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Input methodologies review

Emerging views on form of control

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Associated documents

Publication date	Reference	Title
16 June 2015	ISBN 978-1-869454-55-5	Input methodologies review: Invitation to contribute to problem definition
30 October 2015	Update paper	Input methodologies review - Process update paper
22 December 2015	Summary of views	Input methodologies review: Gas pipeline stakeholder meeting held 8 December 2015 – Summary of views
29 February 2016	Update paper	Input methodologies review – Process update paper
29 February 2016	ISBN 978-1-869454-96-8	Default price-quality paths for gas pipeline businesses from 1 October 2017 – Process and issues paper

Commerce Commission
Wellington, New Zealand

CONTENTS

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Introduction

Purpose of this paper

1. The purpose of this paper is to update stakeholders on our emerging views on form of control as part of the input methodologies review (**IM review**). The paper sets out:

    1.1 Our emerging views on the appropriate forms of control for electricity distribution businesses (EDBs) and gas transmission businesses (GTBs);

    1.2 Our approach to gathering further information to help support a decision on form of control for gas distribution businesses (GDBs); and

    1.3 Our reasons supporting our current views.

2. We would welcome stakeholders comments on:

    2.1 The criteria we have used to analyse the form of control options (attachment 2);

    2.2 Any further evidence that is relevant to applying these criteria; and

    2.3 Any further information on the form of control for gas distribution businesses, in particular, information on the areas we highlight later in this paper (Constant Price Revenue Growth (CPRG) forecasts, quantities, pricing, and incentives for new connections).

3. The deadline for comments is **5pm 24 March 2016**.

4. While the input methodologies specify the form of control, the implementation details will largely be included in the DPP determinations. Today, we have also published a Gas DPP process and issues paper which discusses our preliminary views on how the choice of form of control could impact the setting of the gas DPP.[1]

Background to this paper

5. We identified the form of control as an area of focus for the IM review in our problem definition paper, published 16 June 2015. In submissions on our problem definition paper, stakeholders supported an assessment of the form of control as part of the IM review but few stakeholders expressed a clear preference for one form of control over another.

6. After reviewing submissions to our problem definition paper we have conducted analysis on the options for form of control for EDBs, GDBs, and GTBs. We are not considering changing the form of control for Transpower because the regime that Transpower is subject to is unique and there have been no issues raised with it.

[1] Commerce Commission "Default price-quality paths for gas pipeline businesses from 1 October 2017 – Process and issues paper" (29 February 2016) Chapter 4.

7. The existing Input Methodologies (IMs) specify a Weighted Average Price Cap (WAPC) approach for electricity and gas distribution businesses,[2] the option of a WAPC or revenue cap for gas transmission businesses,[3] and a revenue cap for Transpower.[4] The revenue caps we have set for Transpower and gas transmission businesses operate in a different manner. A key difference is that the revenue cap applied to Transpower includes a mechanism to transfer certain positive or negative revenue adjustment balances from one year to the next.[5] We therefore see a clear distinction between a revenue cap which guarantees allowable revenues and a revenue cap which does not. In this paper, we refer to a revenue cap which guarantees allowable revenue as a 'pure revenue cap'.

8. Our emerging views on the appropriate forms of control have been made based on their own merits. The impact on the WACC asset beta from a change to the form of control is being dealt with separately.

9. However, alongside this paper, today we have also released Dr Martin Lally's expert advice on asset beta adjustments and Black's simple discounting rule, in which he has responded to recent submissions on our cost of capital update paper. In relation to form of control, Dr Lally suggests that "there is no empirical study that provides a clear conclusion on the effect of regulation on beta". He recommends that we remain open minded about this topic until better evidence becomes available, but that we should not make an adjustment to asset beta for form of control at this stage. Our emerging view is that we agree with Dr Lally's assessment, and do not believe that there is sufficient empirical evidence to suggest that we should make an adjustment to asset beta for form of control. We are now seeking comment on Dr Lally's expert advice and our emerging view and invite any further evidence on these points. Comments should be provided by **5pm 24 March 2016**.

Summary of emerging views

10. Our emerging views on the appropriate forms of control are:

    10.1 to implement a pure revenue cap for EDBs;

    10.2 to maintain a revenue cap for GTBs but amend the current design to allow for wash ups of over and under recovery (a pure revenue cap); and

    10.3 to gather more information and conduct further analysis on the form of control for GDBs. We acknowledge that two gas distribution businesses

[2] Commerce Commission "Setting Default Price-Quality Paths for Suppliers of Gas Pipeline Services" (28 February 2013), para 8.3.7-8.3.12.

