vector

2024—2034

gas distribution asset management plan update

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1 – Introduction

1.1 Executive summary

This Asset Management Plan (AMP) update sets out our view of the investments we believe will deliver the best outcomes, however we note that, particularly given the uncertainty over future demand for natural gas, and the wider decarbonisation regulatory framework discussed below, we are not bound to follow the investments described here. As we update our views on how to best deliver for our customers, each investment we make goes through appropriate governance processes to ensure it is delivering against our strategy.

Decarbonisation scenario analysis indicates that gas infrastructure companies, and their connected consumers are currently exposed to material transition costs, disruption, and gas-asset stranding risk. This risk is largely driven through uncertainty over the future of gas infrastructure, and a lack of clear policy direction to adequately manage this transition. Our chief concern is that the principle of financial capital maintenance, which provides foundational confidence for regulated infrastructure investment, is at risk of being severely undermined. Regulatory failure leading to asset stranding of gas pipeline infrastructure will radically undermine the principle of financial capital maintenance, which will then risk an impediment to investments in other regulated businesses such as electricity networks. This is a serious concern when such large and substantial energy infrastructure investments are required to drive electrification.

Scenario analysis indicates that under current regulatory and policy settings the extent of network stranding across New Zealand could be very material, with estimated risk across all gas networks of $973 million assuming a 2050 stranding date with no further regulatory or policy mitigations[1]. This becomes problematic for future investments such as repair after a natural disaster and, due to the combination of risk of capital recovery, and director duties under the Companies Act, it may be more rational to shut down the impacted network (in part or in full) prematurely rather than deploy capital for repair, leaving consumers stranded.

In November 2023, Vector drafted a paper to government[2] presenting potential pathways for a manged transition, which requires clear policy direction to drive certainty, regulatory intervention to accelerate and preserve cost recovery, and risk-abating commercial decisions from gas infrastructure businesses. The solutions presented are 'no regrets - no surprises' decisions which acknowledge the complexity of the transition but maintain optionality. For example, if renewable gases were to materialise in 10 years, there would be a pathway to enable them. However, if renewable gases do not materialise, then the network can still be wound down in an orderly manner without heavily burdening remaining consumers and ensuring regulated infrastructure investors are kept whole financially. We are still awaiting announcements from the new Government on their next steps on the Gas Transition Plan.

We're pleased the Commerce Commission has acknowledged the transition to a low carbon economy, and the need to balance the objectives of Government, customers, and gas asset owners around the use of natural gas within credible emission reduction pathways. This is reflected in the current DPP period in our ability to recover our long-term investment in gas network infrastructure. Accelerating our ability to recover costs now, lessens the risk of bigger price changes for gas customers further down the track. We do however note that there is more that can be done, examples include:

- Transitioning accelerated depreciation methods from 'straight-line' depreciation to a tilted method which would better protect future customers from exponential price increases as is already implemented in the UK and the Netherlands.
- Preparing a strategy for end-of-life treatment, such as via a decommissioning allowance.
- Changing the price cap to a revenue cap so that gas networks are no longer incentivised to grow demand and can better align with New Zealand's net-zero objectives.
- Removal of inflation indexation to bring capital recovery forward in a NPV neutral manner to reduce burden on future consumers and reduce stranded asset risk.
- Exploring whether the regulated framework can enable gas network rightsizing where sections of the gas network that have low users, or high upcoming capital investments can be proactively decommissioned with the goal of reducing overall consumer cost through more efficient gas network use.

We continue to manage this future uncertainty by remaining agile, working to preserve optionality, and by putting our customers at the centre of our asset management approach. We have developed our 10-year forward investment programme and operating costs for this AMP update with a very high level of uncertainty around the future environment.

1.2 AMP update purpose statement

In June 2023, we published a comprehensive AMP, which is available on our website www.vector.co.nz. This 2024 AMP update is structured to meet the disclosure requirements and is limited to providing information on material changes to the 2023 AMP so that our customers, staff and stakeholders can understand the context in which we make investment decisions to deliver a safe, resilient, reliable and affordable network.

Schedule 13 Report on Asset Management Maturity remains unchanged since the last published AMP.

[1] https://comcom.govt.nz/__data/assets/pdf_file/0012/323130/Gas-Infrastructure-Working-Group-GIFWG-Attachment_-Gas-Transition-Analysis-Paper-13-June-2023-Submission-on-IM-Review-2023-Draft-Decisions-19-July-2023.pdf

[2] https://blob-static.vector.co.nz/blob/vector/media/vector-2024/vector-2023-managing-the-gas-transition.pdf

1.3 AMP update planning period

This AMP update covers a 10-year planning period, from 1 July 2024 to 30 June 2034. Consistent with Information Disclosure requirements, information is provided in this update to show material changes and updates to our asset management planning since 2023, when the last Gas Distribution AMP (1 July 2023 – 30 June 2033) was published. In particular the update contains updated 10-year capital investment and maintenance programmes for the gas distribution network.

1.4 Certification date

This AMP update was certified and approved by our Board of Directors on 26 June 2024 and publicly disclosed on 27 June 2024.

2 – Regulatory update

In 2022, the Commerce Commission (Commission) amended the Input Methodologies Determination 2012 to enable it to apply an adjustment factor to accelerate depreciation for Gas Distribution Businesses (GDBs) in the DPP (Default Price-Quality Path). The Commission applied an adjustment factor commencing in the current DPP in order to bring cost recovery forward to maintain investment incentives in the face of heightened asset stranding risk. The Commission's approach assumed a weighting of two possible winddown scenarios which effectively results in a target sunset date of 2056.

The Major Gas Users Group appealed the Commission's IM and DPP decisions on accelerated depreciation. In April 2024, the High Court dismissed both appeals. This decision affirms the Commission's longstanding approach to delivering ex ante financial capital maintenance (FCM), which provides that firms should have an expectation of being able to earn normal returns over the lifetime of an investment.

It is important that the Commission continues to support the principle of FCM given the stranding risks GDBs face due to the commitment to net zero 2050. Their decision in 2022 which has now been affirmed by the High Court decision is a good start, however if a winddown scenario occurs there is a likely reality that the gas networks cease supplying before 2056. Therefore, we consider the Commission must go further than just applying the acceleration of depreciation to support their regulatory principle of FCM. As we have suggested throughout the last DPP reset consultation process, the Commission should also implement a revenue cap for GDBs along with the removal of RAB indexation as both these actions along with accelerating depreciation are stronger support for the FCM principle and will better support the continued investment required for an orderly energy transition.

3 – Climate change and the future of gas

3.1 Transitional climate risks

Climate scenario modelling, such as that included in Vector's Task Force for Climate Related Financial Disclosures (TCFD) reports, shows that gas infrastructure companies, and their connected consumers are currently exposed to material transition costs, and gas-asset stranding risk. This risk is largely driven through uncertainty over the future of gas infrastructure, and a lack of consistent policy direction to adequately manage this transition.

In August 2023, the Government prepared a consultation on the Gas Transition Plan. Vector's submission on that plan outlines a set of potential pathways for a managed transition, which requires clear policy direction to drive certainty, regulatory intervention to accelerate and preserve cost recovery, and risk-abating commercial decisions from gas infrastructure businesses[3]. Fundamentally, it hinges on the importance of financial capital maintenance and the certainty of regulated cost recovery.

Certainty of cost recovery not only protects regulated infrastructure investment in New Zealand, but also the impacts on future consumers. For example, regulations that put infrastructure networks at risk of being cash-flow negative, may lead to those networks being shut-down leaving consumers stranded. On the contrary, regulations that preserve the principle of financial capital maintenance and allow for accelerated cash-flows not only serve to mitigate regulated infrastructure owners from stranded assets, but also protect future consumers from substantial price increases. Examples of this include accelerated depreciation, and provisions for end of life decommissioning.

3.2 Renewable gases

There is interest from some commercial customers to utilise alternative renewable combustion sources, such as biomethane, hydrogen or biomass. Vector continues to support and work closely with other GDBs and biogas sources to introduce the potential blending of renewable gases into natural gas networks. There is still significant uncertainty regarding renewable gas availability, price, and commerciality to speculate as to whether it will save natural gas pipelines from stranding risk. For example, renewable fuels required to produce sustainable aviation fuel alone are projected to match total biomass supply in 2037[4].

Fortunately, the mitigation of stranded assets through accelerated cash-flow recovery, and the research and development into renewable gases are complimentary strategies. In the event of a technological breakthrough allowing for sustained pipeline injection of renewable gases in sufficient quantities, the Commerce Commission can continue to manage regulated recovery. As capital on the gas network may have been significantly recovered, the network tariff would be lower than the status-quo to achieve the NPV=0 principle. Essentially increased tariffs on fossil-gas now, supports the potential uptake of renewable gases in the future.

3.3 Physical climate risks

We prioritise physical climate risk as a material risk for Vector with Board Risk and Assurance Committee oversight. We provide clear and transparent reporting of sustainability risks, opportunities, and metrics through our Annual Reports as well as our TCFD reports.

Vector's natural gas network demonstrated a high degree of reliability and resilience to the impacts of climate change, which was observed during the 27 January 2023 Auckland flooding event and Cyclone Gabrielle in February 2023. The gas network was able to maintain supply with minimal customer outages during the two events. However, Vector has advanced its climate change modelling.

Initial geospatial information system mapping highlights that 17 of our district regulator stations (DRS) are in potential flood zones, of which 14 sit directly within flood plains. This preliminary analysis does not indicate the depth of flood water, and in many cases the depths can be shallow. Unlike electrical infrastructure, gas infrastructure is more resilient to flood based impacts, and can even function when surrounded by water. As a result, detailed flood depth analysis has not been conducted on these assets. The risk from flooding is taken into account by the Condition Based Asset Risk Management (CBARM) model that Vector has recently developed for its DRS assets. The model is used for prioritising the upgrade or replacement of DRS based on ongoing DRS condition assessments as well as inputs from environmental and other risk assessments which include the proximity of the DRS to flood-prone areas.

As the National Adaptation Plan, comes into force, we expect an increase in data availability, to better model, forecast and evaluate our climate-change induced asset exposure risks.

3.4 Vector's operational carbon emissions

Vector has set a science-based target to reduce 53.5% of its Scope 1 and 2 emissions (excluding electricity line losses) by 2030 based on a 2020 baseline.

As New Zealand has set a national emission reduction target of 50% by 2030, it is important that Vector adopts all low-cost abatement options, as any unabated emissions by 2030 will come at a cost to New Zealand society through government offsets.

[3] https://blob-static.vector.co.nz/blob/vector/media/vector-2024/vector-2023-managing-the-gas-transition.pdf

[4] https://www.climatecommission.govt.nz/our-work/advice-to-government-topic/preparing-advice-on-emissions-budgets/advice-on-the-fourth-emissions-budget/draft-advice-emissions-budget-4/

3.4.1 DIRECT (SCOPE 1 AND 2) EMISSION REDUCTION – FUGITIVE METHANE LEAKS

Fugitive methane from Vector's natural gas pipelines is responsible for 11,908 tonnes of CO_2 in FY23. This is unsurprising as fugitive methane leaks are responsible for approximately 2.5% of New Zealand energy sector greenhouse gas emissions[5].

