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Public version

Incentives for Suppliers to Control Expenditure During a Regulatory Period:

Process and Issues Paper

Date: 20 September 2013

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Executive summary

Purpose of paper

X1. In April 2013, we published a Notice of Intention to start work on a potential change to the up-front rules, requirements and processes of regulation.[1] Before deciding what changes, if any, are required, we invite you to provide your views on the incentives that suppliers have to control expenditure when their prices are regulated.

X1.1. Submissions are due by **5pm, 21 October 2013.**

X1.2. Cross-submissions are due by **5pm, 1 November 2013.**

X2. We also invite views on the timeframes we propose if changes prove necessary.

Incentives to control expenditure

X3. Under Part 4 of the Commerce Act 1986, we are required to regulate the price and quality of certain services. The following services are supplied in markets in which there is little or no competition, and little or no likelihood of a substantial increase in competition.

X3.1. Electricity distribution services provided by 17 electricity distributors.

X3.2. Gas distribution services provided by three gas distributors.

X3.3. Gas transmission services provided by two gas transmission businesses.

X3.4. Electricity transmission services provided by Transpower New Zealand.

X4. Each supplier that is subject to price-quality regulation has an incentive to improve their efficiency. This is because we place a limit on the average price the supplier can charge, or the total revenue they can recover. That limit is fixed for up to five years before it is reset at the end of the 'regulatory period'.

X4.1. During the regulatory period, the supplier is rewarded with higher profits if expenditure is controlled.

X4.2. At the end of the regulatory period, the benefits of any efficiency gains can be shared with consumers, including through lower prices.

X5. Ultimately, the prospect of a beneficial impact on prices is a key reason why we provide suppliers with an incentive to control expenditure in the first place.

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[1] Commerce Commission, *Notice of intention: Potential amendments to input methodologies for electricity distribution services, gas pipeline services, and Transpower,* 30 April 2013.

Existing arrangements

X6. In this paper, we analyse the incentives that suppliers have to control expenditure, and show that:

X6.1. Efficiency gains are rewarded differently depending on the year in which the gain is made; and

X6.2. Efficiency gains are rewarded differently depending on the category of expenditure in which the gain is made.

X7. In addition, efficiency gains and efficiency losses are not treated symmetrically, ie, the reward for making a gain is not equal to the penalty for making a loss of similar size.

Why we want your views

X8. We would like to know your views on any issues caused by the existing incentives for suppliers to control expenditure. By providing your views, you will help us decide what changes, if any, are required to the up-front rules, requirements and processes of regulation (which are collectively known as 'input methodologies').[2]

X9. We are also interested in your views on our indicative dates for the outstanding process steps, if changes prove necessary.

X9.1. Draft decision – 16 December 2013.

X9.2. Final decision – 14 April 2014.

X10. The period for providing submissions on our draft decision would end on 7 February 2014. An additional two week period would be allowed for cross-submissions.

Arrangements for the workshop

X11. A workshop will be held at our Wellington Office, on 2 October 2013, for anyone interested in the modelling relied on in this paper. Further details about the workshop can be found in Chapter 7.

Address for responses

X12. Please address responses to: John McLaren (Chief Adviser, Regulation Branch), c/o regulation.branch@comcom.govt.nz.

[2] Any changes would affect the operation of the incremental rolling incentive scheme under both types of price-quality regulation administered by the Commerce Commission. The incremental rolling incentive scheme currently provides a mechanism by which suppliers are able to retain the benefits of efficiency gains beyond the end of a regulatory period.

1. Introduction

Purpose of paper

1. This paper explains the incentives that suppliers have to control expenditure when their prices are regulated by the Commerce Commission. We invite you to provide your views on whether these incentives could be improved.

   1.1 Submissions are due by **5pm, 21 October 2013.**

   1.2 Cross-submissions are due by **5pm, 1 November 2013.**

2. By providing your views, you will help us decide what changes, if any, are required to the up-front rules, requirements and processes of regulation. We also invite you to provide feedback on the timeframes proposed if changes prove necessary.

Incentives to control expenditure

3. Under Part 4 of the Commerce Act 1986 (the Act), we are routinely required to make decisions that affect the price that certain suppliers can charge for transporting energy in New Zealand. Each 'price-quality path' must also specify minimum standards for the service quality delivered to consumers.

4. These price-quality paths generally remain in force for up to five years before being reset. The exact duration of the path is referred to as the 'regulatory period', and immediately after one regulatory period ends, another regulatory period begins. Our decision to reset a path is issued some months before the reset is due to take effect.

5. The advantage of setting price-quality paths for a regulatory period is that it preserves, and potentially improves, the financial incentive that each supplier has to improve their efficiency.[3] This is because, during the regulatory period, suppliers are rewarded with higher profits if they control their expenditure.

6. At the end of the regulatory period, the benefits of any efficiency gains can be shared with consumers, including through lower prices. Ultimately, the prospect of a beneficial impact on prices is a key reason why suppliers are provided with an incentive to control expenditure in the first place.[4]

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[3] The suppliers of services regulated under Part 4 are monopoly providers, so in the absence of regulation they would not be subject to the type of pressures that exist in competitive markets. In theory, however, a profit-maximising monopolist would still have an incentive to control expenditure if regulation was not applied.

[4] For a fuller discussion of the way in which price-quality paths promote the Part 4 Purpose, please refer: *Commerce Commission, Input Methodologies (Electricity Distribution and Gas Pipeline Services) - Reasons Paper*, December 2010.

Sharing of benefits between suppliers and consumers

7. At present, the benefit sharing arrangements in place under Part 4 primarily depend on the type of regulation applying to each type of service. Table 1 matches each type of price-quality regulation to each type of service.

Table 1: Price-quality regulation applying to each type of service

Type of regulation	Type of service(s)
Default/customised price-quality regulation	• Electricity distribution services provided by 17 electricity distributors • Gas distribution services provided by three gas distributors • Gas transmission services provided by two gas transmission businesses
Individual price-quality regulation	• Electricity transmission services provided by Transpower New Zealand

8. For each type of service in Table 1, we have determined up-front rules, requirements, and processes of regulation, which are collectively referred to as 'input methodologies'. Input methodologies promote certainty in relation to a range of matters specified in the Act.[5]

9. Amongst other things, the input methodologies include an incremental rolling incentive scheme (IRIS). The IRIS provides a mechanism by which suppliers would be able to retain the benefits of efficiency gains beyond the end of a regulatory period. In this paper, we refer to the IRIS as the 'input methodologies for expenditure incentives'.[6]

5 Refer: s 52T(1) of the Act.

6 Refer: *Electricity Distribution Services Input Methodologies Determination 2012 [2012] (NZCC 26)*; *Gas Distribution Services Input Methodologies Determination 2012 [2012] (NZCC 27)*; and *Gas Transmission Services Input Methodologies Determination 2012 [2012] (NZCC 28)*; and *Transpower Input Methodologies Determination 2012 [2012] (NZCC 17)*. Our reasons for the input methodologies for expenditure incentives can be found at: above n 4.

Potential changes to the up-front rules, requirements and process of regulation

10. In April 2013, we published a Notice of Intention to start work on a potential amendment to the input methodologies for expenditure incentives.[7] This Notice of Intention set out the process that we would follow, as well as proposed timeframes.

11. Indicative dates for the outstanding process steps, if required, are shown below.[8]

    11.1 Draft decision – 16 December 2013.

    11.2 Final decision – 14 April 2014.

12. We propose to allow until 7 February 2014 for submissions on our draft decision. An additional two week period would be allowed for cross-submissions.

Why we want your views

13. Before deciding what changes, if any, are required, we would like to know whether you think there are any issues with the incentives suppliers currently have to control expenditure. We encourage you to explain any concerns that you have with the incentives that apply under each type of price-quality regulation.

14. To help you provide your views, this paper:

    14.1 illustrates how the benefits of efficiency gains are shared between suppliers and consumers, using a number of stylised examples;

    14.2 provides additional information that is specific to each type of regulation; and

    14.3 identifies particular issues for you to consider.

15. At this stage, we are not seeking submissions on the method for improving incentives.[9] However, you are welcome to provide any material that you think should be before us when considering what changes, if any, are required.

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7 Commerce Commission, *Notice of intention: Potential amendments to input methodologies for electricity distribution services, gas pipeline services, and Transpower*, 30 April 2013.

8 Interested parties were notified of these dates by email on 4 September 2013. The latest date that we currently expect to publish a draft decision is 23 December 2013.

9 For example, Vector Limited has previously argued in favour of a staggered sharing mechanism when resetting starting prices for default price-quality paths. Refer: Vector, *Efficiency impacts of Starting Price Adjustments – Stylised Example*, 19 December 2011.

Responding to this paper

16. We invite you to provide your views on any matter raised in this paper. Further details about how to provide your views can be found in Chapter 7.