[3] Commerce Commission "Setting Default Price-Quality Paths for Suppliers of Gas Pipeline Services" (28 February 2013), para 8.3.14-8.3.19.

[4] Commerce Commission "Input Methodologies (Transpower) Reasons paper" (December 2010), para 7.3.7.

[5] Commerce Commission "Setting Transpower's individual price-quality path for 2015—2020" (29 August 2014), para C45–C49.

strongly favour retaining the status quo, which is a weighted average price cap (WAPC), and we believe the factual context for gas distribution differs to electricity distribution.

11. The reasons for our emerging views are discussed in the following sections of the paper.

Framework for decision-making

12. As per in our discussion draft framework document,[6] the focus of the IM review is to make only those changes that:

    12.1 Promote the Part 4 purpose in s 52A more effectively;

    12.2 Promote the IM purpose in s 52R more effectively (without detrimentally affecting the promotion of the s 52A purpose); or

    12.3 Significantly reduce compliance costs, other regulatory costs or complexity (without detrimentally affecting the promotion of the s 52A purpose).

13. Deciding whether or not to make a change to the IMs requires us to exercise judgement, taking into account both the pros and the cons of making the change. In order for a change to more effectively promote the 52A purpose, it is necessary that the positive impact on the long-term benefits to consumers (pros) resulting from the change outweigh any negative impact the change has on the long-term benefit of consumers (cons).

Invitation to comment

14. We invite comments on this paper by 5pm on 24 March 2016.

15. Please address comments to:

    Keston Ruxton
    Manager, Input Methodologies Review
    Regulation Branch
    im.review@comcom.govt.nz

[6] Commerce Commission "Developing decision-making frameworks for the current input methodologies review and for considering changes to the input methodologies more generally – DISCUSSION DRAFT" (22 July 2015), Attachment A, para 20–25.

Problem 1: Form of control for EDBs

16. This section explains the problem with the current form of control for EDBs, our emerging view in respect of this problem, and our assessment of other potential solutions.

Problem definition

17. This section explains the problem definition, including how it evolved through comments from submissions.

18. The existing IMs specify a WAPC for EDBs. There are three key problems which have been raised by stakeholders in relation to the WAPC for EDBs, these are that:

    18.1 Suppliers are exposed to the quantity forecasting risk which they have said is unmanageable;[7]

    18.2 There is a disincentive under the WAPC to pursue energy efficiency and demand-side management (DSM) initiatives; and

    18.3 The current WAPC and compliance requirements create potential disincentives to tariff restructuring.

19. Stakeholders have been very supportive of reviewing the form of control, but only Wellington Electricity (WE*) has made a strong case for a change from the WAPC approach.[8] WE* said that forecasting volume growth as part of the WAPC leads to windfall gains and losses to EDBs and consumers, and neither situation promotes the long term interests of consumers. It explained that if EDBs recover materially less revenue than required to efficiently operate and invest in the network then optimal network investment will be dis-incentivised and consumers will be worse off in the long-term. However, if EDBs recover more revenue than required to efficiently operate and invest in the network then they are not being limited in the ability to extract excessive profits. WE* suggested a move to a revenue cap because under a revenue cap the Commission would not need to forecast volumes and the risks to EDBs and consumers of windfall gains or losses arising under the WAPC are removed.

20. Additionally, quantity forecasting is likely to become more difficult over time due to the uncertainty regarding the uptake of emerging technologies and how these will impact on energy volumes.

21. Unison explained that the WAPC in combination with tariff structure rules creates a barrier to restructuring, which is also not likely to be in consumers' long-term interests.[9] Unison suggested that potential solutions to this problem are to either

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7 Our use of terms such as "quantity forecasting risk" is explained in attachment 1.

8 Wellington Electricity's submission "Input methodologies review – problem definition" (21 August 2015).

9 The barriers to tariff restructuring are created because, under a WAPC, pricing restructures create volume risk where suppliers may under-recover their revenues. This occurs because the default price

develop a mechanism within the DPP to allow EDBs to take into account behavioural responses in restructuring tariffs, or to change the form of control to revenue cap regulation, which would eliminate EDBs concerns about undertaking tariff restructuring.

