislative and regulatory	-	-	-	-	-	-	-	-	-	-	-
58	Other reliability, safety and environment	-	-	-	-	-	-	-	-	-	-	-
59	Total reliability, safety and environment	-	17	19	11	14	35	20	15	68	20	22
60	Expenditure on network assets	-	826	1,362	2,174	2,889	3,872	5,073	5,701	6,477	6,535	6,805
61	Non-network assets	-	39	110	78	107	151	258	171	204	260	275
62	Expenditure on assets	-	865	1,472	2,252	2,996	4,023	5,331	5,872	6,681	6,795	7,080
11a(ii): Consumer Connection												
	for year ended	Current Year CY 30 Jun 14	CY+1 30 Jun 15	CY+2 30 Jun 16	CY+3 30 Jun 17	CY+4 30 Jun 18	CY+5 30 Jun 19					
		\$000 (in constant prices)										
73	<i>Consumer types defined by GDB*</i>											
74	Mains Extensions/Subdivisions	7,579	8,654	4,934	4,345	4,475	4,602					
75	Service Connections - Residential	6,533	6,910	7,809	8,420	8,862	7,619					
76	Service Connections - Commercial	988	1,132	1,129	1,126	1,125	1,122					
77	Customer Easements	21	58	58	58	58	58					
78		-	-	-	-	-	-					
79	<i>* include additional rows if needed</i>											
80	Consumer connection expenditure	15,121	16,754	13,930	13,949	14,520	13,401					
81	less Capital contributions funding consumer connection	2,145	2,514	2,414	2,426	2,518	2,327					
82	Consumer connection less capital contributions	12,976	14,240	11,516	11,523	12,002	11,074					
11a(iii): System Growth												
84	Intermediate pressure											
85	Main pipe	-	1,458	546	193	1,583	2,739					
86	Service pipe	-	-	-	-	-	-					
87	Stations	1,030	1,249	1,067	1,137	498	848					
88	Line valve	8	-	-	-	-	-					
89	Special crossings	-	96	-	-	17	41					
90	Intermediate Pressure total	1,038	2,803	1,613	1,330	2,098	3,628					
91	Medium pressure											
92	Main pipe	615	1,360	1,505	1,453	958	1,763					
93	Service pipe	-	-	12	-	-	-					
94	Stations	-	-	-	144	248	-					
95	Line valve	-	-	-	-	-	-					
96	Special crossings	-	-	-	-	-	-					
97	Medium Pressure total	615	1,360	1,517	1,597	1,206	1,763					
98	Low Pressure											
99	Main pipe	-	-	-	-	-	-					
100	Service pipe	-	-	-	-	-	-					
101	Line valve	-	-	-	-	-	-					
102	Special crossings	-	-	-	-	-	-					
103	Low Pressure total	-	-	-	-	-	-					
104	Other assets											
105	Monitoring and control systems	-	116	116	116	116	116					
106	Cathodic protection systems	-	-	-	-	-	-					
107	Other assets (other than above)	-	-	-	-	-	-					
108	Other total	-	116	116	116	116	116					

