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Powerco Limited

CORPORATE OFFICE
84 Liardet Street
Private Bag 2061
New Plymouth
T 0800 769 372
F +64 6 758 6818
www.powerco.co.nz

Tricia Jennings
Project Manager Gas DPP Reset 2017
Commerce Commission
P O Box 2351
Wellington 6140

By email: regulation.branch@comcom.govt.nz

POWERCO

Dear Tricia

RE: GAS DPP RESET 2017 -QUESTIONS FOR SUPPLIER EVIDENCE STAGE OF FORECASTING EXPENDITURE PROCESS.

Thank you for the opportunity to explain the capital expenditure (capex) forecast presented in our 2016-2026 Asset Management Plan (AMP), our expenditure in prior years, and how we have developed the capex forecasts for our AMP.

Specifically we comment on—

1. the reasons why total capital expenditure between 2013 and 2015 varied from forecast and reassure the Commerce Commission (the Commission) that there is no systemic over-forecasting of expenditure in our AMP; and
2. the apparent increase in total planned reliability, safety and environment capex[1] compared to historic expenditure, and demonstrate how the AMP forecast for this category was developed.

This letter contains commercially sensitive information. If the Commission wishes to publish this information, Powerco will provide a redacted copy for that purpose.

Powerco's 2013-2015 capital expenditure

We welcome the opportunity to explain why capex in the 2013 to 2015 regulatory years was different to forecast. While specific variances are discussed in our information disclosures for each of the respective periods, we appreciate they do not necessarily provide a complete picture of the underlying drivers of the variance when viewing the full three year period.

The lower than forecast expenditure between 2013 and 2015 reflects—

- planned work deferred from the forecast year; and
- cost efficient delivery as we have—
  - completed some work at a lower cost than forecast; and
  - achieved the required outcome for less than the forecast expenditure.

In addition to providing a detailed explanation of the forecast variances in attachment 1, we thought it would be helpful to explain Powerco's forecasting and delivery processes and the drivers that have impacted the variance.

[1] Total reliability , quality and supply capex refers to the expenditure categories of Quality of Supply, Other reliability, safety and environment, and Legislative and regulatory. Powerco has not incurred any expenditure in the Legislative and regulatory category during the period 2013-2015 and does not forecast any expenditure in this category in our AMP.

Overview

Powerco forecasts capital expenditure for its gas networks based on the forecast number of new gas connections and the forecast length of sub-division that will be reticulated. This forecast is informed by the published plans of Councils on Powerco's network. Powerco is committed to encouraging new connection and sub-division growth through our Gas Hub customer focus and incentives and promotions (including up to 40m free connections). We are highly motivated to meet or exceed these growth forecasts, and the associated capex forecasts. During the 2013-2015 period subdivision growth has been lower than forecast with areas such as the Maymorn Valley, an 1,800 lots development, scheduled to start in 2014, yet to start.

Additionally there is a programme of planned work comprising renewal, system reinforcement and risk reduction projects. Each financial year[2], a programme of work and associated budget is developed to deliver the network and asset lifecycle plans set out in the AMP, including reactive work arising since the AMP was published. This programme is called the annual Gas Works Plan (GWP). The scope of work in the GWP, and the budget to deliver the GWP, are closely aligned to the AMP forecasts and subject to scrutiny by the CEO and Board.

Delivering the GWP is a key performance measure for Powerco's management team. Progress against the GWP is reported monthly to the Board and, combined with the Electricity Works Plan, is one of eight key business metrics on the balanced score card providing a strong incentive to deliver the works set out in the GWP.

Despite having a robust process to determine the GWP and budget, and business processes that monitor and incentivise delivering to this plan, for reasons set out below, it has not been possible to fully deliver the plan during these 2013-2015 regulatory years. Likewise, we did not meet the GWP in FY13-15. The continuous improvement in knowledge, data and processes over this period is reflected in the fact that we delivered in full, the FY16 GWP.

Deferral of planned work

From time to time planned works may need to be deferred for a variety of reasons. A significant issue has been the availability of resources and materials which has delayed the completion of some of our major projects.

[2] Powerco's financial year is from April to March while the regulatory year is from October to September.