    16.1 Submissions are due by **5pm, 21 October 2013.**

    16.2 Cross-submissions are due by **5pm, 1 November 2013.**

17. We also intend to hold a workshop on 2 October 2013. The workshop will give people an opportunity to ask questions of Commission staff about the modelling relied on in this paper.

2. Stylised examples

Purpose of chapter

18. This chapter relies on stylised examples to illustrate how the benefits of efficiency gains are shared between suppliers and consumers.

Sharing of benefits between suppliers and consumers

19. As explained in the sections that follow, the extent to which a supplier shares the benefits of an efficiency gain with consumers depends on the category of expenditure. We distinguish between:

    19.1 Operating expenditure, which generally comprises spending on operating the system, such as network maintenance, vegetation management and business support; and

    19.2 Capital expenditure, which generally comprises capital investments in assets that are used to supply regulated services.

20. Price-quality paths are based on forecasts of both categories of expenditure. More specifically, we use 'expenditure forecasts' to inform the amount of revenue a supplier should be allowed to recover in the next regulatory period.

Effects that occur when a supplier makes a saving

21. For simplicity, we have assumed that a supplier achieves an efficiency gain in a year if the actual level of expenditure for that year differs from the expenditure forecast.[10] In the remainder of this paper, we refer to the change in expenditure as a 'saving' or 'loss' (respectively).

22. Because the path of price (or revenue) is fixed for the regulatory period, two effects occur if a supplier achieves a saving.

    22.1 During the regulatory period, the supplier is rewarded with higher profits if expenditure is controlled.

    22.2 At the end of the regulatory period, the benefits of any efficiency gains can be shared with consumers, including through lower prices.

23. Taken together, these effects determine the expected impact of a saving on a supplier's profitability.

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[10] Quality standards are important because they make it more likely that higher profits can be attributed to genuine efficiency gains. Suppliers may otherwise have an incentive to cut expenditure at the expense of quality. However, actual expenditure may also be lower than forecast for other reasons, such as the forecast being higher than required in the first place.

How we assess the extent of benefit sharing

24. The extent of benefit sharing is assessed by comparing the change in the supplier's profits to amount they save. More formally, a 'retention factor' can be calculated using Equation 1.[11]

Equation 1: Calculation of retention factor

$$\text{Retention factor} = \frac{\text{Net Present Value of the benefit to the supplier}}{\text{Net Present Value of the saving}}$$

25. The retention factor can be interpreted as the incentive rate applying to an additional dollar of spending or saving. For example, if the retention factor is 40%, then the supplier will retain 40 cents for every additional dollar saved. The flipside is that the supplier can pass on 60 cents of every additional dollar spent.

26. As a simple matter of arithmetic:

    26.1 A retention factor of 100% means the saving is never reflected in lower prices for consumers; whereas

    26.2 A retention factor of 0% means the saving is immediately reflected in lower prices for consumers.

27. In general, the retention factor for a saving will lie somewhere in between 0% and 100%. If the retention factor lies outside of these bounds, then the supplier or the consumer must benefit by more than the value of the saving.

Stylised retention factors for operating expenditure

28. The analysis for operating expenditure is relatively straightforward to understand. This is because, during a regulatory period, suppliers are generally allowed to recover the amount of operating expenditure previously forecast to occur.

29. By way of an example, Figure 1 shows how much revenue a supplier would be allowed to recover, across two regulatory periods, based on a flat forecast of operating expenditure in each period.[12] Also shown in Figure 1 is the amount the supplier actually spends in practice each year.

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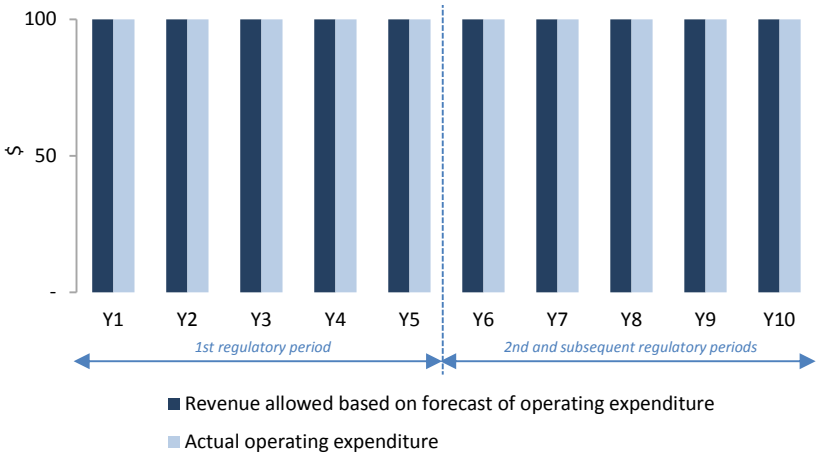
[11] For simplicity, throughout this paper we have assumed that tax costs are nil.

[12] For the purposes of this stylised example, we have assumed that the profile of revenue recovery matches the profile of the operating expenditure allowance.

Figure 1: Operating expenditure
Actual spending equals forecast spending



30. In Figure 1, we have assumed the supplier spends the forecast amount each year ($100), which is equal to the amount of revenue we allow the supplier to recover based on that forecast. No savings are made throughout the period.

Permanent and temporary savings in operating expenditure

31. To develop this example further, we have considered two types of savings in operating expenditure.

    31.1 A permanent saving – which we define as a saving that is maintained in every year after it is first achieved, ie, in perpetuity.[13]

    31.2 A temporary saving – which we define as a saving that only occurs in a single year.

32. In this chapter, we have relied on assumptions about the way these savings are shared with consumers when prices are reset.[14] For permanent savings, we have assumed the benefits are fully shared with consumers through lower prices. For temporary savings, however, we have assumed that there is no impact on prices.

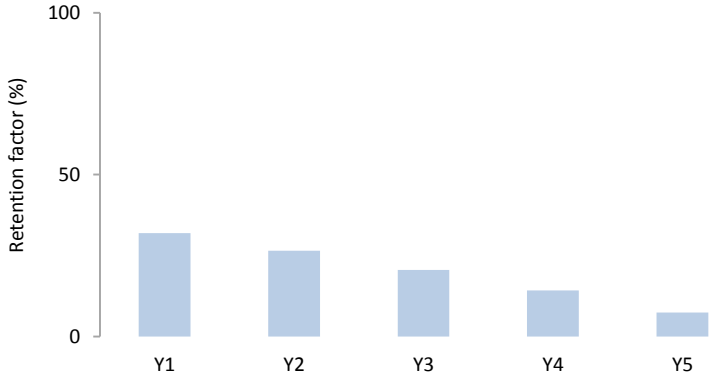
[13] The value of a permanent saving can therefore be assessed using the standard formula for perpetuities. Assuming the saving occurs at the start of every year, the relevant equation is: $x + x/(1+r)$; where x is the annual saving, and r is the discount rate.

[14] In practice, these assumptions could not be achieved unless efficiency gains could be individually identified and quantified. The way in which the benefits of efficiency gains are shared depends on the way that prices are reset at the end of the period. Chapters 3 and 4 provide further information.

Stylised retention factors for permanent savings

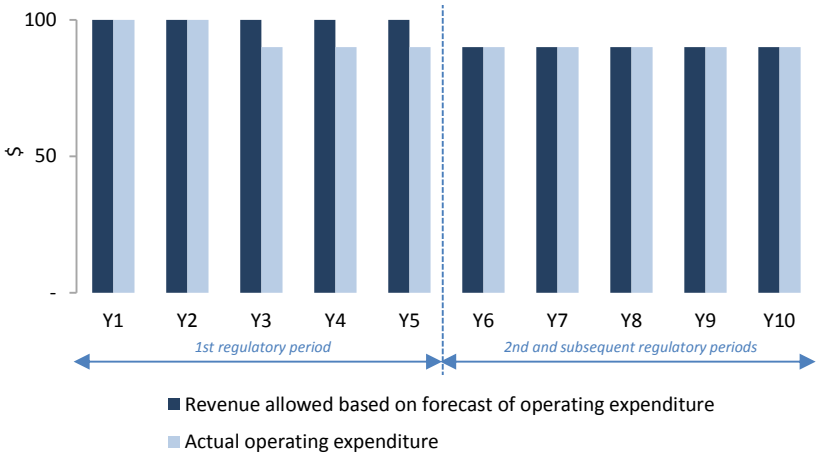
33. Under our stylised assumptions, the retention factor for the supplier from permanent savings decreases during the regulatory period. In addition, the retention factor is the same for both savings and losses. Figure 2 shows the retention factor starts off highest in year one, and declines through to year five.

Figure 2: Operating expenditure
Retention factors for a permanent saving or loss



34. To help explain how we derived the retention factors in Figure 2, we start by showing the twin effects caused by a $10 permanent saving from year three onwards. As shown in Figure 3, the first effect is the saving itself (a reduction from $100 to $90 from year three onwards). Profits will be higher in these years.