In FY21, Vector undertook a comprehensive study to model methane leaks on our network. The model created a fluid dynamics based, quasi-digital twin of the network, which enabled us to identify and quantify methane leaks. Furthermore, it enabled us to evaluate various initiatives and identify those that have the largest impact, at the lowest cost.

EMISSION SOURCE	FY20	FY21	FY22	FY23
Pipe permeation (tonnes of co2)	49	49	49	49
Leaks detected in systematic survey	10,709	6,023	7,547	6,696
Operational emission / maintenance	8	13	8	3
Third-party damages	4,199	4,685	5,582	3,890
Public reported escapes	20	15	19	19
District regulator stations (DRS) (maintenance and operation)	759	665	660	617
Valves and fittings	624	624	628	634
Total	**16,368**	**12,074**	**14,493**	**11,908**

TABLE 3-1 SOURCES OF SCOPE 1 FUGITIVE EMISSIONS

The largest cause of fugitive emissions on the Vector network are due to leaks found on routine surveys. Leaks found from routine surveys are small leaks that go undetected between leakage survey cycles, leading to accumulated gas volume escape. The most cost effective strategy to reduce methane leaks is to increase the survey frequency of the gas pipelines to a full gas survey every four months. This overall programme is estimated to reduce 9,000 tCO2e, at a marginal carbon cost of $48/tCO2e. This is a cost that is lower than the current ETS price of $55/tCO2e and therefore considered to be carbon cost effective. To date Vector has increased survey frequency to every 6 months which has reduced approximately 4,000 tCO2e per year in FY23 compared to the FY20 baseline. 4-monthly surveying is expected to commence in FY27.

Third-party damages, especially on service pipes, is the second material emission source. Vector has observed a decrease in third-party damage emissions in FY23 which may be attributed to Vector's extensive public outreach and campaigns in that same year.

[5] https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-statistics-and-modelling/energy-statistics/new-zealand-energy-sector-greenhouse-gas-emissions/

4 – Network Performance

This section reviews the key asset management service levels previously described in the 2023 AMP.

4.1 Unplanned interruptions rate

For the period ending 30 June 2023, Vector's unplanned interruption rate of 1.3 was below (favourable) compared to our target of 1.8 interruptions per 1,000 customers.

During RY23, 91% of unplanned interruptions were caused by third-party damage, with the balance being caused by equipment failure. As mentioned in Section 4.6, third-party damage events have reduced in RY23, resulting in a lower number of unplanned interruptions. This trend demonstrates that Vector's asset management strategies, such as those listed in Section 4.6, are appropriate to maintain our current network performance.

Table 4-1 shows the comparison of the unplanned interruption rate for the previous five years against Vector's target.

SERVICE LEVEL	RY19	RY20	RY21	RY22	RY23	TARGET	PERFORMANCE AGAINST TARGET
Unplanned interruptions per 1,000 customers	1.9	1.6	1.5	1.6	1.3	< 1.8	

TABLE 4-1 UNPLANNED INTERRUPTION RATE PER 1,000 CUSTOMERS

4.2 Number of poor pressure events

For the period ending 30 June 2023, there have been seven poor pressure events compared to our target of four events or less per annum. An analysis of the seven poor pressure events show that all events relate to individual customer events, and none were related to poor supply pressure during the peak winter demand. Vector's strategy for reducing poor pressure events is included in the proactive replacement of riser valves, described in section 5.5.1.

Table 4-2 shows the comparison of poor pressure events due to network causes for the previous five years against Vector's target.

SERVICE LEVEL	RY19	RY20	RY21	RY22	RY23	TARGET	PERFORMANCE AGAINST TARGET
Poor pressure events due to network causes	1	2	3	4	7	<4	

TABLE 4-2 NUMBER OF POOR PRESSURE EVENTS

4.3 Customer satisfaction score – faults

For the period ending 30 June 2023, Vector's customer satisfaction score (CSAT) for fault response was 9.1 which is favourable compared to our target of greater than 8.7. The score is based on the customers overall satisfaction, including professionalism, communication and process, when dealing with our field service providers during a gas fault event.

Table 4-23 shows the comparison of CSAT for the previous five years.

SERVICE LEVEL	RY19	RY20	RY21	RY22	RY23	TARGET	PERFORMANCE AGAINST TARGET
Customer Satisfaction Score (CSAT)	8.3	8.9	8.9	9.2	9.1	> 8.7	

TABLE 4-3 CUSTOMER SATISFACTION SCORE - FAULTS

4.4 Response time to emergencies

For the period ending 30 June 2023, Vector's response time to emergencies (RTE) within one hour was 97.7% and 100% within three hours. Vector's target proportion of RTE within one and three hours is 80% and 100%, respectively. Vector's RTE targets were therefore met or exceeded. This demonstrates that Vector's current reactive response strategies are effective in ensuring response times to faults and emergencies are appropriate.

Table 4-4 shows the comparison of RTE for the previous five years against Vector's target.

SERVICE LEVEL	RY19	RY20	RY21	RY22	RY23	TARGET	PERFORMANCE AGAINST TARGET
Proportion of RTE within one hour	98.1%	95.1%	100%	96.2%	97.7%	>80%	
Proportion of RTE within three hours	100%	100%	100%	100%	100%	100%	

TABLE 4-4 RESPONSE TIME TO EMERGENCIES

4.5 Public reported escapes

For the period ending 30 June 2023, Vector's public reported escapes (PRE) performance was 18 (favourable) compared to our target of less than 20 PRE per 1000km. Approximately 52% of all PRE related to service riser faults (i.e., riser valve, pipe or crimp joint); a further 27% of PRE related to service pipe faults (i.e., service pipe or fitting) and the balance related to mains pipes and fittings, DRS and service regulators etc.

Over the last four years, the PRE results for each year have been below the current target. This trend demonstrates that Vector's current planned and corrective maintenance programmes (e.g., increased proactive leakage surveys), and asset renewal programmes (e.g., pre-1985 Polyethylene (PE) pipeline replacement, riser valve replacements etc.) are appropriate strategies to achieve ongoing network performance improvements.

Table 4-5 below shows the comparison of PRE for the previous five years against Vector's target.

SERVICE LEVEL	RY19	RY20	RY21	RY22	RY23	TARGET	PERFORMANCE AGAINST TARGET
PRE per 1,000km	21	19	17	19	18	<20	

TABLE 4-5 NUMBER OF PRE PER 1,000 KM OF DISTRIBUTION SYSTEM

4.6 Third-party damages

For the period ending 30 June 2023, Vector's third-party damage (TPD) performance was 36 events per 1000km (favourable) compared to our target of less than 45 events per 1000km. During RY23, a number of proactive communication strategies were implemented e.g., Facebook and beforeUdig campaigns which focus on improving the awareness of the presence of underground assets. The number of damage events on service pipes reduced from 73% in RY22 to 67% in RY23, contributing to the improved TPD performance.

Table 4-6 shows the comparison of TPD for the previous five years against Vector's target.

SERVICE LEVEL	RY19	RY20	RY21	RY22	RY23	TARGET	PERFORMANCE AGAINST TARGET
TPD per 1000km	46	41	45	47	36	<45	

TABLE 4-6 NUMBER OF TPD PER 1,000 KM OF DISTRIBUTION SYSTEM

4.7 Natural gas fugitive emissions (scope 1)

For the period ending 30 June 2023, Vector's Scope 1 fugitive emissions on the gas distribution network were 11,908 tonnes of CO_2 equivalent (tCO_2e), a reduction of 2,585 tCO_2e or 17.8% compared to RY22. Performance is tracking well towards Vector's RY30 target of 7,022 tCO_2e.

The key initiatives implemented in RY23 that achieved this result include:

- A reduction of 1,692 tCO_2e due to a reduction in the number of third-party damage events (refer to Section 4.6); and
- A reduction of 851 tCO_2e due to reducing leakage survey cycles from annually to 6-monthly which means any leak found is now calculated to have been leaking for an average of three months compared to six months in RY22.

Table 4-7 shows the comparison of CO_2 equivalent emissions for the previous five years against Vector's target.

SERVICE LEVEL	RY19	RY20	RY21	RY22	RY23	RY30 TARGET	PERFORMANCE AGAINST TARGET
Scope 1 emissions in tonnes of carbon dioxide equivalent (tCO_2e)	14,084	16,368	12,074	14,493	11,908	7,022	

TABLE 4-7 NATURAL GAS FUGITIVE EMISSIONS (TONNES OF CO_2 EQUIVALENT)

5 – Managing our assets lifecycle

This section discusses aspects that have led to key changes to Vector's life-cycle management practices as previously described in the 2023 AMP.

5.1 Network maintenance

5.1.1 OVERVIEW

Vector's network maintenance programmes are categorised as follows:

- Reactive maintenance
- Planned maintenance
- Corrective maintenance
- Third-party services

Reactive maintenance is considered to encapsulate all maintenance activities that relate to the response, fault investigation, repair and restoration of supply, and the safeguarding of life and property (targets and measures for Vector's responses to emergencies are detailed in Section 4). It primarily involves:

- Emergency response and the repair or replacement of any part of the network components damaged due to environmental factors or third-party interference; and
- Remediation or isolation of unsafe network situations.

Planned maintenance covers activities defined through Vector's maintenance standards and relates to the following:

- Provision of network patrols, leakage surveys, inspection and condition assessment tasks, sampling and maintenance service work;
- The coordination of shutdowns and decommissioning, and re-commissioning and restoration, along with the capture and management of all defined data; and
- In addition to routine periodic planned maintenance inspections, Vector also undertakes one-off surveys where necessary to assess risk and formulate mitigation plans - e.g., a pipe-in-buildings or inactive service pipes (i.e., service pipes that are live but not in use);

Corrective maintenance catches the follow-up maintenance repair and component replacement requirements resulting from:

- Assets identified from planned inspections or service work to be in poor condition, requiring repair;
- Poor condition or unserviceable assets identified via one-off coordinated network surveys or identified through proximity capital works;
- Removal of graffiti, painting and repair of buildings and asset enclosures, removal of decommissioned assets, one-off type surveys and condition detection tasks outside of planned maintenance standards; and
- Coordination of shutdowns and associated restoration, along with the capture and management of all defined data.

Third-party services maintenance activities describe third-party directed requests such as the following:

- Issuing maps and site plans to indicate the location of network assets via the 'beforeUdig' service;
- Asset location services, including the marking out of assets, safe work practice site briefings, worksite observer, urgent safety checks, safety disconnections;
- Issuing close approach consents; and
- Disconnection and reconnection associated with customers' property movements and any concerns relating to non-compliance with gas regulations.

The overall performance of Vector's gas distribution network has remained within the service level and reliability targets set. This indicates that the current maintenance program is effective. As a result, the maintenance strategy for the following period is to continue with the programmes already initiated to ensure this performance endures. However, in some cases further improvements and programmes have been identified to maintain the current performance levels described in Section 4.

5.1.2 NETWORK MAINTENANCE FORECAST EXPENDITURE

MAINTENANCE TYPE EXPENDITURE

The following tables provide a typical breakdown of Vector's spend on reactive, planned and corrective maintenance and inspections categories as well as the variances in expenditure from our previous AMP.

Note for comparison purposes last year's AMP forecast is inflated to incorporate the actual cost increase from FY24 to FY25. The forecast figures are on the cost basis as at FY25 dollars only.

