IRIS equivalence staff discussion paper

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Purpose

1.   In this paper we summarise technical information that demonstrates the intended approximate equivalence of the opex and capex incremental rolling incentive schemes (IRIS) for EDBs. We also answer some associated questions raised at our 7 November 2022 stakeholder workshop on forecasting and incentivising efficient expenditure for EDBs.

2.   The numeric results in this paper are taken from the IRIS equivalence model published alongside this paper.[1] This is an illustrative model demonstrating how the opex and capex incentive amounts can be calculated and compared based on different scenarios and assumptions.

Related documents

3.   The IRIS equivalence model, published alongside this paper, reflects modelling that we have previously published on the illustrative calculations of opex and capex IRIS.

    3.1   For the opex incentive amounts we have based the calculations on the 'Opex illustrative model' which calculates the opex incentive amounts and demonstrates how the carry-forward amounts result in a consistent sharing rate between suppliers and consumers. The model can be found here.

    3.2   For the capex incentive amounts we have based the calculations on the 'Illustrative model of IRIS recoverable costs for DPP3', including the illustrative capex IRIS model published with the DPP3 decision. The DPP3 capex IRIS model includes the calculation of the capex wash-up, though that is not relevant to the capex incentive amount (the retention adjustment) used to compare with the opex incentive amount. The model can be found here.[2]

Equivalence of opex and capex financial incentives

Background

4.   Submissions on our Process and Issues paper[3] questioned whether the simple equalisation of opex and capex incentive rates has the desired impact of making EDBs neutral to savings of each type of expenditure. Some submission points include:

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[1]   See the associated IRIS equivalence model published with this paper.

[2]   Note that this model includes an error as part of the capex wash-up calculation, and we intend to re-release a corrected model soon that is consistent with the IMs. However, this error does not impact the calculation of capex incentive amounts for the comparison with the opex incentive amounts.

[3]   https://comcom.govt.nz/__data/assets/pdf_file/0031/283864/Part-4-Input-Methodologies-Review-2023-Process-and-Issues-paper-20-May-2022.pdf

4.1 Comments from Unison:[4]

It remains unproven under what circumstances capex/opex incentives are neutralised by the equalisation of incentive rates.

4.2 Comments from Vector:[5]

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).

5.   In this section we assess the financial incentives that apply to non-exempt EDBs when making capex/opex trade-offs that result in actual expenditure differing from ex-ante opex and capex allowances. The aim is to assess the equivalence of the expenditure incentives.

6.   If there is approximate equivalence between the incentive amounts for opex and capex solutions, then a supplier should largely be financially indifferent to substituting from one allowance (opex or capex) to another over the appropriate investment lifetime. For example, if there is a choice between two solutions, one opex and one capex, and both have equal NPV, the symmetric incentive amounts from the relative over- and underspends (from substituting between expenditure allowances) will largely offset each other.[6]

7.   There are a number of ways of assessing equivalence between opex and capex solutions. In this attachment we assess two scenarios with different assumptions:

   7.1   Scenario 1: Choosing between a temporary (one-off) opex overspend and a capex overspend of the same amount.

   7.2   Scenario 2: Choosing between a long-term opex solution overspend and a capex investment solution overspend (both with equal NPVs).

   7.3   Scenario 3: To assess the impact of the WACC uplift, a supplier choosing between a temporary (one-off) opex overspend and a capex overspend of the same amount, where its actual cost of capital is the midpoint vanilla WACC (rather than the 67th percentile).

8.   There are clearly differences between opex and capex cashflow profiles and how they are used by businesses in providing electricity lines services. Within opex there

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4   Unison Networks Limited "Submission on Input Methodologies Process and Issues Paper and Draft Framework Paper" (11 July 2022), p. 13.

5   Vector "Submission on the IM Review 2023 Process and Issues Paper" (11 July 2022), p. 10.

6   There is a question on which discount rate a supplier would use to compare and evaluate solutions. We have used the 67th percentile vanilla WACC as the discount rate in this analysis as this is the rate that is consistent with our previous illustrative IRIS models. In the associated model we allow interested parties to adjust the discount rates used (including in future periods), but we consider the WACC applying for DPP3 is an unbiased, ex-ante assumption of future discount rates.

are 'permanent' vs 'temporary' variances, whereas for capex, all variances are 'permanent'. The three scenarios are meant to illustrate the trade-offs that suppliers may make when substitutable opex and capex solutions are available, such as a choice between a network augmentation scheme or a demand reduction solution procured from a third party.

9.   The results from scenarios one and two indicate that for both temporary and permanent opex overspends, compared with a capex investment of equal value, regulated suppliers should be broadly financially neutral between choosing opex and capex solutions in terms of regulatory incentives (i.e., the allowances are substitutable without material financial impacts).

10.   The results from scenario three indicate that, if the supplier's actual cost of capital is below the allowed WACC, there will be lower incentives to control capex costs relative to opex.