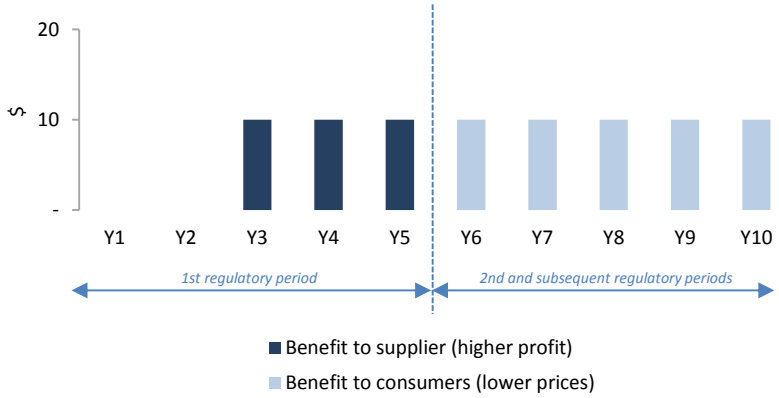
Figure 3: Operating expenditure
Permanent saving in year 3



35. Figure 3 also shows the second effect (from year six onwards) where the saving is shared with consumers through lower prices. This effect occurs because the forecast of operating expenditure is reduced in line with the permanent saving. Therefore, the revenue the supplier can recover is also reduced.

36. The impact of these two effects on the supplier and consumers is shown in Figure 4. The supplier's profits increase in year's three to five as a result of the permanent saving. However, from year six onwards, consumers benefit through lower prices.

Figure 4: Operating expenditure
Benefit sharing for a permanent saving

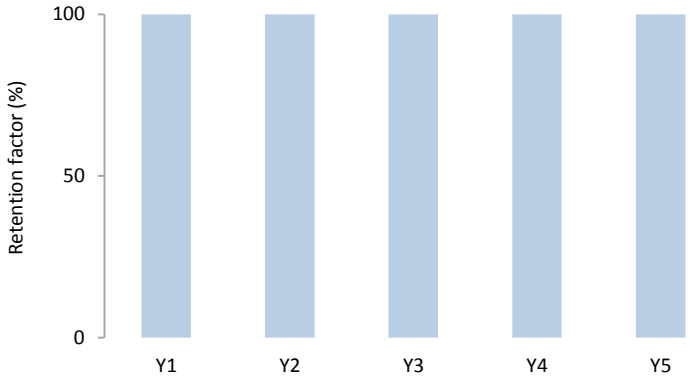


37. Figure 4 also helps explain why the retention factor diminishes as the regulatory period progresses. In each case, consumers benefit from lower prices from year six onwards. However, the supplier would make increased profits for a greater number of years if the saving was made as early as possible.

Stylised retention factors for temporary savings

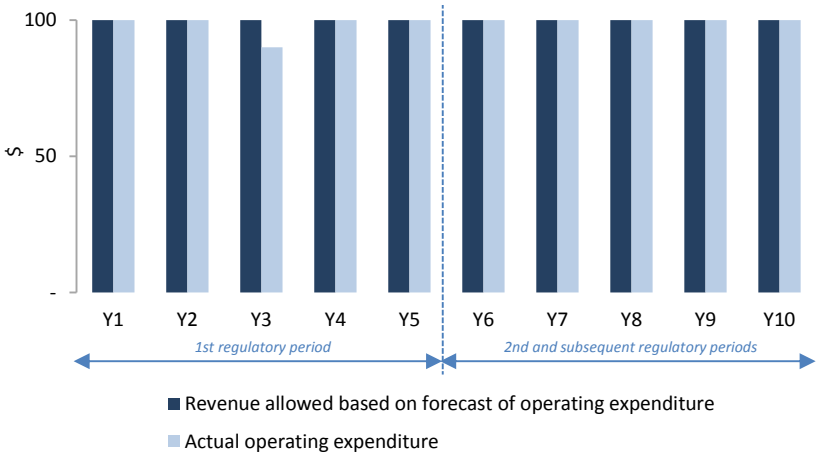
38. By contrast, under our stylised assumptions, the retention factor for temporary savings remains constant during the regulatory period. Figure 5 shows the retention factor is 100% for the supplier in every year.

Figure 5: Operating expenditure
Retention factors for a temporary saving or loss



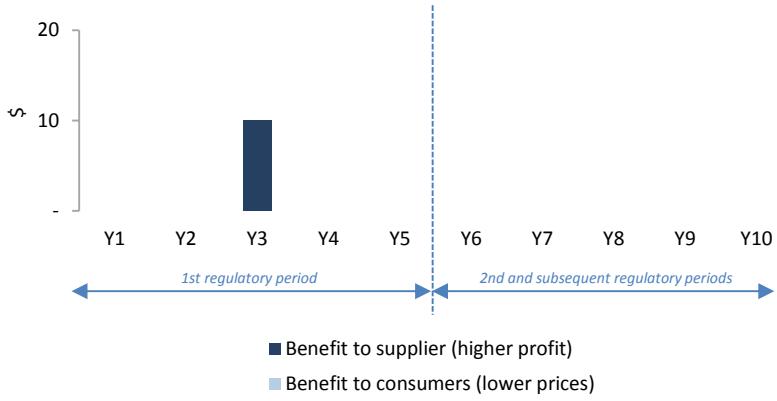
39. To help explain how we derived the retention factors in Figure 5 we show that only one effect is caused by a $10 temporary saving in year three. As shown in Figure 6, actual operating expenditure is reduced from $100 to $90. Profits therefore increase in year three. However, under our assumptions, prices would not be affected at all.

Figure 6: Operating expenditure
Temporary saving in year three



40. The impact of the temporary saving on the supplier and consumers is shown in Figure 7. The supplier's profits increase in year three as a result of the temporary saving. However, consumers never benefit through lower prices.

Figure 7: Operating expenditure
Benefit sharing for a temporary saving



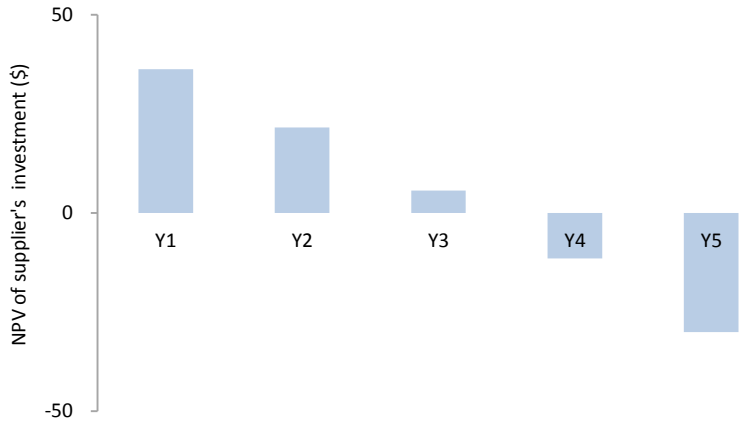
41. Figure 7 also helps to demonstrate why the retention factor remains constant throughout the regulatory period. Irrespective of when the temporary saving occurs, consumers never benefit from lower prices. However, the supplier benefits by the full amount of the saving in the year in which it occurs.

Stylised example—Spending money to save money

42. It is often the case that a supplier will have to spend money in the short term to make long term savings. With the retention factors outlined above, a supplier will find these activities more profitable in some years than in others.

43. Figure 9 shows the Net Present Value to the supplier of spending $50 at the start of a year to save $20 from that year onwards. The up-front cost can be thought of as a temporary loss, accompanied by a permanent saving.[15] The values shown in Figure 8 show the value to the supplier of carrying out the activity in any given year of the regulatory period.

Figure 9: Operating expenditure
Benefit of activity depends on timing

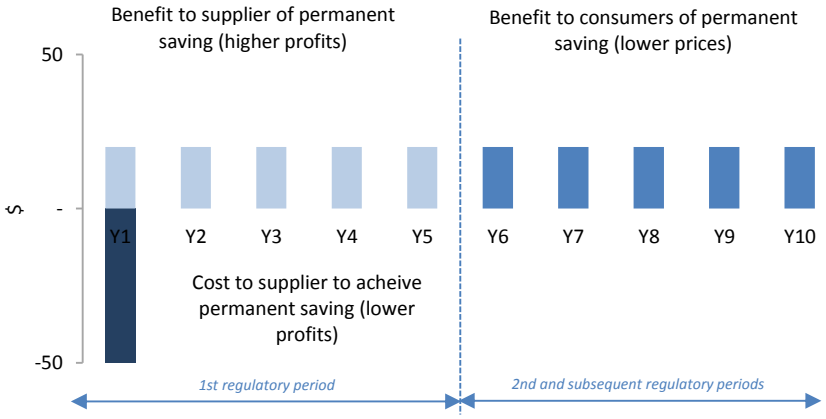


44. Figure 9 indicates that the profitability of the activity depends on the year in which the activity is undertaken. In year one, the activity has a high and positive Net Present Value. However, the Net Present Value is lower if the activity is undertaken in subsequent years. By years four and five, the Net Present Value is negative.

