

Electricity distributors' expenditure incentives under the current Part 4 approach and under a totex approach

**Staff working paper to inform 7 November 2022 workshop
'Forecasting and incentivising efficient expenditure for EDBs'**

Date of publication: 1 November 2022



CONTENTS

1. INTRODUCTION	3
PURPOSE AND CONTEXT FOR THIS PAPER	3
2. PROBLEM DEFINITION.....	5
TECHNOLOGICALLY NEUTRAL FINANCIAL INCENTIVES	5
SOURCES OF CAPEX BIAS.....	6
EVIDENCE ON CAPEX BIAS.....	7
SUBMISSIONS ON TOTEX APPROACH	8
THE ISSUE WE SEEK TO UNDERSTAND BETTER.....	9
3. TOTEX APPROACH.....	10
WHAT WE MEAN BY A TOTEX APPROACH	10
TOTEX BUILDING BLOCKS APPROACH.....	11
4. THE CURRENT PART 4 APPROACH.....	12
5. KEY CONSIDERATIONS IF TOTEX WERE TO BE IMPLEMENTED UNDER PART 4.....	14
INFORMATION DISCLOSURE REQUIREMENTS AND SUMMARY AND ANALYSIS	16
PRICE-QUALITY REGULATION	16
INPUT METHODOLOGIES.....	17
ATTACHMENT A: DISTRIBUTORS' EXPENDITURE CAPITALISATION	19
ATTACHMENT B: OVERVIEW OF CURRENT EXPENDITURE INCENTIVE MECHANISMS.....	21
PURPOSE OF THIS ATTACHMENT	21
WHY DO WE HAVE EXPENDITURE INCENTIVE MECHANISMS?	21
OVERVIEW OF THE OPEX IRIS MECHANISM FOR EDBS	22
OVERVIEW OF THE CAPEX IRIS MECHANISM FOR EDBS	23
ARE OPEX AND CAPEX INCENTIVES EQUIVALENT?	24
IMPACT OF THE WACC UPLIFT	24
REFERENCES TO PAST INCENTIVE DECISIONS	25
ATTACHMENT C: TOTEX INCENTIVE MECHANISM.....	27
PURPOSE OF THIS ATTACHMENT	27
OFGEM'S TOTEX INCENTIVE MECHANISM.....	27
DISCUSSION OF A POTENTIAL TOTEX INCENTIVE MECHANISM.....	28

1. Introduction

Purpose and context for this paper

1. Several submissions in response to our May 2022 Process and Issues Paper suggested a total expenditure (**totex**) approach as a possible way to address capex bias, to increase flexibility between operating expenditure (**opex**) and capital expenditure (**capex**) (by making it easier to substitute between capex and opex under a revenue allowance), and to simplify the overall incentive regime. Submitters suggested exploring a totex approach by building on experience from the UK (Ofgem and Ofwat), but some submitters also cautioned against rushing to make changes due to the material cost of change and the risk of unintended consequences.
2. The purpose of this paper is to:
 - 1.1 create a shared understanding of what we mean by a totex approach to regulation;
 - 1.2 set out possible reasons for adopting a totex approach; and
 - 1.3 contrast it with the current Part 4 approach to price-quality path setting.
3. We want to advance the discussion on whether the current approach to expenditure incentives in price-quality regulation is fit-for-purpose, and whether a totex approach would be a beneficial way to evolve the Part 4 regime. We are publishing this staff paper as stakeholders continue to engage with the 2023 Input Methodologies Review (**IM Review**) and our information disclosure reviews and price-path resets. Other options that may address issues with the current regime are outside the scope of this paper, as is considering how to address capex bias that might arise from non-financial incentives.¹
4. This paper presents preliminary Commission staff views and seeks to inform further discussion. It is not a draft decision on the IM Review nor a formal proposal to amend the input methodologies (**IMs**) or otherwise change the Part 4 regulatory regime.
5. We consider that the problems a totex approach are intended to solve are most pertinent to the context of EDBs subject to both price-quality (**PQ**) and information disclosure (**ID**) regulation under Part 4. As such we focus on EDBs in this paper.

¹ Other options will be considered as part of the IM review, including other options raised in submissions.

6. We will engage on this topic during the "Forecasting and incentivising efficient expenditure for EDBs" workshop on 7 November 2022 and welcome feedback both during the workshop and in formal submissions. Following the workshop, we will publish a list of specific questions we would like you to consider and will advise you on timing for your written feedback.
7. Your feedback will inform how we prioritise work, including for the IM Review draft decision.

Key points in this working paper

- In the DPP3 reset, we aimed to neutralise financial incentives between opex and capex for EDBs.
- Submissions on the IM Review Process and Issues paper suggest further steps should be taken to reduce capex bias, including by considering a totex approach as implemented by Ofgem.
- Our (simple) assessment of whether EDBs have historically preferred capex to opex is inconclusive. This does not mean capex bias does not exist. While capex bias may not be significant historically, it may be significant in future if, as expected, opportunities for non-network solutions and other non-traditional solutions increase and if the current regulatory settings distort choices towards (relatively inefficient) network solutions.
- When we say 'totex approach', we mean the approach adopted in the UK by Ofgem and Ofwat. Using a fixed opex-capex-share is the key ingredient to removing a potential distortion in behaviour under the current approach, that is, that EDBs may prefer capex to opex solutions even when they are inefficient. However, a totex approach does not eliminate all sources of capex bias.
- A change would require creating new regulatory accounting rules and processes, which would be additional to the current rules and process (which generally reflect Generally Accepted Accounting Principles, (GAAP)), and would require significant investment by the Commission, EDBs, and audit professionals. We are mindful of the concern by some submitters who cautioned against rushing to make a change due to the material cost of change and the risk of unintended consequences.
- The joint application of the capex IRIS and the opex IRIS is intended to ensure non-exempt EDBs are financially neutral between choosing opex and capex solutions in terms of regulatory expenditure incentives. Following the workshop, we will release modelling that illustrates the intended financial equivalence between the opex IRIS and the capex IRIS.
- Ofgem's incentive mechanism for totex is simple and transparent but it does not seek to achieve the same objectives as our current Part 4 incremental rolling incentive schemes (IRIS), for example correcting for a declining natural incentive strength during a regulatory period (opex IRIS).

2. Problem definition

Technologically neutral financial incentives

8. When addressing a pole and wire investment need, electricity distributors generally choose from a set of pole and wire options, for example the modern equivalent of an end-of life asset. Economic regulators generally require electricity distributors to consider non-network alternatives such as purchasing demand response rather than augmenting network capacity. Non-network alternatives and other innovative solutions are increasingly deployed in New Zealand,² but possibly less than their underlying potential.
9. Given the important role electricity lines services have in enabling decarbonisation through electrification of New Zealand, the sector has, for some time, been considering how to evolve from a traditional and largely passive distribution network to a more complex network that meets diverse needs. Technological progress and innovation are changing the options that are available to distributors to meet investment needs.
10. If alternatives to traditional pole and wire solutions can deliver services at a reduced whole-of-life-cost, then it would be in the long-term interest of consumers if businesses adopt them.
11. There are many factors aside from any financial incentives created by the regulatory regime that may lead to capex bias. As regulated businesses face limited or no competitive constraints, there is greater scope for inefficiency. Nonetheless, our aim is for the regulatory regime to provide neutral financial incentives and enable efficient opex/capex substitution.
12. Regulators, including the Commerce Commission, are concerned that their regulatory approach might cause capex bias.³ We define 'capex bias' as arising where the regulatory approach to setting price-quality paths financially incentivises investment in assets (capex) over alternatives such as demand response (opex), where those alternatives are more efficient. We do not use the term 'capex bias' to refer to situations where favouring a traditional network solution over a non-network alternative results in greater net benefits to consumers.

