Review of IW’s IRC2 Operating Cost Performance

Commission for Regulation of Utilities

22 July 2019
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## Contents

Executive Summary .................................................................................................. i

1. **Introduction** ................................................................................................ 4

2. **Approach to Look-Back Review** ................................................................. 5
   2.1. CER’s Approach to Assessing Cost and Output Performance at Review in the Energy and Water Sectors ................................................................. 5
   2.2. CRU’s Decision at IRC2 ............................................................................... 6
   2.3. UK Water Regulatory Principles for Varying Allowed Revenues .................. 8
   2.4. Conclusions on Principles for K-Factor Adjustment....................................... 10

3. **Review of Operating Expenditure Allowance** ................................................. 11
   3.1. Overview of IRC2 Decision ........................................................................ 11
   3.2. Irish Water’s Operating Cost Efficiency Performance .................................... 13
   3.3. Consideration of k-Factor Adjustments .......................................................... 21
   3.4. Opex – Conclusions and Recommendations .................................................. 30

4. **Overall K-Factor Adjustments for IRC1 and IRC2 Revenue Adjustments** .................................................................................................................. 32
   4.1. K-Factor at IRC1 .......................................................................................... 32
   4.2. IRC2 Revenue Adjustments .......................................................................... 37
List of Tables

Table 1: Review of IRC2 Opex Allowance – Summary (€m, 2017 prices) ................. iii
Table 3.1: IW Operating Expenditure Allowance at IRC2 (2017-2019), (€m, 2017 prices) ................................................................. 13
Table 3.2: IW’s Actual and Forecast Operating Expenditure Over IRC2 (€m, 2017 prices) ................................................................. 13
Table 3.3: IRC2 Allowed, Outturn and Adjustment for Uncontrollable Opex (€m, 2017 prices) ................................................................. 22
Table 3.4: IRC2 Allowed, Outturn and Adjustment for Uncontrollable Opex (€m, 2017 prices) ................................................................. 23
Table 3.5: IRC2 Allowed, Outturn and Adjustment for GS and SSC (€m, 2017 prices) ................................................................. 25
Table 3.6: IRC2 Allowed, Outturn and Adjustment for TOM expenditure (€m, 2017 prices) ................................................................. 27
Table 3.7: IRC2 Allowed, Outturn and Adjustment for SLA expenditure (€m, 2017 prices) ................................................................. 29
Table 3.8: Review of IRC2 Opex Allowance – Summary (€m, 2017 prices) ............... 29
Table 4.1: Comparison of Irish Water IRC1 Opex Outturn, IRC1 Allowance and Re-stated Allowance (€m, 2017 prices) ......................... 31
Table 4.2: Comparison of IW Outturn, IRC1 Allowance and Re-stated Allowance: Capex (€m, 2017 Prices) ...................................................... 34
Table 4.3: Irish Water Proposed Variation in Revenue Arising from RAB Assumptions (€m, 2017 prices, PV Q4 2014) .............................................. 34
Table 4.4: Irish Water Proposes Variation of €128m (2017 prices, PV to 1 Jan 2017) .............................................................................. 35
Table 4.5: IW Proposes a Revenue Variation of €298 million (2017 prices) ............. 36
Table 4.6: Overall Net Adjustment (PV 1 Jan 2017) ............................................. 37
Table 4.7: IW Proposes a Revenue Variation of €44 million, Monies Owed to Customers (2017 Prices) .......................................................... 38
List of Figures

Figure 1: IRC2 Opex Efficiency Challenge (2017 - 2019) ...................................................... ii
Figure 2: Allowed vs Actual: Operating Expenditure (€m) and (%) ....................................... ii
Figure 2.1: At Recent Reviews, Ofwat Has Adjusted Allowances by 2-3 per cent On Average for Variations in Outputs ................................................................. 10
Figure 3.1: IW Proposed Opex €2,282m for 2017-2019 (2017 prices) .............................. 11
Figure 3.2: IRC2 Opex Efficiency Challenge (2017 - 2019) .................................................. 12
Figure 3.3: Allowed vs Actual: Operating Expenditure (€m) and (%) ............................... 14
Figure 3.4: IW’s Estimated Cost Efficiencies Equal Estimated Compliance Costs, With Total Opex Broadly Unchanged Over IRC2 ...................................................... 15
Figure 3.5: IW Realised Savings: Main items: “Payroll Costs” in 2017 and 2018, and “Optimisation of Goods and Services” ................................................................. 16
Figure 3.6: SEM Prices: Volatility in market prices makes it difficult to identify improvements in contract efficiency ................................................................. 17
Figure 3.7: Evolution of IW’s BP Submission, Allowed and Actual Opex ............................ 18
Figure 3.8: Opex per population served, € 2017 ................................................................. 19
Figure 3.9: Functional expenditure per population served, € 2017 .................................... 20
Figure 3.10: Allowed vs Actual: Uncontrollable Opex (€m, 2017 prices) .................... 21
Figure 3.11: Allowed vs Actual: Irrecoverable VAT & Insurance (€m, 2017 prices) ....... 22
Figure 3.12: Allowed vs Actual: Group and Shared Service Allocations (€m, 2017 prices) ........................................................................................................ 24
Figure 3.13: Allowed vs Actual: Target Operating Model (€m, 2017 prices) .................. 25
Figure 3.14: Allowed vs Actual: Target Operating Model by activity (€m) and (%) .......... 26
Figure 3.15: Allowed vs Actual: Service Level Agreements (€m, 2017 prices) ............. 28
Figure 3.16: Allowed vs Actual: Operations and Maintenance/SLAs by activity (%) and (€m) .............................................................................................................. 28
Figure 3.17: IW Cost Growth at IRC2 .............................................................................. 29
Executive Summary

The Commission for Regulation of Utilities (CRU) commissioned NERA Economic Consulting (NERA) and Jacobs (together “NERA Consortium”) to support CRU in assessing revenue, cost and output performance of Irish Water (IW) over the second interim revenue control (IRC2), which covers the period 2017 to 2019. The review of IW’s revenue, cost and output performance leads to a so-called k-factor determination by CRU where justified, which adjusts IW’s allowed revenues.

In this report, and consistent with CRU’s approach at IRC1, we do not recommend recognition of variations in expenditure related to normal business activities and risks. Such an approach would dampen incentives for IW to control such costs. There is also a risk that the recognition of such variations would be asymmetric, as IW has the incentive to highlight only changes in circumstances which resulted in an increase in costs and not bring to the attention to CRU changes in circumstances that result in a decrease in costs.

Rather, we recommend CRU follows the principles set out at IRC2. We summarise these as limiting variations in expenditure to pass-through costs and any costs not funded at review, e.g. either specifically identified or arising from legislation and/or changes to government policy; and, variations in outcomes or outputs delivered, which applies principally on the capital investment programme.

This report focuses on adjustments for IW’s opex performance, with a separate report by Jacobs, CRU’s technical consultants, reviewing IW’s IRC2 capex performance.

IW has broadly spent in line with its opex allowances over IRC2

The CRU final determination on IW’s efficient level of operating expenditure for IRC2, covering 2017 to 2019, was €2,045m (2017 prices). Based on a comparative benchmark of English and Welsh (E&W) utilities, for 2017 and 2018, the CRU determined a 5 per cent efficiency challenge per annum to IW’s controllable operating expenditure excluding Design Build Operate (DBO) costs. 1 The CRU applied the same efficiency challenge to the 2019 extension allowance,2 setting a total operating cost allowance approximately €237m lower for IRC2 than IW’s business plan submission, as set out in Figure 1.

Within this allowance, the CRU did not determine specific allowances for each item of operating cost, rather it determined an overall controllable opex allowance reflecting its view of the global achievable efficiency challenge, and leaving it to IW to optimise its expenditure efficiently within the overall spending limit.

As shown in Figure 1, IW has also broadly spent in line with CRU’s allowance.

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3 CER/16/342 (12 December 2016), Irish Water Second Revenue Control, p.114
Figure 1: IRC2 Opex Efficiency Challenge (2017 - 2019)

Source: NERA analysis of IW response to business plan questionnaire.
Note: 2019 outturn is IW’s forecast.

There are no material variations relative to allowance, other than uncontrollable

With exception of uncontrollable costs, there are no material under or overspends for the different areas relative to the expected expenditure for each area. Figure 2 identifies the percentage variation in expenditure for each of the main expenditure categories. Expenditure in service level agreements (SLA), which constitute around two-thirds of IW costs, was marginally above the expected level of expenditure. Shared service and irrecoverable VAT and insurance were also above expected expenditure. However, the higher spending in these categories was partially offset by lower spending in the target operating model (TOM), the organisation and systems to operate IW, and uncontrollable opex categories.

Figure 2: Allowed vs Actual: Operating Expenditure (€m) and (%)

Source: NERA analysis of IW BPQ look-back submission.

At an aggregate level, IW has very marginally missed CRU’s efficiency challenge set at review. However, it is reasonable to characterise its performance as having “broadly met” CRU’s expectations, given that outturn controllable expenditure is only 0.7 per cent above the allowance.
We recommend a k-factor reduction to reflect variation in uncontrollable opex only

Table 1 sets out our proposed variation in allowed opex for IW at IRC2. As shown, we propose a variation in allowance for uncontrollable or pass-through costs. However, we have not identified any other basis for allowing for a variation, e.g. in relation to changes in government policy or outputs. We accept that that IW incurred additional costs related to compliance, taking-in-charge, and excess usage charge but these were provided for by CRU in the roll-over year.

We recommend an overall net reduction in the allowance of €9 million to reflect lower levels of uncontrollable costs, which implies IW overspent its allowance by €15 million or 0.7 per cent of the allowance.