FORECAST INVESTMENT SUMMARY ($MILLION CONSTANT FY25)

DESCRIPTION	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	TOTAL
Reactive maintenance	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	26.90
Planned maintenance	1.82	1.84	2.07	2.01	1.98	2.03	1.99	1.97	2.03	1.97	19.72
Corrective maintenance	1.68	1.70	1.45	1.55	1.43	1.36	1.33	1.33	1.39	1.35	14.59
Third-party services	0.73	0.75	0.76	0.77	0.78	0.78	0.78	0.78	0.78	0.78	7.66
Total	**6.93**	**6.98**	**6.97**	**7.02**	**6.87**	**6.86**	**6.79**	**6.77**	**6.89**	**6.79**	**68.87**

TABLE 5-1 NETWORK MAINTENANCE FORECAST EXPENDITURE

FORECAST INVESTMENT SUMMARY ($MILLION CONSTANT FY25)

DESCRIPTION	AMP2024 (FY25$) FY25-FY34 $M	AMP2023 (FY25$) FY24-FY33 $M	CHANGES $M	CHANGES %
Reactive Maintenance	26.28	26.29	0.01	0%
Exceptional Reactive	0.62	0.62	0.00	0%
Preventative Maintenance	19.72	19.14	(0.58)	(3%)
Corrective Maintenance	14.59	14.16*	(0.43)	(3%)
Third-party Services	7.66	7.37*	(0.29)	(4%)
Total	**68.87**	**67.57**	**(1.29)**	**(2%)**

TABLE 5-2 NETWORK MAINTENANCE VARIANCE TO PREVIOUS AMP

*Adjusted to reflect the recategorization of network generated service disconnections from third-party services to corrective maintenance to better align with the nature of the expenditure.

The key changes in the maintenance type expenditure compared to the previous AMP, which excludes the higher adjustment for the inflator rate mentioned in section 7.3, include:

- An increase of (3%) in preventative maintenance due to additional gas leakage and belowground Direct Current Voltage Gradient (DCVG) surveys and special asset inspections. This aligns with Vector's strategy of managing the life cycle of the asset by using advance inspection techniques for earlier fault detection to prevent asset failure and / or unnecessary replacement.
- A (3%) increase in corrective maintenance to address any issues identified with the increased proactive preventative maintenance activities. This increase enables Vector to meet our key asset management service levels specified in Section 4 by preventing asset failure and unplanned customer interruptions.
- Third-party services activities have increased (4%) due to an increase in service disconnections costs required to comply with our technical standards to ensure disconnections are completed safely.

ASSET CATEGORY MAINTENANCE EXPENDITURE

The following tables provide a typical breakdown of Vector's spend across the primary asset categories and is reflected as a percentage of the total expenditure forecast.

FORECAST INVESTMENT SUMMARY ($MILLION CONSTANT FY25)

DESCRIPTION	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	TOTAL
Pipelines	4.94	5.00	5.24	5.30	5.29	5.23	5.17	5.17	5.23	5.18	51.73
Pressure stations	0.19	0.19	0.22	0.19	0.19	0.22	0.19	0.19	0.23	0.19	1.97
Valves	0.75	0.75	0.75	0.76	0.76	0.76	0.76	0.76	0.76	0.76	7.56
CP systems	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	2.35
Monitoring and control systems	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.92
Special crossings	0.72	0.72	0.43	0.44	0.32	0.34	0.35	0.34	0.36	0.34	4.33
Total	**6.93**	**6.98**	**6.97**	**7.02**	**6.87**	**6.86**	**6.79**	**6.77**	**6.89**	**6.79**	**68.87**

TABLE 5-3 NETWORK MAINTENANCE BY ASSET CATEGORY

FORECAST INVESTMENT SUMMARY ($MILLION CONSTANT FY25)

DESCRIPTION	AMP2024 (FY25$) FY25-FY34 $M	AMP2023 (FY25$) FY24-FY33 $M	CHANGES $M	CHANGES %
Pipelines	51.73	49.66	(2.07)	(4%)
Pressure stations	1.97	2.28	0.31	14%
Valves	7.56	7.71	0.15	2%
CP systems	2.35	2.30	(0.05)	(2%)
Monitoring and control systems	0.92	1.05	0.13	12%
Special crossings	4.33	4.57	0.23	5%
Total	**68.87**	**67.57**	**(1.29)**	**(2%)**

TABLE 5-4 NETWORK MAINTENANCE BY ASSET CATEGORY - VARIANCE TO PREVIOUS AMP

The key changes in the maintenance expenditure across the primary asset categories compared to the previous AMP, which excludes the higher adjustment for the inflator rate mentioned in section 7.3, include:

- A (4%) increase in maintenance spend relating to additional preventative and corrective maintenance associated with belowground IP20 steel pipelines and an increase in equipment storage costs of $0.5m over the 10-year planning period.
- A reduction of 14% in pressure station expenditure due to the decline in the asset population following the targeted decommissioning of street regulators and DRS's.
- A review of the valve maintenance inspection cycles and re-categorization of critical valves have resulted in a 2% reduction in valve maintenance expenditure.
- Following a review of CP test points, maintenance spend on CP systems has increased by (2%). The increase is due to additional planned inspections on existing test points that were deemed non-critical which have been reclassified to improve pipeline condition analysis.
- Monitoring and control systems spend has reduced by 12% due to the anticipated decrease in the number of telemetry faults (due to the replacement of 2/3G Cello monitoring system – refer to Section 5.5.5) and combining the intrinsic safety inspection with the telemetry inspection budget provision.
- Special crossings spend has reduced 5% due to the optimisation of the overall asset intervention associated with the implementation of Vector's Condition Based Asset Risk Management (CBARM) strategy.

5.2 Consumer connections

This AMP update remains one that is characterised by very high uncertainty for the future of gas. In the previous AMP Vector incorporated inputs into its forecast that reflected some of this uncertainty as well as observed and announced reductions to the long-term usage of gas. The current environment remains heavily uncertain with key decisions at the national level remaining outstanding. This critically includes the Gas Transition Plan, which was due to be released late 2023 but has not yet been released.

Given the continued uncertainty, we have again opted not to make any major changes at this time as it would simply be speculative. We do wish, however, to flag that there could potentially be large shifts in our next AMP as the future of gas in New Zealand is better understood as outlined in policy and as commercial entities firm up their own emission reduction plans.

At a high level, our forecasts more heavily weight toward shorter term trends (last 3-5 years) and incorporates the outcomes of now known programmes of decarbonisation work i.e., Housing New Zealand's (Kainga Ora) removal of gas at their properties and other government agencies/entities moving to non-gas alternatives as well as known exits of large industrial loads. We have also incorporated a declining factor for both throughput and connections to reflect a possible decarbonisation scenario for the New Zealand economy and a growing consumer preference for non-fossil fuel alternatives.

Figure 5-1 shows the historical and 10-year forecast for the number of new customer connections. It should be noted that in the absence of information to the contrary, growth in network connections is forecast to continue to be positive albeit at lower levels than long term historical averages.

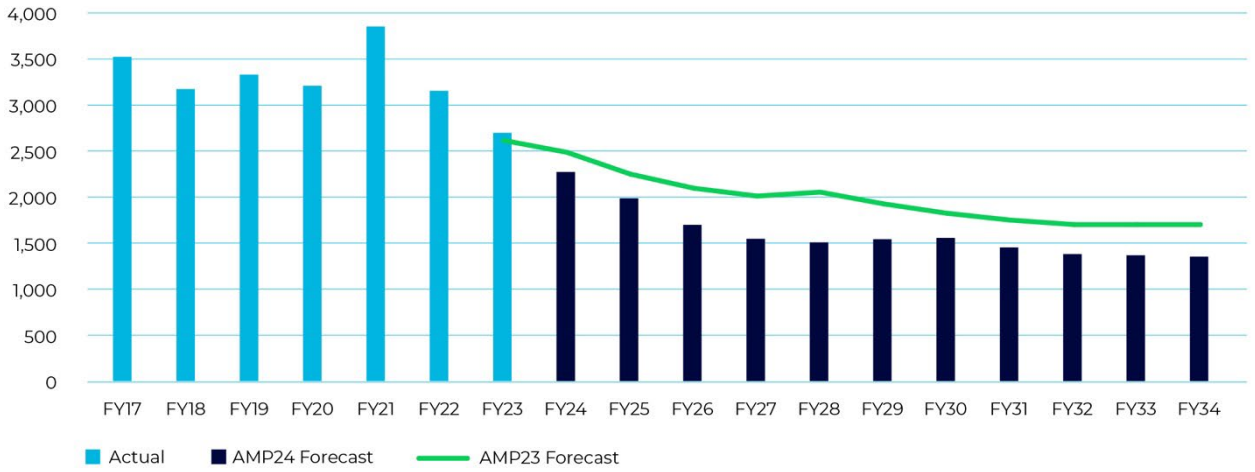

FIGURE 5-1 GAS CONNECTIONS – ACTUAL AND FORECAST

The forecast expenditure for consumer connection is shown in the following table.

FORECAST INVESTMENT SUMMARY ($MILLION CONSTANT)

DESCRIPTION	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	TOTAL
Subdivision and mains extensions	0.47	0.47	0.47	0.45	0.46	0.47	0.44	0.41	0.41	0.41	4.45
Residential connections	7.95	6.72	6.07	5.86	6.00	6.07	5.63	5.34	5.28	5.22	60.14
Commercial connections	0.73	0.84	0.92	1.05	1.05	1.05	1.05	1.05	1.05	1.05	9.87
Total	**9.16**	**8.03**	**7.46**	**7.37**	**7.52**	**7.59**	**7.12**	**6.80**	**6.74**	**6.68**	**74.46**

TABLE 5-5 CUSTOMER CONNECTION FORECAST EXPENDITURE BY CONNECTION TYPE

5.3 System growth

Based on the forecast decline in the number of new connections shown in Figure 5-1, Vector has reviewed its capital expenditure relating to system growth. Accordingly, Vector has reduced system growth expenditure, primarily due to lower residential developments and improved system pressure performance during peak demand. The key changes in the system growth expenditure from the previous AMP include:

- A reduction of $2.2m due to the deferment of the Takapuna reinforcement project to outside of the 10-year planning period. Recent network modelling has confirmed that the previously constrained network has adequate capacity to meet the projected future demand due to the previous meshing projects that significantly improved the minimum operating pressure within the network.
- A reduction of $1.5m in the 10-year DRS capacity upgrade programme from $2.0m to $0.5m. Following a recent DRS design capacity review there are no DRS's that require capacity upgrades within the 10-year planning period. However, a provision for specific unplanned component upgrades within the DRS has been allowed for.
- The deferment of $1.0m for the Drury merging project to outside of the 10-year planning period. The cost-benefits analysis confirms that this project is no longer economic due to the high construction costs.
- The deferment of $0.8m for the Highgate Parkway to East Coast Road Silverdale – Phase 2 project to outside of the 10-year planning period. The additional capacity to support a large commercial customer is no longer required, due to the decline in the industrial demand within this network.
- An allowance has been made in FY30 to FY34 to enable future renewable pipelines and to increase the network capacity to allow future reductions in the network operating pressures, which will support Vector's strategy of reducing greenhouse gas (GHG) emissions.