Scenario 1: Choosing between a temporary (one-off) opex overspend and a capex overspend of the same amount.

11.   We start off by looking at the simple comparison of the incentive amounts from a temporary (ie, one-off) $100 opex overspend and a $100 capex overspend in the second year of DPP3. We consider a scenario where a supplier has the choice to spend on an opex solution or a capex solution of equal value (and assuming it has already spent up to its allowance).

12.   In relation to capex, we only look at the capex retention adjustment which applies a positive or negative incentive amount depending on whether the supplier has under- or overspent its allowance.[7]

13.   The temporary opex solution works through the opex IRIS as follows:

13.1   The supplier makes an overspend in the second year of DPP3 of $100. Therefore, the supplier has to bear this amount for five years after the overspend (six years in total). This is the penalty from the incremental overspend.

13.2   Because the opex IRIS looks at the incremental change from year to year, in the subsequent year (year three of DPP3) the incremental amount indicates a saving of $100 (ie, because it was a temporary overspend) which is carried forward for five years (six years in total). This is the benefit of the incremental saving.

13.3   The opex IRIS amounts are discounted at the WACC to provide the present value to a supplier (and consumers) of a saving or overspend and ensure that

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[7]   In assessing the penalties from a capex overspend, the capex wash-up is not relevant for comparisons with the opex IRIS amounts. The wash-up is required to ensure that suppliers recover the appropriate costs of a capex solution.

the sharing between suppliers and consumers (the retention factor) is maintained.[8] The 23.5% capex retention adjustment was set to equal the opex retention factor which is based on the time that savings are carried forward and the DPP3 WACC.

14. The incentive amount for the capex solution works as the retention factor multiplied by the capex overspend amount (to calculate the retention adjustment).

15. The results below demonstrate that there is approximate equivalence between incentive amounts (in present value terms).[9]

Table 1: $100 capex or opex overspend in year 2 of DPP3 and the NPV the supplier receives[10]

	NPV of overspend (PV 2021, WACC of 4.57%)	NPV that a supplier receives (as at 2021, WACC of 4.57%)
Opex incentive amount ($100 opex overspend)	$96	-$22.5
Capex retention adjustment ($100 capex overspend)	$96	-$22.0

Scenario 2: Choosing between a long-term opex solution overspend and a capex investment solution overspend (both with equal NPVs)

16. Scenario 1 has assumed that the timing and magnitude of the overspend between opex and capex is the same. However, different solutions may involve different expenditure timings (e.g., capex solutions tend to be larger value but less frequent, while opex solutions tend to be lower value but recurring frequently).

17. In scenario 2, a supplier has identified two options: a solution that involves spending a recurring amount of opex, or a capex investment solution now. Suppose that a supplier can choose between a 10-year opex solution of $100 per year (starting in year one of DPP3), or an alternative $825 capex investment also made in year one of DPP3. Both solutions solve the same problem and have the same NPV so, absent the Part 4 regulatory regime and all else being equal, a supplier should be financially indifferent between these solutions. Assume that the supplier has already spent up to its allowance prior to spending on one of these options.

18. The opex solution works through the IRIS mechanism as follows:

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[8] We can confirm this retention factor by looking at the proportion of the NPV of the total overspend that the supplier bears. The $100 overspend in the second year has a present value of -$95.6 in 2021 terms, discounted at the WACC rate of 4.57%. Taking the present value that the supplier bears gives us the retention factor that we apply for capex ($22.5/$95.6 = 23.5%).

[9] There is a small difference due to timing factors used in each calculation (commissioned assets are based on a mid-year commissioning assumption).

[10] The schemes are symmetrical, so the same values work for an over- or underspend.

18.1   The supplier makes a permanent opex overspend in the first year of DPP3 of $100. Therefore, the supplier has to bear this amount for five years after the overspend (six years in total).

18.2   The interaction between the opex IRIS and the future opex allowance set at the reset means that the $100 opex solution is incorporated into the opex allowance going forward.[11]

18.3   After 10 years (the assumed end of the solution), the supplier will effectively make a permanent 'saving' against its allowance (which had incorporated the overspend) of $100, which is carried forward for five years (six years in total).

18.4   These amounts are discounted at the WACC to estimate the retention adjustment borne by the supplier and consumers.

19.   The relevant incentive amount for the capex solution works as the retention factor multiplied by the capex overspend amount (to calculate the retention adjustment).