<table>
<thead>
<tr>
<th>Table 1: Review of IRC2 Opex Allowance – Summary (€m, 2017 prices)</th>
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<tbody>
<tr>
<td>IRC2 allowed (1)</td>
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<tr>
<td>------------------</td>
</tr>
<tr>
<td>SLA</td>
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<tr>
<td>TOM</td>
</tr>
<tr>
<td>Shared service centre</td>
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<tr>
<td>Group allocation</td>
</tr>
<tr>
<td>Irrecoverable VAT &amp; Insurance</td>
</tr>
<tr>
<td><strong>Total controllable opex</strong></td>
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<table>
<thead>
<tr>
<th>Uncontrollable:</th>
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<tbody>
<tr>
<td>Uncontrollable opex</td>
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<tr>
<td><strong>Total opex</strong></td>
</tr>
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</table>

Source: NERA analysis.
Note: Numbers may not sum due to rounding errors.
1. **Introduction**

The Commission for Regulation of Utilities (CRU) commissioned NERA Economics Consulting (NERA) and Jacobs (together “NERA Consortium”) to support CRU in assessing revenue, cost and output performance of Irish Water (IW) over the second interim revenue control (IRC2), which covers the period 2017 to 2019. The review of IW’s revenue, cost and output performance leads to a so-called k-factor determination by CRU where justified, which adjusts IW’s allowed revenues.

This report focusses on IW’s operating cost performance over IRC2. It also addresses IW’s proposed true-up of the k-factor for IRC1, covering opex, capex and revenue items. A separate technical report by Jacobs, CRU’s technical consultants, addresses IW’s capital investment and output performance over IRC2.4

The report is structured as follows:

- Section 2 discusses our approach to the review of IW’s revenue, cost and output performance, drawing on a review of IRC2 revenue determination, CRU’s principles for undertaking a k-factor assessment, and CRU’s approach at previous controls.
- Section 3 reviews IW’s operating cost performance over IRC2.
- Section 4 sets out the true-up required in relation to CRU’s earlier decision on k-factor for IRC1, and summarises recommendations on k-factor for IRC2 drawing on the earlier chapters, as well as IW’s submission on revenue items.

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2. Approach to Look-Back Review

As at IRC1 and in line with the agreed water sector regulatory framework, CRU intends to review IW’s actual revenue, cost and output performance over IRC2 and adjust IW’s IRC2 revenue allowance where justified. This is referred to as a “k-factor” adjustment.

In this section, we set out the principles against which we assess IW’s cost (opex, capex), output and revenue performance, and its overall k-factor submission. Our principles draw on a review of CRU’s approach to k-factor submission at IRC1 and in the energy sector, and CRU’s IRC2 determination where it set out the basis for a k-factor assessment. We also compare the approach taken by CRU to the approach by Ofwat, the water regulator for England and Wales.

2.1. CER’s Approach to Assessing Cost and Output Performance at Review in the Energy and Water Sectors

In the energy and water sectors, the CER has an established approach to reviewing expenditure and making adjustments. Recent decisions include:

- **Irish Water IRC1 K-factor adjustment.** For the IRC1 revenue control period 2014 (Q4) to 2016, the CRU allowed for variations in domestic and non-domestic revenues relative to forecast, and notably in relation to bad debt where CRU did not make an ex ante allowance given the absence of firm data at review. It also made variations to allow for changes to the subvention from Government. It also allowed for variations for non-controllable costs designated by CRU at IRC1 review, namely, licence and levies and commercial rates whereas it did not allow for variations in other opex lines where the risk was assumed to lie with IW.

- **Distribution revenue for ESB Networks Ltd (2015).** The CRU reviewed the outturn expenditure incurred by the DSO during the period 2011 to 2015. The outturn opex was €33m in excess of the allowance or around 3 per cent overspend, and the CRU decided to recognise the overspend in full. On the capex side, ESBN had a net overspend of around 5 per cent relative to the (revised) allowance. The CRU recognised the overspend, in the absence of any advice from its technical experts that it was inefficiently incurred.

- **Decision on TSO and TAO transmission revenue for 2016 to 2020.** The CRU Decision included an assessment of the capex and opex spend by the electricity TSO and the TAO for PR3 (2011-15). The outturn capex was €130 million lower than the CRU’s

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5 CER/14/076 (31 March 2014), Advice to the Minister on the Economic Regulatory Framework for the public water services sector in Ireland, p.4.
6 CER/16/342 (12 December 2016) Irish Water Second Revenue Control, p.146.
7 CER did not make any provision for bad debt costs, as DECLG provided a working capital facility to IW to cover bad debt costs during the interim review period but instead proposed to consider this at the end of the period. NERA (2015) IW Interim Review, p. 59
10 CER/15/295 (23 December 2015), Decision on DSO Distribution Revenue for 2016 to 2020, pp.56-57.
11 CER/15/295 (23 December 2015), Decision on DSO Distribution Revenue for 2016 to 2020, p.68.
allowance. The CRU determined that the underspend was largely due to the slower delivery of the capex programme than anticipated at review, and recovered the underspend through the k-factor adjustment. On the opex side, the TSO underspent the allowance and the TAO overspent. In both cases, the CRU allowed the submissions considering that in both cases it was “broadly efficiently incurred”.

In summary, our review suggests that the CRU has allowed for variations in revenue recovered that result in over- or under-recovery compared to revenue allowance for the following categories:

- Changes in rates and levies (i.e. uncontrollable costs)
- Costs which were not funded at review, e.g. bad debt costs for IRC1
- Costs associated with variation in the collection of revenues;
- Re-profiling of expenditure, that has resulted in a capex underspend against the delivery plan agreed with the CRU;

In addition, it appears that CRU has more generally recognised overspends for energy networks in the absence of any evidence that the overspends were the result of inefficiency, although the overspends have tended to be relatively small as a percentage of the allowance.

2.2. CRU’s Decision at IRC2

In this section, we identify the specific treatment of costs identified by CRU at IRC2.

2.2.1. CRU set a global efficiency challenge for opex

For opex, CRU set an efficiency challenge of 5 per cent per annum for the first two years of IRC2 relative to the base year expenditure (i.e. a 10 per cent cumulative reduction). It also assumed a 5 per cent level of efficiency for 2019. We discuss the efficiency challenge in more detail in section 3.1.

Within this allowance, the CRU did not determine specific allowances for each main category of operating cost, rather it determined an overall controllable opex allowance reflecting its view of the global achievable efficiency challenge, leaving it to IW to optimise its expenditure efficiently within the overall spending limit.

CRU also identified cost items as pass-through, namely, licence fees and levies and commercial rates. The CRU explicitly rules out treating irrecoverable VAT and insurance costs as uncontrollable pass-through items.

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12 CER/15/296 (23 December 2015), Decision on TSO and TAO Transmission Revenue for 2016 to 2020, p.61.
13 CER/15/296 (23 December 2015), Decision on TSO and TAO Transmission Revenue for 2016 to 2020, pp.61 & 66.
14 CER/15/296 (23 December 2015), Decision on TSO and TAO Transmission Revenue for 2016 to 2020, p.76 & pp. 75-78.
16 CER/16/342 (12 December 2016), Irish Water Second Revenue Control, p.114
17 CER/16/342 (12 December 2016), Irish Water Second Revenue Control, p.114
18 CER/16/342 (12 December 2016), Irish Water Second Revenue Control, p.114
For IRC1, CRU provided an innovation funding allowance (which was to be treated on a lose-it-or-use-it basis, akin to a cost pass-through up to the cap). The CRU also allowed IRC1 €4m allowance on approved innovation projects to extend beyond IRC1 if the allowance had not been fully spent. CRU has not identified such costs in its k-factor submission, and therefore we have not considered the case for a variation on this basis.

2.2.2. CRU set an efficiency challenge for uncommitted capex

At IRC2, CRU applied a 13.5 per cent efficiency challenge as a starting point to uncommitted capital expenditure, and a 5 per cent p.a. cumulative efficiency challenge for each of the years of 2017 and 2018 on uncommitted capital expenditure. For projects the efficiency challenge applied was dependent on the year in which the project was deemed to become committed. No efficiency challenge was applied to capital maintenance or IW’s network extension programmes.

2.2.3. CRU set an efficiency challenge for non-domestic bad debt

For revenue items, CRU decided to allow for non-domestic bad debt allowance of 5 per cent of revenues with IW incurring the full penalty or reward where it out (or under) performs against this target, up to a maximum penalty or reward of €4 million p.a.

2.2.4. Principles for governing k-factor adjustments

At IRC2, CRU also set out the principles that it would draw on in assessing IW’s k-factor submission, and permitting any variation. We summarise these principles as follows:

- Cost items that were explicitly treated as pass-through, namely, licence fees and levies and commercial rates.
- Variations in costs relating to the application or change to specified legal requirements or changes in government policy,
  - For example, changes to government policy regarding billing (as per discontinuation of domestic billing); changes to legislation to the extent it applies to IW; changes to discharge consents and abstraction licences.
- Cost items that were explicitly not allowed for in full, or at all, in setting revenues at IRC2.

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19 CER/16/342 (12 December 2016), Irish Water Second Revenue Control, p.41
21 CRU states: “An incentive payment will apply where Irish Water can reduce their bad debt to a level lower than the level set by the CER i.e. 9.39 per cent for IRC1 and 5 per cent for IRC2. A penalty will apply where Irish Water’s actual bad debt ends up being higher than the level set by the CER. The incentive, and corresponding penalty will be capped at €4m per annum for each of the associated revenue control periods”. CER (December 2016) Irish Water Second Revenue Control, CER/16/342, p. 125
22 CER/16/342 (12 December 2016), Irish Water Second Revenue Control, p.146.
23 CER/16/342 (12 December 2016), Irish Water Second Revenue Control, p.114
• Recognition for the costs associated with additional outputs not funded at review where the outputs are in the customer interest (referred to as “logging-up” by UK water regulators)
• A deduction for the costs associated with additional outputs funded at review but no longer required (referred to as “logging-down” by UK water regulators)
• Failure of a company to deliver an output, for which was funding provided at IRC1 (or referred to as “shortfalling”)

The CRU concluded that:24 “The CER does not intend to vary allowances for general business risk, consistent with a revenue cap regime. Such an approach provides high-powered incentives for regulated entities to manage risks and costs, and benefits consumers in terms of lower costs.”