109							
110	System growth expenditure	1,653	4,279	3,246	3,043	3,420	5,507
111	less Capital contributions funding system growth	-	-	-	-	-	-
112	System growth less capital contributions	1,653	4,279	3,246	3,043	3,420	5,507
120							
121		<i>Current Year CY</i>	<i>CY+1</i>	<i>CY+2</i>	<i>CY+3</i>	<i>CY+4</i>	<i>CY+5</i>
122	11a(iv): Asset Replacement and Renewal	for year ended	30 Jun 14	30 Jun 15	30 Jun 16	30 Jun 17	30 Jun 18
123							
124	Intermediate pressure	\$000 (in constant prices)					
125	Main pipe	686	10	10	10	10	10
126	Service pipe	-	-	-	-	-	-
127	Stations	1,011	728	679	640	388	388
128	Line valve	55	-	-	-	-	-
129	Special crossings	316	340	97	97	97	97
130	Intermediate Pressure total	2,068	1,078	786	747	495	495
131	Medium pressure						
132	Main pipe	4,808	854	757	1,339	1,339	2,309
133	Service pipe	3,332	-	-	-	-	-
134	Station	36	49	49	49	49	49
135	Line valve	-	-	-	-	-	-
136	Special crossings	110	-	-	-	-	-
137	Medium Pressure total	8,286	903	806	1,388	1,388	2,358
138	Low Pressure						
139	Main pipe	-	1,069	-	-	-	-
140	Service pipe	-	499	-	-	-	-
141	Line valve	-	-	-	-	-	-
142	Special crossings	-	-	-	-	-	-
143	Low Pressure total	-	1,568	-	-	-	-
144	Other assets						
145	Monitoring and control systems	104	24	24	24	24	24
146	Cathodic protection systems	570	703	553	504	116	116
147	Other assets (other than above)	424	660	213	213	213	213
148	Other total	1,098	1,387	790	741	353	353
149	Asset replacement and renewal expenditure	11,452	4,936	2,382	2,876	2,236	3,206
150	less Capital contributions funding asset replacement and renewal	-	-	-	-	-	-
151	Asset replacement and renewal less capital contributions	11,452	4,936	2,382	2,876	2,236	3,206
152							
153	11a(v): Asset Relocations						
154	<i>Project or programme*</i>						
155		-	-	-	-	-	-
156		-	-	-	-	-	-
157		-	-	-	-	-	-
158		-	-	-	-	-	-
159		-	-	-	-	-	-
160	<i>* Include additional rows if needed</i>						
161	All other asset relocations projects or programmes	2,173	4,198	4,619	4,710	4,761	4,717
162	Asset relocations expenditure	2,173	4,198	4,619	4,710	4,761	4,717
163	less Capital contributions funding asset relocations	1,555	2,972	3,243	3,303	3,333	3,326
164	Asset relocations less capital contributions	618	1,226	1,376	1,407	1,428	1,391

	Current Year CY for year ended 30 Jun 14	CY+1 30 Jun 15	CY+2 30 Jun 16	CY+3 30 Jun 17	CY+4 30 Jun 18	CY+5 30 Jun 19
11a(vi): Quality of Supply						
<i>Project or programme*</i>	\$000 (in constant prices)					
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
<i>* include additional rows if needed</i>						
All other quality of supply projects or programmes	405	647	349	123	116	245
Quality of supply expenditure	405	647	349	123	116	245
less Capital contributions funding quality of supply	-	-	-	-	-	-
Quality of supply less capital contributions	405	647	349	123	116	245
11a(vii): Legislative and Regulatory						
<i>Project or programme</i>						
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
<i>* include additional rows if needed</i>						
All other legislative and regulatory projects or programmes	-	-	-	-	-	-
Legislative and regulatory expenditure	-	-	-	-	-	-
less Capital contributions funding legislative and regulatory	-	-	-	-	-	-
Legislative and regulatory less capital contributions	-	-	-	-	-	-
11a(viii): Other Reliability, Safety and Environment						
<i>Project or programme*</i>						
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
<i>* include additional rows if needed</i>						
All other reliability, safety and environment projects or programmes	213	-	-	-	-	-
Other reliability, safety and environment expenditure	213	-	-	-	-	-
less Capital contributions funding other reliability, safety and environment	-	-	-	-	-	-
Other Reliability, safety and environment less capital contributions	213	-	-	-	-	-
11a(ix): Non-Network Assets						
Routine expenditure						
<i>Project or programme*</i>						
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
<i>* include additional rows if needed</i>						
All other routine expenditure projects or programmes	1,169	1,453	1,984	883	935	1,055
Routine expenditure	1,169	1,453	1,984	883	935	1,055