Powerco uses a fully outsourced field service model that has been developed to specifically target cost-effective works delivery. While we are confident that the model is effective the need to maintain competition in a small market can affect the ability to deliver our planned volume of work. This was exacerbated in 2013 when Powerco changed from an alliance field service model to a field service contractor model which involved significant process and responsibility realignment. Although the change ensured market-tested prices, it caused a major disruption to the GWP delivery (and associated budget). This transition also saw the exit of two incumbent contracting firms and the introduction of one new firm. Since 2013, we have been further disrupted by contractor business sales and the insolvency of one of our major contractors.

Unexpected delays in some key equipment also contributed to the deferral of some of our major projects. Examples of the impact of equipment delays are included in Attachment 1.

Another factor that has resulted in delays to the GWP is the inherent uncertainty of projects involving buried assets in heavily built up areas. Poor historic asset records add to this issue. An example of this is the pressure upgrade of Kelburn and The Terrace. This project was delayed by more than 12 months when we discovered significant errors in our records in relation to the age and design of service pipelines. As a result, the project was delayed while ~80 service lines were dug up and replaced. This delay meant the project could not be commissioned in the regulatory year set out in the AMP, and had a knock-on resource impact that prevented other projects from being completed to plan. The learnings from this and other projects have been incorporated into the planning processes, with a higher degree of pre-project investigations being carried out to remove execution uncertainty.

Where projects are delayed, we reschedule the GWP to bring forward projects that are planned for the next year, but in some cases we have found that the lead time to implement has still caused under-delivery relative to the original forecast. Again, as our asset management capability has matured, we have incorporated learnings and are developing better definition and scope for future year's projects to improving our ability to substitute projects and keep to plan. This improvement can be seen in our financial year capital delivery performance as illustrated in the graphs below. These graphs are extracts from the monthly Powerco Board reports from FY13-FY16.

Figure 8: FY13 Capex versus Plan

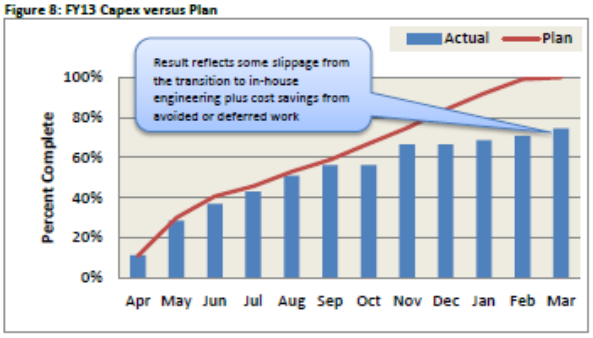


Figure 10: FY14 Capital versus Planned Physical Completion

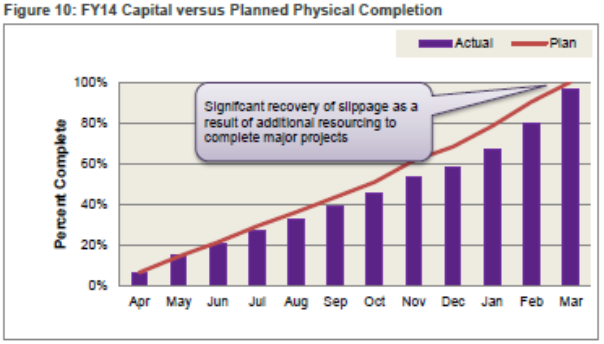


Figure 10: FY15 Capital versus Planned Physical Completion

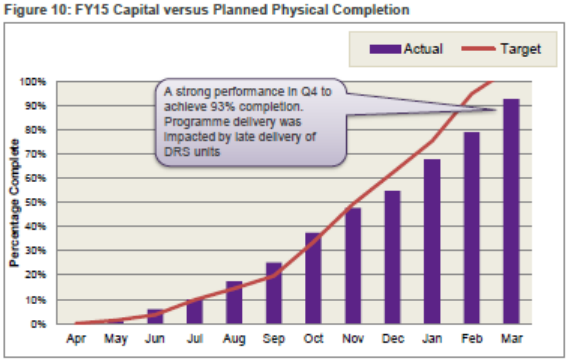
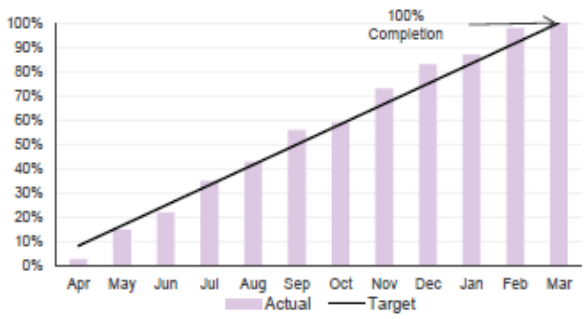