2.3. UK Water Regulatory Principles for Varying Allowed Revenues

Ofwat’s price control framework includes a number of explicit mechanisms which mitigate risk of cost increases within the price control including:
• Interim Determination of K (IDoK); and
• Substantial Effects Determination.

2.3.1. Interim determination of K25

The Ofwat framework allows water companies to apply for a reset of their price limits between the regular five-yearly price reviews, referred to as an Interim Determination of K, in the event of specific changes leading to a material reduction in revenues and/or increase in costs. In the same way, Ofwat can seek to revise price limits if specified changes occur with a materially increase a company’s revenues and/or decrease its costs.

The specific changes which may lead to an IDoK include i) Relevant Changes of Circumstances (RCCs) or ii) Notified Items (NIs).

Relevant changes of circumstances are defined in companies’ licences and include:

i) RCC (1): A new or a changed legal requirement;
ii) RCC (2): Differences in proceeds of land disposals from those assumed at setting price limits; and
iii) RCC (3): Failure to achieve an output for which funding was provided at last review.

Notified Items reflect items which are not allowed for in full or at all in the price limits. Notified Items are set by Ofwat at the review. For PR14, Ofwat set two Notified Items: i) Water business rates; and ii) Thames Tideway Tunnel (TTT) Price Control (e.g. changes in

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24 CER/16/342 (12 December 2016), Irish Water Second Revenue Control, p.146
scope between Thames Water and the TTT Infrastructure Provider, unsuccessful procurement of the IP).

The application for an IDoK is subject to so called triviality and materiality thresholds. The revenues and costs associated with the sum of the qualifying IDoK items (i.e. those issues qualifying as an RCC or an NI, as identified in companies’ final determination) must exceed a materiality threshold of 10 per cent of the company’s turnover to qualify for an IDoK. Individual IDoK items for which the associated change in revenues costs does not exceed a triviality threshold of 2 per cent of the company’s turnover are not considered by Ofwat in the overall materiality test.26

2.3.1.1. Substantial effects determination27

Companies can also request Ofwat for a change in price limits if unforeseen circumstances which are beyond prudent management control result in a significant reduction in revenues and/or increase in costs (Significant Adverse Effect). Similarly, Ofwat may re-set price limits if unforeseen circumstances result in a significant increase in revenues and/or reduction in costs (Significant Favourable Effect).

The Substantial Effects Determination is applicable in a wider set of circumstances than the specific conditions defined for IDoKs and is subject to a higher materiality threshold of 20 per cent of the company’s turnover.

2.3.2. Revisions at review

At review, Ofwat also requires companies to set out variations in outputs and serviceability (i.e. the performance of the asset base, such as number of network outages), and corresponding adjustments to the RAB and allowed revenues over the following regulatory period.28

These adjustments relate to logging-up (outputs that were in the customer interest, but not funded at review; logging-down (outputs that were funded at review but no longer required); and shortfalling (outputs that should have been delivered but the company has failed to do so)

Over the past two reviews, Ofwat imposed an average net deduction of the order of 2-3 per cent of companies’ allowed capital expenditure for these factors.

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27 http://www.ofwat.gov.uk/regulated-companies/price-review/substantial-effect-determinations/

Figure 2.1: At Recent Reviews, Ofwat Has Adjusted Allowances by 2-3 per cent On Average for Variations in Outputs

Source: NERA analysis of company data.

2.4. Conclusions on Principles for K-Factor Adjustment

Broadly, our review of the CRU’s approach to determining k and Ofwat’s application of interim determinations, and adjustments at review set out draw on a similar set of principles.

In this report, and consistent with the approach adopted at IRC1, we do not recommend recognition of variations in expenditure related to normal business activities and risks. Such an approach would dampen incentives for IW to control such costs. There is also a risk that the recognition of such variations would be asymmetric, as IW has the incentive to highlight only changes in circumstances which resulted in an increase in costs and not bring to the attention to CRU changes in circumstances that result in a decrease in costs.

We recommend CRU follows the principles set out at IRC2, as described in section 2.2.4 above. In summary, we recommend CRU to limit any variations in expenditure to pass-through costs and any costs not funded at review, e.g. either specifically identified or arising from legislation etc.; and, variations in outcomes or outputs delivered (mainly on the capex side).

At recent energy sector reviews, CRU has also recognised variations in opex and capex costs where its technical advisers have considered the variation to be efficient; in general, these variations have been relatively small as a percentage of the allowance.

Our recommended approach recognises that IRC2 is an incentive-based regime, where IW bears risk on cost performance other than for those factors designated as pass-through etc at review.
3. **Review of Operating Expenditure Allowance**

This chapter provides an assessment of IW’s outturn operating expenditure performance against the allowances determined by the CRU at IRC2. Initially, the CRU allowance for IRC2 covered 2017 and 2018 only. After the Water Services Act 2017, the CRU extended the IRC2 period until 2019 and determined an additional allowance for 2019.

This chapter is structured as follows:

- Section 3.1 provides an overview of IRC2 decision on operating costs
- Section 3.2 provides a review of IW’s operating cost performance
- Section 3.3 provides a detailed consideration of costs by area, and identifies any claims for cost variation
- Section 3.4 draws conclusions

### 3.1. Overview of IRC2 Decision

Figure 3.1 sets out IW’s opex business plan submission for IRC2, including the period 2017 to 2018 and the extension submission for 2019. As evidenced in Figure 3.1, the largest proportion of opex is for payments under the service level agreements (SLA) with Local Authorities. Taking the 3-year IRC2 period, SLA’s account for 71 per cent of opex.

**Figure 3.1: IW Proposed Opex €2,282m for 2017-2019 (2017 prices)**

![Pie chart showing opex distribution](chart)

Based on a comparative benchmark of E&W utilities, for 2017 and 2018, the CRU decided on a 5 per cent efficiency challenge per annum to IW’s controllable operating expenditure excluding Design Build Operate (DBO) costs. The CRU applied the same efficiency challenge to the 2019 extension allowance, setting a total operating cost allowance.

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approximately €237m lower for IRC2 than IW’s business plan submission, as set out in Figure 3.2.

As shown, and as discussed in more detail in this chapter, IW has also broadly spent in line with CRU’s allowance.

**Figure 3.2: IRC2 Opex Efficiency Challenge (2017 - 2019)**

![Graph showing IRC2 Opex Efficiency Challenge](image)

Source: NERA analysis of IW response to business plan questionnaire.
Note: 2019 outturn is IW’s forecast.

The CRU final determination on IW’s efficient level of operating expenditure for IRC2, covering 2017 to 2019, was €2,045m (2017 prices). Within this allowance, the CRU did not determine specific allowances for each item of operating cost, rather it determined an overall controllable opex allowance reflecting its view of the global achievable efficiency challenge\(^{33}\), and leaving it to IW to optimise its expenditure efficiently within the overall spending limit.

### 3.1.1. Reconciliation of IW Look-back and IRC2 Decision

Table 3.1 shows CRU allowance for IRC2 and IW look-back financial model submission. As shown, the CRU allowance and IW stated allowance reconcile at total opex once we deduct domestic billing costs from CRU’s allowance reflecting the discontinuation of domestic charges. The amounts deducted were €19m for 2017 and €18m for 2018. As shown, IW’s submission provides an allocation of all expenditures to its functional areas, whereas CRU’s decisions made a separate categorisation.

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\(^{33}\) CER/16/342 (12 December 2016), Irish Water Second Revenue Control, p.114
Table 3.1: IW Operating Expenditure Allowance at IRC2 (2017-2019), (€m, 2017 prices)

<table>
<thead>
<tr>
<th>CRU stated allowance (at IRC2)</th>
<th>IW stated allowance (as per look-back financial model)</th>
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<tbody>
<tr>
<td>SLA</td>
<td>1549</td>
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<tr>
<td>TOM</td>
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<tr>
<td>Total opex</td>
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3.2. Irish Water’s Operating Cost Efficiency Performance

In this section, we provide an overview of IW’s stated performance, including its own view on improvements in cost performance. We also set out our own analysis of its efficiency improvement, drawing on time-series analysis.

3.2.1. Irish Water opex is in line with allowance

Table 3.2 sets out IW’s opex actual expenditure compared to the CRU allowance. IW has provided actual expenditure numbers for the period from January 2017 to September 2018, and forecasts for the remaining period to December 2019.

Table 3.2: IW’s Actual and Forecast Operating Expenditure Over IRC2 (€m, 2017 prices)

<table>
<thead>
<tr>
<th></th>
<th>2017 opex (outturn)</th>
<th>2018 opex (outturn / forecast)</th>
<th>2019 opex (forecast)</th>
<th>Total expenditure</th>
<th>CRU allowance</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLA</td>
<td>526</td>
<td>517</td>
<td>515</td>
<td>1559</td>
<td>1549</td>
</tr>
<tr>
<td>TOM</td>
<td>89</td>
<td>107</td>
<td>105</td>
<td>301</td>
<td>310</td>
</tr>
<tr>
<td>Shared service centre</td>
<td>22</td>
<td>25</td>
<td>25</td>
<td>72</td>
<td>64</td>
</tr>
<tr>
<td>Group allocation</td>
<td>18</td>
<td>14</td>
<td>15</td>
<td>46</td>
<td>46</td>
</tr>
<tr>
<td>Irrecoverable VAT &amp; Insurance</td>
<td>19</td>
<td>19</td>
<td>22</td>
<td>59</td>
<td>53</td>
</tr>
<tr>
<td>Controllable opex</td>
<td>674</td>
<td>682</td>
<td>680</td>
<td>2036</td>
<td>2021</td>
</tr>
<tr>
<td>Uncontrollable opex</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>14</td>
<td>23</td>
</tr>
<tr>
<td>Total opex</td>
<td>678</td>
<td>686</td>
<td>686</td>
<td>2051</td>
<td>2045</td>
</tr>
</tbody>
</table>

Source: IW submission on outturn expenditure.
Note: IW reports 2019 opex as identical to the allowance.