² See for example the ENA's innovation stocktake www.ena.org.nz/news-and-events/news/

³ Ofwat, Capex bias in the water and sewerage sectors in England and Wales – substance, perception or myth? A discussion paper, May 2011 p 9
https://webarchive.nationalarchives.gov.uk/ukgwa/20150603202050/https://www.ofwat.gov.uk/future/monopolies/fpl/pap_tec1105capex.pdf

AEMC, Economic regulatory framework review, Promoting efficient investment in the grid of the future 26 July 2018, p 35 www.aemc.gov.au/sites/default/files/2018-07/Final%20Report.pdf

Sources of capex bias

13. Capex bias has long been subject to academic study and debate by regulators.⁴ Potential sources of capex bias include the following:

- 13.1 **Preference for regulatory asset base (RAB) growth.** If RAB growth is seen as a proxy for company growth (irrespective of whether the regulatory return on capital is higher than the actual return) businesses tend to favour capex over opex solutions. Ofwat found some evidence of this, with one company saying, “to an extent, it doesn’t matter how theoretically balanced the regime is, it matters how companies perceive it to be.”⁵ The Australian Energy Market Commission (AEMC) agreed with Ofwat, considering that the widespread perception that a bias exists may create a self-fulfilling belief, which in turn may drive network service providers’ behaviour.⁶
- 13.2 **Asymmetry in regulatory expenditure scrutiny.** Improving cost efficiency (in particular, operating cost efficiency) is often a key focus for economic regulators. Unlike capex, which is typically not examined again once it is capitalised and enters the RAB, regulators tend to subject opex to continuous scrutiny (such as relative efficiency benchmarking). Businesses may respond to this asymmetric treatment by choosing solutions that involve less regulatory scrutiny (ie, capex).⁷

⁴ The seminal paper on capex bias is Averch, H. and Johnson, L.L. (1962). Behavior of the firm under regulatory constrain. American Economic Review, 52(5), 1052–1069. For a literature review refer to Carlotta von Bebenburg & Gert Brunekreeft & Anton Burger, 2022. "How to deal with a CAPEX-bias: fixed-OPEX-CAPEX-share (FOCS)," Bremen Energy Working Papers 0039, Bremen Energy Research. <https://ideas.repec.org/p/bei/00bewp/0039.html>

⁵ Ofwat, Capex bias in the water and sewerage sectors in England and Wales – substance, perception or myth? A discussion paper, May 2011 p 9 https://webarchive.nationalarchives.gov.uk/ukgwa/20150603202050/https://www.ofwat.gov.uk/future/monopolies/fpl/pap_tec1105capex.pdf

⁶ AEMC, Economic regulatory framework review, Promoting efficient investment in the grid of the future 26 July 2018, p 35 <https://www.aemc.gov.au/sites/default/files/2018-07/Final%20Report.pdf>

⁷ Depending on the regulatory regime, the ‘reward’ for opting for capex intensive solutions may be a reputation for high operating efficiency (under information disclosure) or less challenging operating cost targets (in jurisdictions where benchmarking inform the revenue allowance for a regulatory period).

13.3 Opex disadvantage (performance uncertainty). Where opex and capex are substitutes, businesses may need to decide on whether to make or buy a solution.⁸ Choosing to procure a service from a third party (by incurring opex)⁹ may require a business to accept more performance uncertainty because the business has less direct control over assets and processes than under the traditional approach of building and owning an asset.¹⁰

13.4 Opex disadvantage (ability to earn a return on capex options but not opex). Traditional building block regulation applies a (risk-based) return on capital, while opex does not earn an explicit return.¹¹ The absence of a risk margin on opex options may create an incentive to favour capex over opex solutions.

Evidence on capex bias

14. While capex bias has been subject to significant study, to our knowledge it has not been possible to obtain good empirical evidence on capex bias.¹²

⁸ Amazon web services provides as an example build and own infrastructure and software vs buy non-network solutions and cloud-based services.

⁹ Noting that certain leases are to be capitalised under IFRS16.

¹⁰ Submissions to an AEMC consultation highlighted potential risks associated with non-network alternatives provided by third parties in relation to 1) transactions costs of establishing contractual arrangements, 2) necessity for contractual arrangements to compensate the network service provider for penalties incurred in the event of failure to achieve reliability targets 3) third-party contractor insolvency 4) increased risk and complexity CEPA , Expenditure incentives faced by network service providers, p 66 www.aemc.gov.au/sites/default/files/2018-07/CEPA%20Final%20Report.pdf

¹¹ Ofwat, Capex bias in the water and sewerage sectors in England and Wales – substance, perception or myth? A discussion paper, May 2011 p 10 para 9 https://webarchive.nationalarchives.gov.uk/ukgwa/20150603202050/https://www.ofwat.gov.uk/future/monopolies/fpl/pap_tec1105capex.pdf

¹² CEPA, in a report for AEMC, explains that “regulators have consistently pointed to the existence of a capex bias without necessarily being able to provide empirical evidence.” CEPA, Expenditure incentives faced by network service providers, p 21 <https://www.aemc.gov.au/sites/default/files/2018-07/CEPA%20Final%20Report.pdf>. A report by the International Transport Forum concludes that historically, CAPEX bias has been overplayed in the literature. However, there are reasons why CAPEX biases may exist and UK economic regulators have been alert to these. Demonstrating such bias with available data is hard, however. The data at hand does not indicate CAPEX bias across the three sectors considered [rail, water and roads]. International Transport Forum, Capex Bias and Adverse Incentives in Incentive Regulation, Issues and Solutions, 2019 www.itf-oecd.org/sites/default/files/docs/capex-bias-adverse-incentives.pdf

15. Attachment A provides a simple assessment of whether exempt EDBs (who are subject to ID regulation only) tend to systematically differ in their capitalisation rates from non-exempt EDBs (who are subject to both PQ and ID regulation). We find EDBs subject to PQ regulation (in particular, larger EDBs) tend to have somewhat higher rates of capitalisation. However, due to the simplistic nature of the analysis – we only examine differences in pattern between of the type of regulation and do not control for other relevant differences (ie, all other things are not equal) – we consider the findings are inconclusive.
16. This does not mean capex bias is not an issue in New Zealand. Importantly, while capex bias may not be significant historically, it may be in future if, as expected, opportunities for non-network solutions and other non-traditional solutions increase and if the current regulatory settings distort choices towards (relatively inefficient) network solutions.

Submissions on totex approach

17. Several submissions in response to our May 2022 Process and Issues Paper suggested a totex approach as a possible solution to addressing:¹³

17.1 **Capex bias.** For example, Orion submitted that it:

believes there is a bias toward Capex over Opex. This is not because EDBs do not want to implement Opex solutions. However, commissioned asset additions to the RAB drives the return of and on capital which is as [building blocks allowable revenue] and ultimately the [maximum allowable revenue]. The IRIS impacts of Opex spending is also more sizeable whether in the favour of the customer or the EDB. The decarbonisation transition toward net zero will be better served by EDBs having incentives to invest in Opex solutions e.g. non-network alternatives, digitisation delivered through the cloud, customer-oriented flexibility services. The effect of the IRIS may also be to drive up debt funding for EDBs to meet customer connection pace and extent of decarbonisation. [...] We strongly believe the time has come for a Totex approach.

¹³ Orion “Feedback on the Input Methodologies ‘Draft Framework Review’ and ‘Process and Issues’ Papers 11 July 2022, para 74, https://comcom.govt.nz/_data/assets/pdf_file/0021/288012/Orion-Submission-on-IM-Review-Process-and-Issues-paper-and-draft-Framework-paper-11-July-2022.pdf
Vector “Submission on the IM Review 2023 – Process and Issues Paper” 11 July 2022, para 34 https://comcom.govt.nz/_data/assets/pdf_file/0022/288022/Vector-Submission-on-the-Process-and-Issues-paper-11-July-2022.pdf
Orion “Feedback on the Input Methodologies ‘Draft Framework Review’ and ‘Process and Issues’ Papers 11 July 2022, para 44, https://comcom.govt.nz/_data/assets/pdf_file/0021/288012/Orion-Submission-on-IM-Review-Process-and-Issues-paper-and-draft-Framework-paper-11-July-2022.pdf

- 17.2 **Increasing the flexibility between opex and capex.** For example, Vector submitted that:

there needs to be more flexibility between opex and capex expenditure. While the opex and capex IRIS retention rates are currently the same, opex and capex expenditure allowances are not substitutable. This could incentivise the wrong investments (e.g. where an opex solution is more efficient but would incur IRIS penalties).