Figure 12: FY16 Capital versus Planned Physical Completion



Cost efficient delivery

It is difficult to quantify the reduction in capital expenditure attributable to increased efficiency. However, Powerco is confident that the new contracting model introduced in 2013, coupled with ongoing management of the contractor market, has contributed

positively to capex reduction. Powerco has an AMP objective to have >90% of maintenance and construction costs to be market tested.

The Gas Field Service Agreement (GFSA) established standard rates for high volume lower cost activities to drive cost efficiency through lower administration. Higher value works are tendered and Powerco has worked to develop a more competitive tender market, including the development of new contractors in this market. Examples of the effectiveness of this approach are included in Attachment 1.

Our Asset Management Maturity (AMM) has improved, and with it our capability to meet asset and customer objectives with lower cost solutions. For example, better monitoring and modelling of the network performance means the networks can be run harder, deferring the need for upgrades. We have identified opportunities to meet future growth through pressure upgrades rather than more costly asset replacement and reinforcement, such as in the Wellington CBD pressure upgrade project.

Powerco cannot give assurance that future expenditure levels will have minimal variance, but we are confident that future variances will be significantly smaller as a result of the improvements we have made our forecasting, planning and project delivery processes:

- Asset Management Maturity – a better defined pipeline of projects and pre-planning activities to mitigate delivery uncertainty and avoid false starts
- Our efforts to develop a deeper, more competitive pool of contract resources have paid off and assisted in the on target delivery of the FY16 GWP
- Project delivery processes and skills have been improved.

Reliability, safety and environment capex

Capital expenditure driven by total reliability, safety and environment (total RSE) is forecast in the AMP to reach a yearly average of $5,031k. This appears to be a stepped increase from the average of $3,048k per year observed from 2013 to 2015 (expressed in 2016 prices[3]). We take this opportunity to—

- provide an explanation of why there has not been a true step up in expenditure; and
- provide an overview of how the forecast for this category of expenditure in the AMP was built and the costs estimated.

Average expenditure

As previously noted, 2013 was a very atypical year for Powerco, with a total capital expenditure on assets of $7,382 (in 2013 prices). This low level of expenditure of explained in the 2013 asset management plan and reiterated in Powerco's 2014 information disclosure. The low expenditure in general was exacerbated by the deferral of two major quality of supply projects.

The 2014 information disclosure notes:

> *As previously highlighted in the 2013 AMP, capital expenditure was expected to be below that forecast in the section 53ZD submission due to the deferral or rephasing of two major projects—*
>
> *The deferral by one year of two major 'quality of supply' projects, with a combined value circa $2m, aimed at addressing the need for capacity upgrades in the Mana and Wellington CBD areas. This work was initially planned for completion in RY13 but was moved to RY14 and RY15 following further pressure monitoring and capacity modelling to determine the optimal investment timing.*
>
> *A rephasing of asbestos mains replacement work from RY13 to RY14/RY15. Deferral of the work was considered necessary to allow more time to analyse and assess known asbestos issues associated with these pipes.*

[3] 2013-2015 results expressed in 2016 prices are those provided by the Commission and vary slightly from Powerco's calculation of the average for the same period of $3,174.

The deferral of these projects has the effect of significantly lowering the average historic total RSE expenditure. Therefore, the inclusion of 2013 expenditure in any average calculation results in an abnormal expenditure profile. This is especially relevant when considering total RSE expenditure.