Vector will continue to monitor network pressure trends and the remaining capacities of each network, and if the need re-emerges, the deferred projects will be reviewed in future AMPs.

The forecast expenditure for system growth is shown in the following table.

FORECAST INVESTMENT SUMMARY ($MILLION CONSTANT)

DESCRIPTION	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	TOTAL
MP reinforcement network meshing	0.22	0.22	0.22	0.22	0.22	0.54	0.54	0.54	0.54	0.54	3.77
DRS capacity upgrade	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.51
Total	**0.27**	**0.27**	**0.27**	**0.27**	**0.27**	**0.59**	**0.59**	**0.59**	**0.59**	**0.59**	**4.29**

TABLE 5-6 SYSTEM GROWTH FORECAST EXPENDITURE

5.4 Quality of supply

Vector has prioritised several projects that will improve the reliability and resilience of the network and reduce the impact (measured by impacted customers) of any major event, e.g., land slide, third-party damages, etc. This approach considers retaining only critical projects that may have a significant impact on the network resilience and the security of supply for major consumers, while deferring projects with less potential impact and lower risk on network security and resilience. The identified projects will improve our service levels by reducing the number of unplanned interruptions.

The key change from the previous AMP in the quality of supply forecast expenditure is a carryover of $0.2m in FY25 for the Milldale motorway crossing project, which has been delayed due to the delivery of the third-party shared civil works.

The forecast expenditure for Quality of Supply is shown in the following table.

FORECAST INVESTMENT SUMMARY ($MILLION CONSTANT)

DESCRIPTION	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	TOTAL
Milldale motorway crossing	0.21	-	-	-	-	-	-	-	-	-	0.21
Network reliability improvements	0.54	-	0.37	0.00	0.54	-	-	-	-	-	1.45
Total	**0.74**	**-**	**0.37**	**0.00**	**0.54**	**-**	**-**	**-**	**-**	**-**	**1.65**

TABLE 5-7 QUALITY OF SUPPLY FORECAST EXPENDITURE

5.5 Asset replacement and renewal

5.5.1 PIPELINES

Management of Vector's pipeline assets is undertaken in accordance with Vector's asset strategies. These strategies are focused on meeting service level targets. To this end, Vector's pipeline assets are managed over their full lifecycle to avoid failures that pose a hazard to workers, public safety or harm to the environment while minimising interruptions of supply to our customers.

Vector's asset management strategy is to keep its assets in service for as long as they can be operated safely, technically, and economically. Pipeline assets that are no longer able to deliver the level of service that customers require in a safe, efficient, and economical way will be replaced, or reinforced as appropriate. Except for pre-1985 PE, pipeline replacement is generally condition based, rather than age based.

The key changes from the previous AMP in the pipeline replacement programme include:

- An increase of $0.89m in the 10-year asset safety and compliance provision to reflect the increasing cost and activities required to meet health and safety standards.
- A reduction of $0.86m in the 10-year riser assembly replacement programme. This reduction is due to the anticipated completion of the smart meter replacement programme and the anticipated decline in the number of reported riser faults. Vector's revised riser assembly replacement programme will target all faulty risers and riser valves identified as part of the maintenance inspection surveys.

The forecast expenditure for pipelines replacement is shown in the following table.

FORECAST INVESTMENT SUMMARY ($MILLION CONSTANT)

DESCRIPTION	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	TOTAL
Pre1985 PE replacement	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	13.07
Riser assembly replacement	0.35	0.24	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	1.41
Asset safety and compliance provisions	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	3.23
Total	**1.98**	**1.87**	**1.73**	**1.73**	**1.73**	**1.73**	**1.73**	**1.73**	**1.73**	**1.73**	**17.71**

TABLE 5-8 PIPELINE REPLACEMENT FORECAST EXPENDITURE

5.5.2 PRESSURE STATIONS

Vector has reviewed its CBARM model for its DRS assets. As a result of this assessment, Vector reviewed its targeted and risk-based DRS upgrade programme for the 10-year planning period. The programme aligns with Vector's service level objectives and will improve overall network performance (as measured against service level targets) by reducing the risk of unplanned interruptions and poor pressure events associated with a DRS failure. The work programme also aligns with Vector's asset management policy and in particular a commitment to prevent harm to the public through the management of its assets over their entire lifecycle.

The scope of the upgrade can range from the replacement of individual components to the complete refurbishment or rebuild of the DRS. Where an upgrade of a DRS is required for integrity reasons, the design capacity of the DRS is reviewed to determine if a capacity upgrade is also warranted.

The key change from the previous AMP in the pressure stations replacement programme is the inclusion of the rebuild of DR-00136-AK in Harris Road, East Tamaki in FY25. This pressure station is one of two that supply the East Auckland area. The DRS rebuild will address a number of issues including lack of DRS monitoring, removal of relief valves, installation of DRS isolation valves and the rebuild of the DRS enclosure.

The forecast expenditure for pressure stations is shown in the following table.

FORECAST INVESTMENT SUMMARY ($MILLION CONSTANT)

DESCRIPTION	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	TOTAL
DRS upgrades to address compliance and integrity issues	0.50	0.38	0.36	0.38	0.39	0.39	0.39	0.39	0.39	0.39	3.95
Total	**0.50**	**0.38**	**0.36**	**0.38**	**0.39**	**0.39**	**0.39**	**0.39**	**0.39**	**0.39**	**3.95**

TABLE 5-9 DRS UPGRADES FORECAST EXPENDITURE

5.5.3 VALVES

Over 40% of isolation valves installed on Vector's gas network are believed to be plug valves. Plug valves were installed on the gas network up to the late 1980s at which time they were superseded by ball valves. Because of their design, plug valves are prone to seizing which can compromise Vector's ability to sectionalise the network during an emergency event. Where repeated attempts to unseize a valve are unsuccessful, the valve is classed as inoperable; currently there are approximately 50 valves that are inoperable due to the valve being seized.

Some types of plug valve are manufactured from cast iron material and in certain situations (e.g., when subjected to prolonged mechanical stress due to ground movement) small diameter cast iron plug valves (i.e., 50NB or smaller) have been found to be at risk of fracture.

To mitigate the risks related to inoperable isolation valves and small-diameter plug valves located in higher risk areas, Vector's strategic valve replacement programme targets the replacement of critical isolation valves that are currently inoperable, and the replacement of smaller diameter plug valves located in higher risk areas – e.g., Central Business Districts (CBDs).

The key change from the previous AMP for Vector's strategic valve replacement programme is the uplift in expenditure related to the replacement of smaller diameter plug valves located within CBD areas; the key driver for this change is to reduce the duration of the Auckland downtown CBD plug valve replacement programme from 8 years to 6 years, and to allow the programme to be extended to other higher-risk metropolitan centres (e.g. Newmarket, Takapuna etc.) for the remainder of the planning period. The forecast expenditure for strategic valve replacement is shown in the following table.

FORECAST INVESTMENT SUMMARY ($MILLION CONSTANT)

DESCRIPTION	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	TOTAL
Strategic valve replacement	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	5.13
Total	**0.51**	**0.51**	**0.51**	**0.51**	**0.51**	**0.51**	**0.51**	**0.51**	**0.51**	**0.51**	**5.13**

TABLE 5-10 STRATEGIC VALVES REPLACEMENT FORECAST EXPENDITURE

5.5.4 CORROSION PROTECTION EQUIPMENT

As part of Vector's strategy to maintain the integrity of its steel pipelines (refer to 5.5.1), corrosion control systems have a significant importance of ensuring Vector's steel pipelines reach or exceed their design life expectancy. Current investment plans for corrosion protection equipment, included in the 10-year forecast, ensures Vector continues to monitor pipeline integrity and future life of the steel pipelines.

There are no significant investment changes from the previous AMP in corrosion protection equipment.

The forecast expenditure for corrosion protection equipment is shown in the following table.

FORECAST INVESTMENT SUMMARY ($MILLION CONSTANT)

DESCRIPTION	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	TOTAL
Installation of MiniTrans System	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.83
Installation of Additional CP test points	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.30
Corrosion Protection system upgrade	-	-	-	0.24	-	-	-	-	-	-	0.24
Total	**0.11**	**0.11**	**0.11**	**0.35**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**1.36**

TABLE 5-11 CORROSION PROTECTION EQUIPMENT FORECAST EXPENDITURE

5.5.5 MONITORING AND CONTROL SYSTEMS

The telemetry systems used by Vector to monitor its gas distribution networks comprise the Telenet Supervisory Control and Data Acquisition System (SCADA) system, and the Cello system. Telenet equipment is typically installed at gate station and DRS sites, and Cello equipment is typically installed at system extremity or other critical pressure-monitoring points.

The key change from the previous AMP in the monitoring and control systems expenditure is a carryover of $0.47m for the replacement of the 2/3G Cello monitoring system. The carryover is due to a delay in the system and cyber security design reviews.

The forecast expenditure for monitoring and control systems is shown in the following table.

FORECAST INVESTMENT SUMMARY ($MILLION CONSTANT)

DESCRIPTION	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	TOTAL
Replacement of 2/3G Cello monitoring system	0.49	-	-	-	-	-	-	-	-	-	0.49
Telenet upgrades to address integrity issues	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.78
Total	**0.56**	**0.08**	**0.08**	**0.08**	**0.08**	**0.08**	**0.08**	**0.08**	**0.08**	**0.08**	**1.27**

TABLE 5-12 MONITORING AND CONTROL FORECAST EXPENDITURE

5.5.6 SPECIAL CROSSINGS

Detailed condition assessments of above ground special crossing are undertaken 3-yearly or 5-yearly depending on the accessibility of the crossing. The assessment targets four areas of the crossing – i.e., the pipeline, pipe supports, fixings and ground penetrations; the overall condition grading of the special crossing site is the average of the four assessments. The output from the condition assessments forms the basis of a 10-year special-crossing upgrade programme which targets the upgrade of sites where any component of the crossing has a low condition grading.

The key changes from the previous AMP in the special crossing replacement programme include:

- The replacement of the Hingaia Road special crossing with a new PE pipeline in FY25.
- The deferment of the final stage of the Auckland harbour bridge bracket replacement project to FY26 to allow other projects with a higher priority to be completed in FY25.

FORECAST INVESTMENT SUMMARY ($MILLION CONSTANT)

DESCRIPTION	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	TOTAL
Auckland Harbour Bridge bracket replacement	-	0.32	-	-	-	-	-	-	-	-	0.32
Special crossing upgrades	0.33	0.11	0.21	0.18	0.23	0.30	0.24	0.31	0.29	0.24	2.42
Total	**0.33**	**0.44**	**0.21**	**0.18**	**0.23**	**0.30**	**0.24**	**0.31**	**0.29**	**0.24**	**2.74**

TABLE 5-13 SPECIAL CROSSING FORECAST EXPENDITURE

5.6 Other reliability, safety and environment

Vector has implemented a number of initiatives to improve other reliability, safety and environmental outcomes. The following section describes the changes compared to the previous AMP:

- As described in Section 5.3, a number of system growth projects have been reduced or deferred outside the 10-year planning period. Although the risk of pressure breaches resulting from these changes is considered low risk, additional network monitoring

is planned to support any unplanned reinforcement initiatives. There are no significant investment changes from the previous AMP for new system pressure monitoring sites.

