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Impact Assessment

Energy Code Reform: Code Consolidation – Final Impact Assessment

Division:	Market Oversight and Enforcement
Type of measure:	Codes
Teams:	Energy Code Reform
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Coverage:	Partial

Many of the rules that underpin the gas and electricity systems in Great Britain (GB) are set out in industry codes. These codes and their governance frameworks have become increasingly complex and fragmented, which in turn can stifle the delivery of change that benefits consumers. The Department for Energy Security and Net Zero (DESNZ) and Ofgem have developed a package of measures, as set out in the Energy Act 2023 ('the Act'), to reform these code governance frameworks to facilitate the transition to net zero and ensure that the codes evolve in the best interests of consumers.

The Act sets out time-limited transitional powers to enable Ofgem to deliver these reforms which, among other things, can be used to deliver code consolidation with a view to:

- making it easier for market participants to engage with the codes
- facilitating the delivery of strategic change within the codes
- supporting the implementation of the new code governance arrangements.

The Act defines consolidation, in relation to the codes, as meaning the incorporation of the whole or part of the provision made by a document into another document.[1] Our view is that this is best achieved, using our transitional powers,[2] by establishing a single set of overarching contractual arrangements to bring two or more codes together, and then delivering rationalisation of certain content within that newly consolidated code to promote its efficient governance. We consider that targeted code consolidation will contribute towards reducing the complexity and fragmentation of the current codes framework and will enable appointed code managers to pursue further rationalisation and simplification of the code content over time.

This document is a final impact assessment (IA) that sets out our assessment of the costs and benefits of pursuing code consolidation as part of the implementation of energy code reform. It presents our chosen options for delivering code consolidation, as supported by the quantitative and qualitative analysis set out in this IA and careful consideration of relevant consultation responses. These are:

- to establish an **electricity commercial code**, comprised of the provisions currently held within the Connection and Use of System Code (CUSC) and the Distribution Connection and Use of System Agreement (DCUSA)
- to establish an **electricity technical code**, comprised of the provisions currently held within the Grid Code, the System Operator-Transmission Owner Code (STC), the Security and Quality of Supply Standard (SQSS) and the Distribution Code
- to establish a **gas network code**, comprised of the provisions currently held within the Uniform Network Code (UNC) and Independent Gas Transporters Uniform Network Code (IGT UNC).

This impact assessment should be read in conjunction with our accompanying decision document, as well as the draft IA and the January 2024 consultation on the implementation of energy code reform.[3]

[1] Schedule 12, paragraph 7, sub-paragraph (2) of the Act.
[2] Ofgem's transitional powers under Part 6 and Schedules 12 and 13 of the Energy Act 2023 will enter into force once they have been commenced in accordance with section 334 of the Act. These provisions are not in effect on the date of publication of this document. This document confirms our position on the options proposed in the draft IA and our intention on how we will proceed. We will consult further with stakeholders on detailed implementation proposals, including statutory consultations where applicable, following the anticipated Commencement Order.
[3] All three documents can be found on our website: https://www.ofgem.gov.uk/energy-policy-and-regulation/policy-and-regulatory-programmes/energy-code-reform.

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Summary: rationale for intervention and options

What is the problem under consideration?

The 11 codes within scope of energy code reform comprise over 10,000 pages of commercial and technical rules that govern the gas and electricity markets within Great Britain (GB).[4] Over time, the gradual and piecemeal evolution of these codes has resulted in a code governance framework that is complex and fragmented. This can make it difficult to coordinate and implement changes across codes effectively and can also act as a barrier to engagement for market participants, particularly smaller or newer parties. It also risks inhibiting competition and having a detrimental impact on the proliferation of the innovative solutions and technologies needed to meet current decarbonisation targets, which would in turn have a detrimental impact on consumers.

What are the policy objectives and intended effects, including the effect on Ofgem's Strategic Outcomes?

Ofgem's principal objective in carrying out its functions is to protect the interests of existing and future electricity and gas consumers. In addition, the Act has also introduced a new statutory net zero duty on Ofgem. In pursuit of these objectives, we have had regard to a number of factors,[5] including:

- enabling competition and innovation which drives down prices and results in new products and services and
- decarbonising to deliver a net zero economy at the lowest cost to consumers.

As a long-standing objective of energy code reform, we believe that code consolidation would support the effective and efficient delivery of reform by streamlining the code framework ahead of the appointment of licensed code managers.

[4] The codes under consideration are: Balancing and Settlement Code (BSC), Connection and Use of System Code (CUSC), Distribution Connection and Use of System Agreement (DCUSA), Grid Code, Distribution Code, System Operator – Transmission Owner Code (STC), Security and Quality of Supply Standard (SQSS), Uniform Network Code (UNC), Independent Gas Transporters Uniform Network Code (IGT UNC), Smart Energy Code (SEC) and Retail Energy Code (REC).
[5] In accordance with the Ofgem strategic narrative: 2019-23.

We also think it can lay the foundations for the future rationalisation and simplification of the provisions contained within the codes. To this end, the initial, Ofgem-led consolidation stage will focus on establishing the overarching contractual framework for each newly consolidated code, followed by the delivery of targeted rationalisation of the provisions within that code to promote and support its efficient governance.[6] We think that this approach strikes an appropriate balance between delivering code consolidation at pace, and realising the identified benefits that code consolidation could deliver.

We consider this step, alongside future simplification and rationalisation led by the code manager once in place, will help to reduce complexity in the codes and make it easier for market participants to understand the rules that apply to them. This should also enable the codes to be more agile and capable of supporting the delivery of the strategic changes needed to meet net zero targets and realise benefits for consumers.

What are the policy options that have been considered?

In the draft IA, we set out our decision not to consider any consolidation options involving the BSC, REC or SEC at this time.[7] For the remaining codes, we assessed a shortlist of consolidation options against a counterfactual 'no consolidation' option, whereby a licensed code manager would be appointed for each of the in-scope codes. The shortlisted options were as follows:

Electricity codes: We considered two different approaches to consolidating the electricity codes.

- **Option 1** – Consolidating by subject matter to establish:
  - an **electricity commercial code** containing the provisions currently held within the CUSC and DCUSA
  - an **electricity technical code** containing the provisions currently held within the Grid Code, SQSS, STC and Distribution Code

[6] We do not intend to modify or rationalise the operational or substantive content within newly consolidated codes as part of this initial stage.
[7] This decision was informed by feedback that we received to our 2022 Call for Input, as outlined in the consultation published alongside the draft IA: Consultation on the implementation of energy code reform (ofgem.gov.uk).

- **Option 2** – Consolidating by network level to establish:
  - a **transmission network code** containing the provisions currently held within the CUSC, Grid Code, STC and SQSS
  - a **distribution network code** containing the provisions currently held within the DCUSA and Distribution Code.

Gas codes: We also considered the consolidation of the two gas codes (UNC and IGT UNC) to create a **gas network code**.

Chosen options

Based on our qualitative and quantitative analysis, and careful consideration of responses to our recent consultation, we remain of the view that there are significant benefits to be realised by pursuing targeted code consolidation. We have therefore decided to proceed with our proposals to deliver code consolidation as part of the wider transition to the new code governance arrangements (i.e. prior to the appointment of licensed code managers).

Our chosen options are to consolidate the electricity codes in accordance with Electricity Option 1 (described above) and to consolidate the two gas codes. As a result, all further references to the discounted Option 2 have been removed from the final version of this IA, with the exception of the discussion on sensitivity testing contained in appendix 2.

Decision document

We have published a decision document alongside this final IA setting out our rationale for proceeding with these consolidation exercises, alongside other decisions relating to the implementation of code reform.[8]

[8] The decision document can be found on our website: https://www.ofgem.gov.uk/energy-policy-and-regulation/policy-and-regulatory-programmes/energy-code-reform.