Building the 2017-2020 forecast

Our 2015 AMP describes Powerco's interpretation of the total reliability safety and environment category[4] as:

> *Reliability, Safety and Environment capex is capital expenditure that:*
>
> - *maintains or improves the safety of the network for the public, employees and contractors*
> - *improves reliability, security of supply or service standards and/or*
> - *is needed to meet environmental standards*
>
> *We have incorporated expenditure to enable us to deliver targeted asset specific investment programmes focused on reliability, and improved public safety. Our recent focus in this area has resulted in progressive identification of valuable enhancement initiatives, and we have set overall future expenditure to reflect this trend.*

More specifically, we state that the basis for forecasting expenditure in this category is as follows:

> *This category of investment relates to portfolios of projects covering specific, targeted enhancement areas.*
> *The costs of specific projects and programmes are based on our recent experience in managing similar types of initiatives escalated for inflation.*

The projects and programmes that make up this expenditure category are driven by the Safety, Delivery, and Reliability objectives, as described in Section 4 of the 2015 Gas AMP[5], and the associated asset management strategies described in Section 6 of the 2015 AMP.[6]

Fleet-specific projects are described in Sections 7 of the 2015 Gas AMP, while region-specific projects are described in Section 8 of the 2015 Gas AMP. Any change in our forecast is described in Section 2 of the 2016 Gas AMP update. For example, we discuss the increased expenditure forecast for the Wellington CBD upgrade planned for 2016 through to 2022.

The summarised list of projects is described in Schedule 11a of our 2016 Gas AMP update, more specifically in sections 11a(vi) to 11a(viii).

To assist the Commission gaining a greater understanding on each project described in Schedule 11a, we have provided, in Attachment 2, a summarised description of each project making up the expenditure in the three categories for the period 2017 to 2020.

Estimating costs

Powerco aims to deliver 90% of its total expenditure through market-tested arrangements. This is described in Section 4.6.2 of the 2015 Gas AMP: Improving delivery efficiency.

As part of this commitment, our main network activities are delivered under a unit rates-based gas field service agreement awarded following a competitive tender. The rates, established at a regional level, are used as the basis for costs wherever available.

When a unit rate is not available, projects are estimated based on actuals for comparable projects.

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[4] 2015 AMP section 9.8.1 on pg 113
[5] 2015 AMP section 4 from page 37
[6] 2015 AMP section 6 from page 63

If no information is available, we will use a lump sum to engage design and cost estimation activities, and allocate a lump sum that management considers acceptable, or easily re-allocable to other projects if costs are disproportionate compared to the expected costs of the project.

In attachment two, we have described the basis for cost for each of the project listed.

Thank you again for the opportunity to provide comment on expenditure forecast in our AMP. If you wish to discuss any of the points made, or clarify any matters, in the first instance please contact Nicolas Vessiot, email nicolas.vessiot@powerco.co.nz or tel(04) 978 0506.

Yours sincerely

Richard Fletcher

General Manager Regulation and Corporate Affairs

Attachment One

The information below provides a more granular explanation of the expenditure variances to forecast in the regulatory years 2013, 2014 and 2015.

1. The lower expenditure is a combination of planned work that was not completed for several reasons, and completing some work for less than forecast expenditure.
2. Powerco uses a fully outsourced field service model and while we are confident that this provides cost-effective works delivery, the small market size and the need to maintain market competition often impact the ability to deliver our planned volume of work.
3. Completing the planned capex work programme is a particular focus of Powerco's management team and is one of eight key performance measures on the balanced score card reported monthly to the Board. Management and staff are incentivised to meet or exceed this target.

These factors that have contributed to the variance are explained below.

PLANNED WORK UNABLE TO BE COMPLETED

Changes in delivery model for regulatory year 2013 disrupted work delivery

4. In October 2012, Powerco exited an alliance outsourcing agreement that had been in place since 2005 to a field service agreement based on market-tested unit rates. We also took the opportunity to change the implementation model and insource some high value activities such as design and planning.
5. Two of our three contractors (GasCo and Electrix) operating in Wellington, Porirua, Manawatu and Hawkes Bay, were unsuccessful in retaining contracts with Powerco. Infracon won new contracts in Manawatu and Hawkes Bay, while Tenix, incumbent contractor for Taranaki and Hutt Valley, won the contract for all other regions, including Wellington.
6. More information on the changes in outsourcing model is included in the 2013 AMP sections 1.2, and 3.1.3.
7. This change created a major disruption in the delivery of the programme of works in 2013.
8. Over the 6-months period between October 2012 and March 2013, only 20% of the annual capital works programme was delivered.