- 17.3 **Simplifying the overall incentive regime.** For example, Orion submitted that:

A Totex approach would provide more flexibility (refer to Ofgem's RII0-2 determination, chapter 519) to achieve a cost effect service. This should also effectively improve the investment decision making process by:

allowing for flexibility between investment and operational expenditure

simplifying the IRIS mechanism with equal weighting for Totex (Capex + Opex).

18. While several submitters, including the ENA, suggested exploring a totex approach by building on experience from the UK (Ofgem and Ofwat), some submitters also cautioned against rushing to make change due to material cost of change and the risk of unintended consequences.¹⁴

The issue we seek to understand better

19. We seek to understand whether the current approach to setting default/customised price-quality paths creates or is expected to create material capex bias. That is, whether EDBs are incentivised to choose solutions because of financial incentives provided by the regulatory regime instead of the most efficient investment to supply the regulated service at the quality consumers demand.
20. Understanding the outcomes of our approach to incentive regulation, including through submitters' feedback, is key to improving our approach. In the EDB DPP3 decision we aimed to neutralise financial incentives between opex and capex by adjusting the incentive rate settings.¹⁵ The feedback in submissions to our Process and Issues paper summarised above (see paragraph 17) suggests there is further scope for improvement.

¹⁴ Transpower "Input Methodologies Review 2023: Draft Framework Paper and Process and Issues Paper - submission" (11 July 2022), p. 32; Vector, "Cross- submission on IM Review Process & Issues paper and draft Framework paper- 03 August 2022 para" p 74-76;

¹⁵ The decision explained that, to ensure distributors have a consistent incentive to spend both opex and capex and do not favour capital solutions over operating ones, the DPP3 decision equalised the capex IRIS and opex IRIS incentive rates.
Commerce Commission, Default price-quality paths for electricity distribution businesses from 1 April 2020 – Final decision, 27 November 2019, para X81.

21. We also seek to understand whether the current opex/capex-based building blocks approach should evolve towards a totex approach as a potentially more effective alternative to the current approach to mitigating capex bias.
22. In the next section we set out how a totex approach works and how it addresses capex bias. Attachment C explains what an expenditure incentive scheme might look like under a totex approach.
23. In section 4 and Attachment B we examine how the current approach to PQ regulation works and how it is intended to perform. Understanding the key differences between the current approach and a totex approach is intended to inform feedback on whether a change from the status quo is necessary.
24. In section 5 we discuss key considerations if a totex approach is implemented under Part 4.

3. Totex approach

What we mean by a totex approach

25. When we say ‘totex approach’, we mean the approach adopted in the UK by Ofgem and Ofwat. The key feature of this approach is the absence of a distinction between opex and capex in setting ex-ante regulatory revenue allowances and when recognising actual costs: revenue allowances and incurred costs are based on totex. A fixed share of totex is ‘capitalised’, and the remainder is expensed. The regulator sets the fixed share upfront for the duration of a regulatory period.¹⁶ We note that while other regulators have adopted totex for aspects of their regulatory regime (eg, benchmarking), to our knowledge only Ofgem and Ofwat have adopted a fixed opex-capex-share.¹⁷

https://comcom.govt.nz/_data/assets/pdf_file/0020/191810/Default-price-quality-paths-for-electricity-distribution-businesses-from-1-April-2020-Final-decision-Reasons-paper-27-November-2019.PDF

¹⁶ In this paper we focus on one of the key characteristics of the totex approach to address capex bias: the use of a fixed capex-opex share. When Ofgem introduced totex regulation (to reduce capex bias), alongside a suite of financial incentives for cost efficiency and innovation (including regulatory ‘sandboxing’), to encourage distributors to innovate to make distribution networks more flexible. Ofgem also introduced detailed regulatory accounting rules to enable detailed assessments of activity-based costs.

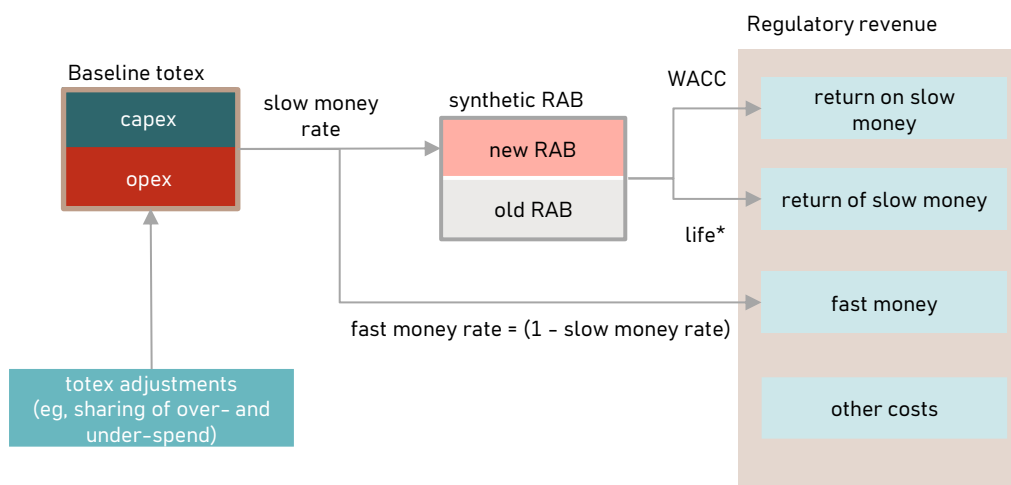
¹⁷ For a summary of European regulator’s approaches, refer to CEER, Report on Regulatory Frameworks for European Energy Networks 2021, 31 January 2022. The Italian Regulatory Authority for Energy, Networks and Environment (ARERA) is considering the adoption of a UK style totex approach. Oxera 2021 – Review of current totex regimes and outlining potential pathway to implementation for ARERA www.arera.it/allegati/docs/21/615-21oxera.pdf

26. The use of a fixed opex-capex-share removes a potential distortion in behaviour that may arise due to direct financial incentives inherent in the regulatory approach.¹⁸ Whichever solutions the business adopts, and however much their costs may differ from the underlying (implicit) opex and capex allowances, all expenditure gets split according to the fixed opex-capex-share.
27. A totex approach does not eliminate all sources of capex bias. Even if adopted there may still be obstacles to businesses increasing their efficient use of non-network/flexibility solutions as alternatives to network investments. For example, it does not address the potentially greater performance uncertainty of procuring from a third party, which may lead a business to prefer capex to opex solutions (as noted in paragraph 13.3).¹⁹

Totex building blocks approach

28. A totex approach, depicted in Figure 1, replaces the opex and capex building blocks with a totex building block. A set proportion of totex is allowed to earn a return (by entering the RAB).