Chosen options – Monetised Impacts (£m)

Expected range of net benefit to GB Consumers: £2m-£75m
Net benefit is presented in Net Present Value (NPV) terms relative to the counterfactual. NPV is calculated using 2023 as the base year. Economic costs and benefits are in 2023 financial year prices, unless otherwise stated, covering the period from 2024 to 2036. Figures in this table, and in chapters 3, 4, 5, and appendix 2, are rounded to the nearest £1m.

Chosen options – Hard to Monetise Impacts

We consider that our chosen options for consolidating the codes will deliver efficiency savings in terms of the management of the codes, which should support the effective appointment and operation of code managers.

Our chosen options also offer good opportunities to remove duplication and streamline the operation of the codes, making it easier for market participants to engage with and understand the rules that apply to them. This should enable greater engagement, particularly from smaller or newer code parties. We also anticipate that consolidating in this manner will support greater coordination between codes and the efficient delivery of strategic changes that benefit consumers.

We note that this initial stage of consolidation will not impact upon the operational content within the codes. However, we anticipate that it will lay the foundations for future rationalisation and simplification of these rules over time, led by code managers.

Key Assumptions/sensitivities/risks
The key assumptions and sensitivities used in our quantitative analysis are detailed in chapter 2. Furthermore, we discuss the risks associated with each option in chapters 3 and 4. This final IA should also be read in conjunction with the accompanying decision document, which sets out further thinking on our approach to the transition, including our intentions to minimise disruption.

Will the policy be reviewed?	The impact of code consolidation will be reviewed by DESNZ as part of their broader review of energy code reform, in line with the monitoring and evaluation framework set out in the 2021 IA published by the Department for Business, Energy and Industrial Strategy (BEIS).[9]

Is this proposal in scope of the Public Sector Equality Duty?	We expect consumers to benefit in general, regardless of their protected characteristics. We have not identified any evidence that our proposals would disproportionately (positively or negatively) affect people sharing protected characteristics.

Associated Documents

This impact assessment should be read in conjunction with our accompanying decision document, as well as the draft IA and the January 2024 consultation on the implementation of energy code reform.[10]

[9] The final BEIS IA can be found here: https://www.gov.uk/government/consultations/energy-code-reform-governance-framework.
[10] All three documents can be found on our website: https://www.ofgem.gov.uk/energy-policy-and-regulation/policy-and-regulatory-programmes/energy-code-reform.

1. Introduction

Chapter summary

This chapter discusses the challenges being presented by the current arrangements, discusses why intervention has been considered, sets out our objectives for evaluating the costs and benefits of code consolidation through this IA, and summarises the main differences between this document and the draft IA.

Problem under consideration

1.1. In our December 2022 Call for Input, we identified two key problems that we believe code consolidation could contribute towards addressing:[11]

- **Fragmentation of codes leads to poor co-ordination and slows pace of change**: the current code structures can often make it difficult to coordinate and implement changes across codes effectively.[12] For example, when a change is raised in one code, the current mechanisms in place to identify and understand the impacts on other codes are not always effective. This lack of coordination can inhibit the efficient delivery of strategic change. We believe that the codes will need to be better coordinated and able to adapt quickly to facilitate the transition to net zero and deliver benefits for consumers.
- **Complexity of the code landscape makes it difficult for parties to engage with and understand the rules that apply to them. This in turn creates barriers to effective compliance, competition, and innovation**: the gradual and piecemeal evolution of the industry codes has resulted in increased complexity, including different approaches to governance under different codes, which can act as a barrier to code parties (particularly new and smaller parties) engaging effectively with the codes. We believe that this complexity risks inhibiting competition and innovation that drives benefits for consumers. As the

[11] Energy Code Reform Call for Input: https://www.ofgem.gov.uk/publications/energy-code-governance-reform.
[12] The in-scope codes are listed in appendix 1.

sector evolves, the codes will need to be accessible to a more diverse range of market participants, which will also enable new business models and technologies.

Rationale for intervention and objectives

1.2. To facilitate the transition to the new governance framework, the Act sets out time-limited transitional powers for Ofgem.[13] Some of these powers were, among other things, designed to facilitate the delivery of code consolidation. We consider that consolidation would support the effective implementation of the new enduring code governance framework introduced by the Act, by streamlining the codes framework during the transition prior to the appointment of code managers.

1.3. Whilst it would still be possible to consolidate codes at a later stage (e.g. after the appointment of licensed code managers), we anticipate that this would be significantly more challenging and time consuming. For example, we would need to rely on our enduring powers, which are not as wide ranging as the transitional powers granted under the Act, and would need to navigate additional challenges, such as revoking or amending code manager licences in order to enact consolidation of codes which already had appointed code managers.

1.4. The objective of exploring code consolidation now is therefore to determine the optimum configuration of codes to best realise the intended outcomes of energy code reform, ahead of the appointment of code managers.

1.5. To support the achievement of this objective, we developed a set of design principles to inform the basis of our assessment of the consolidation options:

- Making it easier for market participants to engage with and understand the codes
- Facilitating the delivery of strategic change and enabling the codes to be agile and adaptable to future market arrangements

[13] These transitional powers end upon appointment of the first code manager for each code, or, if earlier, after a period of 7 years after the day on which the Act was passed.

- Supporting the implementation of the new code governance arrangements and minimising disruption.

1.6. As per our preferred approach set out in the Call for Input, in order to avoid unduly delaying code manager appointments, we intend for any consolidation activities undertaken during the transitional period to form the first phase of a longer-term exercise to standardise and simplify the codes.

1.7. To this end, consolidation of codes at this stage would be limited to the following activities:

- Establishing the common contractual framework for the consolidated code, bringing the provisions of two or more existing codes into a single document and
- Delivering targeted rationalisation of the rules within the consolidated code to promote its efficient governance.

1.8. In the short term, the consolidated code would therefore make provision for two (or more) separate sets of operational or substantive rules. We expect to specify which sections within the newly consolidated codes would be applicable to different party categories to ensure that parties do not become subject to provisions which are not relevant to them.[14]

1.9. Once in place, we expect code managers would continue to realise the benefits of code consolidation by seeking to rationalise duplicative and/or closely related provisions within a consolidated code, and more generally simplify the content where possible.[15] This should help to reduce some of the burden on code parties in terms of the amount of time and resource required to identify and understand their rights and obligations under the code. We expect that this in turn will enable increased competition and innovation.

[14] This would be a similar approach to that taken within the Retail Energy Code (REC), where different REC schedules are mandatory to different party categories.
[15] Ofgem would be able to influence or lead this process via our annual Strategic Direction Statement. The duty to publish an annual Strategic Direction Statement is introduced by the Act.

1.10. We note that, while we focus on 'whole' codes being consolidated in this IA, it may be appropriate, or beneficial, for certain provisions within a code to be moved into other codes.[16] Future consultations will explore the desirability of this exercise in more detail.

Main changes relative to the draft IA

1.11. After careful consideration of the responses to our January 2024 consultation, we have decided to make some revisions to the monetised and hard to monetise cost benefit analysis included in this document. A summary of these revisions, and our rationale for making them, can be found below. Further detail on relevant respondent views is set out in the accompanying decision document.[17]

1.12. For the monetised analysis, we have reduced the share of industry costs assumed to be dedicated to code governance by 50%, from 2.5% of Selling, General & Administrative Expenses (SG&A) to 1.25%. This value had originally been based on an assumption that the proportion of Ofgem staff that are estimated to work on codes would roughly mirror the proportion of industry staff that work on codes, at least on average. However, when reviewing the responses, it became clear that we had inadvertently overestimated the size of this variable,[18] so we have reduced it by a significant amount in order to avoid potentially overstating the long-term costs and benefits of code consolidation. The impact of this change can be observed in a decrease in the Net Present Value (NPV) across all of the consolidation options,

[16] This would be similar to Retail Code Consolidation, where elements of various existing codes were moved into the REC.
[17] The decision document can be found on our website: Energy code reform: implementation consultation | Ofgem
[18] SG&A is an expenditure category that covers a broad range of day-to-day business costs that are not directly related to the production of a good or service. We used this cost category when calculating top-down costs for industry, first by assuming that SG&A represented 10% of total energy industry costs and then by assuming that costs related to code governance were equivalent to 2.5% of SG&A. These top-down costs were then used when calculating the monetised costs and benefits of consolidation over time. Several respondents expressed concern that our model risked overestimating the benefits of code consolidation, with a few specifically pointing to this assumption as a potential risk in that regard and suggesting that we seek expenditure data specifically from industry. Due to the wide variation in expense profiles anticipated across different types of code parties (which would require an equally wide, and arguably disproportionate, information request to model precisely), we have chosen to adopt a cautious approach by decreasing the value of this variable by 50% instead.

which has reduced the range of expected benefits for GB consumers from £22m-£187m in the draft IA to £2m-£75m in this final IA.