At an aggregate level, IW broadly spent in line with the opex allowances determined by the CRU. IW’s total opex is around €6m higher than CRU’s allowance of €2045m, a variation of only 0.3 per cent. Excluding uncontrollable opex, IW’s controllable opex is €15 m higher or 0.7 per cent higher than the allowance.
Figure 3.3 identifies the percentage variation in expenditure for each of the main expenditure categories. Expenditure in SLA was marginally above the SLA allowance. Shared service and irrecoverable VAT & Insurance were also above allowance. However, the higher spending in these categories was partially offset by lower spending in the TOM and uncontrollable opex categories.

**Figure 3.3: Allowed vs Actual: Operating Expenditure (€m) and (%)**

Source: NERA analysis of IW BPQ look-back submission.

At an aggregate level, IW has very marginally missed CRU’s efficiency challenge set at review. However, it is reasonable to characterise its performance as having “broadly met” CRU’s expectations, given that outturn controllable expenditure is only 0.7 per cent above the allowance.

### 3.2.2. IW’s explanation of cost performance

In this section, we provide an overview of IW’s view of its improvement in cost efficiency during IRC2. IW identifies cost efficiency improvements of €30 million p.a. over IRC2, almost entirely off-set by an increase in compliance costs of €29 million p.a., leaving total controllable opex over the period largely constant in real terms as explained above and shown in Figure 3.4.34

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34 IW(November 2018), Irish Water Revenue Control 3 submission, operational expenditure, look-back, p. 16.
The €30 million p.a. average improvement opex efficiency stated by IW represents 4.4% of baseline controllable cost. The largest share of the improvement concerns labour costs at around one-third. According to IW, the improvement in labour cost efficiency arises from greater rationalisation, consolidation and utilisation of LA staff. The optimisation of goods and services, e.g. in relation to fleet and plant hire, chemicals and maintenance contracts, also comprised around one-third of the improvement. The other major efficiency improvement is energy cost savings, e.g. through a national energy contract with lower unit costs, which comprised around one-sixth. Finally, IW also states that it realised €2 million p.a. on average improvement in DBO cost performance over the period, although these costs were exempt from the CRU efficiency challenge as they were considered outside of management control. The particular improvements in employment, contracted services and materials reflects the dominance of these costs in its cost base, as we describe below in our own analysis of the cost performance of IW.

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IW(November 2018), Irish Water Revenue Control 3 submission, operational expenditure, look-back, p. 17.
IW(November 2018), Irish Water Revenue Control 3 submission, operational expenditure, look-back, p. 17.
The energy cost savings were around €5 million p.a. on average. Irish Water (November 2018) Irish Water Revenue Control 3 submission, operational expenditure, look-back, p. 17.
IW(November 2018), Irish Water Revenue Control 3 submission, operational expenditure, look-back, p. 19
While the description of the areas of improved cost efficiency is helpful in understanding IW’s performance over IRC2, there is inherent uncertainty in IW’s estimates. By IW’s approach, the implied cost saving must equal the compliance cost increase, plus any assumed (small) variation in base controllable costs.\footnote{See Table 3.1 of opex look-back.} To take an example, if IW identified a further €10 million in compliance costs over the period, this would have implied a further improvement in efficiency performance of €10 million as a matter of mathematics.

In some areas, it may be easier to identify the real efficiency improvement, e.g. payroll costs and DBO contract costs, both of which can be compared to prior periods (i.e. time-trend analysis). However, other elements of IW’s stated efficiency savings are conceptually more difficult to estimate. To take an example, IW estimates energy cost savings which represent €16 m of the assumed €90 million total or around 20 per cent of its total improvement over IRC2. In this case, IW identifies both an improvement in unit cost (through the negotiation of a national contract with “lower unit rates”), as well as identifying a number of initiatives which have reduced volumes.\footnote{IW (November 2018), Irish Water Revenue Control 3 submission, operational expenditure, look-back, pp. 18-19} However, the reduction in unit costs will reflect market movements as well as any improvements in contracting efficiency per se. As show in Figure 3.6, Single Electricity Market (SEM) market prices are volatile which makes it difficult to separate improved contract efficiency from changes in market prices. Likewise, the reduction in volumes needs to identify the reduction holding existing service levels constant, and exclude the increase in energy consumption arising from the capital investment programme, which requires an expert judgement given absence of time-series data on energy costs for constant service levels.
The identification of elements of “compliance, growth and external” costs is equally difficult. For example, the “delta opex” associated with improved customer and environmental compliance can potentially be identified by the opex associated with new schemes, as estimated in the Project Costing Tool (PCT). We understand the estimates for delta opex are net of the opex associated with any existing assets, but which will depend on estimates of existing opex given the absence of detailed opex data by asset. 41

3.2.3. Our view on efficiency improvement over IRC2

An alternative way to consider IW’s cost performance is to examine the trend over time and progress to achieving the efficient cost levels of comparable utilities. Our approach to considering IW’s performance, based on the trend in overall costs, is in line with CRU’s approach to setting efficiency challenges at review. At review, CRU has focussed on a challenging yet realisable improvement in unit costs to ensure IW is on a path to achieving the cost levels of its peers over a reasonable time-frame, and where the trend reduction is based on the cost trends achieved by comparators, namely NIW and SW which also faced increasing cost pressures from compliance. That is, CRU has focussed on identifying the required net reduction in costs rather than distinguishing the gross efficiency and the offsetting increase in compliance costs separately.42

We set out our view of IW’s cost performance over time, including IRC1 and IRC2.

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42 CER/16/342 (12 December 2016), Irish Water Second Revenue Control 2017-2018, pp.58-59. “For IRC2 the CER has decided to impose a 5% per annum efficiency challenge across Irish Water’s controllable operating costs for 2017 and 2018, with the exception of Design Build Operate (DBO) costs. The CER does not specify exactly where these savings are to be made across the business and its decision does not insist that Irish Water achieve 5% per annum saving in each individual cost area, but rather that its total savings over the period amount to 5% per annum cumulatively from its 2016 submitted controllable operating costs.”
3.2.3.1. Irish Water’s opex has declined over time despite upward pressure from compliance costs

In this section, we review IW’s progress in reducing its operating costs in aggregate and at functional area expenditure level. The analysis covers the period since IRC1 to date. We also consider IW’s progress towards achieving an efficient level of opex costs over the long-term, comparing its cost levels to UK comparators.

Figure 3.7 shows IW’s business plan submission, allowed expenditure and actual expenditure over time. As shown, IW’s outturn expenditure is broadly in line with the allowance, and materially below its business plan submissions. There is also a discernible decline in expenditure over IRC1 and IRC2 despite upward pressure on costs from improved compliance, as discussed in section 3.2.

![Figure 3.7: Evolution of IW’s BP Submission, Allowed and Actual Opex](image)

*Sources: NERA analysis of IW BPQ submission.*

We have also compared IW to comparable water utilities. Figure 3.8 shows the evolution of IW’s total and controllable opex against UK comparators on a per population served basis. In analysing IW’s cost performance, we compare IW’s costs to Scottish Water (SW) and Northern Ireland Water (NIW) in their initial years of development (comparing costs based on an equivalent number of years since the introduction of incentive-based regulation). For the E&W water and sewerage companies (WaSCs), we present the average cost per population served for 2010 (the last year for which we have data by functional area reported on a consistent basis). Given the greater maturity of the E&W utilities at the time, this can be viewed as a long-run efficient benchmark.

As shown in Figure 3.8 below, IW has made some progress in reducing costs over time, with a step improvement in IRC2 cost performance compared to IRC1. Our analysis shows that IW’s controllable opex is around 4 per cent lower over IRC2 relative to the latter two full years of IRC1.43

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43 Over the period, CRU has required a reduction of around 20 per cent in controllable opex (excluding DBOs) by the end of 2018, relative to the 2015 period.43 Over IRC1, CRU expected IW to deliver a 7 per cent improvement in the years 2015 and 2016. The IRC2 decision required a 5 and 10 per cent cumulative decrease in each of its first two years.
The level of IW’s costs (on the basis of the simple unit cost metric) continue to be above the average opex per population of NIW and SW at both a comparable stage as well as their respective longer-term levels. IW’s costs remain above the long run level achieved by water and sewerage companies in E&W.

However, we fully accept that this simple unit cost analysis does not allow us to draw any firm conclusions on the level of respective costs, but it is instructive in examining the rate of change compared to others. The Figures show that, while IW has achieved a step reduction in costs, the rate of improvement in unit costs for IW has not been as pronounced as the reduction achieved by SW and NIW at a comparable stage.

**Figure 3.8: Opex per population served, € 2017**

Sources: NERA analysis of Ofwat June returns, IW financial model, SW annual reports and NIW annual reports.

Notes:
1) For SW, we show costs since 2002; for NIW we show costs from 2007.
2) For E&W water companies, we show industry average as of 2010, the latest data available from Ofwat published June returns which contains this functional breakdown.