Figure 1: Totex building block approach



¹⁸ Carlotta von Bebenburg & Gert Brunekreeft & Anton Burger, 2022. "How to deal with a CAPEX-bias: fixed-OPEX-CAPEX-share (FOCS)," Bremen Energy Working Papers 0039, Bremen Energy Research. <https://ideas.repec.org/p/bei/00bewp/0039.html>

¹⁹ In Ofgem's regime, adopting a totex approach may have been what made businesses financially indifferent between solutions. However, the trigger to action may have been the additional innovation and efficiency financial incentives introduced in RIIO1. Hence the increase in innovation activity over the last 10 years was likely due to the combination of moving to a totex approach and additional incentives. A review by Ofgem and Ofwat of the initial experience under a totex approach in the UK concluded that "rather than a binary approach – totex, or not totex – it seems that the industry has moved on to a point where the question of totex has been absorbed in the much bigger issue of whole systems planning. That is to say, it's no longer just about whether to build a new asset or come up with another solution; rather, it's a question of looking holistically at the infrastructure system, cross-vector, and determining the best solution." <https://networks.online/heat/the-totex-question/>

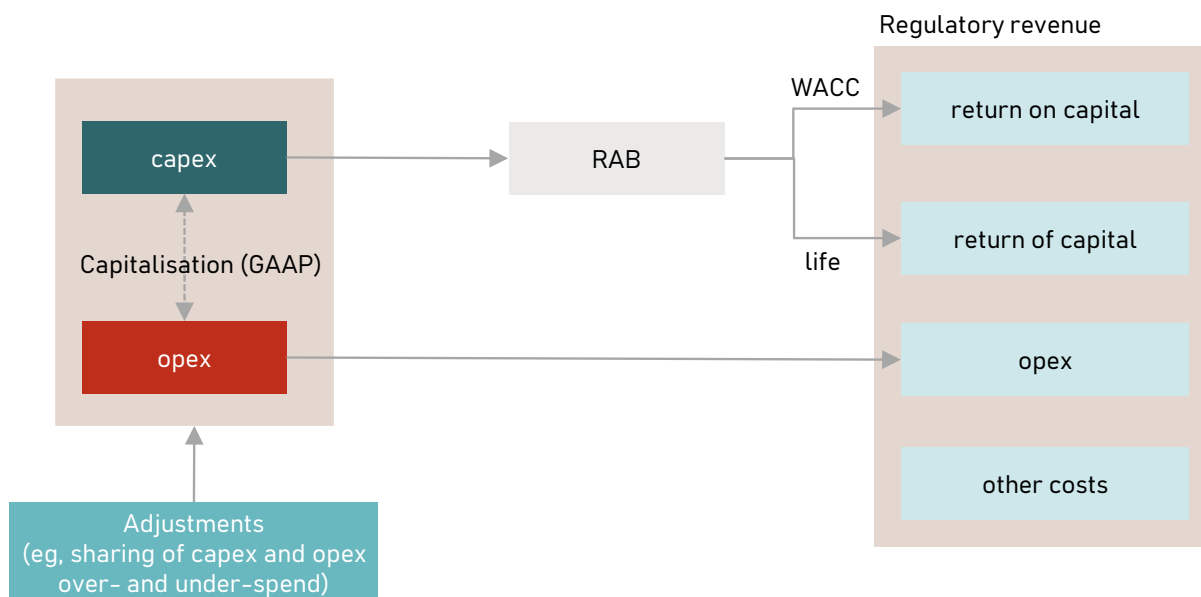
29. The key features of calculating regulatory revenue under the totex approach, shown in Figure 1, are:
- 29.1 **Totex** is used to calculate regulatory revenue instead of separate amounts for opex and capex.
 - 29.2 A **slow money rate** determined by the regulator determines the share of totex that rolls into the RAB and is recoverable over multiple years.
 - 29.3 A **synthetic RAB** captures the new 'slow money' RAB – for slow money – and the old RAB – for assets that are commissioned before the introduction of the totex approach. Over time, the value of the slow money RAB would be expected to increase whereas the value of the old RAB would decrease as assets in it are fully depreciated.
 - 29.4 **Life** assumptions that are relevant for 'depreciating' slow money rather than assets are required.
 - 29.5 While the need for weighted average cost of capital (**WACC**) does not change, consideration needs to be given to whether the methodology needs to reflect the change (eg, due to differences in scope between the RAB and the synthetic RAB).
 - 29.6 **Return on** and **return of slow money** replace the return on and of capital.
 - 29.7 The **fast money rate** determined by the regulator determines the portion of totex that is recoverable in the year in which it is incurred.
 - 29.8 **Totex incentive adjustments** that are used during the regulatory period to achieve specific regulatory objectives such as sharing over- and under-performance of the totex allowances. In Attachment C we provide more detail on how a totex incentive mechanism works using Ofgem's mechanism as a case study.

4. The current Part 4 approach

30. Under the current Part 4 approach, we use building blocks to calculate regulatory revenue and set maximum allowable revenue (**MAR**) allowances in price-paths. Two of the inputs to the building blocks model are opex and capex.

31. When setting regulatory allowances like this, a key distinction between opex and capex is the time over which each is recovered. Opex is assumed to be recovered in the year in which it is incurred. Capex is assumed to be recovered over more than one year via depreciation (the return of capital). Investors are compensated for the funding costs associated with these assets by way of the return on and return of capital over the physical or economic lives of the assets.
32. Under this approach, forecast opex is a direct input into the regulatory revenue allowance for a given year, whereas forecast capex rolls into the forecast RAB. The RAB, asset lives and regulatory WACC are used to calculate the return on and the return of capital.
33. Figure 2 shows the opex/capex building blocks approach to determining regulatory revenue.

Figure 2: Opex/capex building blocks approach



34. Setting a MAR is intended to give businesses the flexibility to choose how to operate and invest in their networks.²⁰ Once the price path is set businesses can choose whether to incur opex or capex, regardless of whether they are efficient or not, subject to the total amount of charges they set to recover costs not exceeding the MAR.

²⁰ Building block expenditure assumptions, and the resulting MAR are intended to provide a budget constraint. Opex and capex building block assumptions are not intended as opex and capex budgets for businesses.

35. During a regulatory period, several adjustments apply contingent on performance against regulatory assumptions and pre-defined events. This includes adjustments (strictly speaking these are adjustments to regulatory revenue) to financially incentivise expenditure.
36. Part 4 uses the opex and capex IRIS, among other tools, to help mitigate capex bias and neutralise the incentives on suppliers to favour one type of expenditure over another. However, suppliers have submitted that IRIS does not effectively neutralise the incentives between opex and capex and is too complex to engage with. A discussion of the current incentive schemes is set out in Attachment B.²¹

5. Key considerations if totex were to be implemented under Part 4

37. With the important role electricity lines services have in enabling decarbonisation through electrification of the New Zealand economy, the sector has for some time been considering how to evolve from a traditional and largely passive distribution network to a more complex network that meets diverse needs.
38. The question now is whether:
 - 38.1 the current opex/capex approach is generally fit-for-purpose for economic regulation under Part 4, including because the current expenditure incentive schemes are effective in mitigating direct financial incentives resulting in capex bias;
 - 38.2 the current opex/capex approach is generally fit-for-purpose for economic regulation under Part 4 but would benefit from targeted improvements for example, through changes to the incentives schemes that make it more transparent, or by introducing additional tools for mitigating capex bias;²² or

²¹ After the workshop we intend to release modelling that illustrates the intended financial equivalence between the opex IRIS and the capex IRIS.

