

**DELTA-EE**

# Exploring alternative regulation of energy networks and systems

**Final report**  
**Citizens Advice**  
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# Executive summary

The Office of Gas and Electricity Markets (Ofgem), uses the RIIO framework to regulate the gas and electricity network monopolies for the benefit of the consumer. This research project, commissioned by Citizens Advice, aimed to identify and clarify the perceived issues with the current RIIO regulatory framework as well as potential improvements/solutions to the issues identified. These issues and solutions were then mapped against different end-consumer impacts to determine what effect they each had on end consumers. Lastly, alternative regulation frameworks from other markets were reviewed to determine if lessons learned from those methodologies can be used to address the issues.

The outputs of this work are derived from a combination of 16 interviews with industry experts, a review of relevant literature, and the input of an expert panel (integrated into the project team): Maxine Frerk, Dr Jeff Hardy and David Openshaw.

Whilst multiple issues have been identified, it should be noted that stakeholders and the literature are mostly positive about RIIO. In particular, the evidence shows that improvements have been made on RIIO-1 (RIIO is in its second iteration), with levels of customer service improving, costs falling and surveys showing high levels of customer satisfaction.

However, this research shows that further improvements still need to be made to play its role in delivering net zero while keeping costs manageable. The issues identified with the RIIO framework are interrelated and have multiple customer impacts – it is a complex framework. The core issues identified with the RIIO framework as well as its implementation can be categorised as follows:

- Fitness for the future – the current regulatory framework lacks agility to respond to a fast-changing landscape, misses true whole system coordination benefits, and networks are not investing sufficiently to meet future needs.

- Cost and time – the complex RIIO process results in unnecessary bureaucracy which drives up the time and resources required to deliver the process.
- Consumer and stakeholder engagement – the current engagement process is resource intensive, not transparent, nor specific enough.
- Overarching issues – the framework does not fully account for differences across companies and regions, the targets set by Ofgem are often not stretching enough, and Ofgem as well as the network companies being limited by their remit/license conditions in terms of adopting holistic strategies.

The solutions to issues are a mix of evolutionary and revolutionary approaches. They are not mutually exclusive. There are several evolutionary ‘fixes’ that could be put in place in the near-term which do not preclude more revolutionary changes. Evolutionary examples include: giving Ofgem a mandate for net-zero, Ofgem choosing to become more collaborative & transparent, standardisation of data collection (and sharing) and in-period adjustments processes, valuation of whole system services, and requiring network companies to undertake longer term scenario planning.

Within the more revolutionary solutions, there were themes related to: the economics of regulation, how best to manage uncertainty, improving the fundamental nature of engagement of various stakeholders in the regulatory process, as well as fundamental questions around the ownership model for network companies.

Seven key consumer impacts were determined based on the issues identified in the interview phase of the project. The evolutionary and revolutionary solutions were then mapped against these consumer impacts to determine which solutions could have the most positive effects for the end-customer. The most promising ideas in the revolutionary solutions space, based on their ability to solve a range of consumer impacts, were further explored via three case studies – summarised as follows:

- Leveraging the concepts embedded in a negotiated settlement approach to place far greater emphasis on the value of customer engagement.

- Using concepts from adaptive planning regulation to highlight the need for the 5-year review cycle to be more clearly embedded in a longer-term plan.
- Introducing ‘next generation’ performance incentives to bring about the significant changes that need to happen to value distributed energy resources (DERs) across the system.

We recognise that resources at Ofgem are limited, so given the wide range of issues and improvements identified in this research, Ofgem should focus its efforts on the most impactful solutions. We recommend that further work should be undertaken by Citizens Advice to further understand and prioritise potential solutions – evidence should be collected on the degree of harm/missed opportunity that different issues present and solutions that address the issues with the greatest impact should be prioritised. Quick wins (those with minimal effort or cost to implement) should also be prioritised. This prioritisation can then support Citizens Advice as they continue to engagement with Ofgem to get the best for consumers from the RIIO framework.

# 1. Introduction

## 1.1. Project background

The GB electricity and gas transmission and distribution networks are monopolies and are regulated by Ofgem to ensure that network companies deliver a quality service for consumers whilst also making a fair return for their shareholders.

This is currently achieved through an incentive-based methodology, referred to as RIIO (Revenue = Incentives + Innovation + Outputs). Ofgem uses this framework to decide the funding for energy network companies. Gas and electricity transmission and distribution companies submit business plans to Ofgem, and Ofgem evaluates the activities planned for the price control period against their associated costs and outcomes for consumers.

This framework has been in use for 9 years, and some concerns regarding the framework have emerged around:

- the processes that make up the settlement negotiations
- the suitability of the price control for encouraging the longer-term strategic objectives required to deliver a low carbon energy system that ensures value for money for consumers.

Citizens Advice commissioned this research project to reflect on the RIIO-2 process and identify potential spaces for improvement in the RIIO-3 process. The findings of this report will help Citizens Advice in building an evidence-based view on the processes that make up the settlement negotiations, and the suitability of the RIIO price control framework for delivering a low carbon energy system.

This research project focussed on identifying and clarifying the perceived issues with the current RIIO regulatory framework and its suitability for the net zero transition. In addition to identifying the perceived issues, the project also reviewed alternative regulation frameworks from other markets to determine if lessons learned from those methodologies can be used to address the issues.

## 1.2. Methodology

The research for the project was carried out in two subsequent stages: an exploratory research stage (stage 1) and an applied research stage (stage 2).

### 1.2.1. Exploratory Phase

The exploratory research phase was carried out in early 2022 and focussed on collecting qualitative data by:

- Conducting a literature review on previous research, works and documents pertaining to RIIO.