1.13. We also received mixed views from respondents on other assumptions, without a clear consensus emerging regarding whether the relevant values had been set too high or too low. We have therefore decided to retain the original values in the main cost benefit model and to publish the results of additional sensitivity tests instead (see appendix 2), each of which focuses on an area of high respondent interest. The results of these tests indicate that, although the model is somewhat sensitive to change, our chosen consolidation options continue to generate positive NPVs when using a more pessimistic range of assumptions.

1.14. For the hard to monetise analysis, we have decided not to make any revisions to either the overarching design principles or the underlying methodological approach. However, we have made several revisions to the qualitative analysis itself, both to address questions that were flagged by respondents and to integrate additional pieces of suggested evidence. We do not consider that any of these revisions are substantive enough to warrant a change to the qualitative scores assigned to either option, so the outcome of the qualitative analysis remains unchanged relative to the draft IA.

1.15. The remainder of this document covers the following:

- **Chapter 2** sets out our approach to quantitatively and qualitatively assessing the relative costs and benefits of the chosen consolidation options against the counterfactual
- **Chapter 3** sets out our assessment of electricity code consolidation, which would consolidate the identified electricity codes by subject matter to create commercial and technical electricity codes
- **Chapter 4** sets out our assessment of gas code consolidation, which would consolidate the provisions currently held within the UNC and IGT UNC into a gas network code
- **Chapter 5** sets out our conclusions.

2. Approach to the Impact Assessment

Chapter summary

This chapter provides a summary of the chosen consolidation options and the counterfactual that we have assessed them against. We also describe our approach to assessing the impact of each option on industry and consumers.

Scope of Impact Assessment

2.1. The aim of this impact assessment (IA) is to consider the costs and benefits of our chosen code consolidation options, and to assess whether targeted consolidation could better enable the realisation of the identified benefits of code reform than would the current 11-code framework.

2.2. We have sought to undertake quantitative analysis wherever possible to inform the IA. However, due to the complex nature of code consolidation and the range of uncertainties, we have also utilised qualitative analysis to support our thinking. All of the decisions associated with this IA have therefore been informed by a holistic consideration of both types of analysis, alongside close consideration of relevant consultation responses, rather than resting solely on one or the other.

Chosen consolidation options

2.3. The chosen consolidation options for electricity and gas have been summarised below. Further detail on how we arrived at these options, including the shortlist of options we evaluated in the draft IA and the longlist of options we discounted prior to that point, can be found in the January 2024 consultation document.[19]

Electricity – Commercial and Technical

[19] This document can be located on our website: Consultation on the implementation of energy code reform (ofgem.gov.uk)

2.4. We have decided to recognise the growing coalescence between distribution and transmission networks by consolidating electricity codes based on their subject matter, rather than network level.

2.5. Historically, the vast majority of generation capacity has been connected to the transmission network, meaning that flows between transmission and distribution networks have been largely one directional (ie transmission to distribution). However, with an increasing proportion of embedded generation and storage capacity connecting to distribution networks, flows of energy are becoming increasingly dynamic and less one-directional.

2.6. This approach would consolidate the more commercially focussed codes (ie CUSC and DCUSA) on the one hand, and the more technically focussed codes (ie Grid Code, STC, SQSS and Distribution Code) on the other.[20] However, we acknowledge concerns raised by respondents about the inclusion of the STC in the consolidated technical code. Although we have not reflected these concerns in this IA, we recognise that further detailed consideration is needed to determine how the STC can best be included within the governance of the new technical code.

2.7. We note that either of these exercises could have been progressed independently of the other and therefore have considered the merits of each one separately. This option is considered in chapter 3.

Gas Codes

2.8. We have decided to consolidate the UNC and IGT UNC to create a single gas network code. Both codes cover similar provisions, albeit for different categories of market participant, and the linkages between the two documents means that the IGT UNC must already be read in conjunction with the UNC in some places. Streamlining the duplication and interdependency between these two codes should therefore lead to a more efficient governance process. This option is considered in chapter 4.

[20] The Electricity System Operator (ESO) has previously undertaken work considering the consolidation of some of these technical codes via its Digitalised Whole System Technical Code Project. We were mindful of this work in the development and assessment of our shortlisted options.

Our approach to assessing the costs and benefits of the options considered

2.9. The business case for each of our consolidation options was developed using a combination of quantitative and qualitative methodologies, the details of which are outlined below.

Quantitative assessment

2.10. We performed our quantitative assessment of each option by developing an economic model that allowed us to estimate the monetised impact of code consolidation over time. The core inputs for this model were derived by estimating how much money is spent by relevant actors on code governance today, namely code parties, code administrators and Ofgem, and then adjusting those figures to account for the anticipated impact of consolidation on future spending. We then aggregated those values over a 12-year time horizon,[21] subject to the standard 3.5% social discount rate,[22] to generate Net Present Value (NPV) estimates for each option, which are summative values that weigh the transitional costs of consolidating the codes against the enduring benefits of reform.

2.11. To ensure that we captured a wide range of relevant costs and benefits, we adopted a top-down approach to estimating code governance-related expenditure. The assumptions used to calculate these annual expenditure figures can be found below, which vary from one type of actor to the next due to differences in the quantity and quality of available data:

- **Code administrators/managers**:[23] we collected cost estimates for relevant activities directly from all seven current code administrators, covering the 11 in-

[21] A 12-year time horizon was chosen to align with the approach adopted in the 2021 IA on energy code reform by the Department for Business, Energy and Industrial Strategy: Energy Code Reform consultation: Impact Assessment (publishing.service.gov.uk).
[22] Adjusting values to account for social time preferences makes it easier to compare the relative costs and benefits of projects being implemented over time using a common set of present values. For additional context, see the relevant sections of HM Treasury's Green Book: The Green Book (2022) - GOV.UK (www.gov.uk).
[23] We refer to 'code administrators' when discussing the costs of consolidation and 'code managers' when discussing the benefits of consolidation. This is due to the fact that any work required to deliver the Ofgem-led phase of code consolidation would be performed by code administrators, prior to the appointment of the relevant code manager.

scope codes, for the 2021-22 and 2022-23 financial years. We then produced a single cost estimate per code, using two-year averages, by aggregating the following four cost categories: secretariat services; change and release management; party engagement; and internal subject matter expert support.[24] To preserve confidentiality, we then clustered these values into three groups using natural break-points in the data to produce high (~£3.2m), medium (~£1.1m) and low (~£0.2m) estimates of annual expenditure on code administration for each code.[25] Finally, we increased each of these values by 58%[26] to account for the new roles and responsibilities that code managers will be required to perform in addition to those currently performed by code administrators,[27] in line with previous estimates on the overall impact of energy code reform. Adding these figures together resulted in a total estimate of code management-related costs of approximately £25.2 million per year.[28]

- **Code parties**: we started by estimating the total size of the energy market in GB, which recent Ofgem estimates have put at around £55 billion when looking at the

