Context and our approach to this SCR

Summary

In this section, we explain the range of reforms underway under our Future Charging and Access programme, and how this fits with wider related work we are undertaking, to support the transition to a smarter, more flexible and low carbon energy system.

We also provide an overview of the approach we have taken to date and intend to take in the future to develop reforms for network access and forward-looking charging arrangements through the SCR process.

In this introductory note we provide an overview of:

- Our Future Charging and Access programme
- Our Access and Forward-looking charges significant code review
- Our approach to developing and assessing options for change
- Our further thinking on the guiding principles that we will use to assess options for change.

Future Charging and Access programme

1.1. We are undertaking a package of reforms to support the transition to a smarter, more flexible and low carbon energy system. Our future charging and access reforms, and our wider work to promote a flexible energy system, will ensure that we get better value from our electricity system and that where market participants can take action to reduce system costs, they will share in those benefits. Our work on RIIO will ensure that the benefits of smarter networks are realised by consumers.

1.2. We want to do this while ensuring that all users pay a fair share towards the costs of the existing networks and systems, while supporting efficient decisions and reducing harmful distortions to the forward-looking, cost-reflective charges. Our Future Charging and Access programme of work aims to ensure that the arrangements for electricity network access and charging continue to support this:

- Electricity Network Access and Forward-looking Charging reform ("Access reform")
    - Ofgem is leading a Significant Code Review (SCR) to develop improved access and forward-looking charging arrangements[1]. In parallel, industry is undertaking

[1] By "access arrangements" and "forward-looking charges" we mean -
- Access arrangements – the nature of users' access to the electricity networks (for example, when users can import/export electricity and how much) and how these rights are allocated.

a review of aspects of allocation of access rights, including improved queue management and the scope for trading.

- Targeted Charging Review (the "TCR")
    - Ofgem is leading an SCR to develop new residual charging arrangements and reform some of the remaining arrangements which give rise to "embedded benefits". [2] In parallel, industry is bringing forward changes to ensure storage pays proportionate charges.
- Balancing Services Charges Task Force (the "Balancing Services Taskforce")
    - Working with industry, the Electricity System Operator (ESO) has led a review of balancing services charges in parallel with the Access reform and the TCR. We intend to set out our thinking on the next steps in this area shortly.

Access and Forward-looking charges significant code review

1.3. Our energy system is going through a major transformation, with new technologies potentially becoming more widespread, including solar photo-voltaic (PV), electricity storage, electric vehicles and heat pumps. The commitment to net zero carbon emissions by 2050, and the opportunities provided by smart meters, data, and reviews of engineering standards mean we have to consider network capacity in a much smarter way. Making the best use of network capacity and having effective signals that reflect how users can create costs and benefits on the networks is critical to the development of a flexible and dynamic future energy system, which can accommodate these new technologies and facilitate the decarbonisation of the energy system in an efficient way.

1.4. The potential savings from a more dynamic and flexible system are significant. Modelling by Imperial College/Carbon Trust for the Government suggests potential savings of up to £4-15bn cumulatively to 2050 from reducing capital expenditure on electricity network reinforcement if flexible technologies can be used to help address network constraints. [3] There could also be significant wider system savings through ensuring there is a level playing field for different types of energy service providers to compete on. This includes avoiding undue differential treatment based on the size of a provider, which voltage they are connected to, their location, and their type (ie whether they are a directly-connected generator, co-located with demand ('onsite generation') or an alternative Demand Side Response (DSR) technology).

1.5. We think that the current electricity network access arrangements and forward-looking charges will not adequately achieve these potential savings and so launched an SCR to develop potential changes in December 2018.[4] Our objective for the review is "*to ensure electricity networks are used efficiently and flexibly, reflecting users' needs and allowing*

- Forward-looking charges – the type of electricity network charges which signal to users how their actions can ether increase or decrease network costs in the future.

[2] Embedded benefits is the term used to describe the different transmission and balancing charges for smaller embedded generators (connected to the distribution network) compared to larger generators. Our reforms recommended changes to Balancing Services charges and the Transmission Generation Residual.