Disruption due to liquidation and changes in ownership of our service providers during the first three years of the field service agreements

9. In 2012, we awarded our service provision contracts to Tenix New Zealand and Infracon Ltd.
10. In the 2013-2016-period, both service providers were affected by change of ownership.
11. In 2014, Infracon Ltd, main service provider went into liquidation and were later bought by Higgins.
12. In 2015, Tenix New Zealand was bought by Downer.
13. In 2016, Higgins was bought by Fletcher.
14. Every change of ownership created disturbance to obtain the resources available to deliver our capital projects.

Changes in operational environment with the new Health and Safety at Work Act

15. The Health and Safety at Work Act 2015 has impacted our design processes.

16. In preparation to the introduction of the Act, we have been working to better integrate risks in our asset management processes. This included the revision of our risk management practices, and the application of ALARP principles.
17. The result of this “Safety by Design” approach is an extended planning and design phase of our projects in the interest of the long-term safety of our workers, and the public. These changes have long-term benefits but have contributed to a slowing of the delivery of planned projects.

Project delays due to shortage of material

18. In our 2013 AMP, we described our strategy to underground stations to reduce third party damage. This is described in the 2013 AMP Section 7.3.3 (p.71).
19. Our standard equipment for underground stations are “Cocon” units. They are widely used in Australasia.
20. In 2013-2014, Gorter, the manufacturer of Cocon was bought by Honeywell.
21. As a result, the lead time to procure the equipment increased from three-to-four months, to one year.
22. This slippage impacted our capability to deliver our projects as initially planned.
23. More recently, we experienced shortage in pipe when national demand increased unexpectedly.
24. Whilst we found an alternate supplier and it took only 6 weeks to get a first shipment, this impacted our delivery by up to 2-3 months for some large renewal projects.
25. We gave priority to our fault response and customer works activity, which are of greater number, but of lower overall expenditure.

Lower customer-initiated expenditure in the beginning of the period

26. In 2013, our system growth expenditure was based on the development of several major subdivisions across our footprint. However the activity in the beginning of the regulatory period was slower than expected.
27. The biggest development, Maymorn Valley, was planned to be delivered in 2014. However, the Hutt city council decided to postpone the project resulting in $565k forecast expenditure for 2014 not eventuating.
28. We have reactively reallocated some of this expenditure to other projects where possible.
29. Since the beginning of 2015, the subdivision development activity has picked up and is now closer to our forecasts.

Cost versus delivery trade-off

30. Powerco aims to deliver a safe and reliable service to New Zealand, with a stable price to its customers. To do so, we are committed to deliver the programme of works described in the AMP every year.
31. Limited contractor resources contributed to the slippage in the works programme experienced in 2013 and 2014. Bringing additional resources from overseas was not economically viable. Since then we have increased our field delivery capability by encouraging new contractors into the local market, but the New Zealand resource levels remain a risk to delivery.

PLANNED WORK EXPENDITURE LOWER THAN FORECAST

Competition Delivering Project Savings

32. Powerco’s field service agreements include mechanisms designed to deliver lower costs through competition. Repetitive, lower value work is delivered by the incumbent

contractors at pre-determined unit rates, minimising administration. Consistent good performance is rewarded through the allocation of some higher value work, subject to a ‘fair-price’ mechanism to ensure competition.

33. All major work is tendered. Powerco has consciously managed the market for tendered works to promote competition is a limited market.

Better Asset Management Maturity

35. Powerco’s asset management maturity journey started in 2010, and described in our 2013 and 2015 AMP has allowed us to deliver complex projects in a more complex environment.

34. As a consequence, some projects have been delayed to ensure appropriate planning and design took place, safety of the public and workers was paramount at all stage of the asset and project lifecycle, and long-term efficiencies were achieved.

35. Wellington CBD upgrade project is a good example of this change in approach.

36. In September 2013, we described in the 2013 AMP (Section 8.2.3.1 p.79) our strategy to increase the quality of supply in Wellington CBD.

37. At the time, the options considered were to upgrade the whole CBD to 25kPa, or to limit the upgrade to a specific area of the network (Kelburn and The Terrace), building a parallel 100kPa network to meet new customers ‘demand. The complexity of upgrading the whole area at the time was not deemed technically feasible.