[24] Although these four cost categories do not cover all of the activities that code administrators perform, we chose them because they are common across all code administrators (eg unlike compliance-related activities, which vary from code to code) and are likely to be impacted by code consolidation.
[25] The large degree of variance between the high, medium and low cost estimates primarily reflects the fact that some codes are more resource-intensive to administer than others. Examples of relevant considerations include the average number of code modifications that need to be developed and progressed each year; the total number of parties that engage with each code on an annual basis; etc.
[26] This value was incorrectly published as being 50% in the draft IA, rather than the correct 58%. For additional context on how this figure was calculated, see the IA published by the Department for Business, Energy and Industrial Strategy alongside the 2022 Government response to the previous consultation on energy code reform: Energy Code Reform consultation: Impact Assessment (publishing.service.gov.uk). Sensitivity testing of this variable, with higher and lower values, can also be found in appendix 2.
[27] Increasing our estimate of code administrator costs in this manner is necessary to ensure that any savings generated by code consolidation, such as synergies from streamlined governance processes, are calculated using a more accurate estimate of annual expenditure (ie if we did not upscale them, we would miss any savings derived from streamlining the expanded range of code manager functions). For this same reason, this uplift is not applied to the cost side of the cost benefit analysis for the initial 16-month consolidation period because any work required to deliver this exercise would be performed by code administrators, rather than code managers (ie the expanded role, and costs, of licensed code managers would not commence until after consolidation had already been completed).
[28] Based on the data that we received from code administrators, a total of four codes fell into the 'high' cost category, three in the 'medium' cost category, and four in the 'low' cost category. The estimate of £25.2 million per year was calculated by adding these individual estimates together (ie ~£3.2 million X 4 + ~£1.1 million X 3 + ~£0.2 million X 4) and then increasing the resulting total by 58% to account for the shift from code administration to code management.

amount spent by households and businesses on an annual basis.[29] Of that total, we assumed that 10% would be dedicated to selling, general and administrative expenses (SG&A), which is an expenditure category that covers a broad range of day-to-day business costs that are not directly related to the production of a good or service. We further assumed that 1.25%[30] of SG&A spending is dedicated to activities in connection with energy code governance, which would be the equivalent to roughly half of the proportion of Ofgem staff that are estimated to work on codes (see below). When considered together, these assumptions generated a total estimate of code-related industry spend of approximately £68.75 million per year.

- **Ofgem**: internal estimates suggest that the equivalent of 50 full time employees will be working on code governance and related policy activities under the new framework, out of roughly 2000 total Ofgem employees. If we assume that all of these employees will receive a median salary of roughly £40,000,[31] the resulting estimate of total Ofgem expenditure on code governance stands at approximately £2 million per year.

2.12. After calculating these figures, we inputted them into an economic model so that we could assess the relative costs and benefits of code consolidation. For the cost side of the model, we sought to capture the amount of time and resource that would likely be required to undertake any consolidation exercise. Relevant activities include reviewing the contents of each code to identify how many governance provisions exist and then determining whether they should be merged; facilitating and/or participating in any workgroups established to develop the associated code modifications; consulting on the text of those proposed modifications; identifying and modifying the contents of relevant contracts, such as framework agreements;

[29] See the latest State of the Energy Market publication by Ofgem here: State of the Energy Market 2019 | Ofgem.
[30] As flagged above, we have decreased this value from 2.5% in the draft IA to 1.25% in the final IA in order to mitigate the risk of potentially overestimating the long-term costs and benefits of code consolidation.
[31] Ofgem publishes pay information by quartile as part of its annual report (see page 69): Ofgem Annual Report and Accounts 2022-23. Although average pay does not represent the full cost of individual Ofgem employees, which can also include pension payments and other organisational expenses, we consider it to serve as a reasonable proxy of annual costs for the purposes of this model. Given the relatively small size of annual Ofgem costs relative to those of code administrators and code parties, we do not anticipate that scaling these costs up further would have a substantive impact on the resulting NPV figures.

etc. All of these activities would have short-term cost implications for code parties, code administrators and Ofgem, although not necessarily at the same point in time or to the same degree (as outlined below).

2.13. For the benefit side of the model, we sought to capture the value of reform by identifying outcomes that would be likely to result in enduring savings over time. The model assumes that these savings would take one of two forms. First, it assumes that consolidating codes would result in an overall decrease in workloads due to a reduction in the frequency of consequential modifications.[32] As the name implies, this category of modification refers to any changes that are required to one code (Code A) as a result of changes to another code (Code B), rather than for any intrinsic benefit of their own. These modifications are often costly and time consuming to develop, so decreasing the need for them by consolidating closely related codes together should result in enduring benefits over time.

2.14. Second, the model assumes that code consolidation will generate saving due to the realisation of synergies from streamlined functions and activities. Some of these savings are likely to result from the removal of unnecessary duplication in governance-related activities, such as only needing to facilitate and/or engage with a single code modification process (e.g. attending workgroup meetings; developing code manager delivery plans; etc.). Other savings are likely to result from more efficient administrative processes, such as consolidated secretariat functions and party engagement initiatives. Although the precise nature of these synergies will vary from code to code, the cumulative impact of even modest efficiency gains over time should lead to cost savings.

2.15. Further information on the detailed assumptions that we have incorporated into our model can be found below:

- **Cost calculation**: to capture the one-off costs of consolidating the codes, such as modification drafting and workgroup attendance, we started by allocating the

[32] We received mixed views from respondents on this assumption, with some agreeing that workloads would decrease due to the fall in consequential modifications and others arguing that they would stay the same. Due to the lack of consensus, we have left the core model unchanged and reported the results of relevant sensitivity testing of this assumption in appendix 2.

annual expenditure figures for each actor *evenly* across the 11 current codes, under the assumption that the time and work required to consolidate the governance provisions of each code will be similar.[33] We then aggregated these totals by consolidation option and estimated what proportion would likely be required for code consolidation, such as the resources required to draft, consult on, and implement the enabling modifications. Finally, we increased these annual figures to account for the expected length of the initial, Ofgem-led consolidation exercise, which we assume would be around 16 months based on insights from the recent example of Retail Code Consolidation.[34]

- **Benefit calculation**: to capture the enduring benefits of code consolidation, we started by allocating the annual expenditure figures for each group *unevenly* across the 11 current codes, under the assumption that some codes are busier than others and would therefore benefit more from consolidation.[35] We then aggregated these totals by consolidation option and estimated what proportion of costs would likely be saved as a result of consolidation-related synergies, such as streamlined governance processes.[36] Finally, we calculated how much additional expenditure is likely to be saved due to the expected reduction in overall workloads, which we assume will primarily be driven by the need to develop fewer

[33] This assumption is based on the adoption of a consistent approach to consolidation, in which a similar list of provisions would be merged as part of each consolidation exercise. Given that these provisions are likely to be of similar length and complexity (eg covering subjects such as contract boiler plate, party accession and exit, etc), it seems reasonable to assume that the amount of time and work required for this exercise would not vary significantly from code to code.
[34] We based this figure on the 20-month period required to progress from REC v1.1 (January 2020) to REC 2.0 (September 2021), minus the four months it took for the arrangements to go live after the final modifications had been submitted. This period accounted for the majority of work required to develop the modifications required to consolidate multiple codes, so it should serve as a reasonable proxy for similar exercises in future. However, we recognise that this assumption does not account for any potential future-weighting of consolidation benefits, or potential continuation of consolidation costs, so we have also reported a range of alternative scenarios in appendix 2.
[35] To determine which codes are busiest, we used a proxy value based on the average number of modifications raised to each code over the past six years (2017/18 – 2022/23). Codes with a higher average number of modifications were then assigned a correspondingly higher proportion of annual expenditure prior to calculating the estimated benefits of consolidation, under the assumption that busier codes would benefit most from changes such as streamlined governance processes.
[36] Due to the lack of relevant data, we have assumed that the potential synergies from code consolidation would result in a minimum of 10% savings and a maximum of 30% savings (see paragraph 2.19), with these savings applying equally across all three groups.

consequential modifications,[37] and added this value to the total savings generated from consolidation-related synergies.[38]

2.16. As a final step, we sought to account for the level of uncertainty in the underlying data by calculating lower, central and upper NPV estimates for each consolidation option.[39] We performed these sensitivity tests by scaling the relative cost and benefit estimates for each group using a range of fixed percentages. For the cost side of the model, we assumed that a slightly higher proportion of transitional expenditure would be borne by code administrators and Ofgem (ie 20/35/50% each), relative to code parties (ie 10/20/30%), due to their need to lead any consolidation exercise. By contrast, for the benefit side of the model, we assumed that any enduring savings from consolidation would be distributed evenly so we used the same range of percentages for all three groups (ie 10/20/30%).