[3] An analysis of electricity system flexibility for GB - November 2016, Imperial College London/Carbon Trust; link here

[4] More information on the background to the launch of the SCR can be found in our launch statement; link here

consumers to benefit from new technologies and services while avoiding unnecessary costs on energy bills in general".

1.6. Launching an SCR allows us to take the lead on these matters while at the same time working with industry and other stakeholders, including consumer representatives. The SCR process is designed to facilitate the delivery of complex reforms and significant changes to the industry codes. This will allow us to undertake a holistic review of code-based issues. We believe this is necessary to ensure that there is timely, coordinated change across codes, and because the changes could have significant impacts across network users that will need careful consideration.

Scope of this significant code review

1.7. Within this SCR we are undertaking:

- a review of the definition and choice of access rights for transmission and distribution users
- a wide-ranging review of distribution network charges (Distribution Use of System (DUoS) charges)
- a review of the distribution connection charging boundary, and
- a focused review of transmission network charges (Transmission Network Use of System (TNUoS) charges).

1.8. Through the Energy Networks Association's Open Networks project, the Electricity System Operator and network companies are separately taking forward a review of aspects of the allocation of access rights, including improved queue management and the scope for trading. For updates on this work, please refer to the Open Networks project website.[5]

Key milestones

1.9. We are planning towards the following milestones for concluding the SCR and implementing the outcomes:[6]

- Consult on our draft SCR conclusions and impact assessment – Summer 2020
- Publish our SCR conclusions and final impact assessment – early 2021
- Implementation of changes following industry code modification process in line with our SCR conclusions – April 2023.

1.10. Our work this year is focused on developing the long-list of options and undertaking an initial assessment, to support shortlisting of the options for more detailed assessment. This is the first of two working papers we intend to publish to set out our initial thinking. It covers key options on better access right definition and choice, distribution network charging reform, and transmission network charging reform.

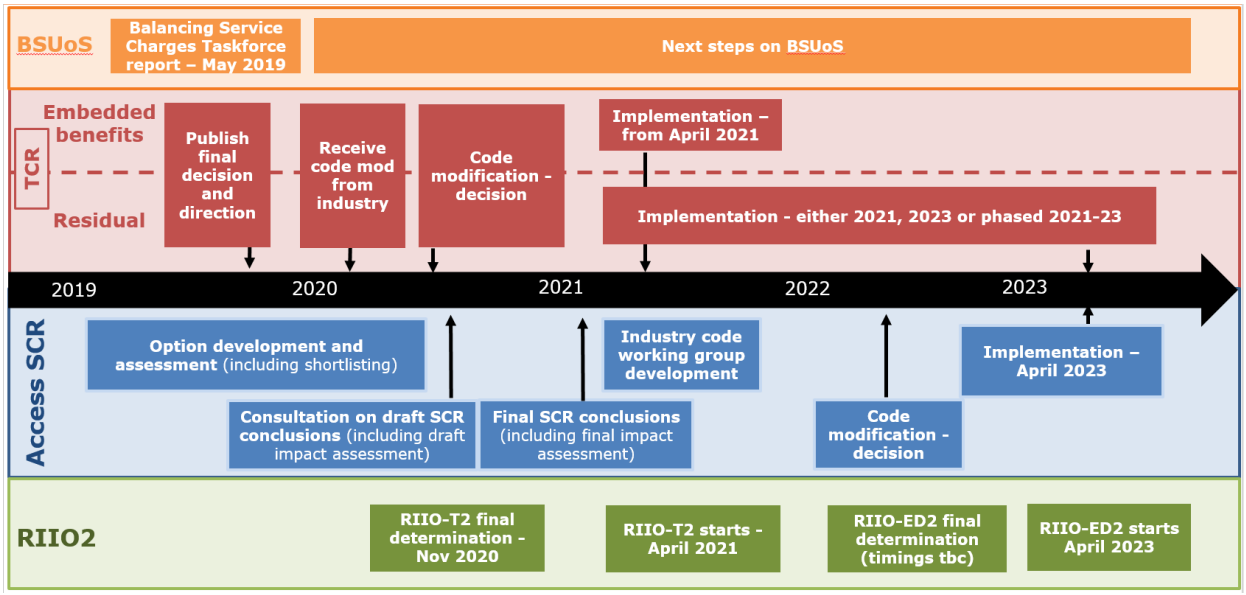
[5] http://www.energynetworks.org/electricity/futures/open-networks-project/

[6] These timeframes reflect the updated timeframes for the Access reform project which we announced in our May 2019 open letter: https://www.ofgem.gov.uk/system/files/docs/2019/05/may_charging_open_letter_final_21-may.pdf

1.11. The second working paper will be published at the end of year. It will consider connection charging reform, the applicability of reforms to small users and other focused changes to transmission network charges.