38. The delivery of the initial upgrade was delayed from 2013 (in our 2013 AMP) to 2016. This was mainly due to the validation of asset information throughout the network via onsite inspection, and subsequent replacement of steel service. Most of the service lines feeding commercial buildings were dug up and replaced if necessary.

39. This project allowed us to gather essential information about the assets and stakeholder management, proving the feasibility of such project. In 2015, we decided to go ahead with the upgrade of the whole network, and stopping the expansion of the 100kPa network which would have doubled up the existing network. This guarantees better cost efficiency and long-term benefit for our customers.

40. The undergrounding of Mein Street DRS in Wellington, completed late 2015, is another example of better asset management maturity.

41. This station, main feed to Wellington’s eastern suburbs, was located on school grounds, at the corner of a busy intersection. In 2013, we decided to underground the station to reduce the risk to the public.

42. This project involved high risk work on intermediate pressure steel pipeline, including the main supply to Wellington Hospital.

43. The additional planning led to the completion of the project 3 months after its expected completion date when we built the AMP forecast.

Attachment Two

The tables below list a summarised description of each project making up the expenditure in the total reliability, safety and environment expenditure category for the period 2017 to 2020.

Project title	Strategic driver	Status	Summarised description	Justification	AMP reference	Cost basis
SCADA site transmittors Ex to IS	Safety	Underway	Convert explosive-proof SCADA transmittors to Intrisically-safe units	While investigating the intermittent faults on our SCADA units as described in the 2015 Gas AMP, it has been brought to our attention that our transmitters only hold an "explosive-proof" certification. These installations must now be certified "intrinsically safe" to operate within the enclosure of gas assets. This is a safety requirement driven by the application of New Zealand regulations on hazardous areas.	2015 AMP, Section 7.6.1 (p.80)	Costs are based on unit costs provided after the design was completed. We aim to replace 4 to 5 sites per year in the first instance.
Westown Capacity Reinforcement - Ferndale (Taranaki)	Delivery	Planned	Reinforce the supply into the southern end of Ferndale suburb in New Plymouth	The current pressure droop in the southern end of the city does not meet our network performance criteria. Associated with growth, this project will allow us to maintain our quality standards. Current constrains are also described in Schedule 12b of the 2016 AMP under the "New Plymouth MP" pressure system	2015 AMP, Section 8.4.3.1.1) (p.92)	Costs are based on an average cost per meter applied to a preliminary concept.
Gotham (formerly Wellington CBD - Phase 2)	Delivery	Underway	Pressure elevation in Wellington CBD (underway)	The current pressure droop in Wellington CBD does not meet our network performance criteria. Leveraging from the successful first pressure elevation in the Terrace and Kelburn to increase capacity, it has been decided that the remainder of the low pressure network would be upgraded to 25kPa. This will allow us to maintain our quality standards, and respond to commercial growth in the area. Current constrains are also described in Schedule 12b of the 2016 AMP under the "Wellington CBD" pressure system	2016 AMP update, Section 2.2.1 (p.3) 2015 AMP Section 8.2.3.1.1) (p.85)	Average cost per ICP has been applied based on the actual costs experienced during project Neon completed in RY2016.