Figure 3.9 provides a similar comparison for functional expenditure categories and demonstrates some progress of IW on employment costs, hired and contracted services, and materials, whereas IW’s energy costs are broadly constant over time. One reason why energy costs may not have fallen to the extent of other costs is because of the substantive investment in environmental quality and drinking water improvements, which increase power costs. Indeed, IW’s energy costs are low comparably to NIW and E&W, and we may expect them to increase over time as environmental performance continues to improve.44

We caution against too much emphasis on the comparison of costs at disaggregated level, as the comparisons will be distorted by differences in cost reporting and cost allocation rules, as well as the business model, e.g. balance of outsourcing relative to in-house. A comparison of unit costs at the operational cost level is much firmer. For example, we find that IW performs comparatively well on the “other controllable” cost category, which implies that we have allocated a higher proportion of IW’s costs to the four core functional areas. The consequence of allocating higher proportion to the functional areas disadvantages IW in these

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44 The comparison on energy costs may also be affected by how DBO energy costs are allocated. We assume the DBO related energy costs are included within DBO contract costs, and therefore energy costs are understated.
areas, i.e. we may be overstating IW’s inefficiency in employers, hired and contracted services etc.45

**Figure 3.9: Functional expenditure per population served, € 2017**

Sources: NERA analysis of Ofwat June returns, SW annual reports, NIW annual reports, and IW financial model.

45 For example, IW performs worse than other UK water utilities in employment costs, hired and contracted services and materials and consumables. On the other hand, IW performs better than most of UK water utilities in power and other controllable costs. The analysis in the four core functional areas may therefore be to IW disadvantage because there are potential costs included in these four categories for IW while for the other utilities the same costs are included in other controllable costs. Due to divergences in cost reporting by each utility, it is difficult to ensure all costs are on a comparable basis.
3.3. Consideration of k-Factor Adjustments

In this section, we consider the grounds for recognising any variation in expected expenditure relative to CRU’s IRC2 allowance by expenditure category. We first consider the variation in costs by expenditure category. We then consider IW’s analysis of higher “compliance, growth and external costs”.

3.3.1. Comparison of Expenditure Outturn vs Allowance By Category

3.3.1.1. Uncontrollable opex (allowed €23.3m, outturn €14.4m)

Figure 3.10: Allowed vs Actual: Uncontrollable Opex (€m, 2017 prices)

Note: During IRC2 IW did not have to pay rates.
Source: NERA analysis of IW BPQ look-back submission.

The CRU designated “licences & levies” and “commercial rates” as expenditures outside IW’s control.46 Based on these two items, IW reports an underspend of €8.9m (38 per cent) in uncontrollable costs:

- **Licences and levies** comprise the CRU levy and EPA licence fees for which IW has limited control. Outturn expenditure over IRC2 was €8.9m lower than allowed for at the CRU’s decision.

- **Commercial rates** reflect the fees that IW must pay to the local authorities. IW was not required to pay these fees during IRC2.

In line with CRU IRC2 decision to treat these two items as uncontrollable and therefore cost pass through, we recommend that cost variations relating to the two uncontrollable expenditure lines are recognised in full, i.e. a reduction in the opex allowance of -€8.9m. We summarise our recommendations for the recognition of cost variations in Table 3.3 below.

46 CER/16/342 (12 December 2016), Irish Water Second Revenue Control 2017-2018, p64.
Table 3.3: IRC2 Allowed, Outturn and Adjustment for Uncontrollable Opex (€m, 2017 prices)

<table>
<thead>
<tr>
<th></th>
<th>Allowed</th>
<th>Outturn</th>
<th>Difference (Outturn-Allowed)</th>
<th>Recommended cost variation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rates</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Licences &amp; Levies</td>
<td>23.3</td>
<td>14.4</td>
<td>-8.9</td>
<td>-8.9</td>
</tr>
<tr>
<td>Uncontrollable opex</td>
<td>23.3</td>
<td>14.4</td>
<td>-8.9</td>
<td>-8.9</td>
</tr>
</tbody>
</table>

Source: NERA analysis.

3.3.2. Irrecoverable VAT & Insurance (allowed €52.6m, outturn €58.7m)

During IRC1, the CRU decided that irrecoverable VAT and insurance costs should not be considered as an uncontrollable cost, in line with the CRU decision for electricity and gas. The CRU maintained this decision for IRC2.47

Figure 3.11 compares allowed and actual costs for irrecoverable VAT and insurance.

**Figure 3.11: Allowed vs Actual: Irrecoverable VAT & Insurance (€m, 2017 prices)**

Source: NERA analysis of IW BPQ look-back submission.

IW reports and overspend of €0.3m (2 per cent) in irrecoverable VAT and €5.8m (15 per cent) in insurance:

- **Irrecoverable VAT** relates to the VAT of all costs except allocations from Ervia Group and the Shared Services centre. IW reports an irrecoverable VAT consistent with the CRU determination.

- **Insurance** category reports an overspend related to the CRU allowance.

In relation to insurance, IW explains that it anticipated higher claims in IRC2 relative to IRC1. It also notes that in December 2016, it decided that it was more cost effective to move

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from a centralised combined IW/LA approach to a Self-Insured Retention (SIR) model where IW self-insures.48 IW notes a number of initiatives where it aims to reduce costs (e.g. close working with the business to identify areas of claims cost), and has stated that it ensures externally provided insurance offers value-for-money, e.g. through use of brokers.49 Finally, IW observes costs increased because of statutory inspections programmes during IRC2 which fall into the category of insurance.50

Based on the principles applied at IRC1, we consider that these costs do not qualify for variation under the principles set out in section 2.4, and relate to normal business risk. Therefore, we do not recommend an adjustment to the original expenditure allowance set by the CRU, as summarised in Table 3.4 below.

Table 3.4: IRC2 Allowed, Outturn and Adjustment for Uncontrollable Opex (€m, 2017 prices)

<table>
<thead>
<tr>
<th></th>
<th>Allowed</th>
<th>Outturn</th>
<th>Difference (Outturn-Allowed)</th>
<th>Recommended cost variation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irrecoverable VAT</td>
<td>12.9</td>
<td>13.2</td>
<td>0.3</td>
<td>-</td>
</tr>
<tr>
<td>Insurance</td>
<td>39.7</td>
<td>45.5</td>
<td>5.8</td>
<td>-</td>
</tr>
<tr>
<td>Irrecoverable VAT &amp; Insurance</td>
<td>52.6</td>
<td>58.7</td>
<td>+6.1</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Source: NERA analysis.

3.3.3. Group centre and shared service centre (allowed €109.7m, outturn €118.0m)

Figure 3.12 shows the allowed and actual expenditures for group and shared service cost areas.

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48 IW (November 2018), Irish Water Revenue Control 3 submission, operational expenditure, look-back, p. 13.
49 IW (November 2018), Irish Water Revenue Control 3 submission, operational expenditure, look-back, p. 13.
50 IW (November 2018), Irish Water Revenue Control 3 submission, operational expenditure, look-back, p. 25.
IW reports an overspend on shared services of €8.1m (13 per cent) and of €0.3m (1 per cent) in group allocation:

- **Shared services** cover finance, procurement, facilities, HR and IT. IW reports an increase in activity level to explain the rise in outturn costs. For example, the IRC2 submission outlined that shared services supported 3,000 users of Asset Management applications which has now increased to ca. 5,700.51

- **Group allocation**, a category outlined by IW as critical in supporting critical business projects, shows a minor change in outturn costs relative to allowed.

The cost of these centres are shared with Gas Networks Ireland (GNI), based on a 65:35 split between IW and Gas Networks Ireland. This split was determined by Ervia based on activity levels and the relative size of the network.52 From our discussions with IW, we understand that Ervia has continued to allocate costs on the same basis through IRC2, resulting in a similar 65:35 cost share. The retention of identical rules for cost allocation seems to be the correct approach to allow for a comparison with the basis for the allowance.53

Although we acknowledge that shared services is supporting greater activities/volumes, these additional activities are within management control and designed to reduce costs elsewhere, e.g. increasing use of IT should improve labour cost efficiency, and would have been anticipated by IW at the last review. Similarly, the greater role of the Group services would have been anticipated at review.

We therefore consider the variation in costs as a normal business risk and do not recommend that these are passed-through, as summarised in Table 3.5 below.

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51 IW (November 2018), Irish Water Revenue Control 3 submission, operational expenditure, look-back, p. 12; p.25
Table 3.5: IRC2 Allowed, Outturn and Adjustment for GS and SSC (€m, 2017 prices)

<table>
<thead>
<tr>
<th></th>
<th>Allowed</th>
<th>Outturn</th>
<th>Difference</th>
<th>Recommended cost variation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shared service centre</td>
<td>63.6</td>
<td>71.6</td>
<td>8.1</td>
<td>0</td>
</tr>
<tr>
<td>Group allocation</td>
<td>46.1</td>
<td>46.4</td>
<td>0.3</td>
<td>0</td>
</tr>
<tr>
<td>SS and GC</td>
<td>109.7</td>
<td>118.0</td>
<td>+8.3</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: NERA analysis.

3.3.4. Target Operating Model (allowed €310.3m, outturn €300.9m)

Figure 3.13 and Figure 3.14 summarise the IRC1 allowance and expected expenditure for the TOM expenditure area.

Figure 3.13: Allowed vs Actual: Target Operating Model (€m, 2017 prices)

Note: Only costs above €8m are identified in the Figure.
Source: NERA analysis of IW BPQ look-back submission.
3.3.4.1. Summary of Irish Water Target Operating Model expenditure submission

IW reports an underspend of €9.4m (3 percent) on the implementation of its TOM. Savings in labour are approximately €5.5m (3.3 per cent) and in non-labour €3.9m (2.7 per cent). Finance has the higher overspend of €6.7m (43 per cent) and Marketing the largest savings of €7.4m (41 per cent).

In its “compliance, growth and external” cost analysis, Irish Water explains that an increase in TOM permanent headcount has resulted in an increase in costs of €15m. However, IW also reports an overall underspend on TOM, including an underspend on labour. IW has not provided any detail on the reasons for the increase or decrease in TOM category costs; instead it has focused its analysis on the increase in “compliance” costs which may cut-across TOM costs as we discuss below.