1.12. Figure 1 sets out our proposed timings, alongside other key charging work and the development of RIIO 2 price control settlements.

Figure 1 – outline of key access SCR and wider linked project milestones



Our approach to developing and assessing options

1.13. Since launching the SCR we have focused on the development and analysis of a longlist of options within the areas we have prioritised as within scope of the SCR. These options do not exist in isolation from one another and we will carefully consider the impact of relevant interactions and interlinkages in our assessment. One example of such links is the relationship between access rights and network charges and how these influence how flexibility is valued, which is covered further in our Linkages with the procurement of flexibility discussion note. We intend to shortlist which options to take forward for more detailed assessment early next year. We will then consult on our draft conclusions as to which reforms should be taken forward. We will take into account the feedback to that consultation in reaching our final decision on which options should be taken forward, and we will then direct industry to raise code modifications through existing code governance arrangements to implement these.[7] Figure 2 sets out the decision-making process we envisage following.

1.14. We will base our decision on our view on which reform options will deliver the objective of the project in accordance with our statutory objectives.[8] Our decisions will be consistent with our principal objective, which requires us to protect the interests of future consumers, and our duties to have regard to the achievement of sustainable development.

[7] We are currently planning to carry out a "Type 1" SCR, where we direct industry to raise code modifications to implement changes on conclusion of our SCR. Under other types of SCR we could have a more active role in developing the detailed code modifications to implement the changes. We stated in our SCR launch statement that we intend to keep the decision on which type of SCR to pursue under review as we progress through the process.
[8] https://www.ofgem.gov.uk/publications-and-updates/powers-and-duties-gema

To support our decision we will undertake an Impact Assessment, which we will consult on as part of our draft SCR conclusions in summer 2020.