22. There was agreement among stakeholders that the details of how the form of control will work will be as important as deciding on a revenue cap or a WAPC.

Emerging view in respect of this problem

23. Our emerging view on this problem is to implement a pure revenue cap for EDBs.

24. Our reasons supporting our current view are that:

    24.1 it removes the quantity forecasting risk;

    24.2 it removes potential disincentives for suppliers to restructure tariffs; and

    24.3 it removes any potential disincentive on suppliers to pursue energy efficiency and DSM initiatives.

25. When we originally set the IMs we said that suppliers were better placed to manage the demand risk than consumers, but we did not differentiate between the different elements of demand risk. Under the WAPC approach suppliers are exposed to the demand risk once the price path is set for each regulatory period, but consumers are also exposed to it in the long term (as they bear the demand risk between regulatory periods when the price paths are reset).

26. We are now thinking of the demand risk as comprising of two elements:

    26.1 'demand uncertainty risk' – the inherent uncertainty in future demand over the time period of the price-quality path; and

    26.2 'quantity forecasting risk' – the extent to which our forecast diverges from a 'perfect' forecast.[10]

27. The quantity forecasting risk is a problem because it creates windfall gains and losses for both suppliers and consumers, and neither situation promotes the long term interests of consumers. The quantity forecasting risk means that, either:

    27.1 suppliers may not efficiently invest in the network; or

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path requires the distributor to use lagged volumes and suppliers cannot account for behavioural responses.

[10] Commerce Commission "Input Methodologies Review invitation to contribute to problem definition" (16 June 2015), para 145.

27.2 suppliers are not being limited in the profits that they make, so consumers are paying more.

28. A move to a pure revenue cap will remove the quantity forecasting risk for both suppliers and consumers. We have relied on this as the most important factor in our emerging view for EDBs. Given the potential magnitude of possible forecasting error,[11] we think that the benefits of removing the quantity forecasting risk outweigh the fact that the demand uncertainty risk will shift further to consumers.

29. Although in theory the WAPC incentivises efficient pricing, this is not happening in practice because suppliers are deterred from restructuring their tariffs because of the risk of non-compliance or under recovery. Moving to a revenue cap will allow suppliers more flexibility to restructure tariffs and ensure that opportunities to change tariff structures that might result in more efficient pricing are not dis-incentivised. However, even if we resolved the compliance issue to encourage tariff restructuring, efficient pricing may still not be seen in practice under the WAPC. The Australian Energy Regulator (AER) explained that the WAPC does not create the incentive to set efficient prices in practice. This is because the theoretical advantages of the WAPC rely on assumptions that do not apply to electricity distributors.[12]

30. We are considering whether any of the following mechanisms could be implemented to support a revenue cap:[13]

30.1 We could include a smoothing mechanism to minimise the intra-period average price volatility, and include a mechanism to limit the ability to flow under recovery into future investment periods.

30.2 We could implement an incentive for connections service. This could be similar to the connections incentive scheme that has been implemented in the UK (more detail included in the analysis table in attachment 2).

30.3 We could introduce an incentive on suppliers to plan for catastrophic events.

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[11] Our initial analysis to examine the materiality of the quantity forecasting risk for EDBs shows that although the quantity forecasting is fairly accurate on average across all EDBs, there are significant variations between EDBs. This early analysis suggested that the impact on revenue for EDBs over the past five year period would have ranged between -4% and +6% of revenue. We will be publishing a paper, 'Summary and analysis of the profitability of electricity distributors 201-2015', before the IM review draft decision.

[12] Assumptions include that:

- distributors have the expertise, incentive, infrastructure and independence to set prices to maximise profit;
- changes in network prices are passed through in full to consumers; and
- customers are fully informed.

AER "Stage 1 Framework and Approach - NSW Distributors" (March 2013)

[13] To mitigate potential disadvantages of a revenue cap, identified in our analysis table (Attachment 2).

31. We are continuing to develop the details of these suggested mechanisms to support a revenue cap.

32. This is our emerging view for EDBs because having considered the pros and cons of this and our other solution (maintaining the WAPC), we consider that this solution best promotes the long-term benefit of consumers. Our analysis of the options is presented in the table in attachment 2.

Alternative potential solution to this problem

33. This section explains our assessment of other potential solutions that we are considering, explaining the pros and cons.

Alternative solution – Maintain the WAPC and introduce other mechanisms to improve how it works in practice.