222	Atypical expenditure						
223	<i>Project or programme*</i>						
224		-	-	-	-	-	-
225		-	-	-	-	-	-
226		-	-	-	-	-	-
227		-	-	-	-	-	-
228		-	-	-	-	-	-
229	<i>* include additional rows if needed</i>						
230	All other atypical expenditure projects or programmes	30	-	-	-	-	-
231	Atypical expenditure	30	-	-	-	-	-
232							
233	Non-network assets expenditure	1,199	1,453	1,984	883	935	1,055

Schedule 11a Explanatory Notes

The box below provides commentary specific to the difference between nominal and constant price capital expenditure forecasts. It is provided in the same format as required for Box 1, Schedule 14a of the Gas Distribution Information Disclosures, which will be fully disclosed within 6 months of the end of the disclosure year.

Commentary on difference between nominal and constant price capital expenditure forecasts

Vector has used the NZIER (New Zealand Institute of Economic Research) March 2014 PPI (Producer Price Index-outputs) forecast from 2014 to 2017. Thereafter we have assumed a long-term PPI rate of 2.5%. The constant price capital expenditure forecast is then inflated by the above mentioned PPI forecast to nominal price capital expenditure forecasts.



Gas Distribution Asset Management Plan Update

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Appendix 2 Report on Forecast Operational Expenditure

Company Name	Vector Limited
AMP Planning Period	1 July 2014 – 30 June 2024

SCHEDULE 11b: REPORT ON FORECAST OPERATIONAL EXPENDITURE

This schedule requires a breakdown of forecast operational expenditure for the disclosure year and a 10 year planning period. The forecasts should be consistent with the supporting information set out in the AMP. The forecast is to be expressed in both constant price and nominal dollar terms. GDBs must provide explanatory comment on the difference between constant price and nominal dollar operational expenditure forecasts in Schedule 14a (Mandatory Explanatory Notes). This information is not part of audited disclosure information.