Palmerston North Eastern Reinforcement (Manawatu)	Delivery	Underway	Extension of the medium pressure network in Palmerston North towards the east of the city. Also referred as Eastern city expansion (underway)	The current pressure droop in the eastern suburbs of Palmerston North is in breach of our quality standards. With the additional growth planned by Palmerston North City Council in the same area, we are bringing an additional point of supply in this area by expanding the Medium Pressure network along Main Street. Current constrains are also described in Schedule 12b of the 2016 AMP under the "Palmerston North MP East" pressure system	2015 AMP, Section 8.5.3.2.b) (p.95)	Costs are based on an average cost per meter for the pipeline, and an average cost for the installation of the station.
Kelson additional point of supply (HVP)	Delivery	Planned	Installation of a new point of supply into Kelson pressure system	The number of customers relying on a single station without redundancy exceeds our security of supply standard. Current constrains are also described in Schedule 12b of the 2016 AMP under the "Kelson" pressure system	2015 AMP, Section 8.3.3.1.1) (p.89)	Costs are based on the historical cost of installation of an underground station in the same region
Awapuni Reinforcement - Stage 1	Delivery	Planned	Reinforce the supply into the western end of Awapuni suburb in Palmerston North	The growth occuring in this suburb will breach our network performance criteria by RY18. If this is the case, we have planned to carry some work on the network in RY21 to bring the network back to standard. In the meantime, we are actively monitoring the area. Current constrains are also described in Schedule 12b of the 2016 AMP under the "Awapuni LMP" pressure system	2015 AMP, Section 8.5.3.2.c) (p.96)	We have idenfied 3 options and allocated a lump sum based on our experience with similar projects. This sum will be refined closer to 2021.
Hutt River Crossing (HVP)	Reliability	Completed	Reroute an intermediate pressure steel pipeline exposed in the river bed	Being exposed, the pipe created an environmental hazard, and was prone to accelerated degradation.	2015 AMP, Section 8.3.4.@) (p.90)	Costs were based on preliminary engineering studies with limited contigency
Wellington CP Safety Improvement	Safety	Planned	Installation and reconfiguration of the Cathodic Protection system in the Wellington region	Mettalic pipelines are impacted by stray currents coming from various sources (transpower, kiwirail, etc.). Not only it is a safety hazard for operatives working on the pipeline, it also affects the performance of the cathodic protection system.	2015 AMP, Section 7.7.3 (p.81)	Costs are based on the experience gained through a similar project in Hawkes Bay, Palmerston North and New Plymouth
Mount Cook DRS Renewal	Safety	Underway	Undergrounding of a station with a higher risk of third party damage, currently located on school grounds in Wellington	The risk associated with third party interference for above ground stations requires an ALARP assessment to ensure the risk levels are tolerable. This is a requirement under the Gas (Health and Safety) Regulations 2010, AS/NZS 4645, and the more recent Health and Safety at Work Act 2015. Our strategy is to review all the stations where the risk is higher and underground them where possible. Being located on school grounds, and in close proximity of a car park, the risk profile for this station is slightly higher than other stations. A review of the possible controls and mitigations showed that the elimination of the risk by undergrounding the station was practical under our an ALARP assessment.	2015 AMP, Section 8.2.2 (p.85) 2015 AMP, Section 7.3.3 (p.78)	Costs are based on the average cost of installation of an underground station, forecasted down due to the relative size of the station