2.17. To further test the robustness of this model, we also performed three additional sensitivity tests by inputting a range of potential values for the following three variables: future code manager costs; future savings generated by possible reductions in consequential modifications; and the length of time required to realise day-to-day benefits from code consolidation. A full description of these tests, and their results, can be found in appendix 2 below.

Qualitative assessment

[37] We assumed that consolidation would result in a 10% decrease in consequential amendments for the electricity codes and a 50% decrease for the gas codes, with the latter being due to the high number of modifications to the IGT UNC that mirror those made to the UNC. These estimates were based on an assessment of the average number of consequential modifications made to relevant codes over the past three years (2020/21 – 2022/23), both of which have been scaled downwards to avoid overestimating the potential benefits.
[38] To ensure that we did not overestimate the benefits of reform, we assumed that both types of benefit would not accrue to the most resource-intensive code in each group (eg if consolidating the UNC and IGT UNC, the savings due to fewer consequential modifications and consolidation-related synergies would only apply to the latter).
[39] When calculating these values, the most optimistic scenario was used for the 'upper' estimate (ie highest benefit and lowest cost) and the most pessimistic scenario for the 'lower' estimate (ie highest cost and lowest benefit). This approach allowed us to establish minimum and maximum estimates for the overall impact of reform, with the actual impact likely to be somewhere in the middle. It is also worth noting that the large degree of variance observed between the lower and upper estimate for each option is primarily driven by variation in the expected savings for code parties, as opposed to code managers or Ofgem (ie applying the same fixed percentage decrease to their total estimated spend of £68.75m per year results in higher net savings than when the same reduction is applied to the £25.2m spent by code managers or the £2m spent by Ofgem).

2.18. To support our quantitative cost benefit analysis, we also identified and considered the hard to monetise costs and benefits of each option against the counterfactual. To inform this qualitative assessment, we established a set of design principles, as described in Table 1. These design principles build upon the overarching objectives for energy code reform and have been used to guide our analysis of each of the consolidation options. We set out a version of these design principles in our Call for Input and then updated them in the draft IA following consideration of stakeholders' responses.[40]

Table 1: Design principles

Design principle	Description
Making it easier for market participants to engage with and understand the codes	Enabling more effective accession, engagement and compliance, and reduce the amount of time and resource required for market participants to identify and understand the rules that apply to them.
Facilitating the delivery of strategic change and enabling the codes to be agile and adaptable to future market arrangements	Supporting the effective and efficient delivery of future strategic change and industry reforms that benefit consumers. This includes the delivery of the strategic direction that will be set by Ofgem and supporting the achievement of net zero targets. Codes should also be able to adapt well to significant market or industry changes, while also being able to reflect the commercial interests of market participants.
Supporting the implementation of the new code governance arrangements and minimising disruption	Supporting the effective and successful implementation of the new code governance arrangements set out in the Act, including the appointment of licensed code managers. It should support the ongoing operation of the codes and central systems and avoid causing unreasonable disruption to market participants during implementation.

[40] An explanation of how these design principles have been updated since the Call for Input is set out in the January 2024 consultation document.

2.19. We have awarded a score to each option based on its performance against each design principle.[41] The score range is as follows:

- **-2 (Very low)**: Performs very poorly against the design principle, with a high likelihood of negative outcomes. Very few positive outcomes identified
- **-1 (Low)**: Performs poorly against the design principle, with a moderate likelihood of negative outcomes. Positive outcomes outweighed by the negatives.
- **0 (Neutral)**: No clear net positive or negative outcomes
- **1 (High)**: Performs well against the design principle, with a moderate likelihood of positive outcomes. Some negative outcomes to mitigate against
- **2 (Very high)**: Performs very well against the design principle, with a high likelihood of positive outcomes. Very few negative outcomes identified.

2.20. We have also assigned a weighting factor to each design principle. A heavier weighting has been assigned to the first two design principles to reflect their focus on longer term or enduring benefits (40% each), whereas a lighter weighting has been assigned to the third design principle given its focus on shorter term goals (20%).

Table 2: Weighting of Design principles

Design principle	Factors considered	Weighting Factor
Making it easier for market participants to engage with and understand the codes	• Number of codes that parties would need to comply and/or engage with • Ease of use of codes[42]	40%
Facilitating the delivery of strategic change and enabling the codes to be agile and	• Future market arrangements • Current number of consequential code modifications	40%

[41] The factors considered under each design principles are set out in Table 2.
[42] This includes consideration of possible opportunities for simplification and alignment of code provisions.

Design principle	Factors considered	Weighting Factor
adaptable to future market arrangements	• Delivery of strategic change • National Energy System Operator (NESO) operation	
Supporting the implementation of the new code governance arrangements and minimising disruption	• Code manager considerations (possible candidates and ongoing operation) • Disruption to other policy work • Impact on central system delivery[43]	20%

The counterfactual

2.21. We have assessed the above options against a counterfactual described below:

- Maintaining the current set of codes, with a code manager appointed for each existing code. The same organisation could be appointed as code manager for multiple codes.
- Code managers are tasked with delivering improvements within their codes to support their efficient operation and cross-code coordination. Such improvements could include rationalisation and simplification of the code text, and code digitalisation.[44]

2.22. Below we have set out our assessment and scoring of the counterfactual option against each of the three design principles. Due to the level of uncertainty involved and the number of assumptions required, we have focused solely on the qualitative analysis when

[43] A total of five central systems are currently within the scope of the new code governance framework: those underpinning the gas industry arrangements (including those contained in the UNC), currently undertaken by Xoserve; those underpinning the electricity industry balancing and settlement arrangements, currently undertaken by Elexon; those underpinning the rules and requirements for service delivery for smart metering that are under the SEC, currently operated by Smart DCC; those underpinning the Data Transfer Service (DTS), which carry data used in the change of supplier process (as required by the REC and BSC), currently operated by Electralink; and the Central Switching Service.

[44] We consider that these improvements could also be delivered under any of the consolidation options discussed in this IA.

constructing this counterfactual scenario rather than attempting to estimate the NPV of maintaining the status quo.

2.23. However, as set out in the following two chapters, we estimate that the enduring benefits of consolidation will outweigh the one-off costs of consolidation in the long-term, which suggests that forgoing these benefits would result in less favourable NPVs overall. Maintaining the status quo would also be likely to come with additional costs, such as requiring eight code manager selection processes for the relevant codes rather than only three, which would also have an impact on any comparison.

Table 3: Assessment of counterfactual "no consolidation" option

Design principle	Assessment	Score
Making it easier for market participants to engage with and understand the codes	This would maintain the current requirements on parties in terms of the number of codes that they would need to interact with. It would also miss the opportunity to remove duplication across the codes, thus failing to reduce the burden on code parties. Some ease-of-use improvements could be derived by streamlining arrangements across different codes over time. However, we consider these would be significantly outweighed by the continued fragmentation across codes.	**-2**
Facilitating the delivery of strategic change and enabling the codes to be agile and adaptable to future market arrangements	The large number of codes, and the associated fragmentation and complexity, risks hindering the effective and timely delivery of strategic change. This is likely to be particularly prominent where change needs to be coordinated across several different codes.	**-2**
Supporting the implementation of the new code governance arrangements and minimising disruption	This would be the most straightforward and quickest option to implement, avoiding any additional work associated with code consolidation. There would also be no significant disruption to industry or central systems. However, there is a significant risk of inefficiency in code governance moving forward, with a large number of	**1**

	code managers overseeing similar, or even duplicative, processes in different codes.	