20.   The financial incentive outcomes are outlined below. The net present value of incentives amounts under the two solutions is similar. The business adopting the opex solution is slightly worse off under the opex solution.[12]

Table 2: In the first year of DPP3, choose between a $100 opex solution that continues for 10 years or a $825 capex solution[13]

	NPV of overspend (PV 2021, WACC of 4.57%)	PV that a supplier receives from incentive mechanisms (PV 2021, WACC of 4.57%)
Opex incentive amount ($100 overspend for 10 years)	$825	-$193.9
Capex retention adjustment ($825 capex overspend)	$825	-$189.6

Scenario 3: impact of the WACC uplift on choice of expenditure solutions

21.   As discussed in our recent staff working paper, there have been questions around the distortion that the WACC uplift may have on the equivalence between opex and capex incentives.[14]

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[11]   This assumes the use of a revealed actual cost approach to setting opex, such as base-step-trend.

[12]   There is a small difference due to timing factors used in each calculation (commissioned assets are based on a mid-year commissioning assumption).

[13]   The schemes are symmetrical so the same values would apply for an over- or underspend.

[14]   Commerce Commission "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'" (1 November 2022), paras 75-77.

22. To assess the impact of the WACC uplift on the financial incentives applying to a supplier we need to outline some additional assumptions in the analysis upfront. We assume that:

22.1 the supplier's actual cost of capital is the midpoint vanilla WACC (rather than the 67th percentile vanilla WACC that it earns on its RAB);

22.2 the NPVs of each solution are equal, as per scenario 2 (ignoring the impacts of the regulatory regime); and

22.3 the capex solution enters the RAB for the life of the asset (in the example in the model we use an example of a 10-year asset life, as per scenario 2).

23. For the capex solution, the supplier overspends its allowance by $100 in year two of DPP3 (there is also another opex solution with the same NPV). As above, the supplier bears the retention adjustment amount.

24. However, because the allowed WACC is higher than the midpoint, the supplier benefits from the difference in WACCs for the life of the asset (10 years). Therefore, when we look at the retention of the overspend for the capex solution, the supplier bears the negative retention adjustment amount but benefits from the uplift amount for the 10 years. In this scenario we discount using the midpoint vanilla WACC of 4.13% as we assume this to be the supplier's actual cost of capital. It still earns the 67th percentile WACC on capex investments (4.57%).

25. Using the assumptions outlined above, we can calculate the effective incentive amounts that a supplier would receive after taking into account the financial benefits of earning the WACC uplift on the asset in the RAB (assuming that the supplier's actual cost of capital is the midpoint vanilla WACC).

Table 3: $100 overspend in year two of DPP3 and the PV the supplier receives, including the impact of the WACC uplift[15]

	PV of overspend (PV 2021, WACC of 4.13%)	PV that a supplier receives from incentive mechanisms (PV 2021, WACC of 4.13%)
Opex incentive amount ($100 opex overspend)	$96	-$20.7
Capex retention adjustment ($100 capex overspend)	$96	-$22.4
Capex retention adjustment + benefit of WACC uplift ($100 capex overspend)	$96	-$19.0

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[15] In this scenario we discount using the midpoint vanilla WACC of 4.13% as we assume this to be the supplier's actual cost of capital. It still earns the 67th percentile WACC on capex investments.

26.   This indicates that, assuming a supplier's cost of capital is lower than the allowed vanilla WACC, there will be a lower relative incentive to reduce costs on capex solutions.

Longer term savings

27.   There have been concerns raised by suppliers around the expenditure incentive mechanisms and long-term opex and capex cost savings. This was also raised in submissions on the Process and Issues paper. Some submission points include:

27.1   Comments from Vector:[16]

IRIS does not incentivise suppliers to make investments where savings will only materialise in later regulatory periods nor investments that share costs and benefits across the value chain. This is a missed opportunity to better incentivise dynamic efficiency. Consumers would enjoy vastly more benefits from improvements to dynamic efficiency than cost savings in a particular regulatory period.

27.2   Comments from Wellington Electricity:[17]

Importantly, the IRIS does not allow a network to be rewarded for capex cost savings that may occur in future regulatory periods. While the IRIS is designed to make investment decisions agnostic about whether expenditure was made using opex or capex, the offsetting incentives and penalties only apply within the same regulatory period.

28.   We acknowledge that the IRIS mechanism is not able to address incentives to make savings that materialise beyond the IRIS carry-forward period. It may be difficult to implement solutions that address this problem because of a less obvious link between spending now and the resulting savings in future periods.[18]

29.   Our current incentive mechanisms do not go into this level of granularity as they work at an aggregated level. We welcome submissions with potential solutions to this issue that promote the overarching objectives for the IM Review and are workable within the DPP/CPP context.

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[16]   Vector "Submission on the IM Review 2023 Process and Issues Paper" (11 July 2022), p. 9.

[17]   Wellington Electricity "Submission on IM Review Process and Issues paper and draft Framework paper" (11 July 2022), p. 14.

[18]   Tracking the link between each project and corresponding savings that take effect long into the future for each EDB may be inconsistent with a DPP/CPP regime. Due to low scrutiny under a DPP (compared to a CPP), an approach of tracking specific savings may lead to 'cherry picking' of proposed projects that lead to higher allowances (and not disclosing projects that do not).