sch ref		Current year CY	CY+1	CY+2	CY+3	CY+4	CY+5	CY+6	CY+7	CY+8	CY+9	CY+10
	for year ended	30 Jun 14	30 Jun 15	30 Jun 16	30 Jun 17	30 Jun 18	30 Jun 19	30 Jun 20	30 Jun 21	30 Jun 22	30 Jun 23	30 Jun 24
Operational Expenditure Forecast												
		\$000 (in nominal dollars)										
7		3,789	3,904	4,018	4,142	4,245	4,351	4,460	4,572	4,686	4,803	4,923
8		4,328	4,554	4,676	4,869	5,045	5,259	5,393	5,561	5,733	5,911	6,094
9		-	-	-	-	-	-	-	-	-	-	-
10	Service interruptions, incidents and emergencies	3,789	3,904	4,018	4,142	4,245	4,351	4,460	4,572	4,686	4,803	4,923
11	Routine and corrective maintenance and inspection	4,328	4,554	4,676	4,869	5,045	5,259	5,393	5,561	5,733	5,911	6,094
12	Asset replacement and renewal	-	-	-	-	-	-	-	-	-	-	-
13	Network opex	8,117	8,458	8,694	9,010	9,290	9,610	9,854	10,132	10,419	10,714	11,017
14	System operations and network support	3,455	4,048	4,162	4,289	4,397	4,507	4,619	4,735	4,853	4,974	5,099
15	Business support	6,605	8,277	8,508	8,770	8,989	9,213	9,444	9,680	9,922	10,170	10,424
16	Non-network opex	10,060	12,325	12,670	13,059	13,385	13,720	14,063	14,415	14,775	15,144	15,523
17	Operational expenditure	18,177	20,783	21,364	22,069	22,675	23,330	23,917	24,547	25,194	25,858	26,540
18		\$000 (in constant prices)										
19		3,789	3,802	3,807	3,807	3,807	3,807	3,807	3,807	3,807	3,807	3,807
20		4,328	4,435	4,430	4,475	4,524	4,601	4,603	4,630	4,658	4,685	4,712
21		-	-	-	-	-	-	-	-	-	-	-
22	Service interruptions, incidents and emergencies	3,789	3,802	3,807	3,807	3,807	3,807	3,807	3,807	3,807	3,807	3,807
23	Routine and corrective maintenance and inspection	4,328	4,435	4,430	4,475	4,524	4,601	4,603	4,630	4,658	4,685	4,712
24	Asset replacement and renewal	-	-	-	-	-	-	-	-	-	-	-
25	Network opex	8,117	8,237	8,237	8,282	8,331	8,408	8,410	8,437	8,464	8,492	8,519
26	System operations and network support	3,455	3,943	3,943	3,943	3,943	3,943	3,943	3,943	3,943	3,943	3,943
27	Business support	6,605	8,060	8,060	8,060	8,060	8,060	8,060	8,060	8,060	8,060	8,060
28	Non-network opex	10,060	12,003	12,003	12,003	12,003	12,003	12,003	12,003	12,003	12,003	12,003
29	Operational expenditure	18,177	20,240	20,240	20,285	20,334	20,411	20,413	20,440	20,467	20,495	20,522
30	Subcomponents of operational expenditure (where known)											
31	Research and development	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
32	Insurance	252	266	266	266	266	266	266	266	266	266	266
33		\$000										
34		-	102	211	335	438	545	653	765	879	996	1,116
35		-	119	246	394	521	658	790	930	1,076	1,226	1,382
36		-	-	-	-	-	-	-	-	-	-	-
37	Service interruptions, incidents and emergencies	-	102	211	335	438	545	653	765	879	996	1,116
38	Routine and corrective maintenance and inspection	-	119	246	394	521	658	790	930	1,076	1,226	1,382
39	Asset replacement and renewal	-	-	-	-	-	-	-	-	-	-	-
40	Network opex	-	221	458	729	959	1,203	1,443	1,695	1,955	2,222	2,498
41	System operations and network support	-	106	219	347	454	564	677	792	910	1,032	1,156
42	Business support	-	216	448	709	928	1,153	1,383	1,619	1,861	2,109	2,364
43	Non-network opex	-	322	667	1,056	1,382	1,717	2,060	2,412	2,772	3,141	3,520
44	Operational expenditure	-	543	1,124	1,784	2,342	2,920	3,503	4,107	4,727	5,364	6,018

Schedule 11b Explanatory Notes

The box below provides commentary specific to the difference between nominal and constant price operational expenditure forecasts. It is provided in the same format as required for Box 2, Schedule 14a of the Gas Distribution Information Disclosures, which will be fully disclosed within 6 months of the end of the disclosure year.

Commentary on difference between nominal and constant price operational expenditure forecasts

Vector has used the NZIER (New Zealand Institute of Economic Research) March 2014 PPI (Producer Price Index-outputs) forecast from 2014 to 2017. Thereafter we have assumed a long-term PPI rate of 2.5%. The constant price operational expenditure forecast is then inflated by the above mentioned PPI forecast to nominal price operational expenditure forecasts.



Gas Distribution Asset Management Plan Update

Information Disclosure 2014

Appendix 3 Report on Asset Condition

Company Name **Vector Limited**
 AMP Planning Period **1 July 2014 - 30 June 2024**

SCHEDULE 12a: REPORT ON ASSET CONDITION

This schedule requires a breakdown of asset condition by asset class as at the start of the forecast year. The data accuracy assessment relates to the percentage values disclosed in the asset condition columns. Also required is a forecast of the percentage of units to be replaced in the next 5 years. All information should be consistent with the information provided in the AMP and the expenditure on assets forecast in Schedule 11a.