3. Electricity: Commercial and technical code consolidation

Chapter summary

This chapter sets out our analysis of the monetised and hard to monetise costs and benefits of consolidating the electricity codes by subject matter, as follows:

- Consolidating the CUSC and DCUSA to create an electricity commercial code
- Consolidating the Grid Code, STC, SQSS and Distribution Code to create an electricity technical code.

Monetised Cost Benefit Analysis

3.1. In accordance with the methodology described in chapter 2, the table below summarises the estimated NPV associated with consolidating the electricity codes by subject matter.[45]

Table 4: Electricity consolidation NPV figures[46]

	Lower estimate	Central estimate	Upper estimate
Electricity commercial code (CUSC and DCUSA)	£3m	£14m	£25m
Electricity technical code (Grid Code, STC, SQSS and Distribution Code)	-£3m	£10m	£22m

Hard to monetise costs and benefits

3.2. We have considered the hard to monetise costs and benefits of this option in the context of the three overarching design principles discussed in chapter 2.

[45] Note that the NPV figures presented in Table 4 are based over a 12-year horizon. The NPV values are aggregate totals of the identified monetised costs and benefits for Ofgem, code managers and industry stakeholders.
[46] The combined NPV estimates for these two consolidation exercises ranges from between £0 million and £48 million, with a central estimate of £24 million.

Making it easier for market participants to engage with and understand the codes

3.3. We expect that the two consolidation exercises considered under this option would have different impacts on the number of codes that licensees would be required to comply with post-consolidation. Consolidating the CUSC and DCUSA would reduce the number of codes that the NESO, electricity suppliers and distribution network operators (DNOs) would be required to comply with. However, it would not lead to a reduction for other licensees. This has impacted the score that we have assigned to this option against the first design principle.

3.4. Conversely, consolidating the more technically focussed codes would lead to a reduction in the number of codes that all licensees (particularly transmission licensees) would be required to comply with.[47] Given the similarity in terms of both content and audience across these four codes, we expect that this consolidation would reduce the burden on code parties in relation to engaging with the codes, including by removing the requirement to interact with four different sets of code governance arrangements.

3.5. Consolidating these six electricity codes based on subject matter would also ensure that the consolidated codes remain relatively focussed and specialised, with the majority of contractual and commercial arrangements sitting in one code and technical requirements in the other. We consider that this approach presents good opportunities for simplification and rationalisation of the substantive content over time, which in turn could further reduce the burden on code parties and make it easier for them to identify and understand the rules that apply to them.

Facilitating the delivery of strategic change and enabling the codes to be agile and adaptable to future market arrangements

[47] Our use of the term 'all' in this context is meant to refer to the following licensees, all of whom we expect would see at least some reduction in the number of codes that they'd be required to comply with under a new technical code: the Electricity System Operator; transmission owners; offshore transmission owners; electricity suppliers; electricity generators; electricity interconnectors; and distribution network operators.

3.6. We consider that both consolidation exercises considered under this option would score well against this design principle. Consolidating across network levels is expected to enable network operators and users to better consider the impacts that their actions and decisions have beyond their own networks. For example, this could include removing and preventing potentially unhelpful distortions between network levels, such as in connection locations where there are currently step change differences in charges between connecting at the distribution or transmission level.[48,] Although consolidation alone would not achieve such alignment, or guarantee it, we maintain that it would nonetheless play a role in facilitating more efficient decision-making across network levels, in a way that should help to address such disparities in future.

3.7. We expect that consolidation of the technical codes would also have a positive impact on the operation of the NESO. As set out in the Energy Security plan, the NESO will play a key role in planning and overseeing system security and resilience.[49] The specific roles and responsibilities of the NESO in relation to the codes are still to be determined. However, by consolidating the technical standards governing security of supply (currently contained within the SQSS and Distribution Code) of the electricity system into a single consolidated code, we consider that this would enable the NESO to oversee system security in a more effective manner.

3.8. Finally, we would expect to see a reduction in the number of consequential code modifications due to code consolidation. In terms of the CUSC and DCUSA, we have seen 12 code modifications raised to one of these codes over the past three years as a consequence of a change raised to the other.[50] Due to the duplicative nature of this process, we consider that developing and implementing changes to both transmission and distribution connection and charging arrangements under a single code would be more effective and efficient. These improvements could prove increasingly beneficial in the event of any reform of charging arrangements in future.

[48] Our recent open letter on strategic transmission charging reform highlighted the growing coalescence between transmission and distribution networks, and the need for greater coordination between networks levels in relation to connecting new assets: Open letter on strategic transmission charging reform | Ofgem.
[49] Powering up Britain - GOV.UK (www.gov.uk).
[50] Based on final modification reports for code modifications from April 2020 to March 2023.

3.9. Similarly, over the same period of time, we have also seen 12 code modifications raised to one of the four technical codes as a consequence of a change to one of the other three. We expect that reducing the frequency of these kinds of code modifications will drive efficiencies in the code change process, and will further lessen the burden on parties in engaging with code change.

Supporting the implementation of the new code governance arrangements and minimising disruption

3.10. A key factor in determining the merits of each consolidation option will be to consider how viable it would be for a single licensed code manager to effectively oversee each of the newly consolidated codes. We note that consolidating the contractual and commercial arrangements set out in the CUSC and DCUSA would create a very large code, at least in the short term. Therefore, the code manager would need to have the appropriate skills and resources in place to enable it to oversee the consolidated code effectively. However, we consider that the more focussed subject matter would be an asset in this context, particularly in terms of developing and harbouring appropriate expertise, than a less specialised code (e.g. a code covering both commercial and technical provisions).

3.11. Similarly, for the new technical code, we note that consolidating four codes would create a very large code in the short term. However, given the relatively low number of code modifications currently raised to these codes, we do not think that the length of the code would necessarily equate to a significantly larger workload for any prospective code manager.

3.12. We do note, however, that the code manager would need to have the capacity to effectively cover both transmission and distribution level matters. The code manager would also likely need to have the capacity to engage in a mixture of both technical and commercial matters, due to the mixed nature of some of the identified codes. However, we expect that this would be more effective and efficient, in terms of costs and resource, than appointing up to four different code managers for the four existing codes (i.e. in a non-consolidated framework).

3.13. We have also considered the possible disruption caused by code consolidation under this design principle. We do not expect that this consolidation approach would cause any substantial disruption to the operation of the in-scope central systems, as it would not impact the codes that these systems interact with.

3.14. In relation to wider work and policy initiatives being delivered across the sector, we note that consolidation will be a significant undertaking and that there may be a risk of disruption. This may be particularly applicable in the context of ongoing work on electricity charging reform. We intend to mitigate these risks as far as possible with careful consideration of our approach to the wider transition to the new code governance arrangements, and will seek to avoid causing undue disruption. Furthermore, as mentioned earlier, we do not expect to amend any operational code content during this initial consolidation stage, and consider that this should minimise disruption on the operation of the codes.

3.15. We also note that network security is a key aspect of the technical codes. The need to create appropriate governance structures will therefore be an important consideration when developing our detailed proposals for implementation, especially ones that are resilient and efficient in the face of urgent issues.

Cumulative scoring

3.16. Based on the above qualitative assessment, the cumulative scores for electricity code consolidation against the three overarching design principles have been set out in Table 5.

Table 5: Electricity code consolidation qualitative scoring

	Counterfactual (No consolidation)	Commercial	Technical
Making it easier for market participants to engage with and understand the codes	-2	1	2
Facilitating the delivery of strategic change and enabling the codes to be agile and adaptable to future market arrangements	-2	2	2
Supporting the implementation of the new code governance arrangements and minimising disruption	1	0	0
Total score	**-3**	**3**	**4**
Weighted average score[51]	**-1.4**	**1.2**	**1.6**

[51] The weighted average scores are based on the weightings assigned to each design principles. The first two design principles have been assigned a 40% weighting, with the third being assigned a 20% weighting.