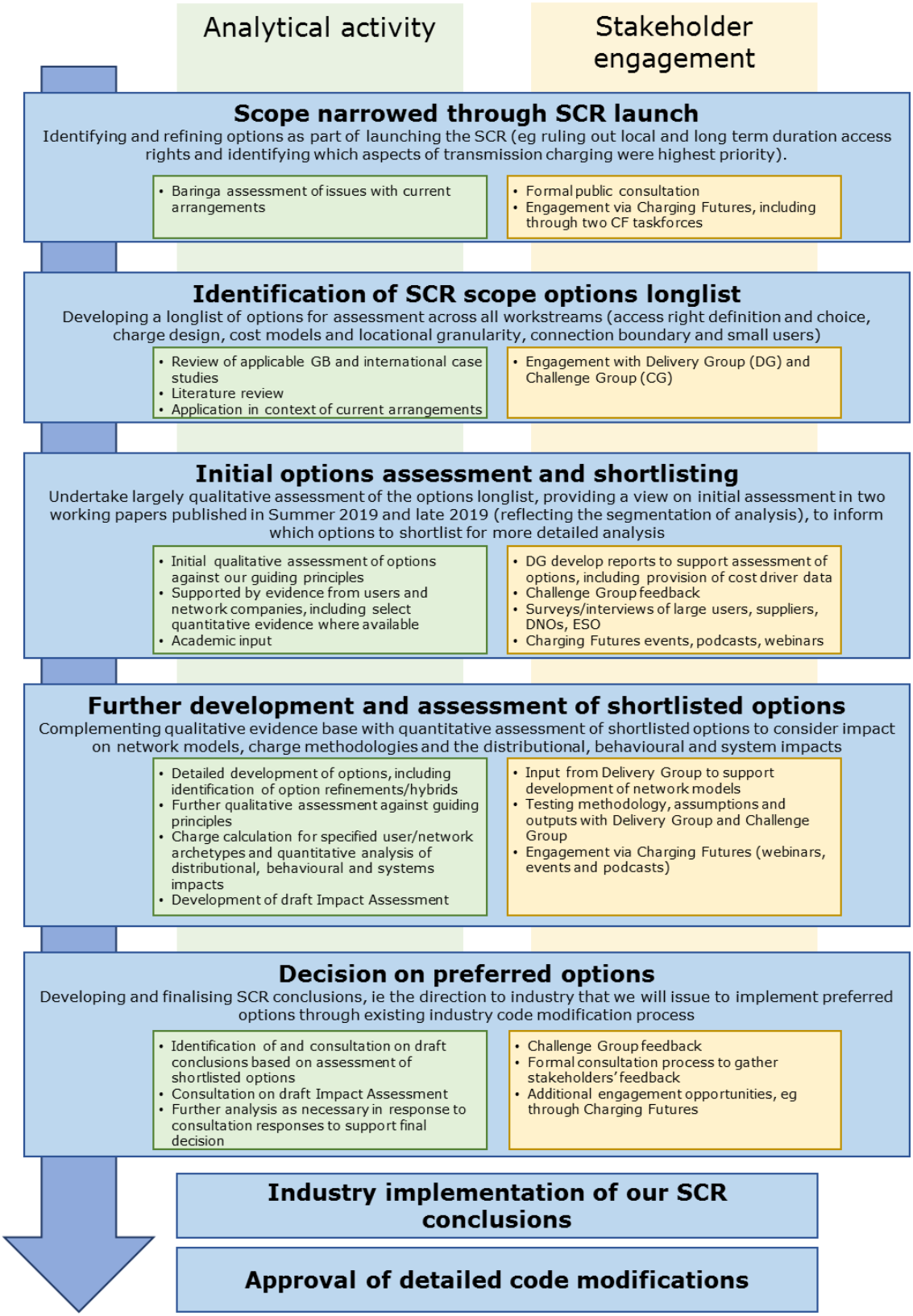
1.15. We intend to undertake a largely qualitative assessment of the long-list of options throughout 2019, with a view to confirming our option shortlist for further analysis early in 2020. We will then undertake further qualitative and quantitative assessment of this shortlist. Further detail on our approach to the quantitative assessment will be determined later this year. In summary, it will seek to provide additional supporting evidence and will consider:

- The distributional impact of the shortlisted options, to assess the projected quantitative impact of shortlisted options on different network users (in particular consumers).
- The behavioural impacts of the options, to assess and quantitatively estimate the potential nature, range and impact of user behavioural responses to the proposed changes, drawing on existing trial evidence, case studies and available literature.
- A systems analysis to provide an appropriately detailed assessment of the costs, benefits and system impacts of the shortlisted charging and access options, against a number of future scenarios which are to be agreed.
- Use of scenarios to assess the resilience of our proposals to future developments, and comparison of changes against an agreed counterfactual including decisions made and work ongoing with regards the Targeted Charging Review, Half-Hourly Settlement and flexibility.
- The projected impact of options over the period from implementation in 2023 up to 2040.

1.16. We consider that there are inherent uncertainties in accuracy associated with forecasting the impact of options in entirely quantitative terms. We therefore expect to place a high emphasis on our qualitative principles-led assessment in our decision-making, with the quantitative assessment acting to support this. This is consistent with our approach in the Targeted Charging Review where we are undertaking a principles-led assessment, supported by quantitative analysis. We intend to use guiding principles to frame our qualitative assessment, discussed further below.

1.17. For some topics we outline our preliminary views in this working paper. For other topics where we do not have a view as yet, we discuss the most relevant factors. We seek stakeholder feedback on all topics to help inform our ongoing analysis and subsequent draft SCR conclusions.

Figure 2: Our decision-making process



1.18. In undertaking this assessment of options we will consider how well the options perform in different future scenarios, and how adaptable they are to different possible developments given the level of uncertainty about how the energy system will evolve. The flexibility of our options will therefore be a key determinant of the longevity of these

proposed reforms. We are seeking to ensure that the options we identify are robust and flexible enough to respond to future developments through normal industry code governance arrangements. Options that are more robust to a range of different possible future states of the world will be preferred.