sch ref						Asset condition at start of planning period (percentage of units by grade)					Data accuracy (1-4)	% of asset forecast to be replaced in next 5 years	
	Operating Pressure	Asset category	Asset class	Units		Grade 1	Grade 2	Grade 3	Grade 4	Grade unknown			
7													
8	Intermediate Pressure	Main pipe	IP PE main pipe	km		-	-	-	-	-	4	-	
9	Intermediate Pressure	Main pipe	IP steel main pipe	km		-	-	-	100.00%	-	3	-	
10	Intermediate Pressure	Main pipe	IP other main pipe	km		-	-	-	-	-	4	-	
11	Intermediate Pressure	Service pipe	IP PE service pipe	km		-	-	-	-	-	4	-	
12	Intermediate Pressure	Service pipe	IP steel service pipe	km		-	-	80.43%	19.57%	-	3	-	
13	Intermediate Pressure	Service pipe	IP other service pipe	km		-	-	-	-	-	4	-	
14	Intermediate Pressure	Stations	Intermediate pressure DRS	No.		-	12.23%	43.62%	44.15%	-	4	14.13%	
15	Intermediate Pressure	Line valve	IP line valves	No.		0.22%	3.86%	78.61%	1.98%	15.33%	3	0.20%	
16	Intermediate Pressure	Special crossings	IP crossings	No.		-	17.50%	77.50%	2.50%	2.50%	3	0.32%	
17	Medium Pressure	Main pipe	MP PE main pipe	km		-	-	-	100.00%	-	3	0.29%	
18	Medium Pressure	Main pipe	MP steel main pipe	km		-	-	41.44%	58.56%	-	3	-	
19	Medium Pressure	Main pipe	MP other main pipe	km		-	100.00%	-	-	-	3	-	
20	Medium Pressure	Service pipe	MP PE service pipe	km		-	-	100.00%	-	-	3	0.21%	
21	Medium Pressure	Service pipe	MP steel service pipe	km		-	36.42%	63.58%	-	-	3	-	
22	Medium Pressure	Service pipe	MP other service pipe	km		-	-	100.00%	-	-	3	-	
23	Medium Pressure	Stations	Medium pressure DRS	No.		-	2.00%	48.00%	50.00%	-	4	-	
24	Medium Pressure	Line valve	MP line valves	No.		0.05%	1.16%	79.43%	1.94%	17.41%	3	0.10%	
25	Medium Pressure	Special crossings	MP special crossings	No.		-	7.50%	54.17%	31.67%	6.67%	3	0.97%	
26	Low Pressure	Main pipe	LP PE main pipe	km		-	-	11.77%	88.23%	-	3	2.65%	
27	Low Pressure	Main pipe	LP steel main pipe	km		-	100.00%	-	-	-	3	100.00%	
28	Low Pressure	Main pipe	LP other main pipe	km		-	100.00%	-	-	-	3	-	
29	Low Pressure	Service pipe	LP PE service pipe	km		-	-	29.54%	70.46%	-	3	9.39%	
30	Low Pressure	Service pipe	LP steel service pipe	km		-	100.00%	-	-	-	3	100.00%	
31	Low Pressure	Service pipe	LP other service pipe	km		-	100.00%	-	-	-	3	-	
32	Low Pressure	Line valve	LP line valves	No.		-	-	54.29%	-	45.71%	3	-	
33	Low Pressure	Special crossings	LP special crossings	No.		-	-	-	100.00%	-	3	0.01%	
34	All	Monitoring & control systems	Remote terminal units	No.		-	14.71%	76.47%	8.82%	-	3	-	
35	All	Cathodic protection systems	Cathodic protection	No.		4.08%	18.37%	77.55%	-	-	4	6.85%	



Gas Distribution Asset Management Plan Update

Information Disclosure 2014

Appendix 4 Report on Forecast Utilisation

Company Name **Vector**
 AMP Planning Period **1 July 2014 – 30 June 2024**

SCHEDULE 12b: REPORT ON FORECAST UTILISATION

This Schedule requires a breakdown of current and forecast utilisation (for heavily utilised pipelines) consistent with the information provided in the AMP and the demand forecast in schedule S12c.