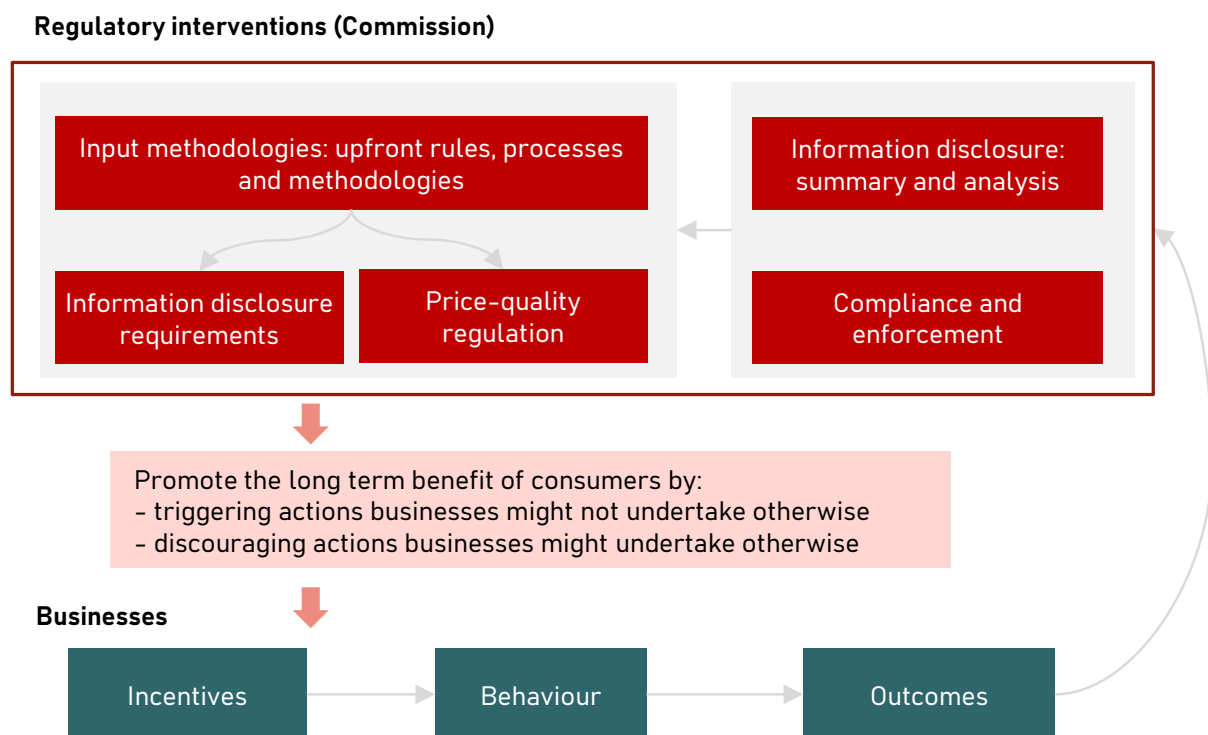
²² In Australia, the AEMC and the AER have considered a range of solutions to capex bias and potential solutions. In a 2012 study, AEMC consider the following solutions to balance incentives for capex and opex: assigning a rate of return on opex; capitalising all demand side participation projects; or adopting a totex approach. While considering totex in some detail in 2018, the AER continues to distinguish between capex and opex. When benchmarking costs, the AER considers the implications of differences in capitalisation policies www.aer.gov.au/system/files/AER%20-%20How%20the%20AER%20will%20assess%20the%20impact%20of%20capitalisation%20differences%20on%20our%20benchmarking%20-%20Consultation%20paper%20-%20November%202021.pdf . To address capex bias the AER has regulatory investment test (RIT) obligations on certain, higher value network investments. RETS are cost-benefit tests that network businesses need to apply before building network infrastructure. The RIT is intended to identify the preferred network or non-network option to deliver the greatest economic benefit and is designed to mitigate bias, including capex bias. Application guidelines can be found in this document: AER, Regulatory investment test for distribution, August 2022 www.aer.gov.au/system/files/AER%20-%20RIT-D%20application%20guidelines%20-%20August%202022%20-%20uploaded.pdf

38.3 a totex approach offers sufficient net benefits over the opex/capex approach to warrant a change.²³

39. In this section we focus only on sub-topics that will help progress discussion on the key considerations relevant to implementing a totex approach under Part 4. It is important that we and other stakeholders understand the practical implications of such a change in regulatory approach to inform a broader discussion on how the regulatory regime should evolve. As we noted in section 1, this working paper is not a draft decision on the IM Review or a formal proposal to amend the IMs or otherwise change the Part 4 regulatory regime. Nor does it consider all possible relevant options.

40. Below we depict the five types of 'regulatory interventions' we use to influence businesses' behaviour.

Figure 3: Regulatory interventions



²³ By net benefit we mean that expected benefits (ie, more efficient investments) are expected to be greater than the expected costs for the Commission and businesses to implement the change.

Information disclosure requirements and summary and analysis

41. If we introduced a form of totex approach to our regulatory regime it would need to accommodate a range of circumstances under Part 4. Exempt EDBs' services are subject to ID regulation only, while non-exempt EDBs' services are subject to PQ and ID regulation. In some circumstances businesses can switch their regulatory status.²⁴ EDBs can also engage in transactions involving exempt EDBs, non-exempt EDBs, other regulated providers, or unregulated business.
42. A key consideration would be how ID requirements would need to change so that, while accommodating various businesses' circumstances:
 - 42.1 interested persons have access to information that helps them assess whether the Part 4 purpose is being promoted, including through our summary and analysis; and
 - 42.2 we have access to information that is prepared using regulatory accounting rules relevant to totex PQ regulation (see the discussion on IMs below).
43. Each regulatory decision needs to be considered in its context.²⁵ If capex bias is an issue, new ID requirements to provide transparency on the use of non-network/flexibility solutions could be considered.²⁶ We would also need to consider the extent to which a shift would give rise to additional requirements for reconciliation of expenditure (eg, between the synthetic RAB and underlying cost components).

Price-quality regulation

44. When determining IMs, we would need to consider which totex aspects to include in IMs and which to determine when setting a price path. For example, while aspects such as the approach to determining a synthetic RAB would likely be included in the asset valuation IM (see further detail in Table 1 below), the methodology for determining a slow money rate could be determined as part of the price path.
45. Another consideration would be forecasting, specifically:

²⁴ For example, in 2021 Centralines met the criteria for exemption from price quality regulation. Centralines expected that becoming "exempt from price-quality regulation will enable Centralines to be even more responsive to its stakeholders and the environment". [www.centralines.co.nz/docs/default-source/centralines-/scis/2021-centralines-sci-\(pages\).pdf?sfvrsn=50f170a_6](http://www.centralines.co.nz/docs/default-source/centralines-/scis/2021-centralines-sci-(pages).pdf?sfvrsn=50f170a_6)

²⁵ For example, prior to changing to a totex approach, Ofgem had issues with businesses gaming the regulatory accounting rules to improve their financial results. So, alongside the totex approach, Ofgem introduced more granular reporting requirements to enable more robust relative efficiency cost assessments.

²⁶ Note that the targeted ID review draft decision (August 2022) introduced reporting requirements on EDBs' innovation practices. P23 [Targeted-information-disclosure-review-for-electricity-distribution-businesses-Tranche-1-draft-decisions-paper-3-August-2022.pdf \(comcom.govt.nz\)](http://www.comcom.govt.nz/targeted-information-disclosure-review-for-electricity-distribution-businesses-Tranche-1-draft-decisions-paper-3-August-2022.pdf)

- 45.1 whether DPP revenue allowances would continue to be based separately on an assessment of forecast opex and capex (but added for the purposes of the MAR); or
- 45.2 whether there is scope for evolving the approach to forecasting in a way that would not be appropriate or possible in the context of the opex/capex approach.

Input methodologies

- 46. The IMs underpin and direct how we set PQ and ID regulation, providing upfront certainty for us and suppliers about how that regulation will apply.
- 47. In Table 1 we set out key IM considerations relevant to implementing a totex approach.²⁷ The table is intended to give an overview of the quantum and complexity of considerations; it is not intended to be comprehensive.
- 48. A change would require creating a number of new regulatory accounting rules and processes, which would be additional to the current rules and processes that generally reflect GAAP. We envisage it would require significant investment by us and stakeholders to develop changes to IMs, and from EDBs and their advisors in implementing the rules as part of their financial systems, processes, and policies. We also envisage that audit professionals would need to engage with the change to provide appropriate audit and assurance advice.²⁸
- 49. We are mindful of the concern by some submitters who cautioned against rushing to make a change due to the material cost of change and the risk of unintended consequences.

²⁷ These are based on the assumption that the bounds of the input methodologies remain similar to now, ie, that the distinction between what we set out in the input methodologies as opposed to in PQ and ID determinations is similar to the current approach.