- Vector has implemented an ongoing isolation valve installation programme to target the installation of additional isolation valves on strategic pipelines e.g., IP20 pipelines. The programme utilises the output from network-isolation modelling to identify critical sites where additional isolation valves should be installed to improve the safe operation of the network and improve the level of network resilience. There are no significant investment changes from the previous AMP for planned isolation valve installations.
- Vector operates a network protection programme to support and reduce the number of third-party damages on our assets. To support the reduction in third-party damage events (refer Section 4.6) and help improve public and third-party awareness, Vector plans to install additional pipeline warning signs across its strategic pipelines operating in high growth areas. There are no significant investment changes from the previous AMP for installing new pipeline warning signs.
- AS/NZS 4853 sets out minimum requirements that pipeline owners must comply with to control electrical hazards on metallic pipelines due to the close proximity of high voltage power networks, electrical traction systems or lightning activity. Vector's planned programme of work to install earthing and bonding at all remaining DRS sites aligns with Vector's asset management policy and in particular a commitment to prevent harm to employees, contractors, and the public through the management of Vector's assets over their entire lifecycle. There are no significant investment changes from the previous AMP for DRS earthing and bonding.

The forecast expenditure for Other Reliability, Safety and Environment is shown in the following table.

FORECAST INVESTMENT SUMMARY ($MILLION CONSTANT)

DESCRIPTION	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	TOTAL
New system pressure monitoring sites	0.04	0.04	-	-	-	-	-	-	-	-	0.07
Isolation valves installations – supply isolation	0.44	0.38	0.48	0.32	0.59	0.26	0.33	0.35	0.22	0.37	3.75
Installing new pipeline warning signs	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.54
DRS earthing and Bonding compliance	0.05	-	-	-	-	-	-	-	-	-	0.05
Total	**0.58**	**0.47**	**0.54**	**0.37**	**0.64**	**0.31**	**0.39**	**0.41**	**0.27**	**0.43**	**4.41**

TABLE 5-14 OTHER RELIABILITY, SAFETY AND ENVIRONMENT FORECAST EXPENDITURE

5.7 Asset relocations

One of Vector's objectives when planning projects and compiling the capital budget is to identify the need to relocate Vector assets when reasonably required by customers and third-parties. Vector is obliged to relocate its assets in the road reserve by Sections 33, 34 and 36 of the Gas Act 1992, Section 54 of the Government Roading Powers Act 1989 and by the specific terms of licences or easements under Sections 34 and 35 of the New Zealand Railways Corporation Act 1981.

The majority of relocations generally occur when infrastructure projects are initiated by road or rail corridor managers, e.g., Auckland Council or Auckland Transport (AT), New Zealand Transport Agency (NZTA) or KiwiRail. The process and funding of such relocation works is governed by the relevant Acts as listed above.

The timing and scope of relocation projects are driven by customers and third-parties and their project timing and schedule. The expenditure profile below is based on our knowledge of asset relocation projects and incorporates our best indicator of Capex spend for the 10 year AMP period.

FORECAST INVESTMENT SUMMARY ($MILLION CONSTANT)

DESCRIPTION	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	TOTAL
Relocations	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	29.61
Total	**2.96**	**2.96**	**2.96**	**2.96**	**2.96**	**2.96**	**2.96**	**2.96**	**2.96**	**2.96**	**29.61**

TABLE 5-15 ASSET RELOCATIONS FORECAST EXPENDITURE

5.8 Non-network expenditure

5.8.1 NON-NETWORK CAPEX

Total non-network expenditure is forecast to be $2.7m (13%) lower compared to last year due to Capex moving to Opex under IFRIC changes ($1.6m) and platform improvements reducing ongoing lifecycle management costs ($0.9m). The key movements compared to the previous AMP include:

- Digital systems investments to support the technology required to operate our network effectively and securely, as well as executing upon our Symphony strategy. The proposed investment in the upcoming years in non-network digital systems, processes and information management will ensure Vector has the capability and tools required to deliver on our Asset

Management Objectives. Through the AMP period we continue to invest in a modernised network and lifecycle management that will both replace older platforms and leverage new technology delivered by modernised systems.

- Vector has identified that increasing the leakage survey frequency is a cost-effective measurement to reduce GHG emissions and increase the overall network performance. Accordingly, Vector has changed its leakage survey cycle from 1-yearly to 6-monthly in FY24. The key change compared to the previous AMP is combining all the decarbonisation initiatives into one provision that covers the replacement of the Vector's existing surveying vehicles and equipment (i.e., laser leakage detection equipment) and improve the surveying cycle to reduce our GHG emissions. This has resulted in a reduction in the AMP provision from $0.65m to $0.53m.
- Vector has developed a replacement programme for its pipeline drilling equipment; the availability of this equipment is crucial for making hot-tap connections and carrying out stoppling operations on steel pipelines. There are no significant investment changes from the previous AMP for new drilling equipment.
- In order to enhance the effectiveness and safety of our gas distribution network, Vector is planning to purchase a mains locator which is designed to locate gas mains and service lines. This equipment enables the efficient and precise identification of our infrastructure, thereby minimizing the risks associated with third-party damages, gas leaks, service disruptions, and potential hazards to both personnel and the community. This investment aligns with Vector's asset management policy and in particular a commitment to prevent harm to employees, contractors, and the public. The new equipment is planned to be purchased in FY25 and has a provision of $0.04m.

The forecast expenditure for total non-network Capex is shown in the following table.

FORECAST INVESTMENT SUMMARY ($MILLION CONSTANT)

DESCRIPTION	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	TOTAL
Non-Network Asset	3.37	2.36	2.14	2.72	1.82	1.52	1.22	1.70	0.87	1.54	19.26
Total	**3.37**	**2.36**	**2.14**	**2.72**	**1.82**	**1.52**	**1.22**	**1.70**	**0.87**	**1.54**	**19.26**

TABLE 5-16 NON-NETWORK CAPEX FORECAST EXPENDITURE

5.8.2 NON-NETWORK OPEX

Non-network Opex provides the support services required to ensure the network business can operate as an effective, well-governed business and includes the following expenditure categories:

- System Operations and Network expenditure captures direct system and network support costs that are required to deliver on the Capex and maintenance plans and includes a share of expenditure related to the resource shared between Vector's electricity and gas distribution business (GDB).
- Business Support expenditure includes a share of health and safety, public policy & regulatory, legal & risk management, finance, human resources, digital and marketing costs incurred at Vector Group level. The GDB benefits from economies of scale with Vector providing shared support across its group of businesses.

PROPOSED FORECAST EXPENDITURE SUMMARY ($MILLION CONSTANT)

DESCRIPTION	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	TOTAL
System operations and Network support	3.28	2.95	2.96	2.97	2.99	3.01	3.03	3.04	3.06	3.08	**30.38**
Business Support	7.65	7.66	7.68	7.69	7.70	7.72	7.73	7.75	7.77	7.78	**77.13**
Total	**10.94**	**10.61**	**10.64**	**10.66**	**10.69**	**10.73**	**10.76**	**10.79**	**10.83**	**10.87**	**107.51**

TABLE 5-17 NON-NETWORK OPEX

6 – Capital Expenditure Forecast

This section describes the capital expenditure forecasts for the gas distribution network assets for the next 10-year planning period and provides a comparison with the 10-year forecast prepared and disclosed in the 2023 AMP (disclosed in July 2023). The Capex forecasts presented in this section align with Vector's planning process and financial year (FY) reporting period 1 July to 30 June. All figures presented are in 2025 dollars.

6.1 Capital expenditure forecast

The table below shows the forecast Capex during the next 10 year planning period, broken down into the asset categories defined in the Commerce Commission's Gas Distribution Information Disclosure Amendments Determination 2012.

KEY CAPEX CATERGORIES	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	TOTAL
Consumer connection	9,157	8,033	7,457	7,368	7,520	7,587	7,122	6,801	6,739	6,680	**74,463**
System growth	267	267	267	267	267	590	590	590	590	590	**4,286**
Asset replacement and renewal	3,997	3,388	2,997	3,233	3,050	3,125	3,063	3,135	3,115	3,063	**32,167**
Asset relocations	2,961	2,961	2,961	2,961	2,961	2,961	2,961	2,961	2,961	2,961	**29,609**
Quality of supply	744	-	369	-	539	-	-	-	-	-	**1,652**
Legislative and regulatory	-	-	-	-	-	-	-	-	-	-	-
Other reliability, safety and environment	577	467	538	373	644	314	388	408	269	428	**4,407**
Non-network asset	3,370	2,363	2,143	2,718	1,819	1,525	1,217	1,697	865	1,538	**19,257**
Total CAPEX	**21,073**	**17,479**	**16,732**	**16,920**	**16,800**	**16,101**	**15,342**	**15,593**	**14,539**	**15,262**	**165,840**

TABLE 6-1 AMP 2024 CAPEX FORECAST (FINANCIAL YEAR, $'000 CONSTANT FY25)

6.2 Comparison to previous AMP

This section highlights the significant changes to the 2023 disclosed Capex expenditure forecasts. The figure below shows the difference between the 2023 and 2024 AMP expenditure forecasts, with the following table breaking down the variance by expenditure categories. For reference purposes, Vector has escalated to 2025 prices using an inflation factor of 2.56%.

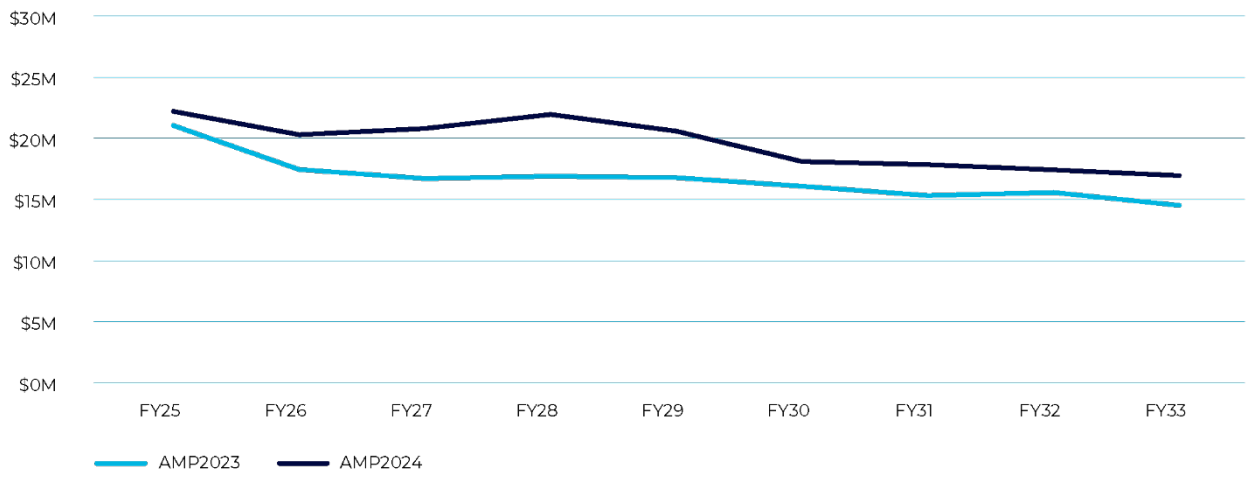

FIGURE 6-1 AMP MOVEMENT 2023 V 2024 (FINANCIAL YEAR, $M CONSTANT FY25)