34. The pros of the solution are that in theory the WAPC provides incentives to price efficiently. The WAPC also provides incentives to invest in new infrastructure and connect new consumers to the network, as it provides regulated suppliers with additional revenue.

35. The cons of the solution are that suppliers are exposed to the material quantity forecasting risk. The WAPC may potentially not incentivise suppliers to introduce EE/DSM initiatives, and in combination with compliance requirements, it dis-incentivises tariff restructuring, but we could look to try and introduce other mechanisms to address these two problems.

36. This is not currently our preferred solution because it does not address the quantity forecasting problem, which we consider to be the most significant factor.

Problem 2: Form of control for GTBs

37. This section explains the problem with the current form of control for GTBs, our emerging view in respect of this problem, and our assessment of other potential solutions.

Problem definition

38. This section explains the problem definition, including how it evolved through comments from submissions.

39. The existing IMs allow for the option between a WAPC and a lagged revenue cap for the GTBs depending on certain criteria. Currently both GTBs have a lagged revenue cap.

40. The main issues that stakeholders have raised are that;

    40.1 the notional revenue compliance approach which uses a two-year lagged quantity creates a barrier to suppliers offering more innovative tariffs or implementing auction based pricing; and

    40.2 MGUG claimed that the lagged revenue cap exposes customers to the majority of risks that GTBs face, and that as a result gas customers are being exposed to increasing prices as volumes decline. We note that customers would be exposed to the demand risk in the long term under a WAPC too, because they would face the price changes between regulatory periods.

41. In response to our problem definition paper, MDL said that because the lagged revenue cap requires them to maintain compliance with an allowable notional revenue by setting prices based on two years previously, GTBs will face either a windfall gain or loss depending on whether quantities are higher or lower than two years ago. This is because wash ups for over or under recovery do not currently apply.

42. MDL also commented at the December 2015 gas pipeline stakeholder meeting that the Commission's previous decision, that gas transmission businesses had limited ability to control demand, remained sound.[14]

43. Some stakeholders raised concerns that because of the differences between the two gas transmission businesses they should be subject to different forms of control.[15]

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[14] Commerce Commission "Input methodologies review - gas pipeline default price-quality path reset 2017 - Gas stakeholder meeting - 8 December 2015 - Summary of views" (22 December 2015).

[15] At the gas pipeline stakeholder meeting, Oji Pulp and Paper drew attention to the differences between the way MDL and Vector transmission set their prices, noting that from their perspective MDL bears more demand risk than Vector.

Emerging view in respect of this problem

44. Our current view on the form of control for GTBs is to maintain a revenue cap but move to a 'pure' revenue cap allowing for wash ups of over and under recovery.

45. Our reasons for this preference are;

    45.1 we maintain our view that gas transmission demand is difficult to forecast and difficult for suppliers to manage, and so keeping a revenue cap is more in keeping with our view that, in general, risks should be allocated to the party best placed to manage them;[16] and

    45.2 it will remove the barriers for GTBs to offer more innovative tariffs.

46. It is worth noting that at the gas pipeline stakeholder meeting MDL highlighted the work the Gas Industry Company (GIC) is doing, and the possible move to auction based pricing as being incompatible with our current approach.[17] When amending the form of control for GTBs, we do not want to implement something that could prevent GTBs from adopting auction based pricing. We do not think that a pure revenue cap would prevent auction based pricing as it has been implemented in other countries. We propose to consider in further detail if auction based pricing would be possible under the revenue cap.

47. Our original reason for using the lagged quantities in the design of the revenue cap was so that the price path compliance quantities could be calculated at the time the supplier sets its prices.[18] We think this is still a relevant objective but we consider that the compliance certainty we are trying to provide at the time of price setting can be addressed through other means (eg the unders and overs mechanism, potentially combined with a compliance assessment based on forecasts at the time prices are set, as we do for Transpower).

48. We think that the concern that the two gas transmission businesses should be subject to different forms of control may only be transitional because the two businesses now are likely to soon have a common owner and the GIC is also working to align the codes for gas pipelines.[19]

49. We also note that if the characteristics of the two businesses are potentially becoming more similar in the future, we might want to remove the choice of form of control that is currently included in the IMs and set a single price path for the two

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16 See, for example: Commerce Commission "Setting the customised price-quality path for Orion New Zealand Limited" (29 November 2013), para B22; Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper (December 2010), para 8.2.9–8.2.11.