45. Figure 10 helps to explain why profits would be highest for the supplier if the activity was undertaken in year one. The supplier bears 100% of the up-front cost, but profits are higher in all the remaining years of the regulatory period. Prices are only reduced five years after the activity takes place.

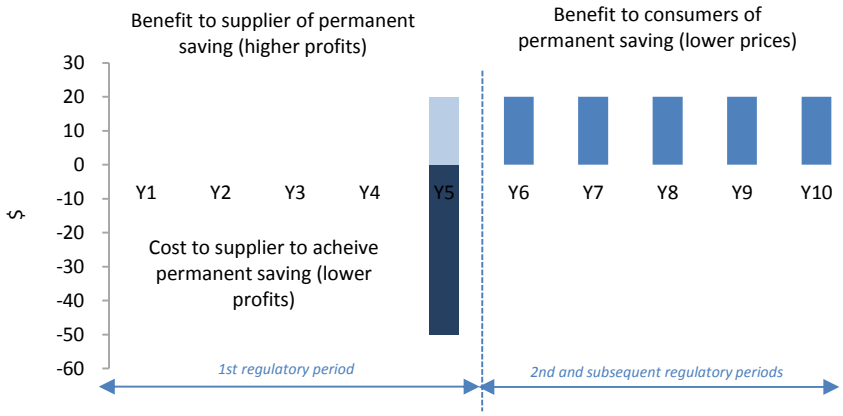
[15] Consequently, the Net Present Value (NPV) of the investment can be easily calculated using the retention factors introduced above. In particular, the NPV of the investment is equal to the NPV of the temporary loss plus the NPV of the permanent saving. The NPV of the temporary loss is simply 100% of the up-front cost, ie, $50, and the NPV of the permanent saving is (20+20/r) multiplied by the retention factor for the year in question.

Figure 10: Operating expenditure
Spending money in year one to save money in later years



46. By contrast, Figure 11 helps to explain why profits would be negative for the supplier if the activity was undertaken in year five. This time, the supplier bears 100% of the up-front cost, and the saving in that year is not sufficient to break-even. Prices are reduced the following year.

Figure 11: Operating expenditure
Spending money in year five to save money in later years



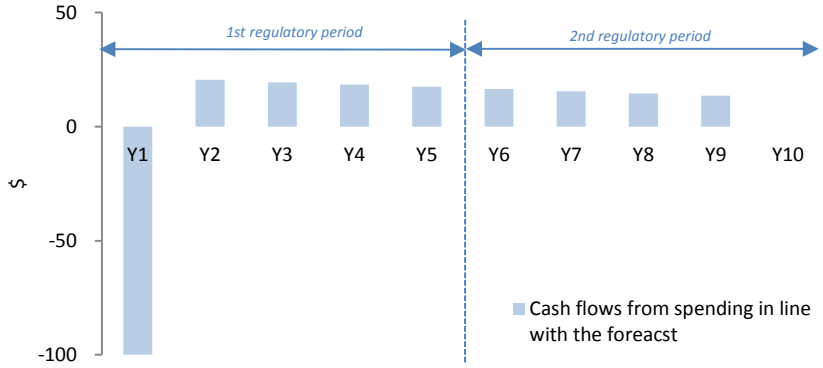
47. Similar reasoning helps explain why the profitability of the activity would be marginal if it was made midway through the regulatory period.

Stylised retention factors for capital expenditure

48. The regulatory treatment of capital expenditure is more complicated than it is for operating expenditure. In accordance with the standard approach, we smooth the recovery of each investment over time.[16] Suppliers therefore do not recover the full value of capital expenditure during the regulatory period.

49. Figure 12 provides a stylised example of a supplier's cash flows, across two regulatory periods, if the supplier makes an investment consistent with the forecast in the opening year.[17] Amongst other things, we have assumed that the investment is recovered over a short time horizon, in this case eight years.[18]

Figure 12: Capital expenditure
Stylised cash flow profile of an investment



50. In Figure 12, the amount the supplier spends in the opening year ($100) is recovered in broadly equal amounts in each of the next eight years.[19] The present value of the revenue stream exactly offsets the initial cost of the investment.

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16 We smooth the recovery of capital expenditure over time by valuing the asset at the cost of the investment, and calculating a return *on* and *of* capital in each year. The return *on* capital is intended to cover financing costs, ie, the opportunity cost *of* capital, whereas the return *of* capital is intended to cover regulatory depreciation. Regulatory depreciation is calculated on a straight-line basis.

17 For the purposes of this stylised example, we have assumed that the profile of revenue recovery matches the profile of the return *on* and *of* capital, ie, we do not subsequently redistribute revenue over the period when we set the price-quality path. We have also relied on a number of assumptions. Amongst other things, we have assumed that assets are commissioned in the year in which the capital expenditure occurs, and that all capital expenditure is incurred at the start of the year. In addition, our model is expressed in real terms, ie, before inflation, with no tax costs.

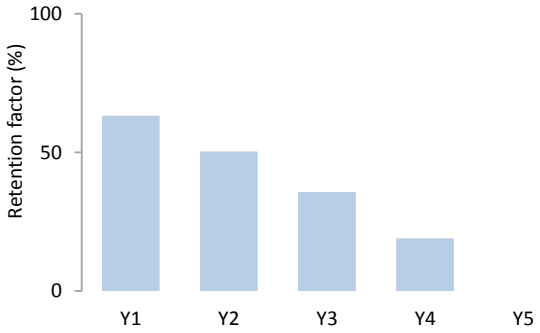
18 In reality, investments will generally be recovered over much longer time periods, based on the physical life of the asset.

19 The internal rate of return on this investment is therefore equal to our assessment of the industry-wide weighted average cost of capital.

Stylised retention factors for capital expenditure

51. Under our stylised assumptions, the retention factor for capital expenditure decreases during the regulatory period. Figure 13 shows the retention factor is highest in year one, and declines through to year five. The retention factor is 0% in year five because prices are reset at the start of the next period, so any savings are shared.

Figure 13: Capital expenditure
Retention factors for capital expenditure

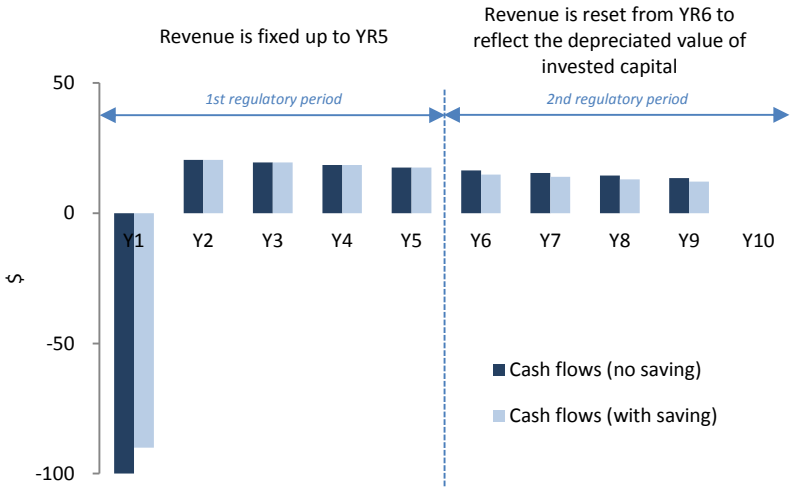


52. Savings in capital expenditure are consequently quite similar in nature to permanent savings in operating expenditure (outlined above). This is because, in both cases, the effects of any saving affect revenues in multiple time periods. In addition, the retention factor is the same for both gains and losses.

Stylised example of a saving in capital expenditure

53. To help explain how we derived the retention factors in Figure 13, we show the two effects caused by a $10 saving in capital expenditure in year one. As shown in Figure 14, the first effect is the saving itself (a reduction from $100 to $90 in year one).