KEY CAPEX CATEGORIES	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	TOTAL
Consumer connection	1,874	2,476	2,757	3,160	2,407	1,858	1,972	2,066	2,128	**20,697**
System growth	164	867	1,109	1,425	971	127	127	127	127	**5,043**
Asset replacement and renewal	(407)	(375)	(94)	(967)	(201)	(276)	(53)	(125)	(104)	**(1,702)**
Asset relocations	471	471	471	471	471	471	471	471	471	**4,241**
Quality of supply	(205)	-	19	-	(54)	-	-	-	-	**(240)**
Legislative and regulatory	-	-	-	-	-	-	-	-	-	**-**
Other reliability, safety and environment	(51)	-	-	-	-	-	-	-	-	**(51)**
Non-network asset	(70)	(31)	423	684	789	345	510	(209)	280	**2,721**
Total CAPEX	**1,775**	**3,409**	**4,685**	**5,673**	**4,383**	**2,525**	**3,027**	**2,330**	**2,901**	**30,707**

TABLE 6-2 AMP MOVEMENT 2023 V 2024 (FINANCIAL YEAR, $'000 CONSTANT FY25)

6.3 Explanation of major capital expenditure variances

This section highlights the significant changes in Capex over the 9-year period for which the 2023 AMP and 2024 AMP update overlap. The key changes include:

- Consumer Connection forecast expenditure is reduced by $20.7m or 23% resulting from a lower reticulation of $5m and a lower residential/commercial connection forecast of $16m to reflect the reduction in residential and business connections.
- System Growth forecast is decreased $5.0m or 58% due to the targeted network meshing projects that effectively reduced network constraints, as well as the cancellation of the Takapuna and Drury reinforcement projects.
- Asset Integrity expenditure, including asset replacement forecast and other reliability, safety and environment forecast is higher by ($1.7m) or (6%) due to an increase in strategic valve replacement in the CBD ($1.2m) and provision for a higher cost of maintaining asset safety and compliance requirements.
- Asset Relocation is $4.2m or 14% lower over the 9-year period reflecting the updated average historical work volume and expenditure.
- Quality of Supply forecast expenditure is similar to last year and includes a carryover project of ($0.2m) from FY24 due to a delayed third-party project.
- Total Non-network expenditure is $2.7m or 13% lower compared to last year due to Capex moving to Opex under IFRIC changes of $1.6m and platform improvements reducing ongoing lifecycle management costs of $0.9m.

7 – Operational Expenditure Forecast

This section describes the operational expenditure forecasts for the gas distribution network assets for the next 10-year planning period and provides a comparison with the 10-year forecast prepared and disclosed in the 2023 AMP (disclosed in July 2023).

The Capex forecasts presented in this section align with Vector's planning process and financial year (FY) reporting period 1 July to 30 June. All figures presented are in 2025 dollars.

7.1 Operational expenditure forecast

The table below shows the forecast Opex during the planning period, broken down into the asset categories defined in the Commerce Commission's Gas Distribution Information Disclosure Determination 2012.

KEY OPEX CATEGORIES	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	TOTAL
Service interruptions and emergencies	2,690	2,744	2,784	2,798	2,798	2,798	2,798	2,798	2,798	2,798	**27,804**
Routine and corrective maintenance and inspection	4,275	4,415	4,466	4,539	4,390	4,380	4,305	4,286	4,411	4,303	**43,769**
System operations and network support	3,282	2,946	2,690	2,975	2,991	3,008	3.025	3,044	3,064	3,084	**30,379**
Business Support	7,653	7,664	7,676	7,689	7,703	7,717	7,732	7,748	7,765	7,783	**77,130**
TOTAL OPEX	**17,901**	**17,768**	**17,887**	**18,001**	**17,881**	**17,903**	**17,860**	**17,876**	**18,038**	**17,968**	**179,082**

TABLE 7-1 AMP 2024 OPEX FORECAST (FINANCIAL YEAR, $'000 CONSTANT FY25)

7.2 Comparison to previous AMP

This section highlights the significant changes to the 2023 disclosed Opex expenditure forecasts. The figure below shows the difference between the 2023 and 2024 AMP expenditure forecasts, with the following table breaking down the variance by expenditure categories. For reference purposes, Vector has escalated to AMP 2024 prices using an inflation factor of 2.64%.

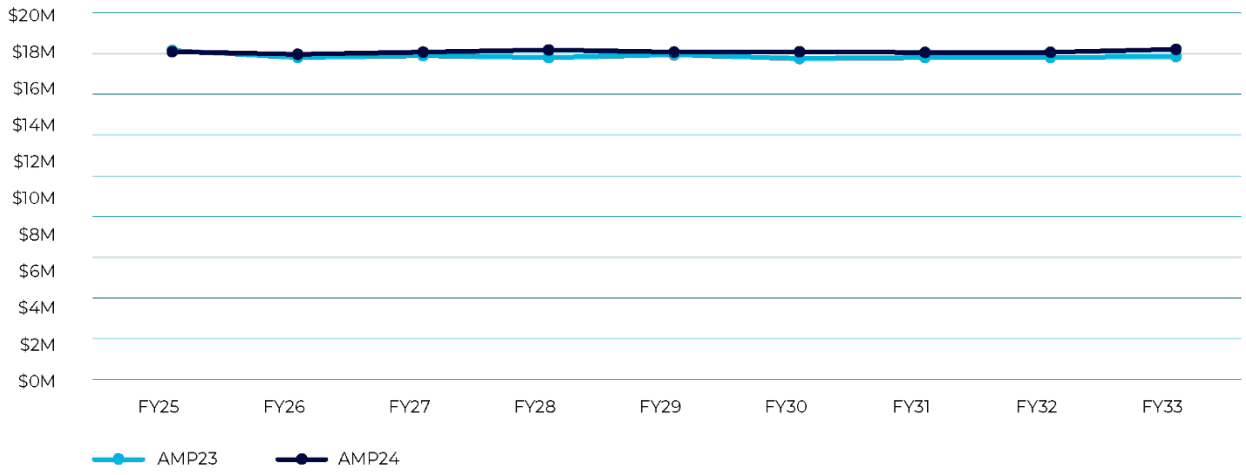

FIGURE 7-1 AMP MOVEMENT 2023 V 2024 (FINANCIAL YEAR, $M CONSTANT FY25)

KEY OPEX CATEGORIES	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	TOTAL
Service interruptions and emergencies	(107)	(161)	(202)	(215)	(215)	(215)	(215)	(215)	(205)	**(1,751)**
Routine and corrective maintenance and inspection	(299)	(555)	(507)	(687)	(384)	(581)	(449)	(427)	(515)	**(4,405)**
Asset replacement and renewal	-	-	-	-	-	-	-	-	-	-
System operations and network support	946	1,303	1,289	1,274	1,258	1,241	1,224	1,205	1,185	**10,927**
Business support	(749)	(761)	(773)	(786)	(799)	(814)	(829)	(845)	(862)	**(7,217)**
Total OPEX	**(210)**	**(174)**	**(192)**	**(414)**	**(140)**	**(368)**	**(270)**	**(282)**	**(397)**	**(2,446)**

TABLE 7-2: AMP MOVEMENT 2023 V 2024 (FINANCIAL YEAR, $'000 CONSTANT FY25)

7.3 Explanation of major operational expenditure variances

This section highlights the significant changes in Opex over the 9-year period for which the 2023 AMP and 2024 AMP update overlap. The key changes include:

- A ($1.8m) increase in Service Interruptions and Emergencies spend due to a higher Multi-Utility Services Agreement (MUSA) price increase above the standard inflator for FY25 ($1m) and further anticipated increases above the standard inflators from FY26 ($0.8m).
- A ($4.4m) increase in Routine and Corrective maintenance and inspection costs due to a higher MUSA price increase above the standard inflator for FY25 ($1.5m) and further anticipated increases above the standard inflator from FY26 ($1.3m). In addition there is an increase in proactive inspection and repairs on strategic IP20 pipelines ($0.7m), increased equipment spares maintenance and storage costs ($0.4m) and an increase in consultant costs for special crossings bridge reviews ($0.4m).
- A $10.9m decrease in System Operations and Network Support costs mainly due to the removal of customer appliance survey costs related to hydrogen blending of $5.5m and the reduction in Cyber Security costs charged directly to the GDB, $4.3m.
- A ($7.2m) increase in Business Support costs for employee related expenses, computer expenses, and administration costs (including insurance).

SECTION 08

Appendices

8.1 Appendix 1 - Forecast capital expenditure (Schedule 11a)

												Company Name	Vector
												AMP Planning Period	1 July 2024 – 30 June 2034
	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													
7			*Current Year CY*	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*	*CY+6*	*CY+7*	*CY+8*	*CY+9*	*CY+10*
8		for year ended	**30 Jun 24**	**30 Jun 25**	**30 Jun 26**	**30 Jun 27**	**30 Jun 28**	**30 Jun 29**	**30 Jun 30**	**30 Jun 31**	**30 Jun 32**	**30 Jun 33**	**30 Jun 34**
9	**11a(i): Expenditure on Assets Forecast**		**$000 (nominal dollars)**										
10		Consumer connection	11,806	9,104	8,171	7,758	7,849	8,171	8,409	8,051	7,842	7,925	8,014
11		System growth	1	261	267	273	279	285	642	655	668	682	695
12		Asset replacement and renewal	3,392	3,971	3,444	3,115	3,441	3,312	3,460	3,459	3,612	3,660	3,671
13		Asset relocations	2,529	2,941	3,009	3,078	3,151	3,214	3,278	3,344	3,411	3,479	3,549
14		Reliability, safety and environment:											
15		Quality of supply	249	739	-	384	-	585	-	-	-	-	-
16		Legislative and regulatory	-	-	-	-	-	-	-	-	-	-	-
17		Other reliability, safety and environment	584	572	473	558	396	698	346	437	469	315	512
18		**Total reliability, safety and environment**	833	1,311	473	942	396	1,283	346	437	469	315	512
19		**Expenditure on network assets**	18,561	17,588	15,364	15,166	15,116	16,265	16,135	15,946	16,002	16,061	16,441
20		Expenditure on non-network assets	3,054	3,270	2,345	2,176	2,826	1,929	1,650	1,342	1,910	992	1,800
21		**Expenditure on assets**	21,615	20,858	17,709	17,342	17,942	18,194	17,785	17,288	17,912	17,053	18,241
22													
23	*plus*	Cost of financing	207	214	172	166	186	166	162	152	171	143	170
24	*less*	Value of capital contributions	12,753	11,726	11,574	11,357	11,371	11,654	11,925	11,642	11,518	11,690	11,867
25	*plus*	Value of vested assets	-	-	-	-	-	-	-	-	-	-	-
26		**Capital expenditure forecast**	9,069	9,346	6,307	6,151	6,757	6,706	6,022	5,798	6,565	5,506	6,544
27													
28		Assets commissioned	9,463	8,805	5,946	5,573	6,732	6,755	6,021	5,799	6,563	5,507	6,546
29													
30			*Current Year CY*	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*	*CY+6*	*CY+7*	*CY+8*	*CY+9*	*CY+10*
31		for year ended	**30 Jun 24**	**30 Jun 25**	**30 Jun 26**	**30 Jun 27**	**30 Jun 28**	**30 Jun 29**	**30 Jun 30**	**30 Jun 31**	**30 Jun 32**	**30 Jun 33**	**30 Jun 34**
32			**$000 (in constant prices)**										
33		Consumer connection	11,806	8,877	7,787	7,230	7,144	7,291	7,356	6,905	6,594	6,533	6,477
34		System growth	1	254	254	254	254	254	562	562	562	562	562
35		Asset replacement and renewal	3,392	3,872	3,282	2,903	3,132	2,955	3,027	2,967	3,037	3,017	2,967
36		Asset relocations	2,529	2,868	2,868	2,868	2,868	2,868	2,868	2,868	2,868	2,868	2,868
37		Reliability, safety and environment:											
38		Quality of supply	249	721	-	358	-	522	-	-	-	-	-
39		Legislative and regulatory	-	-	-	-	-	-	-	-	-	-	-
40		Other reliability, safety and environment	584	558	451	520	360	623	303	375	394	260	414
41		**Total reliability, safety and environment**	833	1,279	451	878	360	1,145	303	375	394	260	414
42		**Expenditure on network assets**	18,561	17,150	14,642	14,133	13,758	14,513	14,116	13,677	13,455	13,240	13,288
43		Expenditure on non-network assets	3,054	3,188	2,235	2,028	2,572	1,721	1,443	1,151	1,606	818	1,455
44		**Expenditure on assets**	21,615	20,338	16,877	16,161	16,330	16,234	15,559	14,828	15,061	14,058	14,743
45		**Subcomponents of expenditure on assets (where known)**											
46		Research and development											
47													