17 Commerce Commission "Input methodologies review - gas pipeline default price-quality path reset 2017 - Gas stakeholder meeting - 8 December 2015 - Summary of views" (22 December 2015), para 48.

18 Commerce Commission "Compliance Requirements for the Default Price-Quality Paths for Gas Pipeline Services" (28 February 2013) para 3.3.

19 GIC "Transmission Access; Options for Improvement", (May 2015), Paper #2.

pipelines. It may be beneficial to remove the form of control choice for GTBs from the IMs because it would provide more certainty for stakeholders.[20] If we did retain the choice in the IMs we would have to re-examine the criteria on which the choice is made because we did not specifically rely on those criteria in practice when making our decision at the last reset.

50. This is our emerging view because having considered the pros and cons of this and the alternative solutions (including maintaining the status quo), we consider that this solution best promotes the long-term benefit of consumers given that we consider GTBs are not well placed to manage the demand risk. The pros and cons are weighed up in our analysis table presented in attachment 2.

Alternative solutions to this problem

51. This section explains our assessment of the other potential solutions that we considered.

Alternative solution 1 – Maintain the lagged revenue cap

52. The advantage of this solution is that it does not expose suppliers to the quantity forecasting risk. We could maintain the lagged revenue cap, with or without the choice in the IMs.

53. The main disadvantage of the solution is that suppliers are still exposed to windfall gains and losses which they cannot manage, and the use of lagged quantities for compliance prevents suppliers from offering more innovative tariffs to consumers.

54. This is not currently our preferred solution because it results in windfall gains or losses for suppliers or consumers.

Alternative solution 2 – Implement a WAPC

55. The disadvantages of the solution are that suppliers would bear the quantity forecasting risk, and because gas transmission demand is likely to be subject to significant variability over the price review period, a weighted average price cap may lead to insufficient revenues being recovered to cover costs.

56. This is not currently our preferred solution because suppliers would bear the quantity forecasting risk.

[20] Colonial, Untitled submission on the gas pipeline stakeholder meeting (29 January 2016), page 4.

Problem 3: Form of control for GDBs

57. This section explains the situation with the current form of control for GDBs and our approach to further analysis to help support a decision on form of control for GDBs.

Problem definition

58. The existing IMs specify a WAPC for the GDBs.

59. We think that some of the benefits that we have identified for EDBs of moving to a revenue cap might also be benefits for the GDBs. However, the nature of the gas businesses means that there are also other reasons for maintaining the current WAPC approach.

60. Stakeholders have highlighted that we need to consider the differences between the electricity and gas (distribution) sectors. The key difference is that gas is a fuel of choice, giving gas distribution businesses an incentive to drive volumes and increase their revenues. Therefore, a revenue cap for gas distribution businesses would remove the incentive on suppliers to pursue new connections.

61. Powerco has said that it would favour maintaining the WAPC for this reason, and in its submission on the gas pipeline stakeholder meeting provided a short report on demand risk by Concept Consulting drawing out some of the differences between gas and electricity businesses. Colonial First State has also said that it supports maintaining the WAPC for GDBs.

62. We note that a WAPC for GDBs could use either lagged quantities or quantities with no lag.[21]

63. We currently think that any issues with a WAPC for gas distribution business could be resolved, but we are also still considering a move to a revenue cap. We would be interested to hear from other gas distribution stakeholders to better understand any issues with the current forecasting approach under WAPC;[22] whether the forecasting risk concerns are less material than for EDBs; and to understand their preference and reasons for retaining the price cap or moving to a revenue cap for gas distribution.

Information we are requesting from stakeholders

64. We need to do further analysis and gather more evidence to support our decision on the form of control for gas distribution businesses. However, we acknowledge that

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[21] We envisage that the implementation of a WAPC using quantities with no lag could be implemented with suppliers making a forecast of quantities for the coming year when setting prices. The forecasting error involved in doing this would be washed-up, with a time-value-of-money adjustment, two years later when the actual quantities will be available. This wash-up amount could be recovered via the recoverable cost mechanism.

[22] Powerco stated that "the case for [WAPC] would be even stronger if the Commission could improve its CPRG forecasting to reduce the risk of unreasonably optimistic forecasts." Powerco "Gas pipeline default price-quality path reset 2017" (28 January 2016), para 32.