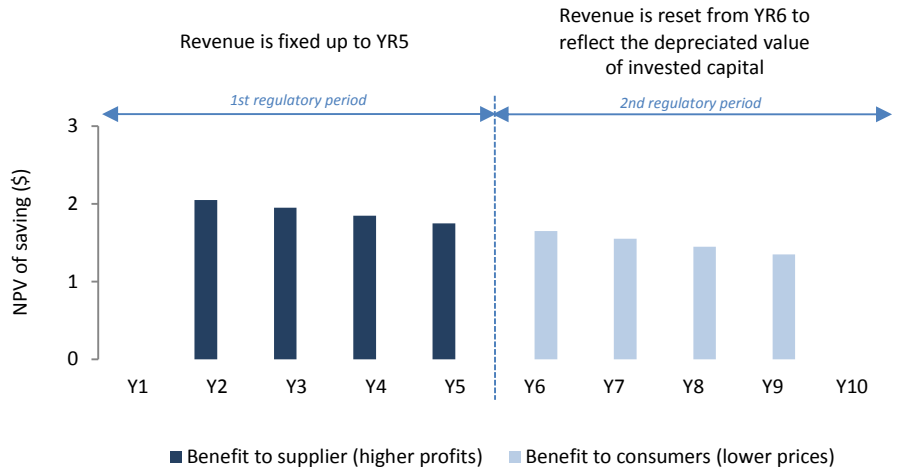
Figure 14: Capital expenditure
Saving in year one



54. Figure 14 also shows the second effect, from year six onwards, where the saving is shared with consumers through lower prices. Up until this point, the supplier remains subject to the existing price-quality path. At the start of the second regulatory period, however, prices are reduced to reflect the revenue the supplier needs to recover based on the actual level of capital expenditure.

55. The impact of these two effects, on the supplier and its consumers, is shown in Figure 15. The supplier's profits are higher during the regulatory period as a result of the saving. However, from year six onwards, consumers benefit through lower prices.

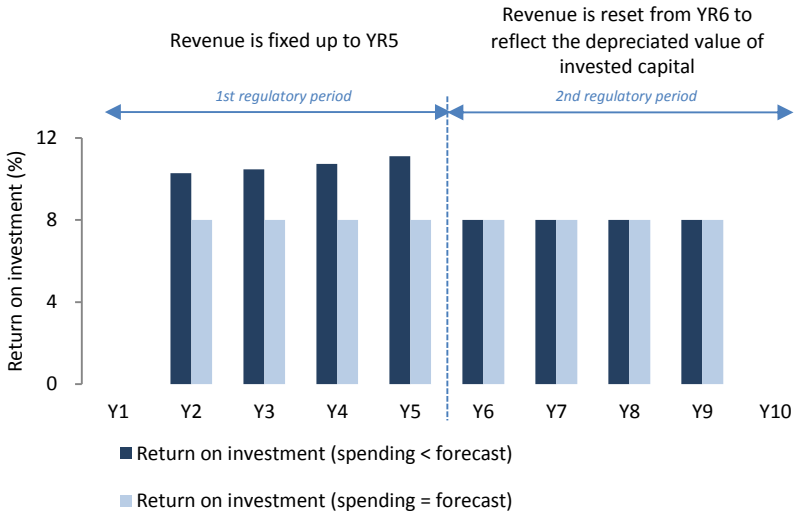
Figure 15: Capital expenditure
Benefit sharing for a saving



56. The impact on the supplier's return on investment can be seen in Figure 16. Returns are higher when the supplier spends less capital expenditure. This is because the supplier's asset value and depreciation is based on the amount of capital expenditure the supplier actually incurs.[20] Meanwhile, revenue remains the same, at least until prices are reset.

[20] Consequently, the asset value is lower, and regulatory depreciation is also lower. Regulatory depreciation is deducted from revenue when determining regulatory profit. The return on investment is equal to regulatory profit divided by the asset value.

Figure 16: Capital expenditure
Impact on Return on Investment



57. Figure 15 also helps to explain why the retention factor declines throughout the regulatory period. In particular, it is because the supplier benefits from the year after the saving to the end of the regulatory period.

3. Default/customised price-quality regulation

Purpose of chapter

58. This chapter explains the incentives that suppliers have to control expenditure under default/customised price-quality regulation.

One type of regulation—Two types of price-quality path

59. The type of price-quality regulation that applies to suppliers of electricity distribution, and gas pipeline, services is called 'default/customised price-quality regulation'. Under this type of regulation, we set default price-quality paths for suppliers, but individual suppliers may seek a customised path instead.[21]

60. This type of regulation provides a relatively low cost way of setting price-quality paths for suppliers, while allowing individual suppliers the opportunity to have alternative price-quality paths that better meet their particular circumstances.[22] We have taken this to mean that:

    60.1 Default price-quality paths will be set in a relatively low cost way; and

    60.2 Customised price-quality paths must be tailored to a supplier's circumstances.

61. A customised price-quality path may therefore apply in place of a default price-quality path, for a term of three to five years. At the end of that term, the supplier will generally return to a default price-quality path. However, the supplier has the option of proposing another customised price-quality path instead.

62. In this chapter, we have made the assumption that the supplier will return to the default price-quality path when the customised price-quality path comes to an end.[23]

Input methodologies for expenditure incentives

63. The input methodologies for expenditure incentives are specified as applicable to default/customised price-quality regulation. In theory, this means that an amendment to these input methodologies could affect either, or both, types of price-quality path.

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21 Refer: s 52B(2)(c)(i) of the Act.

22 Refer: s 53K of the Act.

23 Throughout this chapter, we have also assumed that starting prices are reset using the same approach as we applied in November 2012. This is because we are interested in your views on the incentives that would be created if suppliers expected our existing approaches to be repeated. However, we may roll over starting prices rather than resetting based on the current and projected profitability of each supplier. Alternatively, we could calculate operating expenditure in the base year using a different approach, such as by taking an average across two or more years.

64. At present, under a customised price-quality path, the input methodologies for expenditure incentives only provide additional rewards for savings in operating expenditure. Therefore, additional penalties are not applied if a supplier makes a loss. For this reason, the treatment is said to be 'asymmetric'.

65. Any additional rewards are applied in the regulatory period that follows the customised price-quality path. The amounts therefore do not affect the price-quality path that the supplier is subject to at the time any savings are made.[24] The additional rewards are instead provided via 'recoverable costs' in the next price-quality path.[25]

Other features that affect benefit sharing relative to the stylised example

66. In addition to the possible inclusion of recoverable costs, a number of other features of default/customised price-quality regulation lead to different retention factors to those in Chapter 2. Some of these features have a more material impact on the retention factors than others.

67. One feature with a material impact on the retention factors is the timing of our decision to reset a price-quality path. We are required to issue our decision four months before the reset will take effect. As a consequence, we cannot take into account the supplier's actual expenditure in the final year of the regulatory period.

68. In addition, when the current default price-quality paths were put in place, our forecasts of operating expenditure were largely reliant on actual data from a single year. If this forecasting approach was repeated, it would have a large impact on the sharing of permanent and temporary savings that occur in that 'base year'.

69. To keep the analysis in this chapter more straightforward, we have focused on these two features. The features we left out have a fairly uniform effect on the retention factors in all years, but they do not change the relative profile. Variation in the rate at which capital expenditure is recovered is a good example.[26]

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[24] Consequently, any amendment to the input methodologies for expenditure incentives could potentially take effect during an existing default or customised price-quality path.

[25] The definition of recoverable costs includes 'any positive net balances' determined under the input methodologies for expenditure incentives. The input methodologies are therefore asymmetric because negative net balances are not included in the definition of recoverable costs.

[26] Under default/customised price-quality regulation, the rate at which investments are recovered is affected by the treatment of taxation, which varies, and the revaluation of assets. These two aspects generally have opposing effects, but the net impact is a more even recovery of investments, in real terms, over the lifetime of the asset.

Retention factors for operating expenditure under each type of path

70. This section sets out the retention factors for operating expenditure under:

    70.1 A default price-quality path; and

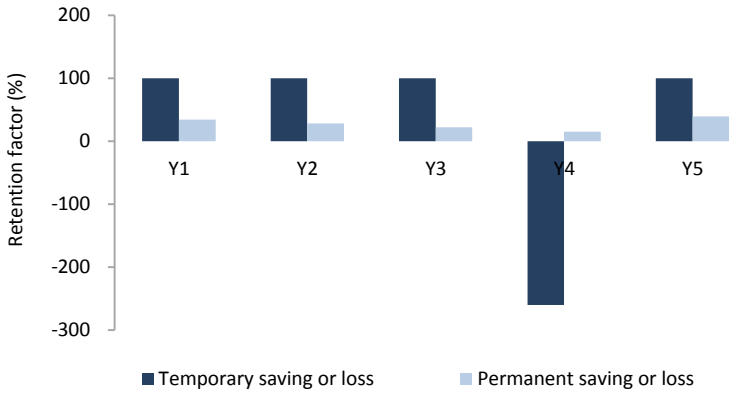
    70.2 A customised price-quality path.

71. These retention factors generally vary from year to year and, as can be seen towards the end of this chapter, they also differ from the retention factors for capital expenditure.

Retention factors for operating expenditure under a default price-quality path

72. Figure 17 shows the retention factors for operating expenditure under a default price-quality path. These retention factors apply equally to both savings and losses.