sch ref

Forecast Utilisation of Heavily Utilised Pipelines

Utilisation

Region	Network	Pressure system	Nominal operating pressure (NOP) (kPa)	Minimum operating pressure (MinOP) (kPa)	Total capacity at MinOP (scmh)	Remaining capacity at MinOP (scmh)	Unit	Current Year CY					Comment	
								y/e 30 Jun 14	CY+1 y/e 30 Jun 15	CY+2 y/e 30 Jun 16	CY+3 y/e 30 Jun 17	CY+4 y/e 30 Jun 18		CY+5 y/e 30 Jun 19
Auckland	Auckland Central	AU Auckland IP20	1,900	950	75,235	769	scmh	74,466	75,105	75,744	76,383	77,022	77,662	Remaining capacity at MinOP is available in East Tamaki area. Refer Note 4 for other explanatory information.
							kPa	1,173	1,160	1,147	1,133	1,120	1,106	
Auckland	Auckland Central	AU North Shore MP4	400	200	15,060	95	scmh	14,965	15,114	15,266	15,418	15,572	15,728	Remaining capacity at MinOP is available in Devonport area. Refer Note 5 for other explanatory information.
							kPa	233	229	225	220	216	212	
Auckland	Auckland Central	AU Central Auckland MP4	400	200	46,282	98	scmh	46,184	46,646	47,112	47,584	48,059	48,540	Remaining capacity at MinOP is available in South Titrangi area. System reinforcement is planned in 2015 and 2016. Refer to Notes 5, 8 and 10 for other explanatory information.
							kPa	262	259	256	253	250	247	
Auckland	Auckland Central	AU East Auckland MP4	400	200	19,092	99	scmh	18,999	19,183	19,375	19,569	19,764	19,962	Remaining capacity at MinOP is available in Mangere area. System reinforcement is planned to implement in 2014. Refer Notes 5, 9 and 10 for other explanatory information.
							kPa	265	262	259	256	252	249	
Auckland	Auckland Central	AU Auckland Airport MP4	400	200	2,202	37	scmh	2,165	2,186	2,208	2,230	2,253	2,275	Remaining capacity at MinOP is available in the vicinity of Domestic Terminal area. System reinforcement is planned in 2018. Refer Notes 5 and 10 for other explanatory information.
							kPa	211	206	201	196	207	203	
Auckland	Harrisville	HR Harrisville MP7	700	350	4,857	382	scmh	4,475	4,714	4,953	5,192	5,432	5,671	Remaining capacity at MinOP is available at Bombay east area. A new gate station is planned to be constructed in FY2015 by Vector Transmission. Refer Notes 4 for other explanatory information.
							kPa	430	445	434	423	410	397	
Waikato	Hamilton	HA Hamilton West MP4	400	200	3,136	26	scmh	3,110	3,169	3,229	3,291	3,353	3,417	Remaining capacity at MinOP is available in Nawton east area. Refer Note 6 for other explanatory information.
							kPa	232	228	224	219	215	210	
Waikato	Hamilton	HA Pukete MP4	400	200	2,833	72	scmh	2,761	2,813	2,867	2,921	2,977	3,033	Remaining capacity at MinOP is available in Te Rapa east area. System reinforcement is planned in 2019. Refer Notes 6 and 10 for other explanatory information.
							kPa	218	214	209	203	198	242	
Waikato	Waitoa	WT Waitoa MP4	400	200	1,702	7	scmh	1,702	1,746	1,792	1,838	1,886	1,935	Remaining capacity at MinOP is available nil. System reinforcement is planned in 2015. Refer Notes 7 and 10 for other explanatory information.
							kPa	152	250	242	234	226	217	
Gisborne	Gisborne	GS Gisborne IP20	1,900	950	3,608	301	scmh	3,307	3,333	3,358	3,384	3,409	3,435	Remaining capacity at MinOP is available at Matawhero south area. Refer Note 4 for other explanatory information.
							kPa	1,170	1,161	1,152	1,142	1,133	1,124	
Kapiti	Paraparaumu	PR Paraparaumu IP20	1,900	950	1,718	7	scmh	1,718	1,766	1,814	1,862	1,911	1,960	Remaining capacity at MinOP is nil. System reinforcement is planned in 2015. Refer Notes 4 and 10 for other explanatory information.
							kPa	711	1,357	1,336	1,314	1,291	1,267	