Project title	Strategic driver	Status	Summarised description	Justification	AMP reference	Cost basis
Gloucester Street DRS Renewal	Safety	Underway	Undergrounding of a station with a higher risk of third party damage	The risk associated with third party interference for above ground stations requires an ALARP assessment to ensure the risk levels are tolerable. This is a requirement under the Gas (Health and Safety) Regulations 2010, AS/NZS 4645, and the more recent Health and Safety at Work Act 2015. Our strategy is to review all the stations where the risk is higher and underground them where possible. Gloucester street station is located in the middle of a residential area, at road level, on the outside of a turn. It is under threat of a vehicle impact if the driver loses control in the turn. A review of the possible controls and mitigations showed that the elimination of the risk by undergrounding the station was practical under our an ALARP assessment.	2015 AMP, Section 8.2.2 (p.85) 2015 AMP, Section 7.3.3 (p.78)	Costs are based on the estimate that resulted from the detailed design
Riddlers Crescent DRS Renewal	Safety	Underway	Relocation and undergrounding of the main station feeding into the Hutt Valley, located in close proximity of the train tracks	The risk associated with third party interference for above ground stations requires an ALARP assessment to ensure the risk levels are tolerable. This is a requirement under the Gas (Health and Safety) Regulations 2010, AS/NZS 4645, and the more recent Health and Safety at Work Act 2015. Our strategy is to review all the stations where the risk is higher and underground them where possible. Riddlers Crescent DRS is located in close proximity of the train tracks, within a building requiring significant upgrade to sustain the earthquake risks. In addition, the components of this non-standard station require replacement as they are reaching their end of life and minor leakage has been detected on the station. A review of the possible controls and mitigations showed that the elimination of the risk by undergrounding the station was practical under our an ALARP assessment.	2015 AMP, Section 7.3.3 (p.78)	Costs are based on the estimate that resulted from the detailed design
DRS Renewal prorgramme (All regions)	Safety	Planned	Umbrella programme for the undergrounding, renewal and rationalisation of above-ground stations on the network	The risk associated with third party interference for above ground stations requires an ALARP assessment to ensure the risk levels are tolerable. This is a requirement under the Gas (Health and Safety) Regulations 2010, AS/NZS 4645, and the more recent Health and Safety at Work Act 2015. Our strategy is to review all the stations where the risk is higher and underground them where possible. We are going through the list of 270 stations and reviewing their risk profile individually. Out of those 270, approximatively 50 are located in high consequence areas. This programme accounts for the replacement of 1 to 3 stations per year over the planning period.	2015 AMP, Section 7.3.3 (p.78)	Lump sum representing the installation of approximately 3 to 4 units a year
Curtis Street DRS Renewal	Safety	Completed	Relocation and undergrounding of a station with a higher risk of third party damage	The risk associated with third party interference for above ground stations requires an ALARP assessment to ensure the risk levels are tolerable. This is a requirement under the Gas (Health and Safety) Regulations 2010, AS/NZS 4645, and the more recent Health and Safety at Work Act 2015. Our strategy is to review all the stations where the risk is higher and underground them where possible. Curtis street station was located close to sports ground, at road level, on the outside of a turn. It is under threat of a vehicle impact if the driver loses control in the turn. A review of the possible controls and mitigations showed that the elimination of the risk by undergrounding the station was practical under our an ALARP assessment.	2015 AMP, Section 8.2.2 (p.85) 2015 AMP, Section 7.3.3 (p.78)	Costs were based on the estimate that resulted from the detailed design
Porirua CBD DRS Rationalisation (HVP)	Safety	Underway	Protection of stations from third party damage and reduction of the number of stations.	The risk associated with third party interference for above ground stations requires an ALARP assessment to ensure the risk levels are tolerable. This is a requirement under the Gas (Health and Safety) Regulations 2010, AS/NZS 4645, and the more recent Health and Safety at Work Act 2015. Our strategy is to review all the stations where the risk is higher and underground them where possible. 7 different above ground stations are located in Porirua CBD, classified as a high consequence area, feeding into discrete, individual pressure systems. A review of the possible controls and mitigations showed that the elimination of the risk by removing 5 of the stations and protecting the remaining 2 was practical under our an ALARP assessment.	2015 AMP Section 8.3.2.#) (p.89) 2015 AMP, Section 7.3.3 (p.78)	Costs are based on the estimate that resulted from the detailed design
Hawkes Bay IP Valve Safety Improvement	Safety	Underway	General enhancements of isolation valves on the IP pipeline in Hawkes Bay	Some isolation valves on the Hawkes Bay IP pipeline require additional enhancements to their enclosure to ensure a safe access	2015 AMP, Section 8.6.2 (p.98)	Costs are based on a unit cost applied to an intial concept
Eastbourne Exposed Pipe	Reliability	Underway	Reroute a medium pressure pipeline exposed in the river bed	Erosion on the coastal road linking Seaview to Eastbourne has led to the exposure of the only supply to Eastbourne. Reactive remedial works are required to reroute the pipe in a safe location.	Not described in the AMP	Costs are based on a unit cost applied to an intial concept
DRS SCADA & Flow measurement	Delivery	Underway	Installation of new SCADA and flow measurement units on stations	Our security of supply aims at minimising the risk of outage on the network. This is achieved by real-time monitoring of the network and accurate capacity modelling. To achieve this, we need to record flow and pressure information. This project aims at procuring and installing the monitoring and recording equipment. We have identified that ~50 of our sites should be monitored.	2015 AMP, Section 7.3.3 (p.78)	Costs are based on a unit cost applied to the installation of 8 to 10 units a year
IP Isolation Plans	Safety	Planned	Addition, removal, or modification of isolation valves to allow isolation of the IP pipeline in Hawkes Bay	This project complements the Valve Safety Improvement project. Pipeline isolation plans have been designed to maximise safety of the public and workers, while minimising the number of customers interrupted. The plans have identified potential improvements that will reduce response time and the number of customers affected by adding, removing, or modify isolation valves.	Not explicitely described in the AMP, but similar to: 2015 AMP, Section 7.4.2 (p.79) 2015 AMP, Section 8.6.2 (p.98)	Costs are based on a unit cost applied to an intial concept