Figure 17: Default price-quality paths
Retention factors for operating expenditure



73. Figure 17 differs in two main ways from the equivalent 'stylised' analysis. First, the retention factor for temporary savings in year four is negative, and significantly so, where previously it was 100%. Secondly, the retention factor for permanent savings is higher in year five.

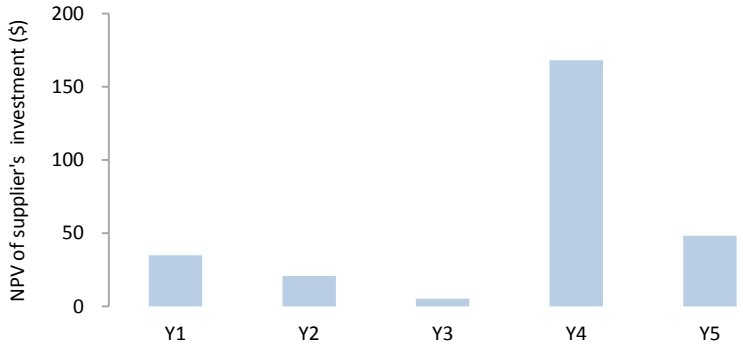
74. The intuition behind these differences is:

    74.1 For temporary savings in year four, the single year saving penalises the supplier by suppressing the base year, causing revenue to be lower in every year of the next regulatory period; and

    74.2 For permanent savings in year five, revenue in the next period is unaffected, because the saving occurs after our decision has been announced.

75. Figure 18 shows the impact of these retention factors using the scenario introduced in Chapter 2. This figure shows, for each year, the profitability of an activity that requires a supplier to spend $50 up-front for a permanent reduction in operating expenditure of $20 per year.

Figure 18: Default price-quality paths
Benefit of activity depends on timing



76. Figure 18 clearly shows the impact that relying on a base year has on the profitability of the activity. This impact occurs because the up-front cost inflates the base year used to forecast operating expenditure for the next regulatory period. Consequently, the forecast is higher even though the supplier has achieved a permanent saving.

Retention factors for operating expenditure under a customised price-quality path

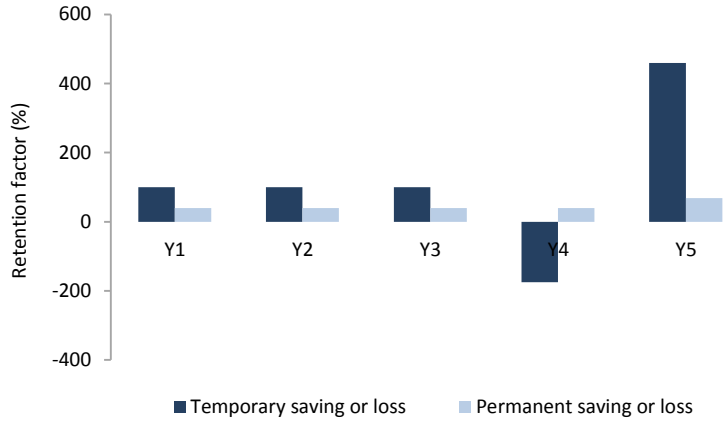
77. Because the input methodologies for expenditure incentives provide additional rewards for savings in operating expenditure under a customised price-quality path, the retention factors are not the same as for default price-quality paths.[27] In addition, the asymmetric nature of the input methodologies means that retention factors differ for savings and losses.

78. Figure 19 below shows the retention factors for savings in operating expenditure under a customised price-quality path. In this case, a number of retention factors differ from those in the equivalent 'stylised' analysis.[28] Two of the differences are similar to those explained above; only the magnitude differs.

[27] In order to apply the input methodologies for expenditure incentives, a supplier is required to identify the costs that will be subject to the scheme when they propose a customised price-quality path. The costs that are subject to the scheme are referred to as 'controllable opex'.

[28] The most notable effects (in year four) arise because we have assumed the supplier will return to a default price-quality path at the end of the customised price-quality path. Any change in expenditure in year four therefore potentially has a disproportionate effect on the analysis.

Figure 19: Customised price-quality paths
Retention factors for savings in operating expenditure



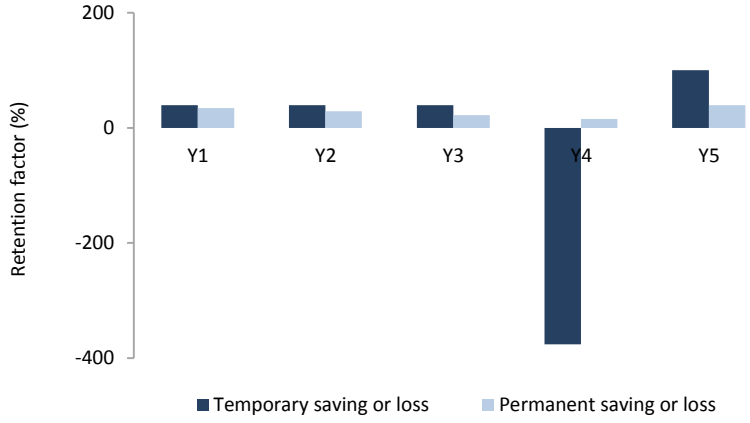
79. Compared to the profiles shown in Figure 17 for default price-quality paths:

79.1 The retention factors for permanent savings are constant in years one to four, because the supplier is allowed to retain benefits for an additional five years; and

79.2 The retention factor for a temporary saving in year five is positive, and high, because the way the input methodologies are drafted means the temporary saving is recognised like a permanent saving, ie, rewarded with a full five years of benefit.

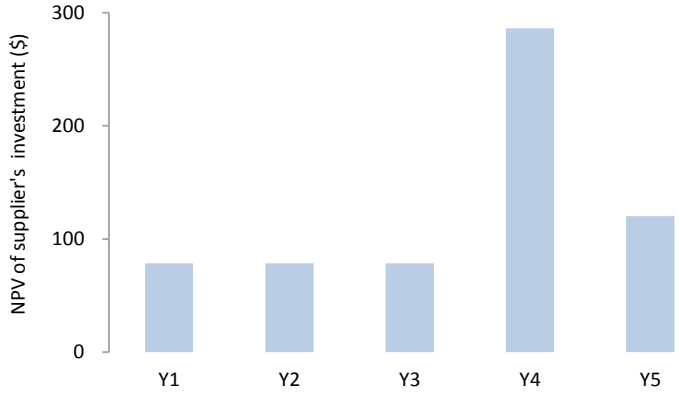
80. As shown in Figure 20, the retention factors for temporary losses are broadly similar to those for default price-quality paths. This is because the input methodologies for expenditure incentives are asymmetric in favour of suppliers, ie, no additional penalties for losses.

Figure 20: Customised price-quality paths
Retention factors for losses in operating expenditure



81. Figure 21 shows the impact of these retention factors using the scenario from Chapter 2. For each year, we show the profitability of an activity that requires a supplier to spend $50 up-front for a permanent reduction in operating expenditure of $20 per year.

Figure 21: Customised price-quality paths
Benefit of activity depends on timing



82. Again, Figure 21 clearly shows the impact that relying on a base year has on the profitability of the activity. This is because we have assumed the supplier will return to a default price-quality path at the end of the customised price-quality path. The up-front expenditure in year four inflates the base year, and increases the forecast for the next regulatory period, even though a permanent saving has been achieved.

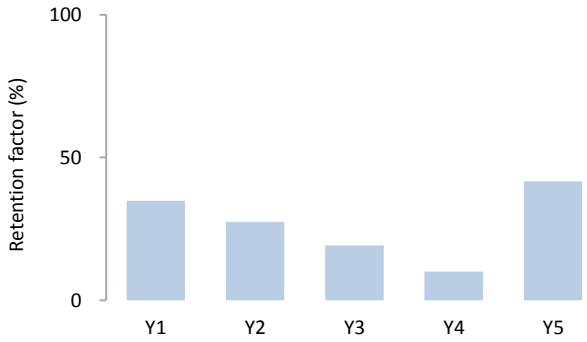
Retention factors for capital expenditure under each type of path

83. For both default price-quality paths, and customised price-quality paths, the retention factors for capital expenditure savings are broadly similar.[29] This is because the input methodologies for expenditure incentives do not currently apply to capital expenditure under either type of path.

84. Figure 22 shows the retention factors for capital expenditure under both types of price-quality path. The retention factors shown apply symmetrically to both savings and losses.

[29] In practice, suppliers can only expect to recover capital expenditure under default/customised price-quality regulation after the associated assets have been commissioned. In the interim, the supplier is compensated for finance during construction using the weighted average cost of capital.