		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 24	30 Jun 25	30 Jun 26	30 Jun 27	30 Jun 28	30 Jun 29	30 Jun 30	30 Jun 31	30 Jun 32	30 Jun 33	30 Jun 34
Difference between nominal and constant price forecasts		$000										
Consumer connection		-	227	384	528	705	880	1,053	1,146	1,248	1,392	1,537
System growth		-	7	13	19	25	31	80	93	106	120	133
Asset replacement and renewal		-	99	162	212	309	357	433	492	575	643	704
Asset relocations		-	73	141	210	283	346	410	476	543	611	681
Reliability, safety and environment:												
Quality of supply		-	18	-	26	-	63	-	-	-	-	-
Legislative and regulatory		-	-	-	-	-	-	-	-	-	-	-
Other reliability, safety and environment		-	14	22	38	36	75	43	62	75	55	98
Total reliability, safety and environment		-	32	22	64	36	138	43	62	75	55	98
Expenditure on network assets		-	438	722	1,033	1,358	1,752	2,019	2,269	2,547	2,821	3,153
Expenditure on non-network assets		-	82	110	148	254	208	207	191	304	174	345
Expenditure on assets		-	520	832	1,181	1,612	1,960	2,226	2,460	2,851	2,995	3,498

		Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5
11a(ii): Consumer Connection	for year ended	30 Jun 24	30 Jun 25	30 Jun 26	30 Jun 27	30 Jun 28	30 Jun 29
*Consumer types defined by GDB**		$000 (in constant prices)					
Mains Extensions/Subdivisions		1,327	454	454	454	439	450
Service Connections - Residential		9,557	7,712	6,519	5,881	5,684	5,820
Service Connections - Commercial		920	711	814	895	1,021	1,021
Customer Easements		2	-	-	-	-	-
** include additional rows if needed*							
Consumer connection expenditure		11,806	8,877	7,787	7,230	7,144	7,291
less Capital contributions funding consumer connection		9,704	8,018	7,692	7,270	7,184	7,332
Consumer connection less capital contributions		2,102	859	95	(40)	(40)	(41)
11a(iii): System Growth							
Intermediate pressure							
Main pipe		-	-	-	-	-	-
Service pipe		-	-	-	-	-	-
Stations		-	49	49	49	49	49
Line valve		-	-	-	-	-	-
Special crossings		-	-	-	-	-	-
Intermediate Pressure total		-	49	49	49	49	49
Medium pressure							
Main pipe		1	205	205	205	205	205
Service pipe		-	-	-	-	-	-
Stations		-	-	-	-	-	-
Line valve		-	-	-	-	-	-
Special crossings		-	-	-	-	-	-
Medium Pressure total		1	205	205	205	205	205

92		**Low Pressure**						
93		Main pipe	-	-	-	-	-	-
94		Service pipe	-	-	-	-	-	-
95		Line valve	-	-	-	-	-	-
96		Special crossings	-	-	-	-	-	-
97		**Low Pressure total**	-	-	-	-	-	-
98		**Other network assets**						
99		Monitoring and control systems	-	-	-	-	-	-
100		Cathodic protection systems	-	-	-	-	-	-
101		Other assets (other than above)	-	-	-	-	-	-
102		**Other network assets total**	-	-	-	-	-	-
103								
104		**System growth expenditure**	1	254	254	254	254	254
105	*less*	Capital contributions funding system growth	729	784	706	682	534	436
106		**System growth less capital contributions**	(728)	(530)	(452)	(428)	(280)	(182)
107								
108								
109			*Current Year CY*	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
		for year ended	**30 Jun 24**	**30 Jun 25**	**30 Jun 26**	**30 Jun 27**	**30 Jun 28**	**30 Jun 29**
110	**11a(iv): Asset Replacement and Renewal**							
111		**Intermediate pressure**	**$000 (in constant prices)**					
112		Main pipe	42	-	-	-	-	-
113		Service pipe	60	-	-	-	-	-
114		Stations	386	489	364	344	364	376
115		Line valve	54	497	497	497	497	497
116		Special crossings	637	318	422	199	179	219
117		**Intermediate Pressure total**	1,179	1,304	1,283	1,040	1,040	1,092
118		**Medium pressure**						
119		Main pipe	1,221	1,579	1,579	1,579	1,579	1,579
120		Service pipe	341	334	235	99	99	99
121		Station	39	-	-	-	-	-
122		Line valve	277	-	-	-	-	-
123		Special crossings	-	-	-	-	-	-
124		**Medium Pressure total**	1,878	1,913	1,814	1,678	1,678	1,678
125		**Low Pressure**						
126		Main pipe	-	-	-	-	-	-
127		Service pipe	-	-	-	-	-	-
128		Line valve	-	-	-	-	-	-
129		Special crossings	-	-	-	-	-	-
130		**Low Pressure total**	-	-	-	-	-	-
131		**Other network assets**						
132		Monitoring and control systems	64	546	76	76	76	76
133		Cathodic protection systems	159	109	109	109	338	109
134		Other assets (other than above)	112	-	-	-	-	-
135		**Other network assets total**	335	655	185	185	414	185
136								
137		**Asset replacement and renewal expenditure**	3,392	3,872	3,282	2,903	3,132	2,955
138	*less*	Capital contributions funding asset replacement and renewal						
139		**Asset replacement and renewal less capital contributions**	3,392	3,872	3,282	2,903	3,132	2,955
140								

11a(v): Asset Relocations

	Project or programme*						
	* include additional rows if needed						
	All other projects or programmes - asset relocations	2,529	2,868	2,868	2,868	2,868	2,868
	Asset relocations expenditure	2,529	2,868	2,868	2,868	2,868	2,868
less	Capital contributions funding asset relocations	2,320	2,632	2,632	2,632	2,632	2,632
	Asset relocations less capital contributions	209	236	236	236	236	236

11a(vi): Quality of Supply

		Current Year CY	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
	for year ended	**30 Jun 24**	**30 Jun 25**	**30 Jun 26**	**30 Jun 27**	**30 Jun 28**	**30 Jun 29**
	*Project or programme**	**$000 (in constant prices)**					
	* include additional rows if needed						
	All other projects or programmes - quality of supply	249	721	-	358	-	522
	Quality of supply expenditure	249	721	-	358	-	522
less	Capital contributions funding quality of supply						
	Quality of supply less capital contributions	249	721	-	358	-	522

11a(vii): Legislative and Regulatory

	Project or programme						
	* include additional rows if needed						
	All other projects or programmes - legislative and regulatory	-	-	-	-	-	-
	Legislative and regulatory expenditure	-	-	-	-	-	-
less	Capital contributions funding legislative and regulatory						
	Legislative and regulatory less capital contributions	-	-	-	-	-	-

11a(viii): Other Reliability, Safety and Environment

	*Project or programme**						
	** include additional rows if needed*						
	All other projects or programmes - other reliability, safety and environment	584	558	451	520	360	623
	Other reliability, safety and environment expenditure	584	558	451	520	360	623
less	Capital contributions funding other reliability, safety and environment						
	Other Reliability, safety and environment less capital contributions	584	558	451	520	360	623

11a(ix): Non-Network Assets

Routine expenditure

	*Project or programme**						
	** include additional rows if needed*						
	All other projects or programmes - routine expenditure	1,777	1,809	1,098	1,188	312	758
	Routine expenditure	1,777	1,809	1,098	1,188	312	758

Atypical expenditure

	*Project or programme**						
	** include additional rows if needed*						
	All other projects or programmes - atypical expenditure	1,277	1,379	1,137	840	2,260	963
	Atypical expenditure	1,277	1,379	1,137	840	2,260	963
	Expenditure on non-network assets	3,054	3,188	2,235	2,028	2,572	1,721

8.2 Appendix 2 - Forecast operational expenditure (Schedule 11b)

Company Name	**Vector**
AMP Planning Period	**1 July 2024 – 30 June 2034**

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 24**	**30 Jun 25**	**30 Jun 26**	**30 Jun 27**	**30 Jun 28**	**30 Jun 29**	**30 Jun 30**	**30 Jun 31**	**30 Jun 32**	**30 Jun 33**	**30 Jun 34**
Operational Expenditure Forecast	**$000 (in nominal dollars)**										
Service interruptions, incidents and emergencies	2,681	2,690	2,804	2,902	2,977	3,037	3,098	3,160	3,223	3,287	3,353
Routine and corrective maintenance and inspection	3,785	4,275	4,510	4,655	4,830	4,765	4,850	4,861	4,937	5,183	5,157
Asset replacement and renewal	-	-	-	-	-	-	-	-	-	-	-
Network opex	6,466	6,965	7,314	7,557	7,807	7,802	7,948	8,021	8,160	8,470	8,510
System operations and network support	2,978	3,282	3,010	3,085	3,166	3,246	3,330	3,417	3,506	3,600	3,697
Business support	7,595	7,653	7,830	8,000	8,183	8,361	8,544	8,732	8,925	9,124	9,327
Non-network opex	10,573	10,935	10,840	11,085	11,349	11,607	11,874	12,149	12,431	12,724	13,024
Operational expenditure	17,039	17,900	18,154	18,642	19,156	19,409	19,822	20,170	20,591	21,194	21,534