4. Gas code consolidation

Chapter summary

This chapter sets out our analysis of the monetised and hard to monetise costs and benefits of consolidating the two gas codes (ie the UNC and the IGT UNC).

Monetised Cost Benefit Analysis

4.1. In accordance with the methodology described in chapter 2, the table below summarises the estimated Net Present Value (NPV) associated with consolidating the UNC and IGT UNC into a single gas network code.[52]

Table 6: Gas code consolidation NPV figures

	Lower estimate	Central estimate	Upper estimate
Gas network code (UNC and IGT UNC)	£2m	£15m	£27m

Hard to monetise costs and benefits

4.2. We have considered the hard to monetise costs and benefits of gas code consolidation in the context of the three overarching design principles discussed in chapter 2.

Making it easier for market participants to engage with and understand the codes

4.3. A single consolidated code would reduce the time and cost burden on parties that currently have to engage with two very similar rulebooks. This would happen for two key reasons. Firstly, consolidating the two gas codes would mean that only a single code would need to be considered when seeking to understand the obligations

[52] Note that the NPV figures presented in Table 6 are based over a 12-year horizon. The NPV values are aggregate totals of the identified monetised costs and benefits for Ofgem, code managers and industry stakeholders.

placed on IGTs. This is due to the fact that parts of the UNC IGT currently point directly to the UNC, as a way of enabling the alignment of operating practices for shippers using both networks. Although this approach has avoided duplication and misalignment of the codes, it also means the IGT UNC must be read in conjunction with the UNC. Consolidation would make this process more efficient by combining everything into a single document.

4.4. There are also instances where, despite the read-across between these two codes, some disparity remains. Consolidation would help to ease the burden on gas shippers by facilitating the removal of these existing disparities, making it possible for them to interact with gas transporters and independent gas transporters in exactly the same way.

4.5. Secondly, market participants who engage with both codes have to go through an accession process for each code; this also requires joining the Data Services Contract (DSC) and the relevant network code(s). Having a single network code would therefore streamline governance. The DCUSA shows how this approach has worked in other codes, with Distribution Network Operators (DNOs) and Independent Distribution Network Operators (IDNOs) subject to the same governance and a simplified accession process.

4.6. In addition to these benefits, we expect that the need to only engage with a single code will enable greater involvement from code participants, primarily by reducing the resources required to interact with the codes. We expect that this could particularly benefit smaller parties who may be resource constrained and find engaging with two codes more challenging, which some respondents to our consultation have suggested has led to issues around quoracy of the IGT UNC.

4.7. We are also mindful of the concerns that have been raised regarding the potential loss of voice for smaller gas shippers and IGTs as a result of code consolidation, as well as the potential difficulties associated with interacting with a larger code. We believe that our proposals for the new stakeholder advisory forums (SAF) will help to mitigate the first of these concerns, and that code manager-led rationalisation and simplification of the codes will address the latter.

Facilitating the delivery of strategic change and enabling the codes to be agile and adaptable to future market arrangements

4.8. A gas network code would provide a single point of contact for all gas market participants. Governance of the gas industry needs to be flexible and agile to manage future changes given the current uncertainties around the types of gas and their role in the UK energy system, such as hydrogen. We consider that a consolidated code will be better able to manage these kinds of strategic changes than two linked but separate codes.

4.9. The largest operational benefit of consolidation is expected to come from the code modification process. Changes to the UNC can have cross-code implications for the IGT UNC, even though much of the IGT UNC already points to the UNC. As a result, modification work and discussions that have already happened at the UNC often have to be repeated in the IGT UNC for these kinds of 'mirror' and 'enabling' modifications.

4.10. There have been 28 IGT UNC modifications since April 2020, of which only 6 (21%) were unrelated to either UNC changes or modifications required to both codes for external reasons. This suggests that up to 80% of current IGT UNC modifications may be unnecessary for a single unified code. This duplication of work has no industry benefit and is contrary to the efficient and economic running of the codes, which is something that consolidating the UNC and IGT UNC into a gas network code would help to address.

Supporting the implementation of the new code governance arrangements and minimising disruption

4.11. We expect that consolidating the gas codes would support the implementation of energy code reform. For example, the need to select and license only a single code manager, rather than two, should speed up the overall transition process and make it more efficient. The fact that the two codes already have a high level of technical similarity should also be an asset when it comes to identifying a suitable code manager due to the overlap in desirable knowledge and skills.

4.12. We note that a consolidated gas code will be larger. However, we expect that, given the duplicative nature of many of the provisions across UNC and IGT UNC, significant

rationalisation and simplification of the consolidated code could be delivered over time, without causing disruption in the process.

4.13. We do not anticipate that this consolidation exercise would have a significant impact on the operation of central systems. The central systems underpinning the gas market primarily interact with the UNC, and we do not expect to significantly amend any of the code arrangements relating to central system delivery as part of this initial consolidation exercise. Finally, we note that the gas industry is undergoing a period of significant change at present, and are mindful of the possible disruption caused by delivering this consolidation exercise. We will fully consider possible impacts as part of our transition planning.

Table 7: Gas code consolidation qualitative scoring

	Counterfactual (No consolidation)	Gas code consolidation
Making it easier for market participants to engage with and understand the codes	-2	1
Facilitating the delivery of strategic change and enabling the codes to be agile and adaptable to future market arrangements	-2	1
Supporting the implementation of the new code governance arrangements and minimising disruption	1	2
Total score	**-3**	**5**
Weighted average score[53]	**-1.4**	**1.6**

[53] The weighted average scores are based on the weightings assigned to each design principles. The first two design principles have been assigned a 40% weighting, with the third being assigned a 20% weighting.

5. Conclusions

Chapter summary

This chapter brings together the findings of our quantitative and qualitative analysis to highlight our conclusions on which code consolidation options will deliver the best outcomes for consumers.

5.1. Based on the analysis set out in this impact assessment (IA), and the rationale included in the accompanying decision document, we have decided to proceed with the following three consolidation exercises:

- consolidate the CUSC and DCUSA to establish an **electricity commercial code**
- consolidate the Grid Code, STC, SQSS and Distribution Code to establish an **electricity technical code**
- consolidate the UNC and IGT UNC to establish a **gas network code**.

5.2. We acknowledge the uncertainty regarding a number of the assumptions that have informed this analysis, particularly the quantitative analysis. However, we are confident that, even with our least optimistic assumptions, there are significant benefits to be realised for both industry and consumers by pursuing these consolidation exercises.

5.3. These benefits are summarised below. As shown in Table 8, we estimate that our chosen options would generate a positive Net Present Value (NPV) over a 12-year time horizon, within an expected range of net benefit for consumers of £2m-£75m. Similarly, the qualitative assessment summarised in Table 9 suggests that both of our chosen options would be expected to deliver positive outcomes in line with our chosen design principles.

5.4. We will consult further on the approach to implementation for each consolidation exercise, as well as the detailed code, licence and contractual changes requires to make code consolidation a reality. Further details on immediate next steps can be found in the accompanying decision document.