* Current year utilisation figures may be estimates. Year 1-5 figures show the utilisation forecast to occur given the expected system configuration for each year, including the effect of any new investment in the pressure system.

Disclaimer for supply enquiries

The information in this table contains modelled estimates of utilisation and capacity. Any interested party seeking to invest in supply from Vector's distribution networks should contact their retailer and confirm availability of capacity.

Notes and assumptions

- A 'heavily utilised' pressure system is a pressure system where the modelled flow rate, at system peak during 2013, is greater than or equal to 500 scmh, and its utilisation (pressure drop) is greater than or equal to 40% from the nominal operating pressure (NOP). The utilisation of a pressure system is calculated using the formula: $[1 - (\text{system minimum pressure} / \text{nominal operating pressure})] * 100\%$.
- The remaining capacity of a 'heavily utilised' pressure system is obtained by examining the modelled flows at various extremity points in each pressure system, and the level at which the minimum operating pressure (MinOP) is reached. Vector's security standards set the MinOP at 50% of the rated pressure (which equates to approximately 82% of the pipeline capacity) for a pressure system (based on standard operating pressures). The minimum modelled flow rate, analysed at one extremity point, is used to calculate the remaining capacity of the entire pressure system being studied.
- A forecast model of a pressure system is obtained by applying either its forecast flow rate or an annual growth rate, in each forecast year, and scaling its loads evenly to give the system total flow. The resulting minimum system pressure is simulated on this basis.
- The forecast system flow is populated using the respective network system as tabulated in Table 5.1 of Section 5 - Network Development Planning of Gas Distribution Asset Management Plan 2013 - 2023.
- The forecast system flow for the Central Auckland network system is based on an annual growth rate of 1%, as tabulated in Table 5.1 of Section 5 - Network Development Planning of Gas Distribution Asset Management Plan 2013 - 2023.
- The forecast system flow for the Hamilton network system is based on an annual growth rate of 1.9%, as tabulated in Table 5.1 of Section 5 - Network Development Planning of Gas Distribution Asset Management Plan 2013 - 2023.
- The forecast system flow for the Waitoa network system is based on an annual growth rate of 2.6%, as tabulated in Table 5.1 of Section 5 - Network Development Planning of Gas Distribution Asset Management Plan 2013 - 2023.
- The AU Central Auckland MP4, AU Onehunga MP4, AU Main Highway MP4, AU Station Road MP4 and AU Station Road (19) MP4 pressure systems will merge together following the completion of the Auckland LP pipeline replacement programme (expected in FY2014).
- The AU East Auckland MP4, Mangere MP4, AU Fairburn MP4 and AU Westfield MP4 pressure systems will merge together following completion of the Auckland LP pipeline replacement programme (expected in FY2014).
- Details of performance, capacity and system reinforcement are described in Section 5 - Network Development Planning of Gas Distribution Asset Management Plan 2013 - 2023 and the Gas Distribution Asset Management Plan Update - Information Disclosure 2014.
- Schedule 12b provides a snapshot in time of the pressure system capacity, at the date of its preparation, and it should be noted that the figures will change over time. Schedule 12b is provided on the basis that it be used for consumer guidance only.
- The capacity limits specified in Schedule 12b for each 'heavily utilised' pressure system, highlights only the most constrained part of the pressure system, at that specific location the MinOP is lowest, in reality more capacity may be available at other locations within the pressure or network system.
- Consumers considering using gas or wanting more capacity should always contact Vector to confirm availability. In these cases, Vector will prepare a dedicated model that will provide an accurate assessment of available gas capacity at the specified location.
- For the purposes of ascertaining the highest utilised pipelines, there has been no segregation or prioritisation between the Auckland and North Island networks. Both networks have been amalgamated for the purposes of this exercise.
- Due to resource constraints, the network models used to compile Schedule 12b are updated on a 3 year rolling cycle, meaning that the model update, forecast and validation of some models may not have been updated since 2010.
- It has been assumed that the load forecasting documented in the AMP is correct, and that all assumptions and risks associated with this forecasting have been reviewed and approved as part of a separate exercise associated with signing off the AMP.