1.19. For distribution arrangements, our planned implementation date is 2023 which aligns with the start of the RIIO-ED2 price control period. Our intention is that the expected benefits of our distribution reforms are factored into ED2 business plans so consumers start to see these benefits during the RIIO-ED2 price control period. Having conducted a major distribution access and charging review ahead of RIIO-2, we would expect these reforms to be enduring. However, given ongoing and future significant changes in the energy sector and the difficulty in foreseeing the future, we do not rule out further changes in future if needed. Following the SCR, the usual industry-led process of typically smaller changes through the code modification process to address issues as they arise will continue.

1.20. For transmission arrangements, as our 2023 implementation date is after the commencement of the RIIO-ET2 price control period (which begins in 2021), we expect that uncertainty mechanisms within the RIIO-ET2 arrangements will play a role in transferring expected benefits of transmission access and charging reform to consumers during the RIIO-ET2 period. Within our scope we have also included a focused review for transmission, which contrasts with the wide-ranging distribution review we are undertaking. We chose this approach because we saw a more pressing fundamental need for reform of distribution arrangements. However, as noted in our launch statement, this may mean there are improvements we adopt at the distribution level which may benefit from incorporation into transmission arrangements at a later time. Any subsequent transmission changes following the Access SCR might be industry-led with smaller discrete changes delivered through the code modification process. We will give consideration to this matter on next steps as part of the SCR final conclusions.

1.21. Our decision-making and assessment process is supported by wide-ranging stakeholder engagement. To support our options development and assessment we have set up:

- A **Delivery Group** that comprises network companies, the Electricity System Operator and relevant code administrators. This group is supporting us in developing and assessing options, drawing on their expertise and knowledge of how the networks are planned and operated. We provide further information on specific reports provided by working groups under the Delivery Group in the relevant sections of this paper.
- A **Challenge Group** made up of wider stakeholders. This group is providing a challenge function to our thinking and the work of the Delivery Group, ensuring policy development takes into account a wide range of perspectives and is sufficiently ambitious in considering the potential for innovation and new technologies. Challenge Group members have also provided information in response to surveys and interviews, which we summarise in relevant sections of this paper.

1.22. We will also continue to undertake **wider engagement** through Charging Futures. This includes Charging Futures events, podcasts and webinars[9]. Further information on our

[9] The Charging Futures website can be found here, with further information on future meetings and how to sign up to the forum available here. The Charging Futures website also contains the materials developed by the Delivery Group and discussed at the Challenge Group here

approach to stakeholder engagement is provided in the Engagement with industry stakeholders discussion note as part of this working paper.

Further detail on our guiding principles

1.23. We set out the guiding principles for Access Reform in our launch statement. These provide the framework for developing policy in this area and form the basis of our principles-led assessment of the options identified within each workstream. This working paper sets out our initial qualitative assessment of the areas of our scope we have prioritised to date against these principles. We have developed these principles to reflect how we think our statutory duties apply in the context of this SCR.

1.24. Our options assessment in this document is presented in the form of an initial qualitative assessment. Where possible, we provide a preliminary view on the options, however as noted above, where this is not the case for topics covered in this working paper we discuss the most relevant factors. We emphasise that this is a preliminary assessment which we are providing to seek stakeholder feedback, and may change as we gather further evidence throughout this review. We also note that in undertaking this assessment we have not established leading options at this stage. These will be identified following further analysis and stakeholder engagement, with leading options presented in our draft SCR conclusions for stakeholder feedback.

1.25. We set out below a further description of the considerations against our principles that we have taken into account in our qualitative assessment to date. We also identify where we have made further refinements to the guiding principles since they were published when we launched the SCR. Once we have developed our draft SCR conclusions then we may consider developing more detailed criteria to assess the success and impact of our proposed reforms.