²⁸ For some of the issues considered in the totex context, refer to the IFRS's work on APA9a which engages with interaction between accounting standards and economic regulation
www.ifrs.org/content/dam/ifrs/meetings/2022/may/iasb/ap9a-features-of-different-regulatory-schemes.pdf
www.ifrs.org/content/dam/ifrs/meetings/2022/july/iasb/ap9a-components-of-total-allowed-compensation.pdf

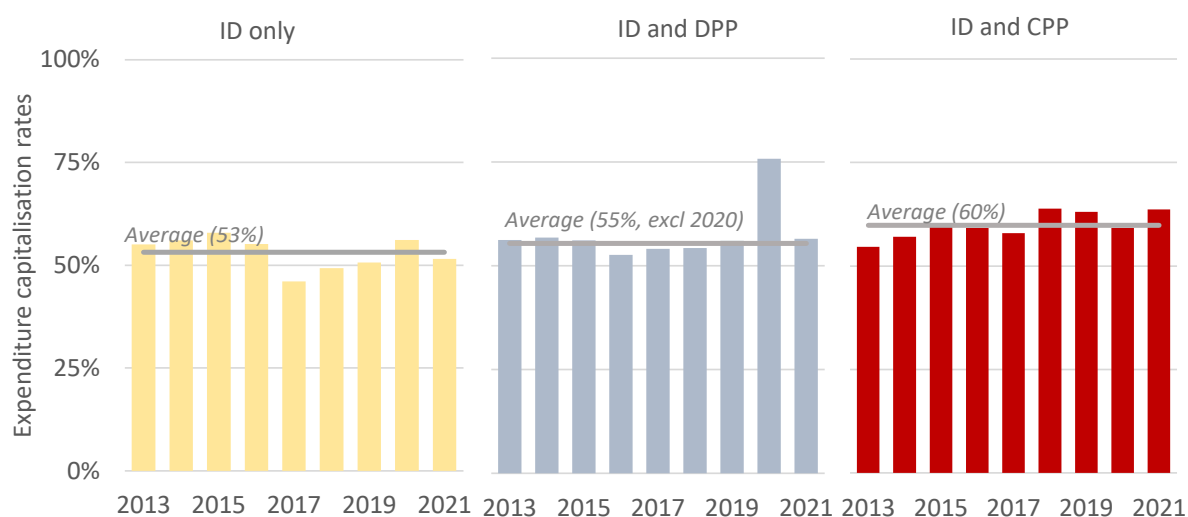
Table 1: Key considerations for input methodologies

Area	Key consideration
Definitions	<ul style="list-style-type: none">– Define totex, slow money and fast money, as well as inputs such as the capitalisation rate (or rules for the capitalisation rate). Other definitions would be necessary if there are sub-categorisation of totex;– Define components of regulatory investment value.
Asset valuation	<ul style="list-style-type: none">– Specify rules for implementation of totex approach with an old RAB/synthetic RAB split or composite slow money RAB;– Specification of depreciation classes and lives for slow money as well as depreciation roll-forward;– Specification of slow money rate(s) or methodology for calculating slow money rates in IMs;– Treatment of transactions/mergers and acquisitions under different scenarios (eg, exempt/non-exempt) and between related parties;– Consideration of whether IMs need to recognise the implications of moving to a different RAB for financeability and/or funding costs;– Assurance/reporting requirements for totex to deal with the divergence of the synthetic RAB (ie, slow money RAB + old RAB) from a GAAP-based RAB.
Cost allocation	<ul style="list-style-type: none">– Adapt cost allocation IMs to apply to fast/slow money (including how rules might differ between forecast and actual expenditure);– Consider need for additional cost allocation/reporting rules to enable monitoring whether costs from unregulated services are shifted to consumers of regulated services.
Cost of capital	<ul style="list-style-type: none">– Consider implications of a totex approach for the WACC IM.
Tax	<ul style="list-style-type: none">– Rules needed to allocate capitalised spend to tax allowance depreciation pools to provide accurate forecasts of depreciation tax deductions;– Within-period tax allowance adjustment and clawback mechanisms needed to avoid under/overcompensation of tax costs;– Consider need for detailed tax reconciliations to enable update of allowance assumptions.
Expenditure incentive mechanism	<ul style="list-style-type: none">– Specify incentive mechanism under totex approach (refer to Attachment C for further detail on what a totex incentive mechanism might look like and what it is intended to achieve).
CPP information requirements	<ul style="list-style-type: none">– Review information requirements (including assurance).
Transitional changes	<ul style="list-style-type: none">– Consider if transitional changes are needed (eg flexibility to re-open the slow money rate or asset life assumption if they prove to be clearly and materially wrong).
ID changes	<ul style="list-style-type: none">– Adjustments to profitability and other performance assessment rules to ensure performance is assessed on a basis consistent with the revenue-setting assumptions;– Additional cost reporting may be needed.

Attachment A: Distributors' expenditure capitalisation

50. The differences in regulations that apply to electricity distributors provide a potential approach to assessing the extent of capex bias. Exempt distributors are subject to ID regulation only, whereas non-exempt distributors are subject to both PQ and ID regulation.
51. If PQ settings for opex and capex result in or reinforce capex bias, we would expect non-exempt EDBs to capitalise a greater share of expenditure than exempt EDBs, all other things being equal.
52. The figures below show the proportion of annual totex capitalised for three EDB groupings: ID-only regulation, ID and DPP regulation, and ID and CPP regulation. The ID and DPP, and ID and CPP groupings have somewhat higher capitalisation rates than businesses subject to ID-only regulation.

Figure A1: Expenditure capitalisation rates by grouping



Notes: The ID and CPP grouping includes Aurora, Orion, and Powerco.

53. A simple plot of average capitalisation rates between 2013-2021, shown below in the left panel, shows the picture at a more granular level for each EDB.²⁹ A simple eyeballing of differences suggests distributors subject to ID and DPP are slightly more likely to capitalise close to or above 50% of their revenue. This difference is unlikely to be statistically significant. Businesses subject to ID and CPP regulation have capitalisation consistent with rates at the top of the range in the other two groupings. The right-hand panel shows forecast expenditure capitalisation rates, which are broadly consistent with the historical range.

²⁹ The figure shows simple averages, ie, they are not weighted.

Figure A2: Expenditure capitalisation rates



54. The analysis provides some evidence that EDBs subject to PQ regulation (in particular, larger EDBs) tend to have somewhat higher rates of capitalisation. However, due to the simplistic nature of the analysis – we only examine differences in pattern between form of regulations, and do not control for other relevant differences (ie, all other things are *not* equal) – we consider the findings are inconclusive.
55. This does not mean capex bias is not an issue in New Zealand. Importantly, while capex bias may not be significant historically, it may be significant in future if, as expected, opportunities for non-network solutions and other non-traditional solutions increase and the regulatory settings distort choices towards an inefficient level of network solutions.

Attachment B: Overview of current expenditure incentive mechanisms

Purpose of this attachment

56. In this attachment we outline the rationale and workings of our current expenditure incentive mechanisms for EDBs and discuss the equivalence between expenditure incentives in practice.
57. In summary, the joint application of the capex IRIS and the opex IRIS is intended to ensure non-exempt EDBs are financially neutral between choosing opex and capex solutions in terms of regulatory expenditure incentives. Following the workshop, we will release modelling that illustrates the intended financial equivalence between the opex IRIS and the capex IRIS.
58. In this section we discuss:
 - 58.1 why we have expenditure incentive mechanisms;
 - 58.2 the opex IRIS mechanism for EDBs;
 - 58.3 the capex IRIS mechanism for EDBs; and
 - 58.4 the intended equivalence of the incentive schemes.
59. In Attachment C, we outline how a totex incentive scheme might apply and how it compares to the current expenditure incentive schemes for EDBs.

Why do we have expenditure incentive mechanisms?

60. Regulated suppliers under a revenue cap benefit from cost reductions during a regulatory period because they are permitted to earn the same revenue and keep the difference as profit. At the end of the regulatory period, the benefits of any efficiency gains are shared with consumers, including through lower prices.
61. The expenditure incentive mechanisms for EDBs (the opex IRIS and the capex IRIS) were introduced to help address an issue that occurs when PQ paths are reset at periodic intervals. In the absence of an IRIS mechanism, the strength of the incentive on EDBs to reduce costs declines across a regulatory period, as EDBs can only retain the benefit until the reset (and those efficiency gains are shared with consumers). This is referred to as the 'natural incentive'.
62. Having an IRIS mechanism creates a focus on making efficiency savings when they are identified rather than optimising the timing of expenditure under the natural incentive. This is in the long-term interest of consumers as suppliers should be making efficiency savings when they are identified (and passed back to consumers), rather than deferring savings until the next period.