Figure 22: Default and customised price-quality paths
Retention factors for capital expenditure



85. The retention factors shown above differ from the stylised retention factors in one key respect; namely, the retention factor for year five is non-zero and positive. This is because:

85.1 In the next regulatory period, the amount of revenue allowed is unaffected by spending in year five of the current regulatory period; and

85.2 In subsequent regulatory periods, the supplier will expect to fully recover the depreciated value of the actual investment.

86. Consequently, the supplier benefits from a saving in year five, because it takes more than a full regulatory period until the savings can be shared with consumers through lower prices.

5. Individual price-quality regulation

Purpose of chapter

87. This chapter explains the incentives that Transpower New Zealand has to control expenditure under individual price-quality regulation.

Price-quality regulation for Transpower New Zealand

88. Transpower New Zealand (Transpower) is the only supplier that is subject to individual price-quality regulation. Each 'individual price-quality path' is therefore specific to Transpower.

89. We may set an individual price-quality path for Transpower using any process, and in any way, we think fit, but we must use the input methodologies that apply to electricity transmission services.[30] We are also required to take into account the other relevant provisions under Part 4.

90. For the purposes of this paper, we have modeled the expenditure incentives that will apply to Transpower in the next regulatory period. However, we note that the expenditure incentives applying to Transpower in the current regulatory period are different.[31]

Input methodologies for expenditure incentives

91. For Transpower, the input methodologies for expenditure incentives are very similar to those for customised price-quality paths, ie, an asymmetric treatment of operating expenditure.[32] However, Transpower remains subject to an individual price-quality path from one regulatory period to the next. Consequently, the incentives are necessarily in place throughout.

92. In addition, there is also an input methodology for Transpower's capital expenditure proposals. Amongst other things, this input methodology sets out an incentive scheme for 'base capital expenditure'. For the next regulatory period, 'base capital expenditure' includes the majority of capital investment programmes that are due for completion, except large-scale capacity driven programmes that cost more than $20 million.[33]

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30 Refer: s 53ZC(1) of the Act.

31 Under the individual price-quality path for the current regulatory period, Transpower is subject to an asymmetric incentive on capital expenditure. Under this incentive scheme, all savings are fully shared with consumers, ie, a 0% retention factor for savings, and in the first instance, all losses are borne by Transpower, ie, a 100% retention factor for losses.

32 During the development of the input methodology for Transpower's capital expenditure proposals, the prospect of a symmetric treatment for operating expenditure was discussed for the next regulatory period onwards. A symmetric treatment was supported in principle by stakeholders.

33 The specific definition of base capital expenditure can be found in: above n 6.

93. The retention factors for base capital expenditure are symmetric in the next regulatory period, and they are also equal in every year of the regulatory period.

Other features of individual price-quality regulation

94. When setting an individual price-quality path, we undertake a detailed review of Transpower's expenditure proposals to determine Transpower's efficient expenditure needs going forward.

95. As a consequence, we have made similar assumptions in this chapter about the sharing of savings and losses (in efficiency) to the assumptions we relied on in Chapter 2. In particular, at the time our decision on the reset is made, we will appropriately take into account any savings or losses for the next regulatory period.

Retention factors for the next regulatory period

96. This section sets out retention factors:

    96.1 For operating expenditure, that are based on the input methodologies for expenditure incentives; and

    96.2 For base capital expenditure, that are based on the input methodologies for Transpower's capital expenditure proposals.

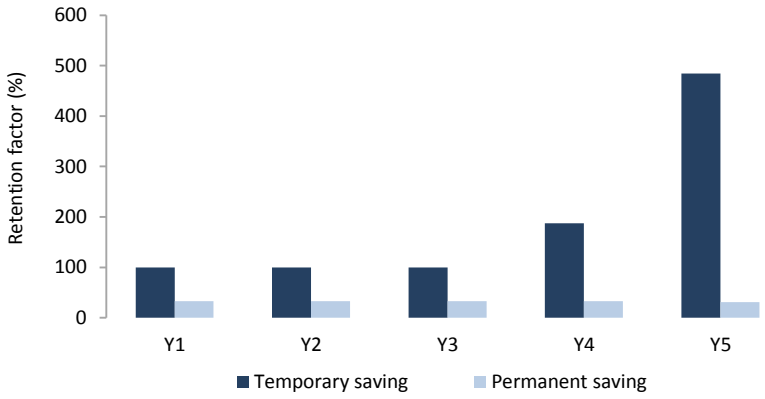
97. We have not shown the retention factors for major capital expenditure.[34]

Retention factors for operating expenditure in the next regulatory period

98. Figure 232 shows the retention factors for savings in operating expenditure under an individual price-quality path.

[34] The input methodology for capital expenditure proposals also includes an incentive scheme for major capital expenditure. In general, any approved major capital expenditure is recovered on an 'as incurred' basis. This means that in most cases Transpower can recover the full value of any expenditure, and for this reason we do not discuss major capital expenditure in this paper.

Figure 23: Individual price-quality paths
Retention factors for savings in operating expenditure



99. We highlight the following properties that arise for savings due to the way the input methodologies for expenditure incentives currently operate:

    99.1 The retention factors for permanent savings are broadly equal in each year;

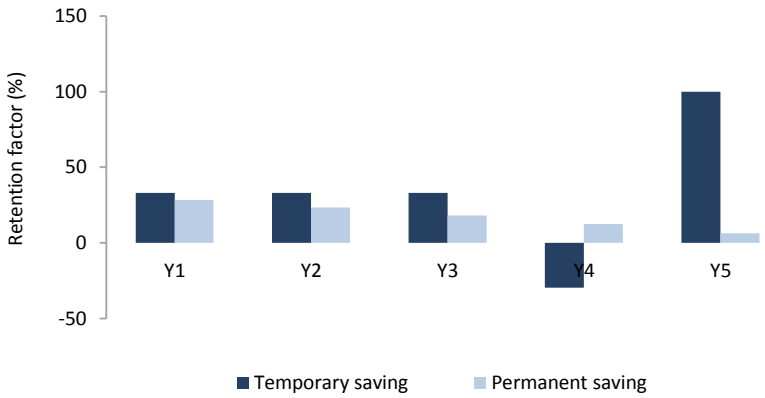
    99.2 The retention factors for temporary savings are equal in years one to three; and

    99.3 The retention factors for temporary savings are greater than 100% in years four and five.

100. These effects occur through the mechanical application of the input methodologies for expenditure incentives, which calculate a series of incremental changes used to determine recoverable costs.

101. Figure 243 shows the retention factors for losses in operating expenditure under an individual price-quality path.

Figure 24: Individual price-quality paths
Retention factors for losses in operating expenditure

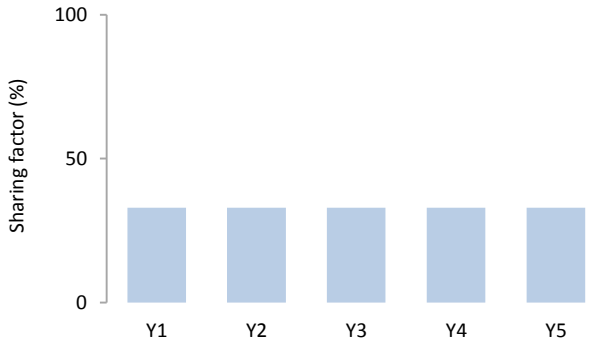


102. The retention factors for losses on operating expenditure follow a similar pattern for permanent losses as they would without the input methodologies for expenditure incentives, i.e., decrease during the period. For temporary losses, however, the retention factors are equal in the first three years, negative in year four, and are consistent with the stylised retention factor for year five.

Retention factors for capital expenditure

103. By contrast, the retention factors for base capital expenditure are equal and symmetric in each year.[35] Figure 254 shows the retention factors that would apply if the scheme was put in place.

Figure 25: Individual price-quality paths
Retention factors for base capital expenditure



104. Figure 26 shows that the retention factors are assumed to be 33% in each year. The exact retention factor is consulted on and determined at each reset.

[35] In practice, Transpower can only expect to recover capital expenditure after the associated assets have been commissioned. In the interim, Transpower is compensated for finance during construction using the weighted average cost of capital.

6. Issues with existing incentives

Purpose of chapter

105. This chapter set out potential issues with the existing incentives for suppliers to control expenditure.

Retention factors and adverse incentives

106. In this paper, we have shown that efficiency gains and efficiency losses:

106.1 Are generally rewarded differently depending on the year in which the gain or loss is made;

106.2 Are rewarded differently depending on the category of expenditure in which the gain or loss is made; and

106.3 Are not rewarded and penalised in equal measure, ie, the reward for making a gain is not equal to the penalty for making a loss of similar size.

107. The following sections explain why these incentive properties may create adverse incentives for suppliers. We invite you to provide your views on the issues we have identified, as well as any other aspect of this paper.

Savings are rewarded differently depending on the year in which they occur

108. This paper has highlighted that efficiency gains and losses are rewarded differently depending on the year in which they occur.