Powerco and Colonial First State both favour retaining the status quo which is a WAPC.

65. To support our draft decision, we would welcome comments from stakeholders on the following areas in particular:

65.1 **Constant price revenue growth (CPRG) forecasts**: we understand that the economics of gas for space and water heating to be fairly evenly balanced compared to electricity substitutes (eg heat pumps), or at least more so than in the past.[23] If so, we welcome stakeholders' views on the impact this may have on the (un)certainty of future gas demand over the short-to-medium term, and therefore the implications for forecasting gas demand. We also welcome stakeholder views on the performance of past CPRG forecasts.

65.2 **Pricing**: we would like to understand suppliers' experience/views in changing prices under the current WAPC. To what extent is the current implementation of the WAPC an obstacle to changing pricing structures/levels? How is it different from EDBs experience/views?

65.3 **Incentives to win new connections:** we would like to hear from stakeholders on what is the scope, ability and incentive of GDBs to grow gas connections? This could include information on gas penetration rates (today and past evolution).

65.4 **Quantities**: We welcome stakeholder's views on whether any WAPC for GDBs should use lagged or unlagged quantities, and the rationale for that choice.

[23] Concept Consulting, "Relative long-term demand risk between electricity and gas networks", 27 January 2016, 2.1.3

Attachment 1

Definitions of criteria used in our analysis

66. This section explains our definitions of the criteria that we have used in our analysis to avoid any confusion as some criterion might have multiple meanings.

Risk allocation

67. For our analysis of the form of control we consider that risk allocation is largely the demand risk which includes two key parts:

    67.1 demand uncertainty risk – the inherent uncertainty in future demand over the time horizon of the price-quality path.

    67.2 exposure to quantity forecasting risk – the extent to which our forecast diverges from a 'perfect' forecast.

68. We also seek to allocate risks to those best placed to manage them. This includes considering who is best placed to:

    68.1 take actions to influence the probability of occurrence where possible;

    68.2 take actions to mitigate the costs of occurrence; and

    68.3 has the ability to absorb the impact where it cannot be mitigated.

Pricing efficiency

69. For our analysis we consider that pricing efficiency is comprised of two parts:

    69.1 **Incremental costs**: pricing that reflects costs of using the system in order to send signals for efficient future demand. Meeting peak demand is a key cost driver for EDBs. Peak demand is driven by the timing and scale of people's consumption behaviour. Efficient prices reflect the cost that consumers' behaviour imposes on the system. In doing so, they expose consumers to the cost they cause. This increases the likelihood that their consumption choices take into account the costs they cause, leading to more efficient consumption choices. This pricing approach lowers investment needs, and therefore results in lower overall prices for consumers.

    69.2 **Sunk costs**: pricing to efficiently recover sunk costs. Efficient recovery of sunk costs entails a pricing approach where consumers that are relatively more (less) price sensitive face lower (higher) prices, and therefore contribute less (more) towards sunk cost recovery. This pricing approach minimises societal welfare loss.

Compliance

70. The default price path requires the distributor to use lagged volumes and prevents it from accounting for behavioural responses. These compliance requirements create a disincentive for suppliers to restructure tariffs because the volume risk of using

lagged quantities mean they may under-recovery revenue or breach the compliance requirements.

Attachment 2

Option analysis

This table presents our initial analysis of options for the form of control.

		WAPC	**Revenue cap**[24]
Issues raised with current form of control	EDBs and GDBs	Demand forecasting risk within the period borne by suppliers. EDBs say this risk is unmanageable The way the WAPC has been implemented means there are compliance issues with using lagged quantities	
	GTBs		MDL has said the lagged revenue cap prevents it from introducing more innovative tariffs or capacity auctions. MGUG has said that customers are exposed to increasing prices as the revenue cap allows GTBs to pass through volume decreases *(Note, we think under a price cap consumers would still see the price changes, just between resets instead)*
Key advantages (from consumers perspective)		• In theory, it provides incentives to price efficiently • Provides incentive to connect new customers (in order to generate more revenue) • Consumers not subject to within period demand risk. Suppliers exposed to quantity forecasting risk • Intra-period price stability	• No disincentive for suppliers to invest in energy efficiency and demand side management (DSM). *[EDBs only]* • Suppliers may face less compliance hurdles to restructure prices • More stability between periods • Simplicity
Key disadvantages (from consumers perspective)		• Less incentive for suppliers to undertake energy efficiency and DSM initiatives *[EDBs only]* • Compliance restrictions lead to potential disincentives to tariff restructuring • The need to forecast demand	• In theory, creates an incentive to price inefficiently[25] • Does not encourage suppliers to connect new customers • Does not incentivise suppliers to prepare for catastrophic events • Consumers subject to demand risk

[24] The table compares the criteria against a pure revenue cap. GTBs are currently on a lagged revenue cap.