63. In addition to controlling suppliers' incentive to defer savings, there are other key objectives for having an incentive mechanism such as the IRIS mechanisms:
- 63.1 Having an IRIS allows the control of incentive rates on opex and capex. Without an IRIS there may be significantly different incentive rates between opex and capex, which could lead to an inefficient preference for one type of expenditure over another.
 - 63.2 The natural incentive rate (without an IRIS) may not be sufficiently high or low. Having an IRIS could be used to determine stronger (or weaker) incentives to reduce costs during a regulatory period.
 - 63.3 Inherent in incentive regulation that uses revealed costs (such as the base-step-trend approach used to set DPP opex allowances) is suppliers' incentive to inflate costs in the 'base year'. The IRIS helps to mitigate this risk because it treats an increase as a negative saving, which offsets the financial upside of any such "gaming".
 - 63.4 The opex IRIS ensures that temporary (short-term) savings are shared between suppliers and consumers. This would generally not occur without an incentive mechanism and can be beneficial for both suppliers and consumers.³⁰

Overview of the opex IRIS mechanism for EDBs

64. The opex IRIS allows suppliers to 'carry forward' the benefit of a saving (or penalty from an overspend) in opex for a set number of years. Therefore, the IRIS mechanism provides a consistent opex incentive rate to achieve efficiency savings.
65. The opex incentive rate (also known as the 'retention factor') is determined in the EDB IMs and is determined as a result of the length of retention of cost under- or overspends and the WACC value. This is based on the supplier's ability to retain the saving for five years after making the saving, with savings being discounted at the current WACC rate over the life of the saving.³¹ This provides suppliers with a constant incentive rate to make savings over a regulatory period.

³⁰ For suppliers, there may be an adverse weather event or other temporary cost not forecast, and suppliers need to spend additional unplanned expenditure in response. With an IRIS mechanism, these costs will be shared between suppliers and consumers rather than suppliers bearing the total cost. For consumers, there can be benefits from the sharing of short-term cost savings made by suppliers.

³¹ This results in six years of total savings – the year that the saving is made plus the five years of carry forward amounts.

66. The IRIS model estimates ‘carry forward’ amounts recovered in the subsequent period by calculating the incremental change from year-to-year of the preceding regulatory period. A one-off adjustment (called the ‘base year adjustment term’) is made in the second disclosure year to give effect to the appropriate incentives for savings made in the previous period.³²
67. There are also further adjustments to the IRIS mechanism when suppliers transition to a CPP. For simplicity, we only focus on the DPP IRIS model here, but the links at the end of this attachment explain the rationale for the approach to the CPP IRIS.

Overview of the capex IRIS mechanism for EDBs

68. The approach for capex operates in a different way than the approach for opex, but with a similar effect. The difference is due to:
- 68.1 differences in the way that capital expenditure is recovered over time, ie, through a return on and of capital; and
- 68.2 the fact that cost variance from expenditure allowances in one year are unlikely to have a direct bearing on cost variances from expenditure allowances in subsequent years (unlike opex variances which can be recurring and hence persist into the future).
69. The capex IRIS requires us to determine an incentive rate (applied to the retention adjustment for over- and underspends) for each supplier at the time of each PQ path reset. Suppliers therefore have certainty that the incentive rate will be specified in advance of any efficiency improvements being achieved.
70. The incentive amount is simply the incentive rate set in the PQ determination multiplied by the difference between forecast and actual assets commissioned.³³

$$\text{Retention adjustment} = \text{Incentive rate} \times (\text{PV forecast commissioned assets} - \text{PV actual commissioned assets})$$

³² The base year adjustment is added to the sum of any amounts carried forward from previous years and is required to correct for the difference between the actual and assumed level of operating expenditure in the final year of the preceding price-quality path. This adjustment is required because the incremental change in the final year of a price-quality path is assumed to be nil.

³³ In practice, we use the value of commissioned assets as a proxy for capital expenditure for the purposes of the capital expenditure incentive calculation. We do this because using actual capital expenditure results in additional complexity when calculating the required revenue adjustments to the price path. Using the value of commissioned assets ensures consistency with the building blocks approach used to calculate current and projected profitability.

71. As capital expenditure is recovered over time through the return on and of capital it is important to correct (through the capex wash-up) for the difference between:³⁴
- 71.1 the revenue we allow, over the regulatory period, based on the forecast of capital expenditure relied on when setting the PQ path; and
 - 71.2 the revenue required, over the regulatory period, based on the supplier's actual capital expenditure after the PQ path has started.
72. The capex wash-up is required to ensure that suppliers are made whole for investments, so as to ensure that the NPV of a solution (whether opex or capex) is equal.

Are opex and capex incentives equivalent?

73. In our EDB DPP3 decisions, we determined the capex incentive rate to be equal to the opex incentive rate (which is dependent on the WACC and the length of time that savings are carried forward). For DPP3 the incentive rate in the opex and capex IRIS was 23.5%. This was decided to reduce the imbalance between opex and capex incentive rates from the previous period (where the opex rate was 34% and the capex rate was 15%).
74. The joint application of the capex IRIS and the opex IRIS are intended to ensure non-exempt EDBs are financially neutral between choosing opex and capex solutions in terms of regulatory expenditure incentives. Following the workshop, we will release modelling that illustrates the intended financial equivalence between opex IRIS and capex IRIS.

Impact of the WACC uplift

75. When considering incentives to make cost reductions, and the type of expenditure by which to make savings, the total return of doing so should be taken into account. The WACC (and a WACC uplift) impact the current incentives to reduce spend:
- 75.1 The WACC applied for a price-path is used to reflect the time value of money in the opex IRIS, which impacts the retention of savings over time.³⁵

³⁴ For capital expenditure, the revenue allowed, and the revenue required, are dependent on the return *on* and *of* capital less any revaluation gains.

³⁵ There is an argument as to whether this should be the midpoint WACC rather than the WACC (with uplift) that applies to suppliers for a PQ path, although having multiple WACCs would introduce more complexity into the regime.

- 75.2 The WACC uplift means that spending capex will result in a greater than midpoint return over the life of the asset. The WACC uplift was introduced to reflect the detrimental outcomes from underinvestment. This also clearly provides incentives to spend (and not reduce) capex.
76. In Pat Duignan’s submission on the EDB DPP3 draft decision, he notes that the equivalence of the incentive rates between opex and capex will be distorted by the WACC uplift for the capex incentive rate. The analysis is laid out in the submission and summarised below:³⁶
- 76.1 If an EDB constrains its capex by \$1m less than the allowance, it will get a benefit from the retention adjustment. However, the EDB’s capex being \$1m lower will result in the RAB at the beginning of the next reset being \$1m lower than it otherwise would be.
- 76.2 If the allowed WACC (with an uplift) is above the supplier’s actual WACC, there will be a forgone uplift equal to the present value of the annual uplift per annum. If we assume that this was essentially a ‘permanent’ capex saving (that is, the RAB does not increase from this project in the future), we discount the forgone uplift benefit for the duration of the life of the asset.
- 76.3 Therefore, the resulting benefit to suppliers from reducing capex would be the benefit from the retention adjustment minus the forgone WACC uplift on the RAB. Based on this analysis, the overall strength of the incentive for capex would be lower than the retention adjustment suggests.
77. We could consider amending our current incentive regime if required to address this issue. This is outside the scope of this document.

References to past incentive decisions

78. In the table below we provide references to past incentive scheme decisions.

Table B1: References to past incentive scheme decisions

Title	Date	Website link
Proposed amendments to input methodologies: Incremental Rolling Incentive Scheme	July 2014	Link

³⁶ See Pat Duignan’s submission on the DPP3 EDB reset here: [Link](#). This analysis also depends on a range of assumptions to do with the capex solution (such as the assumed lifetime of the solution and hence for how long it would have been in the RAB).