Table 8: Chosen code consolidation options NPV figures

NPV estimate	Electricity: Commercial	Electricity: Technical	Gas network code
Lower	£3m	-£3m	£2m
Central	£14m	£10m	£15m
Upper	£25m	£22m	£27m

Table 9: Shortlisted code consolidation options qualitative scoring

Design Principle	Electricity: Commercial	Electricity: Technical	Gas network code
Making it easier for market participants to engage with and understand the codes	0	2	1
Facilitating the delivery of strategic change and enabling the codes to be agile and adaptable to future market arrangements	2	2	2
Supporting the implementation of the new code governance arrangements and minimising disruption	0	0	2
Total score	**2**	**4**	**5**
Weighted average score	**0.8**	**1.6**	**1.6**

Appendix 1: List of GB energy industry codes

Table 10: List of GB energy industry codes

Code	Fuel	Description
Balancing and Settlement Code (BSC)	Electricity	Covers the rules for the Balancing Mechanism, settlement and trading
Connection and Use of System Code (CUSC)	Electricity	Concerns connection to, and use of, GB's transmission system
Grid Code	Electricity	Defines the technical parameters and considerations relating to connection to the GB transmission network
Distribution Connection and Use of System Agreement (DCUSA)	Electricity	Concerns connection to, and use of, the public distribution system
Distribution Code	Electricity	Defines the technical parameters and considerations relating to connection to the public distribution network
Security and Quality of Supply Standard (SQSS)	Electricity	Sets out the criteria and methodology for planning and operating the transmission network
System Operator – Transmission Owner Code (STC)	Electricity	Defines the relationship between the transmission system owners and the system operator
Uniform Network Code (UNC)	Gas	The main industry code for gas, setting out relationships between shippers and transporters, pipeline operation, settlement, charging etc.
Independent Gas Transporters Uniform Network Code (IGT UNC)	Gas	Equivalent of the UNC specifically for IGTs' operations
Retail Energy Code (REC)	Dual fuel	Concerns supply-related obligations, eg switching, customer metering and theft detection
Smart Energy Code (SEC)	Dual fuel	Defines the rights and obligations of energy suppliers, network operators and other relevant parties involved in smart metering in GB

Appendix 2: Sensitivity tests

When estimating the monetised impact of code consolidation, we relied on a number of assumptions about the significance and magnitude of relevant costs and benefits over time (as described in chapter 2 above). Although we believe these assumptions are reasonable, we acknowledge that their usage necessarily introduces a degree of uncertainty into the underlying cost-benefit model, which could potentially lead to the generation of different overall results if those assumptions were to be varied.

To demonstrate the underlying robustness of the model, and our related decisions on code consolidation, the results of three sensitivity tests have been reported below. These tests were performed after reviewing stakeholder responses to the accompanying consultation document, due to the high level of interest shown in the following topics: future code manager costs; future savings generated by possible reductions in consequential modifications; and the length of time required to realise day-to-day benefits from code consolidation.

Each test was conducted by varying a single parameter in the underlying model, across multiple values, and then noting down the resulting impact on the central NPV estimates for the three shortlisted consolidation options. The full range of shortlisted options was used in this context, rather than just the two chosen options, due to the potential implications that the outcome of these tests could have on the decision to proceed with Electricity Option 1 (i.e. consolidation by subject matter, into commercial and technical codes) versus Electricity Option 2 (i.e. consolidation by network level, into transmission and distribution codes).

Test #1 – Code manager costs

The default assumption is that code manager costs will increase by 58% compared to current code administration costs, in line with an assumption made by the Department for Business, Energy and Industrial Strategy in their 2022 Impact Assessment.[54] Some respondents expressed a belief that this cost increase seemed too high whereas others

[54] Energy Code Reform consultation: Impact Assessment (publishing.service.gov.uk).

thought that it seemed too low, so we looked at what the impact would be of halving that value (29%) versus doubling it (116%).

The outcome of this test suggests that the potential benefits of consolidation are partially driven by this variable, with higher assumptions of future code management costs found to be linked to higher levels of future savings. They also suggest that consolidation is likely to remain beneficial in contexts where code management costs do not increase in line with our default assumption.

It is also worth noting that the aggregate NPV estimates for Option 1 remain consistently higher than those for Option 2 under all three scenarios, which supports our decision to consolidate the electricity codes by subject matter.

Table 11: variation in code manager uplift costs (central NPV estimates)

Code manager cost uplift (%)	Electricity option 1 Commercial	Electricity option 1 Technical	Electricity option 2 Transmission	Electricity option 2 Distribution	Gas network code
29%	£11m	£7m	£9m	£4m	£11m
58% (default)	£14m	£10m	£13m	£6m	£15m
116%	£21m	£16m	£21m	£10m	£22m

Test #2 – Consequential modifications

The default assumption is that consolidation would reduce the need to make consequential modifications to other codes, which would then generate cost savings by decreasing the overall workloads of code administrators, code parties and Ofgem (i.e. by 10% for the electricity codes and by 50% for gas). To ensure that we did not overestimate this effect, we further assumed that these cost savings would not accrue to the code with the highest administration cost within each consolidation option (e.g. in a gas context, the savings would only be derived from workload reductions for the less costly of the two codes, the IGT UNC, rather than both codes).

Some respondents agreed with these assumptions, whereas others were of the view that workloads would be unlikely to decrease solely as a result of consolidation. As a result, we looked at what the impact of a decrease in cost savings from this variable would be, comparing the default assumptions used in the model against a halving of the reduction (i.e. 5% for electricity and 25% for gas) and no reduction at all (i.e. 0% for both electricity and gas).

The outcome of this test suggests that the impact of this variable is primarily limited to the gas context, with the NPV of the 'no reduction' calculation roughly half that of the 'default reduction'. By contrast, the impact in an electricity context appears to be relatively modest, which suggests that most of the savings attributed to the electricity options are being driven by overarching efficiency gains rather than the reduced frequency of consequential modifications. The relative ordering of the electricity options also remains unchanged under all three scenarios, with the aggregate NPV of Option 1 consistently outperforming that of Option 2.

Table 12: variation in consequential modification reduction (central NPV estimates)

Consequential modification benefits	Electricity option 1 Commercial	Electricity option 1 Technical	Electricity option 2 Transmission	Electricity option 2 Distribution	Gas network code
No reduction	£12m	£8m	£11m	£5m	£8m
Half reduction	£13m	£9m	£12m	£6m	£11m
Default reduction	£14m	£10m	£13m	£6m	£15m

Test #3 – Time-weighting

The default assumption is that the initial, Ofgem-led phase of consolidation would take a total of 16-months to complete, at which point the costs of consolidation would cease and the benefits would begin. We further assumed that the costs to Ofgem and code administrators during this time period would be equivalent to 35% of their annual expenditure on code governance each, compared to 20% for code parties, and that the enduring benefits would be equal to 20% of annual expenditure for all three groups (in line with our central cost estimates).

Some respondents questioned whether the full benefits of consolidation would be likely to be experienced once this initial consolidation exercise had been completed, rather than in the long-term. One respondent also suggested that we consider introducing a degree of time-weighting into the model, in a way that would allow for a more gradual transition of consolidation costs and benefits over time.

To address these comments, we compared the default assumption of a 16-month consolidation period against two alternative scenarios: one in which the transition point was fixed at four years and a second in which it was fixed at six. For both of these alternatives, we assumed that the full costs of consolidation would be incurred over the initial 16-month period (i.e. 35% each for Ofgem and code administrators versus 20% for code parties) and that those costs would then be lower for a period of time, before ceasing altogether (ie

average annual costs for Ofgem and code administrators of 13% over an additional 2.67 years or 7% over 4.67 years, alongside average annual costs for industry of either 7% or 4%). Similarly, we assumed that the benefits of consolidation would only start after the initial 16-month period, after which they would be partial for a period of time and then full thereafter (i.e. partial benefits up to the end of either year four or year six, and then full benefits from that point onwards).

The outcome of this test suggests that the model is relatively sensitive to any change in the duration of code consolidation, with the combination of prolonged consolidation costs with delayed consolidation benefits leading to decreased NPV estimates across all three shortlisted options. However, it is worth noting that even the most pessimistic scenario still results in positive NPVs for two of the three chosen consolidation exercises. The aggregate NPV of Option 1 can also be observed to consistently outperform the aggregate NPV of Option 2 under each scenario.

Table 13: variation in time-weighting of costs and benefits (central NPV estimates)

Transition point from full to partial costs/benefits	Electricity option 1 Commercial	Electricity option 1 Technical	Electricity option 2 Transmission	Electricity option 2 Distribution	Gas network code
16 months (default)	£14m	£10m	£13m	£6m	£15m
4 years	£8m	£1m	£4m	£1m	£8m
6 years	£4m	-£2m	£0m	-£1m	£4m