[25] "The theory is that each customer of or sale by a firm imposes costs on the firm, so the firm would increase prices for price sensitive customers to encourage them to reduce their demand or cease being a customer altogether. In the meantime the firm would reduce prices for price insensitive customers, who may increase their demand but only by a relatively small amount. Assuming this can be implemented effectively (which may be challenging), the firm's revenue stays fixed while the firm's costs decline." ENA's submission on the problem definition paper "Response to the Commerce Commission's Input methodologies review paper" (21 August 2015), p. 17.

		• Potential intra-period price volatility
Mitigations for disadvantages	• Changes to EE/DSM initiative to include tariff based measures *[EDBs only]* • Improved forecasting (but may require a lot of time and money to make improvements) • Changes to compliance formula to encourage price restructuring	• Smoothing of revenue to avoid price shocks • Limits on rolling over under recovery • Introduce incentive to prepare for catastrophic events • Introduce incentive to encourage new connections
Potential implementation design options to consider	Leave the WAPC as it currently is Set a form of cap and collar around price cap Make non-IM or other IM related changes to improve how current WAPC works	Pure revenue cap could include wash up for over and under recovery which use out-turn quantities to adjust allowable revenue Smoothing of revenue to avoid price shocks Cap the ability to flow under-recovery into future assessment periods Sales volume forecasts could be updated annually to prevent significant overs and unders adjustments from one year to the next.[26]
	Criteria for comparing options	
Risk allocation	Suppliers would bear the demand uncertainty risk and the quantity forecasting risk	The quantity forecasting risk would be removed Consumers would bear the intra-period demand uncertainty risk. However, they would have borne this risk to an extent between regulatory periods under a WAPC too

[26] AER, "Control mechanisms for standard control electricity distribution services in the ACT and NSW" (April 2010).

Flexibility of tariff restructuring, and pricing efficiency.	In principle, WAPC provides incentive to price efficiently In practice, evidence that WAPC does not create the incentive to set efficient prices because assumptions do not necessarily apply in full to electricity distributors[27] The current WAPC regime, in combination with the DPP tariff restructuring rules, may create a disincentive for EDBs to restructure their tariffs.[28] Efficient tariffs rely on access to price sensitivity information, freedom from constraints, retailer pass through and informed consumers. Although WAPC may incentivise efficient pricing, the compliance issues dis-incentivise suppliers from restructuring tariffs.	In theory, revenue cap does not provide as strong incentives as a WAPC for pricing efficiently, especially for sunk cost recovery. Efficient pricing could be encouraged under a revenue cap by applying more prescriptive pricing principles.[29] (EA's remit)[30] It could allow more flexibility in terms of pricing/tariff design Suppliers are revenue neutral with respect to tariff structures; therefore, there are fewer disincentives for EDBs to move toward cost reflective tariffs. Cost reflective tariffs could provide more efficient price signals to customers[31]
Price stability	More stability within period on average. Higher likelihood of between period instability if large revenue corrections are needed There is a potential for instability within period for individual customers due to tariff rebalancing[32]	There could be more instability within price control period, but lower likelihood of between period instability Within period price instability could be manageable with: • Use of energy forecasts to set revenue profile, and volume forecasts updated annually • Annual limits on pass though of overs and unders
Incentives for energy efficiency and demand side management (DSM) ***[elec only]***	Disincentive for suppliers to pursue tariff based energy efficiency and DSM initiatives due to revenue exposure Some mitigation from EE/DSM scheme	No disincentive for suppliers because there is no impact on revenue but there is the opportunity to (efficiently) reduce or defer capex

[27] Assumptions include that:
- distributors have the expertise, incentive, infrastructure and independence to set prices to maximise profit;
- changes in network prices are passed through in full to consumers; and
- customers are fully informed.

AER "Stage 1 Framework and Approach - NSW Distributors" (March 2013)

[28] Unison "Submission on Input Methodologies Review Invitation to Contribute to Problem Definition" (24 August 2015).