We do not recommend any adjustment to the original expenditure allowance set by the CRU, as summarised in Table 3.6 below. However, we consider any case for a cost allowance variation in our discussion of “compliance, growth and external” costs.

Source: NERA analysis of IW BPQ look-back submission.

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IW (November 2018), Irish Water Revenue Control 3 submission, 2017-19 look back, p. 23
### Table 3.6: IRC2 Allowed, Outturn and Adjustment for TOM expenditure (€m, 2017 prices)

<table>
<thead>
<tr>
<th></th>
<th>Allowed</th>
<th>Actual</th>
<th>Difference (Outturn-Allowed)</th>
<th>Recommended cost variation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Operations</td>
<td>87.2</td>
<td>86.1</td>
<td>-1.0</td>
<td>-</td>
</tr>
<tr>
<td>Operations &amp; Maintenance</td>
<td>51.7</td>
<td>53.3</td>
<td>1.6</td>
<td>-</td>
</tr>
<tr>
<td>Facilities</td>
<td>27.5</td>
<td>24.2</td>
<td>-3.3</td>
<td>-</td>
</tr>
<tr>
<td>IT</td>
<td>19.7</td>
<td>19.5</td>
<td>-0.2</td>
<td>-</td>
</tr>
<tr>
<td>Marketing</td>
<td>18.2</td>
<td>10.8</td>
<td>-7.4</td>
<td>-</td>
</tr>
<tr>
<td>Finance</td>
<td>15.6</td>
<td>22.3</td>
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<td>-</td>
</tr>
<tr>
<td>Asset Management</td>
<td>18.6</td>
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<tr>
<td>Central Cost</td>
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<td>-</td>
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<tr>
<td>Human Resources</td>
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<td>12.5</td>
<td>-1.2</td>
<td>-</td>
</tr>
<tr>
<td>Environmental and WIOF Interface</td>
<td>11.2</td>
<td>10.9</td>
<td>-0.3</td>
<td>-</td>
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<tr>
<td>Technical Advisory</td>
<td>9.7</td>
<td>8.9</td>
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<td>-</td>
</tr>
<tr>
<td>Communications &amp; Corporate Services</td>
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<td>-1.4</td>
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<tr>
<td>Business Change</td>
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</tr>
<tr>
<td>Regulation</td>
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<td>4.5</td>
<td>-0.5</td>
<td>-</td>
</tr>
<tr>
<td>Legal</td>
<td>4.5</td>
<td>4.2</td>
<td>-0.3</td>
<td>-</td>
</tr>
<tr>
<td>Commercial and Procurement</td>
<td>3.0</td>
<td>1.8</td>
<td>-1.3</td>
<td>-</td>
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<td>Secretariat</td>
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<td>0.0</td>
<td>-0.6</td>
<td>-</td>
</tr>
<tr>
<td>Asset Delivery</td>
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<td>-</td>
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<tr>
<td>Capital Delivery</td>
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<td>HSQE</td>
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<tr>
<td><strong>Target Operating Model</strong></td>
<td><strong>310.3</strong></td>
<td><strong>300.9</strong></td>
<td><strong>-9.4</strong></td>
<td><strong>0</strong></td>
</tr>
</tbody>
</table>

*Source: NERA analysis.*

#### 3.3.5. Service level agreements or O&M (allowed €1,548.6m, outturn €1,558.7m)

Figure 3.15 and Figure 3.16 set out IW’s cost allowance and expected expenditure for SLA costs.
IW reports an overspend of €10.1m (1 per cent) above the IRC2 allowance. IW reports:

- **Payroll** costs, which concern staff working in SLA and DBO, were €5.2m (1 per cent) below the allowance.
- **Goods & Services** is the expenditure item where IW performs the worse within SLAs, with an overspend of €29m (8 per cent). This cost refers to expenditures in the necessary materials and services for IW to maintain and operate its water and wastewater systems.
- **DBO** operating costs comprise the contract operating costs due to external suppliers. In this category, IW derives €7.1m (2 per cent) savings relative to the allowance.
- **Central Management Costs** actual expenditure is €6.7m (1 per cent) above the allowance. This expenditure refers to the costs local authorities bear for supporting the SLAs, and the overspend already includes IW expected €9m of savings (shared with overheads) through “benchmarking and targeted reviews” with the local authorities.

---

- **Energy** costs, the cost of operating the network, allowed €10.4m (6 per cent) in savings relative to the allowance.

- **Overhead** costs, which include transport, training and telecommunication costs, were €2.9m (5 per cent) below the allowance.

As with other cost areas, we do not recommend any adjustment for O&M/SLA costs as summarised in Table 3.7 below. Instead, we consider the case for an adjustment based on its “compliance, growth and external” part of its submission.

**Table 3.7: IRC2 Allowed, Outturn and Adjustment for SLA expenditure (€m, 2017 prices)**

<table>
<thead>
<tr>
<th></th>
<th>Allowed</th>
<th>Actual</th>
<th>Difference (Outturn-Allowed)</th>
<th>Recommended cost variation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payroll</td>
<td>459.4</td>
<td>454.3</td>
<td>-5.2</td>
<td>-</td>
</tr>
<tr>
<td>Goods &amp; Services</td>
<td>357.0</td>
<td>385.9</td>
<td>29.0</td>
<td>-</td>
</tr>
<tr>
<td>DBO</td>
<td>327.1</td>
<td>320.0</td>
<td>-7.1</td>
<td>-</td>
</tr>
<tr>
<td>CMC</td>
<td>192.2</td>
<td>198.9</td>
<td>6.7</td>
<td>-</td>
</tr>
<tr>
<td>Energy</td>
<td>159.8</td>
<td>149.4</td>
<td>-10.4</td>
<td>-</td>
</tr>
<tr>
<td>Overheads</td>
<td>53.2</td>
<td>50.3</td>
<td>-2.9</td>
<td>-</td>
</tr>
<tr>
<td><strong>Service Level Agreements</strong></td>
<td><strong>1548.6</strong></td>
<td><strong>1558.7</strong></td>
<td><strong>+10.1</strong></td>
<td><strong>0</strong></td>
</tr>
</tbody>
</table>

*Source: NERA analysis.*

### 3.3.6 Compliance, growth and External Costs

In this section, we consider the case for a variation in cost allowances for the “compliance, growth and external costs” faced by IW over IRC2.

**Figure 3.17: IW Cost Growth at IRC2**

*Source: NERA analysis of IW look-back submission, p.21.*
We do not consider that there is a case for costs variation in its “delta opex” and lead mitigation, which is the substantive element of costs (€29m over IRC2), as these costs would have anticipated in the formation of IW’s capital investment plan at review.\(^{57}\)

Likewise, we do not consider that there is a case for a cost variation for “external costs” – relating to “economic growth”, “energy”, and “national wage agreements”. These costs relate to normal business risks, e.g. it was known at the time of setting the IRC2 revenue control that IW would face costs from economic growth and wage rate increases.

As we have discussed in the above sections, we also do not consider there is a case for cost variation for “TOM headcount” (IW has outperformed on TOM costs, including the labour element”), shared service (increase in volumes would have been known at IRC2), and insurance and statutory inspections.

We accept that there would normally be a case for variation in charges in relation to “policy” changes, as these may reflect changes in obligations imposed on IW which were not anticipated at IRC2 review. These relate to “taking-in-charge”, “excess usage charging” and GDPR.\(^{58}\) However, we understand that these costs were funded for 2019 extension for €10 million, and indeed in excess of IW’s cost estimates of around €7 million.\(^{59}\)

There is inevitable uncertainty over both cost estimates. The costs associated with the taking in charge are necessarily an estimate of both network length and the cost associated with maintaining a km of network as opposed to actual accounting data.\(^{60}\) We consider that these costs were compensated for as part of the extension.

### 3.4. Opex – Conclusions and Recommendations

Table 3.8 sets out our proposed variation in allowed opex for IW at IRC2. As shown, we propose a variation in allowance for pass-through costs. In terms of other relevant factors, we note that additional costs related to compliance, taking-in-charge, and excess usage charge were provided for by CRU in the extension year.

We recommend an overall net reduction in the allowance of €9 million to reflect lower levels of uncontrollable costs, which implies IW overspent its allowance by €15 million or 0.7 per cent of the allowance.

---

\(^{57}\) IW (November 2018), Irish Water Revenue Control 3 submission, operational expenditure, 2017-19, lookback, p. 21

\(^{58}\) IW (November 2018), Irish Water Revenue Control 3 submission, operational expenditure, look-back, p. 22-23.

\(^{59}\) CRU/18/211 (24 September 2018), Irish Water Revenue Control 2019, p.6

\(^{60}\) IW’s taking-in-charge (TIC) costs are based on an assumed cost of €1,500 per km cost, as well as assumed mains length associated with TIC networks. See: Irish Water (19 December 2018) RC3 IW Opex Look Back, Q&A, p. 12
### Table 3.8: Review of IRC2 Opex Allowance – Summary (€m, 2017 prices)

<table>
<thead>
<tr>
<th></th>
<th>IRC2 allowed (1)</th>
<th>IRC2 outturn (2)</th>
<th>IRC2 allowance ex post (3)</th>
<th>Variation in allowance (= (3)-(1))</th>
<th>(Underspend)/overspend (= (2)-(3))</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLA</td>
<td>1549</td>
<td>1559</td>
<td>1549</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>TOM</td>
<td>310</td>
<td>301</td>
<td>310</td>
<td>0</td>
<td>-9</td>
</tr>
<tr>
<td>Shared service centre</td>
<td>64</td>
<td>72</td>
<td>64</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Group allocation</td>
<td>46</td>
<td>72</td>
<td>64</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Irrecoverable VAT &amp; Insurance</td>
<td>53</td>
<td>59</td>
<td>53</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total controllable opex</strong></td>
<td><strong>2021</strong></td>
<td><strong>2036</strong></td>
<td><strong>2021</strong></td>
<td>0</td>
<td><strong>15</strong></td>
</tr>
<tr>
<td>Pass-through</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uncontrollable opex</td>
<td>23</td>
<td>14</td>
<td>14</td>
<td>-9</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total opex</strong></td>
<td><strong>2045</strong></td>
<td><strong>2051</strong></td>
<td><strong>2035</strong></td>
<td><strong>-9</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

*Source: NERA analysis.*

*Note: Numbers may not sum due to rounding errors.*
4. Overall K-Factor Adjustments for IRC1 and IRC2 Revenue Adjustments

In this section, we set out our review of IW’s proposed revisions to the k-factor allowance for IRC1. CRU approved variations for IRC1 of €189 million and €114 million (both 2015 prices, NPV at 1 January 2017) for revenue and costs respectively as part of its IRC2 decision (CER/16/342). CRU also committed to revise the k-factor based on actual costs and revenues, given the decision was based in part on forecasts.