	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 24**	**30 Jun 25**	**30 Jun 26**	**30 Jun 27**	**30 Jun 28**	**30 Jun 29**	**30 Jun 30**	**30 Jun 31**	**30 Jun 32**	**30 Jun 33**	**30 Jun 34**
	$000 (in constant prices)										
Service interruptions, incidents and emergencies	2,681	2,621	2,673	2,713	2,726	2,726	2,726	2,726	2,726	2,726	2,726
Routine and corrective maintenance and inspection	3,785	4,165	4,301	4,351	4,422	4,277	4,267	4,194	4,175	4,298	4,192
Asset replacement and renewal	-										
Network opex	6,466	6,786	6,974	7,064	7,148	7,003	6,993	6,920	6,901	7,024	6,918
System operations and network support	2,978	3,198	2,870	2,884	2,898	2,914	2,930	2,948	2,966	2,985	3,005
Business support	7,595	7,456	7,467	7,479	7,491	7,505	7,519	7,533	7,549	7,565	7,583
Non-network opex	10,573	10,654	10,337	10,363	10,389	10,419	10,449	10,481	10,515	10,550	10,588
Operational expenditure	17,039	17,440	17,311	17,427	17,537	17,422	17,442	17,401	17,416	17,574	17,506

Subcomponents of operational expenditure (where known)											
Research and development	-	-	-	-	-	-	-	-	-	-	-
Insurance	496	565	602	642	685	731	780	833	889	950	1,015

	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 24**	**30 Jun 25**	**30 Jun 26**	**30 Jun 27**	**30 Jun 28**	**30 Jun 29**	**30 Jun 30**	**30 Jun 31**	**30 Jun 32**	**30 Jun 33**	**30 Jun 34**
Difference between nominal and real forecasts	**$000**										
Service interruptions, incidents and emergencies	-	69	131	189	251	311	372	434	497	561	627
Routine and corrective maintenance and inspection	-	110	209	304	408	488	583	667	762	885	965
Asset replacement and renewal	-	-	-	-	-	-	-	-	-	-	-
Network opex	-	179	340	493	659	799	955	1,101	1,259	1,446	1,592
System operations and network support	-	84	140	201	268	332	400	469	540	615	692
Business support	-	197	363	521	692	856	1,025	1,199	1,376	1,559	1,744
Non-network opex	-	281	503	722	960	1,188	1,425	1,668	1,916	2,174	2,436
Operational expenditure	-	460	843	1,215	1,619	1,987	2,380	2,769	3,175	3,620	4,028

8.3 Appendix 3 - Report on asset condition (Schedule 12a)

Company Name	**Vector**
AMP Planning Period	**1 July 2024 – 30 June 2034**

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)						
8	Operating Pressure	Asset category	Asset class	Units	Grade 1	Grade 2	Grade 3	Grade 4	Grade unknown	Data accuracy (1–4)	% of asset forecast to be replaced in next 5 years
9	Intermediate Pressure	Main pipe	IP PE main pipe	km	-	-	-	-	-	N/A	-
10	Intermediate Pressure	Main pipe	IP steel main pipe	km	-	-	100.00%	-	-	3	-
11	Intermediate Pressure	Main pipe	IP other main pipe	km	-	-	-	-	-	N/A	-
12	Intermediate Pressure	Service pipe	IP PE service pipe	km	-	-	-	-	-	N/A	-
13	Intermediate Pressure	Service pipe	IP steel service pipe	km	-	-	100.00%	-	-	3	-
14	Intermediate Pressure	Service pipe	IP other service pipe	km	-	-	-	-	-	N/A	-
15	Intermediate Pressure	Stations	Intermediate pressure DRS	No.	-	-	94.20%	5.80%	-	4	4.28
16	Intermediate Pressure	Line valve	IP line valves	No.	-	3.57%	93.95%	0.62%	1.86%	3	1.31
17	Intermediate Pressure	Special crossings	IP crossings	No.	-	-	68.42%	26.32%	5.26%	3	5.85
18	Medium Pressure	Main pipe	MP PE main pipe	km	-	0.40%	1.39%	98.21%	-	3	0.20
19	Medium Pressure	Main pipe	MP steel main pipe	km	-	-	100.00%	-	-	3	-
20	Medium Pressure	Main pipe	MP other main pipe	km	-	-	-	-	-	N/A	-
21	Medium Pressure	Service pipe	MP PE service pipe	km	-	0.22%	99.78%	-	-	3	0.11
22	Medium Pressure	Service pipe	MP steel service pipe	km	-	-	100.00%	-	-	3	-
23	Medium Pressure	Service pipe	MP other service pipe	km	-	-	100.00%	-	-	3	-
24	Medium Pressure	Stations	Medium pressure DRS	No.	-	-	96.30%	3.70%	-	4	4.28
25	Medium Pressure	Line valve	MP line valves	No.	-	4.48%	86.48%	4.24%	4.79%	3	1.31
26	Medium Pressure	Special crossings	MP special crossings	No.	-	6.25%	25.00%	38.54%	30.21%	3	5.85
27	Low Pressure	Main pipe	LP PE main pipe	km	-	-	50.70%	49.30%	-	3	-
28	Low Pressure	Main pipe	LP steel main pipe	km	-	-	-	-	-	N/A	-
29	Low Pressure	Main pipe	LP other main pipe	km	-	-	-	-	-	N/A	-
30	Low Pressure	Service pipe	LP PE service pipe	km	-	-	6.78%	93.22%	-	3	-
31	Low Pressure	Service pipe	LP steel service pipe	km	-	-	100.00%	-	-	3	-
32	Low Pressure	Service pipe	LP other service pipe	km	-	-	-	-	-	N/A	-
33	Low Pressure	Line valve	LP line valves	No.	-	-	-	-	100.00%	3	-
34	Low Pressure	Special crossings	LP special crossings	No.	-	-	-	-	-	N/A	-
35	All	Monitoring and control systems	Remote terminal units	No.	-	-	15.94%	84.06%	-	4	25.54
36	All	Cathodic protection systems	Cathodic protection	No.	-	-	61.90%	38.10%	-	3	9.03

8.4 Appendix 4 - Report on forecast utilisation (Schedule 12b)

Company Name **Vector**
AMP Planning Period **1 July 2024 – 30 June 2034**

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

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	Utilisation *Current Year CY* y/e 30 Jun 24	*CY+1* y/e 30 Jun 25	*CY+2* y/e 30 Jun 26	*CY+3* y/e 30 Jun 27	*CY+4* y/e 30 Jun 28	*CY+5* y/e 30 Jun 29	Comment
-	-	-	-	-	-	-	scmh	-	-	-	-	-	-	
							kPa	-	-	-	-	-	-	
							scmh							
							kPa							
							scmh							
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							scmh							
							kPa							
							scmh							
							kPa							

** 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

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

Winter peak monitoring indicated that all systems are below the criteria of heavy utilisation. There is no pressure system with a consumption 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). This information is based on modelled estimates of utilisation and capacity at lowest pressure point in the network.

8.5 Appendix 5 - Report on forecast demand (Schedule 12c)

Company Name	**Vector**
AMP Planning Period	**1 July 2024 – 30 June 2034**

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

Consumer types defined by GDB	*Current year CY* **30 Jun 24**	*CY+1* **30 Jun 25**	*CY+2* **30 Jun 26**	*CY+3* **30 Jun 27**	*CY+4* **30 Jun 28**	*CY+5* **30 Jun 29**
Residential	2,210	1,920	1,623	1,464	1,415	1,449
SME	19	21	21	21	21	21
Commercial	36	39	47	54	64	64
Industrial	1	2	3	3	4	4
Total	2,266	1,982	1,694	1,542	1,504	1,538

12c(ii): Gas Delivered

	Current year CY **30 Jun 24**	*CY+1* **30 Jun 25**	*CY+2* **30 Jun 26**	*CY+3* **30 Jun 27**	*CY+4* **30 Jun 28**	*CY+5* **30 Jun 29**
Number of ICPs at year end (at year end)	120,649	121,005	121,073	121,110	121,118	121,496
Maximum daily load (GJ per day)	55,300	52,763	51,728	51,160	50,506	49,844
Maximum monthly load (GJ per month)	1,471,841	1,316,008	1,290,186	1,276,030	1,259,717	1,243,196
Number of directly billed ICPs (at year end)	-	-	-	-	-	-
Total gas conveyed (GJ per annum)	13,159,588	13,587,669	12,893,290	12,301,954	12,060,565	11,928,235
Average daily delivery (GJ per day)	35,955	37,226	35,324	33,704	32,952	32,680
Load factor	74.51%	86.04%	83.28%	80.34%	79.78%	79.96%

8.6 Appendix 6 - Mandatory explanatory notes on forecast information (Schedule 14a)

1. This schedule requires GDBs to provide explanatory notes to reports prepared in accordance with clause 2.6.6.
2. This schedule is mandatory-GDBs must provide the explanatory comment specified below, in accordance with clause 2.7.2. This information is not part of the audited disclosure information, and so is not subject to the assurance requirements specified in section 2.8.

Commentary on difference between nominal and constant price capital expenditure forecasts (Schedule 11a)

3. In the box below, comment on the difference between nominal and constant price capital expenditure for the current disclosure year and 10 year planning period, as disclosed in Schedule 11a.

BOX 1: COMMENTARY ON DIFFERENCE BETWEEN NOMINAL AND CONSTANT PRICE CAPITAL EXPENDITURE FORECASTS

Vector has used a capital expenditure inflator based on the model used by the Commerce Commission in its DPP price reset on 1 October 2022. We have used PPI as the capital expenditure inflator.

Vector has used the NZIER (New Zealand Institute of Economic Research) February 2024 PPI (Producer Price Index-inputs) forecast up to June 2028. Thereafter, we have assumed a long-term inflation rate of 2.00%.

The constant price capital expenditure forecast is inflated by the above-mentioned index to convert to a nominal price capital expenditure forecast.

Commentary on difference between nominal and constant price operational expenditure forecasts (Schedule 11b)

4. In the box below, comment on the difference between nominal and constant price operational expenditure for the current disclosure year and 10-year planning period, as disclosed in Schedule 11b.

BOX 2: COMMENTARY ON DIFFERENCE BETWEEN NOMINAL AND CONSTANT PRICE OPERATIONAL EXPENDITURE FORECASTS

Vector has used an operational expenditure inflator based on the model used by the Commerce Commission in its DPP price reset on 1 October 2022. We have used an inflator which is a mix of Producer Price Index (PPI) and Labour Cost Index (LCI). The weighting between PPI (40%) and LCI (60%) as per the Commission's model.

Vector has used the NZIER (New Zealand Institute of Economic Research) February 2024 PPI (Producer Price Index-inputs) forecast up to June 2028. Thereafter, we have assumed a long-term inflation rate of 2.00%.

Vector has used the NZIER (New Zealand Institute of Economic Research) February 2024 LCI (Labour Cost Index) forecast up to December 2027. Thereafter, we have assumed a long-term inflation rate of 2.00%.

The constant price operational expenditure forecast is inflated by the above-mentioned index to convert to a nominal price operational expenditure forecast.

8.7 Appendix 7 - Certificate for Year Beginning Disclosures

Schedule 17 Certification for Year-beginning Disclosures

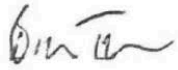
Clause 2.9.1

We, Bruce Turner and Paul Hutchison, 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 clauses 2.6.3, 2.6.6 and 2.7.2 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.

c) The forecasts in Schedules 11a, 11b, 12a, 12b and 12c are based on objective and reasonable assumptions which both align with Vector Limited's corporate vision and strategy and are documented in retained records.



Director

Director

26 June 2024

Date