Amendments to input methodologies for electricity distribution services and Transpower New Zealand – Incremental Rolling Incentive Scheme November 2014 [Link](#)

Further amendments to input methodologies for electricity distributors subject to price-quality regulation – Incremental Rolling Incentive Scheme (IRIS) November 2015 [Link](#)

CPP IRIS discussed here

Opex IRIS illustrative model November 2015 [Link](#)

Default price-quality paths for electricity distribution businesses from 1 April 2020 – Final decision Reasons paper November 2019 [Link](#)

Attachment E discusses the expenditure incentive mechanisms

Illustrative model of IRIS recoverable costs for DPP3 November 2019 [Link](#)

Includes illustrative capex IRIS model published with the DPP3 decision

Attachment C: Totex incentive mechanism

Purpose of this attachment

79. In this attachment we outline conceptually how a totex incentive scheme might apply, including how it might meet the objectives of an incentive mechanism as described in Attachment B above.
80. A key finding in this attachment is that Ofgem's incentive mechanism for totex is simple and transparent but it does not seek to achieve the same objectives as our current Part 4 IRIS, such as correcting for a declining natural incentive strength during a regulatory period (opex IRIS).

Ofgem's totex incentive mechanism

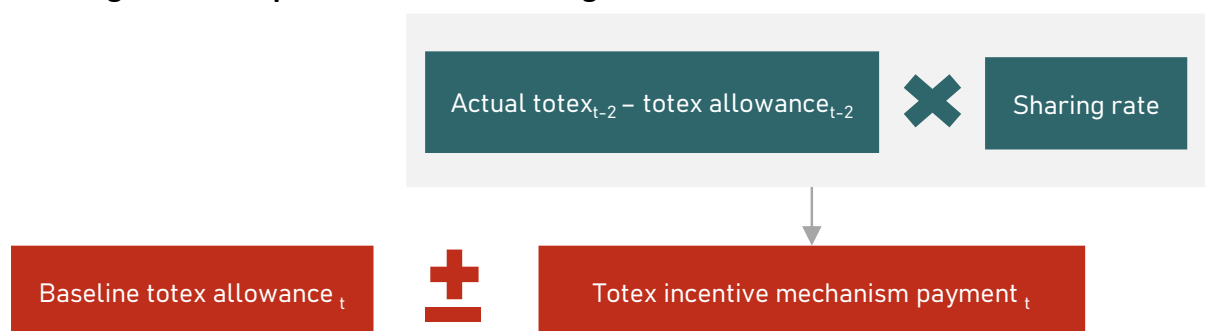
81. In this section we explain how Ofgem's totex incentive mechanism (**TIM**) works and how it performs against the objectives of the current EDB expenditure incentive schemes.³⁷
82. Each year the TIM adds or subtracts the incentive amounts from a regulated supplier's baseline totex allowance. Based on the spending from two years prior, the totex allowance is subtracted from the actual totex. Then, the resulting number is multiplied by the sharing rate.
83. The sharing rate dictates how much of any overspend or underspend is passed on to consumers, with the remainder being retained by the regulated supplier.³⁸ The mechanism is symmetric, sharing the same proportion of under- or overspend between suppliers and consumers.³⁹
84. Figure C1 gives a simplified illustration of how Ofgem's TIM works.

³⁷ To complement the TIM, Ofgem has other incentive schemes, including two targeted at encouraging innovation. https://www.ofgem.gov.uk/sites/default/files/docs/2020/12/final_determinations_-_core_document.pdf

³⁸ That is, the proportion is passed on to consumers. Given a 60% sharing rate, 60% of the saving is passed on to consumers with the regulated supplier retaining the remaining 40% of the under- or overspend.

³⁹ In the Ofgem scheme, the sharing rate can range between 50 and 85% depending on regulated suppliers' confidence in its forecasts.

Figure C1: Simplified illustration of Ofgem’s totex incentive mechanism



85. The TIM generally achieves some of the stated objectives of expenditure incentive schemes and does not achieve, nor seek to achieve, some of the others:
- 85.1 The TIM shares underspend, overspend and temporary savings between regulated suppliers and consumers. Ofgem also uses it to fine-tune the incentive strength and sharing of cost under- and overspends.
 - 85.2 The totex approach itself, as discussed in section 3, removes the incentives to favour one type of expenditure over another, so the TIM does not need to address this.
 - 85.3 The TIM does not correct the time-inconsistent natural incentive rate (ie, suppliers would benefit more from savings at the beginning of the regulatory period than the end).⁴⁰
 - 85.4 The TIM does not address the incentive for suppliers to shift opex to the 'base year' used in setting allowances for the next regulatory period, which arises where a base-step-trend without relative efficiency challenge is used.
 - 85.5 The TIM is transparent and simple to understand.⁴¹

Discussion of a potential totex incentive mechanism

86. A key benefit of a totex incentive mechanism such as Ofgem's (implemented alongside a totex approach) is that it is simple to understand and apply. If suppliers are more likely to respond to incentives if they understand them, and the current schemes are not fully understood due to their complexity, then a more transparent scheme may result in better outcomes.

⁴⁰ First Economics January 2019. RIIO-2: The role of incentives. For further reading regarding the declining incentive over the control period. www.first-economics.com/riio2incentives.pdf

⁴¹ For example, see a submission from SP Energy Networks explaining how the TIM is expected to work. SP Energy Networks “Annex 33: Sharing Factor – Totex Incentive Mechanism” (December 2019), p. 2. [Link](#)

87. There are both advantages and disadvantages of a potential totex incentive mechanism.

87.1 Advantages:

- i. Simple to calculate and transparent about how savings lead to incentive amounts.
- ii. Changes to accounting standards or treatment of different types of expenditure do not necessarily require a change to the mechanisms.
- iii. Simplicity can encourage trust and positive behavioural change as suppliers understand the outcomes of efficiency decisions (to the extent the current incentive schemes are insufficiently understood).

87.2 Disadvantages:

- i. Potential unintended consequences of a change.
- ii. Implementing a simpler mechanism may require giving up some of the properties of the current EDB Part 4 mechanism (eg, correcting the timing bias during a regulatory period).
- iii. The complexity and cost of implementing a totex scheme (including a totex incentive mechanism).⁴²

88. There are some desired objectives of an incentive scheme, which are in the long-term interest of consumers, that a totex incentive mechanism may not achieve:

88.1 **Provide time consistent incentives for opex across a regulatory period.** A simple incentive amount applying every year (no carry forwards) would result in suppliers being exposed to the 'natural incentive' for recurring expenditure such as opex.

88.2 **Address incentives to inflate base year expenditure.** This issue depends on how expenditure allowances are set. Assuming a base-step-trend approach to setting opex allowances is used without comparative benchmarking, under a totex incentive scheme like Ofgem's suppliers may have greater incentives to shift opex into the base year to receive a greater allowance in the following period.⁴³

⁴² Refer to section 5.

⁴³ Many regulators, including Ofgem and the AER undertake relative efficiency benchmarking when setting expenditure allowances.

89. The table below compares the current opex and capex IRIS mechanisms and Ofgem’s totex incentive scheme.

Table C1: Comparison of opex/capex IRIS and Ofgem’s totex incentive scheme

Objective	Opex/capex IRIS	Ofgem’s totex incentive scheme
Shares over- and under-performance in costs vs revenue allowance	Yes	Yes
Corrects timing biases during a regulatory period	Yes	No
Allows calibration of incentive rates	Yes*	Yes
Provides a transparent link to benefits realisation	No	Yes
Reduces incentives to inflate costs in base year	Yes	No

*The opex IRIS depends on the WACC estimate as well as the duration of retention of savings. Therefore, the incentive rate could be adjusted but currently is set in the IMs.

90. There are refinements to the totex incentive mechanism (as Ofgem applies it) to mitigate the issues identified above, although these would increase the complexity of the incentive scheme. For example, an incentive rate could be applied that increases over the regulatory period to mitigate the natural incentive.
91. There may be other ways of implementing a totex incentive mechanism without a move to a (Ofgem-style) totex approach. For example, we could set a totex target (based on the separate opex and capex allowances) and assess it against actual totex to calculate the incentive amounts (without implementing the totex approach with a fixed opex-capex-share as described in section 3). Under such an approach only the financial incentives amounts would be assessed on a totex basis.