Schedule 12b Explanatory Notes

Explanatory notes pertaining to Schedule 12b are provided in the box below, in the format required for Schedule 15 of the Gas Distribution Information Disclosures:

Additional explanatory comment on disclosed information



Gas Distribution Asset Management Plan Update

Information Disclosure 2014

Appendix 5 Report on Forecast Demand

Company Name **Vector**
 AMP Planning Period **1 July 2014 – 30 June 2024**

SCHEDULE 12c: REPORT ON FORECAST DEMAND

This schedule requires a forecast of new connections (by consumer type), peak demand and energy volumes for the disclosure year and a 5 year planning period. The forecasts should be consistent with the supporting information set out in the AMP as well as the assumptions used in developing the expenditure forecasts in Schedule 11a and Schedule 11b and the capacity and utilisation forecasts in Schedule 12b.

sch ref

12c(i) Consumer Connections							
Number of ICPs connected in year by consumer type		Current year CY	CY+1	CY+2	CY+3	CY+4	CY+5
		30 Jun 14	30 Jun 15	30 Jun 16	30 Jun 17	30 Jun 18	30 Jun 19
<i>Consumer types defined by GDB</i>							
Residential		3,521	3,774	4,183	4,458	4,653	4,050
Commercial		311	313	314	313	313	312
Total		3,832	4,087	4,497	4,771	4,966	4,362
12c(ii): Gas Delivered							
		Current year CY	CY+1	CY+2	CY+3	CY+4	CY+5
		30 Jun 14	30 Jun 15	30 Jun 16	30 Jun 17	30 Jun 18	30 Jun 19
Number of ICPs at year end		159,558	162,412	165,676	169,215	172,949	176,078
Maximum daily load (GJ/day)		85,392	93,719	94,258	94,800	95,345	95,893
Maximum monthly load (GJ/month)		2,150,227	2,229,605	2,225,181	2,220,765	2,216,358	2,211,960
Number of directly billed ICPs (at year end)		1	1	1	1	1	1
Total gas conveyed (GJ/annum)		21,799,718	21,594,212	21,876,635	21,885,859	21,884,050	21,860,870
Average daily delivery (GJ/day)		59,725	59,162	59,772	59,961	59,956	59,893
Maximum monthly amount of gas entering network (GJ/month)		2,150,227	2,229,605	2,225,181	2,220,765	2,216,358	2,211,960
Load factor		84.49%	80.71%	81.93%	82.13%	82.28%	82.36%

Schedule 12c Explanatory Notes

Explanatory notes pertaining to Schedule 12c are provided in the box below, in the format required for Schedule 15 of the Gas Distribution Information Disclosures:

Additional explanatory comment on disclosed information

Schedule 17 Certification for Year-beginning Disclosures

Clause 2.9.1 of section 2.9

We, Alison Paterson and

Michael Stanny, 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 2.6.1 and subclauses 2.6.3(2)(b), and 2.6.5(2) of the Gas Distribution 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 measured on a basis consistent with regulatory requirements or recognised industry standards.



Director



Director

30 May 2014
Date