109. In the past, we have drawn attention to the adverse incentives that may be created when retention factors are different in each year. In particular, in the context of default/customised price-quality regulation, we noted that relying on a single base year when forecasting operating expenditure may provide adverse incentives for suppliers to shift costs into that year, or to find other ways of inflating costs.[36]

110. A similar issue may arise for capital expenditure because suppliers are only allowed to recover such costs after the associated assets have been commissioned. This treatment potentially creates an incentive for suppliers to defer the commissioning date to the year that is most profitable.[37]

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[36] Commerce Commission, *Additional Input Methodologies for Default Price-Quality Paths - Process and Issues Paper*, 9 December 2011, page 50.

[37] For capital expenditure, we would be particularly interested in your views on whether an alternative profile of incentives may increase supplier's incentive to over-forecast capital expenditure, and/or to change the forecast timing of capital expenditure.

111. A wider issue, however, is that variation in the strength of an incentive may make it harder for suppliers to understand the incentives in place under Part 4. Suppliers may consequently put less effort into seeking out savings in expenditure.[38]

Suppliers are rewarded differently depending on the category of expenditure

112. This paper has highlighted that the savings in operating expenditure are rewarded differently to savings in capital expenditure. The most notable difference occurs for single year differences between forecast and actual:[39]

112.1 operating expenditure, for which the retention factor is generally 100%; and

112.2 capital expenditure, for which the retention factor is generally much lower.

113. This difference in treatment potentially creates an incentive for suppliers to reclassify costs during the regulatory period. Consequently, we may need to put greater effort into patrolling the border between the two categories, ie, for both forecast and actual expenditure. Alternatively, the problems would be less pronounced if the retention factors were better aligned.

114. However, there may be good reasons for treating the two categories of expenditure differently. As noted by Mr Balchin when he appeared before the Commission in September 2009:[40]

> On the capex side in Australia, though… there was certainly some lessens [sic] to be learned as well. We also implemented an incentive, a sort of roll-out scheme like was applied in water at the time not realizing that that created, unless you were very careful, it created quite a perverse incentive for companies to defer capex from one period to the next. And the companies didn't take long to pick up on this, and what we actually saw in Victoria in the first year after that was a very large deferral of capex from that regulatory period to the next.
>
> As a consequence the Regulator in the next period dropped the scheme because it thought it was just a blank cheque, and the practise amongst the State Regulators is, before they were taken over by the National Regulator which is just occurring now, were quite mixed. Some Regulators dropped the capex scheme, some retained it and were trying to deal with the perverse incentive to defer capex.

115. Mr Balchin has expressed similar concerns in subsequent submissions.[41] However, Mr Balchin has also noted that these concerns are not insurmountable.

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[38] We have assumed in this paper that each supplier operates as a profit-maximising business. In practice, a number of other indirect incentives may affect a supplier's behaviour. For example, a supplier is likely to respond to reputational incentives as well as purely financial incentives.

[39] We are also interested in your views on the impact of distinguishing between 'controllable' and 'non-controllable' operating expenditure.

[40] Mr Balchin (appearing for Powerco), Input Methodologies Conference Transcript, 16 September 2009, p. 170.

Savings and losses are not treated symmetrically

116. With the exception of the incentive scheme applying to Transpower's base capital expenditure, the current arrangements mean that no supplier is exposed to additional penalties after the period ends, ie, if costs are not controlled during the period. This contrasts with certain types of efficiency gain, for which additional rewards may be provided in the next regulatory period.

117. As a consequence of this treatment, the retention factors for efficiency losses will necessarily be different in each year, which creates issues similar to those outlined above. We invite submissions on whether any other issues are created by having an asymmetric treatment of efficiency gains and efficiency losses.

Topics to consider

118. In light of these considerations, we would appreciate your view on the ideal retention factors for operating expenditure and capital expenditure. In particular, we invite you to provide your views on:

    118.1 Whether the retention factors should be equal in each year, like they are for Transpower's base capital expenditure;

    118.2 Whether any particular set of retention factor(s) is preferable to any other;

    118.3 Whether the retention factor(s) should be the same for operating expenditure and for capital expenditure; and

    118.4 For default/customised price-quality regulation, whether the retention factors should be the same for both types of path.[42]

119. We are also interested in your views on other issues that you think are relevant. For example, you may consider that there are issues that are particular to the incentives that suppliers have to invest in energy efficiency and demand side management, or the reduction of losses.[43]

120. We will only make changes to the input methodologies if we are convinced that the overall effect of the new incentive measures would better promote the purpose of Part 4. For example, some retention factors may be increased, and others reduced. Suppliers may also be exposed to additional penalties for making losses. Submissions received on this paper will help us consider these issues in aggregate.

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41 PwC, *Additional Input Methodologies for Default Price-Quality Paths: Process and Issues Paper*, 26 January 2012, pp. 15-24.

42 We note that electricity distributors have previously indicated support for input methodologies for expenditure incentives taking effect during a default price-quality path.

43 Refer: s 54Q of the Act.

121. For completeness, we note that some submitters have already voiced support for options that could address many of the issues set out above.[44] For example, the efficiency benefit sharing scheme put in place by the Australian Energy Regulator provides a symmetric treatment of savings and losses for operating expenditure.

[44] For example, refer above n 44, pp.

7. How you can provide your views

Purpose of chapter

122. This chapter sets out how you can respond to this paper, and the arrangements for the workshop.

Responding to this paper

123. As noted in the Introduction, we invite you to provide your views on any aspect of this paper, in the timeframes set below.

123.1 Submissions are due by **5pm, 21 October 2013.**

123.2 Cross-submissions are due by **5pm, 1 November 2013.**

124. We also intend to hold a workshop on 2 October 2013 to provide people with an opportunity to ask questions of Commission staff about the modelling relied on in this paper. Further details about the workshop can be found further below.

Address for responses

125. You should address your responses to this paper to:

John McLaren (Chief Adviser, Regulation Branch)
c/o regulation.branch@comcom.govt.nz

126. We prefer responses in a file format suitable for word processing, rather than the PDF file format.

Treatment of previous work

127. If we proceed with an amendment to the input methodologies for expenditure incentives, we will reference any work done, or submissions received, prior to the publication of this paper, in our reasons for the draft amendment. We do not intend to rely on any other earlier work done, or submissions received.[45]

Material released alongside this paper

128. We have also released the models relied on in the production of this paper. These models have been designed to allow you to vary a number of inputs to see how the retention factors are calculated. We would be happy to answer any questions you have on these models at the workshop.

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[45] Refer: s 52V(3) of the Act. We ask that you also clearly reference any material that you would like us to consider as being 'before the Commission' for the purposes of an appeal under s 52Z, should one arise.

Requests for confidentiality

129. We encourage full disclosure of submissions so that all information can be tested in an open and transparent manner, but we offer the following guidance.[46]

129.1 If it is necessary to include confidential material in a submission, the information should be clearly marked, with reasons why that information is confidential.

129.2 Both confidential and public versions of the submission should be provided.

129.3 The responsibility for ensuring that confidential information is not included in a public version of a submission rests entirely with the party making the submission.

130. We request you provide multiple versions of your submission if it contains confidential information or if you wish for the published electronic copies to be 'locked'. This is because we intend to publish all submissions and cross-submissions on our website. Where relevant, please provide both an 'unlocked' electronic copy of your submission, and a clearly labelled 'public version'.

Arrangements for the workshop

131. A workshop will be held at our Wellington Office, and persons interested in attending will need to make their own arrangements to be present. The workshop will be held at 3-5pm, on Wednesday 2 October 2013. Our address is Level 6, 44 The Terrace, Wellington.

132. The workshop will give people an opportunity to ask questions of Commission staff about the modelling we relied on for this paper. We anticipate this is likely to be of most interest to staff of regulated suppliers and consultants involved with financial modelling and business cases for expenditure efficiency decisions.

133. Please email regulation.branch@comcom.govt.nz to confirm your attendance or intention to listen via teleconference. Emails should have "Expenditure incentives workshop" in the subject line.

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[46] You can also request that we make orders under s 100 of the Act in respect of information that should not be made public. Any request for a s 100 order must be made when the relevant information is supplied to us, and must identify the reasons why the relevant information should not be made public. We will provide further information on s 100 orders if requested by parties. A key benefit of such orders is to enable confidential information to be shared with specified parties on a restricted basis for the purpose of making submissions. Any s 100 order will apply for a limited time only as specified in the order. Once an order expires, we will follow our usual process in response to any request for information under the Official Information Act 1982.

134. We encourage interested person to submit questions prior to the workshop so we can tailor the session to any specific themes if necessary. Please submit questions to the same email address that is provided for responding to this paper.

135. To allow adequate preparation time, the cut-off for questions for the workshop is **5pm Friday, 27 September 2013**.