We also set out our proposed k-factor for IRC2 revenue items, drawing on IW’s proposals in relation to non-domestic bad debt and other variations in revenue allowances.

4.1. K-Factor at IRC1

IW has sourced the opex, capex and RAB assumptions from the CRU IRC2 revenue model which records the IRC1 allowances. For the revenue assumptions, these have been derived from CER/15/003 (IRC1 revenue model).

We review IW’s calculations of the cost and revenue k-factor adjustments for IRC1, and compare these to CRU’s earlier decision.

4.1.1. IRC1 opex

In relation to opex, in its earlier decision (CER/16/342) CRU decided to recognise variations in relation to non-controllable opex only, and to not allow any variations in relation to controllable costs as these risks should be borne by IW.

For opex, IW reports outturn controllable costs of €1,611 compared to an allowance of €1,620 over IRC1, i.e. an underspend of around €8 million. The uncontrollable costs are also lower at €22 million compared to an allowance of €36 million. Based on CRU’s IRC1 decision to recognise variations in uncontrollable costs only, this gives rise to a k-factor adjustment of €15 million (2017 prices) or €14 million (2017 prices, PV Q4 2014). These are monies owed to the customer by IW.

---

61 CER (December 2016) Irish Water Second Revenue Control, CER/16/342, p. 149
62 IW k-factor model, w-sheet “CRU allowance”, rows: 2:24, headed “CRU allowance – IRC1”
63 CRU 18212 – IRC2 -2017-2019-Revenue Model Decision.xls, w-sheet “Inputs from IRC1 decision”
65 CER (December 2016) Irish Water Second Revenue Control, CER/16/342, p. 42. CER states: “The CER has decided to adjust the IRC1 allowance regarding uncontrollable costs. Irish Water’s costs for line items deemed uncontrollable by the CER in its IRC1 decision (licences, levies and rates) were €12.7m less than anticipated and the CER has decided to reduce the IRC1 allowance by this amount. This adjustment results in an operating cost adjustment of -€12.7m (less than 1%) relative to the IRC1 allowance. In relation to other cost overspends and deferrals the CER has not amended the expenditure allowance set out in the IRC1 decision.”
66 In present value (PV) terms at Q4 2014, IW reports the k-factor allowance for opex at IRC1 of €13 million. See: IW k-factor model, w-sheet “Cost_KFactor”. The €13 million is the difference in the PV sum of the IRC1 allowance of €1,568 less the restated allowance of €1,555.
Table 4.1: Comparison of Irish Water IRC1 Opex Outturn, IRC1 Allowance and Re-stated Allowance (€m, 2017 prices)

<table>
<thead>
<tr>
<th></th>
<th>Q4 2014</th>
<th>2015</th>
<th>2016</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outturn</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Controllable</td>
<td>198</td>
<td>731</td>
<td>683</td>
<td>1611</td>
</tr>
<tr>
<td>Uncontrollable</td>
<td>12</td>
<td>5</td>
<td>5</td>
<td>22</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>209</td>
<td>735</td>
<td>689</td>
<td>1633</td>
</tr>
<tr>
<td><strong>IRC1 allowance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Controllable</td>
<td>191</td>
<td>730</td>
<td>698</td>
<td>1619</td>
</tr>
<tr>
<td>Uncontrollable</td>
<td>15</td>
<td>8</td>
<td>13</td>
<td>37</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>206</td>
<td>739</td>
<td>711</td>
<td>1656</td>
</tr>
<tr>
<td><strong>Re-stated allowance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Controllable</td>
<td>191</td>
<td>730</td>
<td>698</td>
<td>1619</td>
</tr>
<tr>
<td>Uncontrollable</td>
<td>12</td>
<td>5</td>
<td>5</td>
<td>22</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>202</td>
<td>735</td>
<td>703</td>
<td>1641</td>
</tr>
<tr>
<td><strong>Under-spend/(overspend)</strong></td>
<td>-7</td>
<td>0</td>
<td>15</td>
<td>8</td>
</tr>
<tr>
<td>(Re-stated allowance less outturn)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>k-factor</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Allowance less re-stated allowance)</td>
<td>-15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>k-factor (2017, PV Q4 2014)</strong></td>
<td></td>
<td></td>
<td></td>
<td>-14</td>
</tr>
<tr>
<td>(PV allowance less PV re-stated allowance)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: NERA analysis of Irish Water k-factor model, w-sheet “Cost_KFactor”; “IW Outturn.”

4.1.2. IRC1 capex

For capex, the CRU decided to recognize actual expenditure, noting that this was below allowed expenditure. For Q4 2014 to 2016, Irish Water reports outturn capex of €1,147 million relative to an allowance of €1,389 million, resulting in a k-factor adjustment of €242 million (monies owed to customers) or €225 million (2017 prices, PV Q4 2014).

---

67 CER reports capex over IRC1 of €1,847m, remaining within the CER’s allowance of €1,946m (nominal prices). These relate to the period 2014-2016 and are gross of costs that were capitalised within the opening RAB at 2014 Q4, e.g. establishment costs. CER (December 2016) Irish Water Second Revenue Control, CER/16/342, p. 46.

68 IW’s analysis reports the capex k-factor discounted back to Q4 2014 of €224 million, calculated as the difference between the following sums (both discounted back to Q4 2014): allowance of €1,313 less the expenditure of €1,089m. Source: IW k-factor model, work-sheet “Cost_KFactor.”
### Table 4.2: Comparison of IW Outturn, IRC1 Allowance and Re-stated Allowance: Capex (€m, 2017 Prices)

<table>
<thead>
<tr>
<th></th>
<th>Q4 2014</th>
<th>2015</th>
<th>2016</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outturn</td>
<td>160</td>
<td>532</td>
<td>455</td>
<td>1147</td>
</tr>
<tr>
<td>IRC1 allowance</td>
<td>140</td>
<td>623</td>
<td>626</td>
<td>1389</td>
</tr>
<tr>
<td>Re-stated allowance</td>
<td>160</td>
<td>532</td>
<td>455</td>
<td>1147</td>
</tr>
<tr>
<td>Under-spend/(overspend)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>k-factor (allowance less re-stated allowance)</td>
<td>-242</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>k-factor (2017 prices, PV to Q4 2014)</td>
<td>-225</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source: NERA analysis of IW k-factor model, w-sheet “Cost_kFactor”; “IW Outturn.”*

### 4.1.3. IRC1 RAB additions

For the RAB, the CRU’s original IRC1 decision assumed an opening RAB in Q4 2014 of €1,041 million and closing RAB in 2016 of €2191 million. However, based on CRU’s recognised capex in CER/16/344, the revised RAB values were set at €758m and €1,942m (2015 values).

In its most recent submission, IW has restated the closing RAB value for IRC1 in 2016 equal to €1,737 (2017 prices). The re-statement of the RAB reflects the revised capex profile relative to that assumed in CER/16/344. The overall effect is that there should be a variation in allowances of €214 million from the RAB re-statement; these are monies owed to IW for a lower end value RAB relative to that originally assumed.

### Table 4.3: Irish Water Proposed Variation in Revenue Arising from RAB Assumptions (€m, 2017 prices, PV Q4 2014)

<table>
<thead>
<tr>
<th></th>
<th>Opening Q4 2014</th>
<th>Closing 2016</th>
<th>PV closing less opening</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allowed</td>
<td>1,041</td>
<td>2,191</td>
<td>-919</td>
</tr>
<tr>
<td>IW restated</td>
<td>758</td>
<td>1,737</td>
<td>-795</td>
</tr>
<tr>
<td>Variation in allowance</td>
<td></td>
<td></td>
<td>-124</td>
</tr>
</tbody>
</table>

*Source: NERA analysis of Irish Water k-factor model, work-sheet “cost_KFactor.”*

### 4.1.4. Overall variation in IRC1 cost allowance

Table 4.4 shows the overall proposed variation in allowances of €114million (2017 prices, PV Q4 2014). The main contributing factor is the lower revised capex which requires IW to give money back to the customer, offset by a lower closing RAB. The proposed variation in cost allowances is equal to €127million applying time-value-of-money adjustment to end of IRC1/ beginning of IRC2.