[29] AER "Stage 1 Framework and Approach paper – NSW Distributors" (March 2013)

[30] Bearing in mind the process stated in Section 54 V(4) Commerce Act.

[31] Wellington Electricity's submission "Input methodologies review – problem definition" (21 August 2015).

[32] Megan Wilcox (Wellington Electricity) "Form of control" (presentation at the Commerce Commission Input Methodologies Review Forum, Wellington, 29 July 2015).

Incentives for connections	Incentivises suppliers to connect new customers (or re-connect them when connection has been lost), in order to increase volumes and therefore increase revenue	Beyond a certain level of connections, the revenue cap does not create incentives to connect more customers, because the supplier cannot generate more revenue by increasing customer numbers.[33] Revenue is already capped We could implement a connections service incentive scheme to support a revenue cap, for example similar to the UK Under the RIIO price control in the UK, the companies' revenues are set in return for delivering a range of defined outputs. One of those output categories is 'connections'. This is to ensure that the companies provide connections to supply new consumers and support the connection of new entry points into the network[34] Under RIIO for electricity distribution, Ofgem also included a package of incentives to promote improvements in the connections service provided by distributors. The package includes, a time to connect incentive, a customer satisfaction survey, and an incentive on connections engagement (for major connections customers)
Simplicity and admin costs	Not simple in practice because we have to do quantity forecasts. Compliance requirements also detract from simplicity for suppliers Cost of developing quantity forecasts	Removes the difficulty of accurate quantity forecasting Wash ups arguably may create more complexity There may be a cost of adjusting the MAR annually and doing wash ups. (alternatively MAR could just be washed up at the end of the period)

[33] Under the revenue cap, suppliers will be willing to connect new customers until the cost of making new connections exceeds that implicitly provided for in the price path. There becomes a potential disincentive for suppliers to connect new customers at the point that the marginal net income from connections is negative.

[34] In the UK, when a new customer wants to get connected, the network operator for that area must offer to connect them, and set a price for this. The requirement to make an offer of connection is outlined in the Electricity Act and the Gas Act. There are also existing licence conditions that relate to connections services: Connections Guaranteed Standards of Performance, Publication of a long term development statement, and Publication of a distributed generation (DG) connections guide. Ofgem "A guide to electricity distribution connections policy" (April 2014).

Has it been used elsewhere? And why?		Previously used for EDBs in NSW, and Victoria to encourage more efficient pricing but have now moved to revenue cap because the theoretical benefits of the price cap were not being seen in practice	Australia - AER RCP2 – moved to revenue cap because benefits of price cap not seen in practice UK – Ofgem RIIO model
		Decision making framework	
How do the pros and cons weigh up in relation to long term benefits of consumers?	EDB	• The quantity forecasting risk is borne by suppliers which could affect efficient expenditure incentives and mean that suppliers may not be limited in their ability to earn excessive profits (when volumes grow significantly above forecast); • Suppliers not incentivised to undertake energy efficiency and DSM initiatives which could efficiently deter investment; and • Compliance restrictions lead to potential disincentives to tariff restructuring, which prevents efficient pricing. **BUT** • Provides incentive to connect new customers; • Consumers not subject to intra-period demand risk; and • Intra-period price stability means that prices are not as volatile during the regulatory period.	• Consumers would bear the demand risk during the regulatory period (instability during the regulatory period would be higher); and • Suppliers are not incentivised to connect new customers **BUT** • Revenue recovery would better reflect the Commission's building block expenditure allowances and avoid unintended windfall gains and losses to EDBs and consumers (which might affect efficient expenditure incentives); • EDBs would be better placed to restructure tariffs, which allows more efficient pricing; and • EDBs would have better incentives to support demand-side management, energy efficiency and emerging technologies that defer or minimise traditional network investment.
	GTB	• Gas transmission demand is difficult to forecast and so a WAPC is not in the long term benefit of consumers as incentives to invest affected and ability to earn excessive profits not necessarily limited	• Allows a GTB to better manage its demand risk, particularly on the basis that gas demand fluctuations are outside a GTB's control

	GDB	• Suppliers and consumers bear the quantity forecasting risk BUT • Creates incentives for new connections, which appears a dominant factor in gas distribution	• Consumers bear the demand risk during the regulatory period; and • The supplier is not incentivised to pursue new connections. BUT • The quantity risk is removed from suppliers and consumers