Principle 1: Arrangements support efficient use and development of system capacity

1.26. In our SCR launch statement, we said we would take into account the following in our assessment of emerging options:

- Access arrangements support network capacity being allocated in accordance to users' needs and the value they ascribe to network usage
- Arrangements provide signals that reflect the costs and benefits of using the network at different times and places, to support efficient use of capacity, and ensure no undue cross-subsidisation between users
- They provide effective signals for where new network capacity is justified
- Arrangements reduce barriers to entry and enable new business models where these can bring value for the system.

1.27. Since launching the SCR, we have adjusted the wording of this guiding principle to refer to 'system capacity' rather than 'network capacity', in response to stakeholder feedback. We have made this change because options developed will support the delivery of whole system outcomes. We have not made any changes to the definition of this principle or its intended purpose—we note particularly that ensuring no undue cross-subsidisation between users should support efficient wider system development as it should promote effective competition between energy service providers.

1.28. Arrangements which reflect this guiding principle will facilitate decarbonisation, primarily by enabling uptake of low carbon technologies through quicker connections and reducing network costs. They will also look to enable and reflect the benefits that new, innovative approaches and business models (such as local energy models) can bring to the system. However, they should not provide any unduly preferential arrangements based on technology or user type. We will take account of the potential effects of different options on sustainability as we undertake our assessment.

1.29. Under this principle, we also plan to consider compatibility with other markets, and how well the access and charging options integrate with network user requirements. For example, this could include an assessment of the impact of relevant options on existing and potential providers to access ancillary services markets.

Principle 2: Arrangements reflects the needs of consumers as appropriate for an essential service

1.30. There are two elements which we plan to focus on our options assessment under this principle:

- Electricity provides an essential service, and for small users in particular we need to ensure that arrangements do not lead to inappropriate outcomes or unacceptable impacts, particularly for those in vulnerable situations. This may be achieved in the access and charging arrangements themselves or through the wider policy and regulatory arrangements.
- Users, or suppliers/intermediaries on their behalf, are able to understand arrangements and have sufficient information to be able to reasonably predict their future access and charges.

1.31. The first consideration above is primarily focused on the impact of options on small users, and will feed into our considerations of whether such users may require modified arrangements or additional protections relative to larger users. We intend to cover this issue in our second working paper, which will have a special focus on access and charging arrangements for small users. By small users, we are referring to those users who do not have a specified capacity. These users are typically those that do not have Current Transformer meters. This includes domestic users, small business users and some generators. The second consideration is relevant to all electricity network users, and considers the ability of network users to understand and respond to the signals provided through the options identified.

1.32. Our assessment in this working paper therefore focuses on assessing how these options deliver against the second consideration, ie the extent to which users would be able to understand arrangements and have sufficient information available to them. It also identifies those options which may require further consideration or adjustment to make them suitable for small users. However, the detailed consideration of what adjustments to consumer protections may be necessary will be drawn out in our second working paper alongside our thinking on the second consideration as it relates to small users.

Principle 3: Any changes are practical and proportionate

1.33. We intend to consider the practicality and proportionality of different options, based on the costs and time they would take to introduce and the benefits they are expected to provide for the system and different network users. Practicality and proportionality considerations are also influenced by our planned 2023 implementation date, to align with

the start of the RIIO2 price control period for electricity distribution. As part of this assessment we plan to consider the impact on the following (noting that not all of these considerations will be applicable for each option):

- Data collection, processing and analysis requirements considering whether the option requires changes to the way in which data is currently collected, processed or analysed, and whether new data may need to be collected.
- Existing systems, assets and equipment considering whether new IT/operational systems (eg billing systems) may be required to implement the option and the degree to which new metering and monitoring equipment requires to be installed and the practicality of doing so.
- Charge calculation and settlement considerations, where the option requires parties who calculate charges to update their charging methodology or models and the extent to which this is required. Where a charging option requires reconciliation, considering the impact of this.
- Engineering and planning standards, assessing whether a particular option would require changes to engineering or planning standards, the scale of change required and the expected implementation timescales.
- Customer engagement or commercial agreements, considering any changes that would be required to how customers are engaged and managed and any impact on existing commercial arrangements.
- The ease with which the options can be implemented, considering the need for any legislative changes as part of the implementation requirements, and whether transitional arrangements are required. The complexity of such arrangements will also be considered. The ease of implementation is intrinsically linked with the other considerations described above.