---


70 See: CER 16344-CER-Revenue-Model-2017-2018.xlsx, w-sheet “calc of IRC1 adjustments”. The closing RAB figure was based on capex of €1,357.9m (201) prices.
Table 4.4: Irish Water Proposes Variation of €128m (2017 prices, PV to 1 Jan 2017)

<table>
<thead>
<tr>
<th></th>
<th>Original Allowance</th>
<th>Revised Allowance</th>
<th>PV variation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opex (2017 prices, PV to Q4 2014)</td>
<td>1,569</td>
<td>1,554</td>
<td>14</td>
</tr>
<tr>
<td>Capex (2017 prices, PV to Q4 2014)</td>
<td>1,313</td>
<td>1,088</td>
<td>224</td>
</tr>
<tr>
<td>RAB (2017 prices, PV to Q4 2014)</td>
<td>-919</td>
<td>-795</td>
<td>-124</td>
</tr>
<tr>
<td>Total (2017 prices, PV to Q4 2014)</td>
<td>1,963</td>
<td>1,848</td>
<td>115</td>
</tr>
<tr>
<td>Total (2017 prices, PV to 1 Jan 2017)</td>
<td></td>
<td></td>
<td>128</td>
</tr>
</tbody>
</table>

Source: NERA analysis of IW k-factor model, work-sheet “Cost_KFactor.”

4.1.5. IRC1 revenue variations

CRU determined allowed revenues from domestic customers of €532 million, but the outturn was substantively lower at €255 million following the suspension of domestic billing in 2016. The under-recovery was offset by an increased subvention as well as the removal of €14 million customer service costs related to the discontinuation of domestic billing.

IW proposes €82 million IRC1 domestic bad debt allowance based on its actual bad debt provision. The proposed allowance is in excess of €43 million cited in CRU/16/342, which was based on an assumed 8 per cent non-collectable revenue. However, in its decision CRU stated that it would reconsider domestic bad debt allowance at a later stage.

For non-domestic revenue, the CRU determined allowed revenues of €517 million compared to outturn of €421 million. IW also proposes to recover €38.8 million for non-domestic bad debt, which is close to CRU’s assumed allowance of €37.7 million (but which CRU intended to revise based on the proposed bad debt incentive mechanism). IW states that its proposals have been calculated using the non-domestic bad debt incentive methodology. The incentive mechanism allows for a non-domestic bad debt allowance equal to 9.39 per cent at IRC1 for non-domestic customers (and 5 per cent at IRC2), with IW incurring the full penalty or reward where it out (or under) performs against this target, up to a maximum penalty or reward of €4 million p.a.

Applying the mechanism, IW’s outturn bad debt is €37.8 million (2017 prices) compared to the allowance under this mechanism of €38.8 million, i.e. marginal outperformance of the CRU’s assumed allowance.

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Overall, IW proposes a revenue variation of €289 million before indexing for time-value-of-money or €298 million (2017 prices, PV to 1 Jan 2017). These are monies owed to IW.

Table 4.5: IW Proposes a Revenue Variation of €298 million (2017 prices)

<table>
<thead>
<tr>
<th>Allowance</th>
<th>Q4 2014</th>
<th>2015</th>
<th>2016</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic</td>
<td>0</td>
<td>274</td>
<td>258</td>
<td>532</td>
</tr>
<tr>
<td>Non Domestic</td>
<td>56</td>
<td>227</td>
<td>234</td>
<td>517</td>
</tr>
<tr>
<td>Subvention</td>
<td>177</td>
<td>395</td>
<td>468</td>
<td>1,040</td>
</tr>
<tr>
<td>Customer adjustment</td>
<td>0</td>
<td>0</td>
<td>-14</td>
<td>-14</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>233</td>
<td>896</td>
<td>946</td>
<td>2,075</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outturn</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic</td>
<td>0</td>
<td>232</td>
<td>22</td>
<td>255</td>
</tr>
<tr>
<td>Non Domestic</td>
<td>45</td>
<td>184</td>
<td>192</td>
<td>421</td>
</tr>
<tr>
<td>Subvention</td>
<td>177</td>
<td>399</td>
<td>480</td>
<td>1,057</td>
</tr>
<tr>
<td>Replacement Subvention</td>
<td>0</td>
<td>0</td>
<td>174</td>
<td>174</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>223</td>
<td>815</td>
<td>869</td>
<td>1,907</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Allowance minus outturn</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic</td>
<td>0</td>
<td>41</td>
<td>235</td>
<td>277</td>
</tr>
<tr>
<td>Non Domestic</td>
<td>11</td>
<td>43</td>
<td>42</td>
<td>96</td>
</tr>
<tr>
<td>Subvention</td>
<td>0</td>
<td>-4</td>
<td>-13</td>
<td>-17</td>
</tr>
<tr>
<td>Replacement Subvention</td>
<td>0</td>
<td>0</td>
<td>-174</td>
<td>-174</td>
</tr>
<tr>
<td>Customer adjustment</td>
<td>0</td>
<td>0</td>
<td>-14</td>
<td>-14</td>
</tr>
<tr>
<td><strong>Total delta</strong></td>
<td>11</td>
<td>80</td>
<td>77</td>
<td>168</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bad Debt Provisions</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic</td>
<td>0</td>
<td>9</td>
<td>73</td>
<td>82</td>
</tr>
<tr>
<td>Non Domestic</td>
<td>6</td>
<td>17</td>
<td>16</td>
<td>38.8</td>
</tr>
<tr>
<td><strong>Total bad debt</strong></td>
<td>6</td>
<td>27</td>
<td>89</td>
<td>121</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>17</td>
<td>107</td>
<td>166</td>
<td>289</td>
</tr>
</tbody>
</table>

Source: NERA analysis of IW k-factor model, work-sheet “Revenue_KFactor.”

4.1.6 Conclusions on IRC1 cost and revenue variations

As set out above, IW has identified cost variations of €127 million and revenues variations of €298 million (both 2017, PV 1 January 2017) for IRC1. These amounts need to be adjusted for the amounts that CRU allowed for at IRC2 for the IRC1 k-factor, based on the information available then.

At IRC2, CRU approved variations of €189 million and €114 million (both 2015 prices, NPV at 1 January 2017) for revenue and costs respectively as part of CER 16/342. CRU decided
Overall K-Factor Adjustments for IRC1 and IRC2 Revenue Adjustments

to claw-back €114 million straight-away but to depreciate the €189 million adjustment over 5 years (through the use of a side RAB).  

Assuming that the side RAB adjustment remain, we calculate the following amounts that need to be adjusted for at IRC2: for the cost variation, monies owed to customers by IW of €14.3 million, and for the revenue variation, monies owed to IW of €108.4 million.

Table 4.6: Overall Net Adjustment (PV 1 Jan 2017)

<table>
<thead>
<tr>
<th>Net position</th>
<th>CER 16/342 decision</th>
<th>Final decision</th>
<th>Net Position</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015 prices</td>
<td>2017 prices</td>
<td>2017 prices</td>
</tr>
<tr>
<td>Cost variation (owed to customers)</td>
<td>113.9</td>
<td>114.0</td>
<td>128.3</td>
</tr>
<tr>
<td>Revenue Variation (owed to IW)</td>
<td>189.0</td>
<td>189.2</td>
<td>297.6</td>
</tr>
</tbody>
</table>

NERA analysis of CER 16/342. Irish Water Second Revenue Control p. 151; IW k-factor model, work-sheet “Revenue_KFactor” and “Cost_KFactor.”

4.2. IRC2 Revenue Adjustments

Table 4.7 sets out the variation in the main revenue items for 2017 and 2018. (IW assumes that there is no variation in revenue items for 2019, the roll-over year. In summary, IW has over-recovered non-domestic customer revenues (€420 million outturn relative to €370 million expectation). It also incorporates a reduction in the revenue allowance from the suspension of domestic billing. On the other hand, IW identifies a non-domestic bad debt claim of €35 million, leaving a net position of €44 million (monies owed to customers).

IW has calculated its bad debt claim based on an assumed 5 per cent allowance as per CRU’s IRC2 decision, and allowing for a maximum penalty (or reward) of up to €4 million p.a. Its bad debt provision is 12 per cent and 9 per cent of revenues respectively above the 5 per cent target determined by CRU at IRC2, and therefore IW has incurred the maximum penalty of €4 million p.a. in each year of IRC2. As a consequence, IW’s expected bad debt provision is €42.7 million relative to the allowance of €34.7 million.

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77 CER (December 2016), Irish Water Second Revenue Control, CER/16/342, p. 149
78 Irish Water (2019), Irish Water Revenue Control 3 submission, K-factor for IRC1 and IRC2, p. 10
79 IW k-factor model, work-sheet “IW BadDebt”
Table 4.7: IW Proposes a Revenue Variation of €44 million, Monies Owed to Customers (2017 Prices)

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Allowed Revenues</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non Domestic</td>
<td>185</td>
<td>185</td>
<td>370</td>
</tr>
<tr>
<td>Subvention</td>
<td>737</td>
<td>737</td>
<td>1,474</td>
</tr>
<tr>
<td>Customer adjustment</td>
<td>-19</td>
<td>-18</td>
<td>-37</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>903</td>
<td>904</td>
<td>1,808</td>
</tr>
<tr>
<td><strong>Outturn</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non Domestic</td>
<td>219</td>
<td>202</td>
<td>420</td>
</tr>
<tr>
<td>Subvention</td>
<td>752</td>
<td>714</td>
<td>1,466</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>970</td>
<td>916</td>
<td>1,886</td>
</tr>
<tr>
<td><strong>Allowance minus Outturn</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non Domestic</td>
<td>-33</td>
<td>-17</td>
<td>-50</td>
</tr>
<tr>
<td>Subvention</td>
<td>-15</td>
<td>23</td>
<td>8</td>
</tr>
<tr>
<td>Customer adjustment</td>
<td>-19</td>
<td>-18</td>
<td>-37</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>-67</td>
<td>-12</td>
<td>-79</td>
</tr>
<tr>
<td><strong>Bad debt provision</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non Domestic</td>
<td>21</td>
<td>13</td>
<td>35</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>21</td>
<td>13</td>
<td>35</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>-46</td>
<td>2</td>
<td>-44</td>
</tr>
</tbody>
</table>

Source: NERA analysis of IW k-factor model, work-sheet “Revenue_Kfactor.”
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