- Carrying out 16 semi-structured interviews with stakeholders who are directly involved in the RIIO framework, market experts (e.g. academics), and organisations representing various consumer groups.
- Analysing the findings from the research above to distil clear, impartial and objective conclusions

The Delta-EE project team worked closely with prominent expert partners: Maxine Frerk, Dr Jeff Hardy and David Openshaw, who have extensive knowledge and experience related to the RIIO framework and other relevant international and national frameworks. The expert partners have an advisory role in the project, providing guidance on the suitability of existing publications and identification of relevant sources for the literature review and framing the discussion guide for the semi-structured interviews by providing some initial hypotheses to test.

The expert partners also had a role in analysing and summarising the findings from the literature review and semi-structured interviews. A list of the publications that were reviewed as part of the literature review is contained in the Table 1.

Primary research for the project was carried out via semi-structured interviews with a sample of respondents from the following groups:

- Industry Representatives – e.g., DNOs, GDNs, TOs, ESO, Consumer Engagement Groups (6 interviews)
- End-user Organisations and Charities (3 interviews)
- Independent Experts and Academics (7 interviews)

A longlist of contacts, from across the three categories, was developed by Delta-EE, the expert partners and Citizens Advice. An initial list of interviewees was selected, capturing a mix of contacts who have hands-on experience with and views on the RIIO framework and methodology; several contacts who have experience with alternative regulatory frameworks were also selected for interviews. Part of the selection process was to ensure the research captured a wide range of opinions, helping to form a more balanced view.

The semi-structured interviews were conducted across a four-week period in February/March 2022. A discussion guide, developed by the Delta-EE project team with input from the external experts, was agreed with Citizens Advice for use in this project.

The discussion guide was used to provide some structure and ensure all topics are covered, but also provided enough flexibility to ensure that all the relevant views were probed. Please see Appendix A for the full discussion guide.



**Table 1: List of publications reviewed**

Author	Title	Year	Web Link
NAO	Electricity Networks	2020	<a href="#">Link</a>
Ofgem	Handbook for implementing the RIIO model	2010	<a href="#">Link</a>
Dieter Helm	Cost of Energy Review	2017	<a href="#">Link</a>
Poulter & Bolton	Remaking the regulatory model? Taking stock of ten years of customer engagement in Britain's energy networks	2022	<a href="#">Link</a>
Sustainability First	Regulation for the Future: The Implications of Public Purpose for Policy and Regulation in Utilities	2021	<a href="#">Link</a>
Maxine Frerk	Consumer Engagement in the RIIO Price Control Process	2016	<a href="#">Link</a>
Consumer Council for Water	Future Consumer Representation Models	2020	<a href="#">Link</a>
Energy Consumers Australia	Negotiated Settlement and Consumer Engagement	2016	<a href="#">Link</a>
IGOV	New Thinking: Transformational Regulation-comparing the NY REV & RIIO	2016	<a href="#">Link</a>
Laura Sandys & Thomas Pownall	Recosting Energy Powering for the future	2020	<a href="#">Link</a>
Nesta	Renewing regulation: 'Anticipatory regulation' in an age of disruption	2019	<a href="#">Link</a>
Ofwat	PR24 and beyond: Long-term delivery strategies and common reference scenarios	2021	<a href="#">Link</a>
NREL	Next-Generation Performance-Based Regulation	2017	<a href="#">Link</a>

A list of interviewees for this research was agreed between Delta-EE and Citizens Advice. Due to data privacy, the list below is limited to just the organisations/employers the interviewees work for (noting that in many cases interviewees expressed their personal views rather than the official positions of their organisation):

- Energy UK
- Western Power Distribution Customer Engagement Group
- National Grid ESO
- Centrica
- University of Edinburgh
- NGN/ NPG Consumer Engagement Group
- Sustainability First

- National Energy Action
- Electricity North West
- Scottish & Southern Energy Transmission
- Centre for Sustainable Energy
- University of Cambridge
- Zühlke Group
- Energy Savings Trust
- Cadent
- National Grid Transmission

In order to provide clear outcomes from the interviews and literature review, the research questions focussed on the following topics:

- The costs and time taken to deliver the existing RIIO process
- Consumer and stakeholder engagement in the RIIO process
- RIIO's ability to meet future requirements to achieve Net Zero.

A framework was developed that helped categorise the commonly raised issues of RIIO and potential solutions/improvements that could be implemented.

### **1.2.2. Applied Research Phase**

The research in the applied stage used the findings from the exploratory stage to undertake a deep-dive analysis into the specific issues identified within the regulatory framework from the literature review and semi-structured interviews.

The initial focus of the deep-dive analysis was to re-assess the issues related to the RIIO framework in the context of their impact on end consumers. This process narrowed the wide-ranging scope of the outputs from the literature review and semi-structured interviews down to seven key consumer impacts. These seven consumer impacts were then mapped against the regulatory issues identified in the exploratory phase, to determine which issues had the biggest impacts on end consumers.

Following the mapping of the consumer issues, a review of case studies related to alternative regulatory frameworks that may help address the key consumer shortfalls was carried out. A long list of relevant case studies was compiled based on the literature review, suggestions from interviewees during the exploratory phase and from suggestions by the expert project partners. The long list was then filtered into a short list, with the following three alternative regulatory framework case studies identified for review:

- Negotiated settlement – the Water Industry Commission for Scotland.
- Adaptive Planning – Ofwat PR24.
- Next Generation Performance Incentives – New York's Reforming the Energy Vision (NY REV).

The case study reviews provide the background and structure of each of the regulatory frameworks and explore the suitability of the alternative framework to address the key consumer issues by analysing:

- What the alternative regulatory framework has achieved.

- Which key consumer issues it addresses.
- The case study's applicability to the RIIO framework.

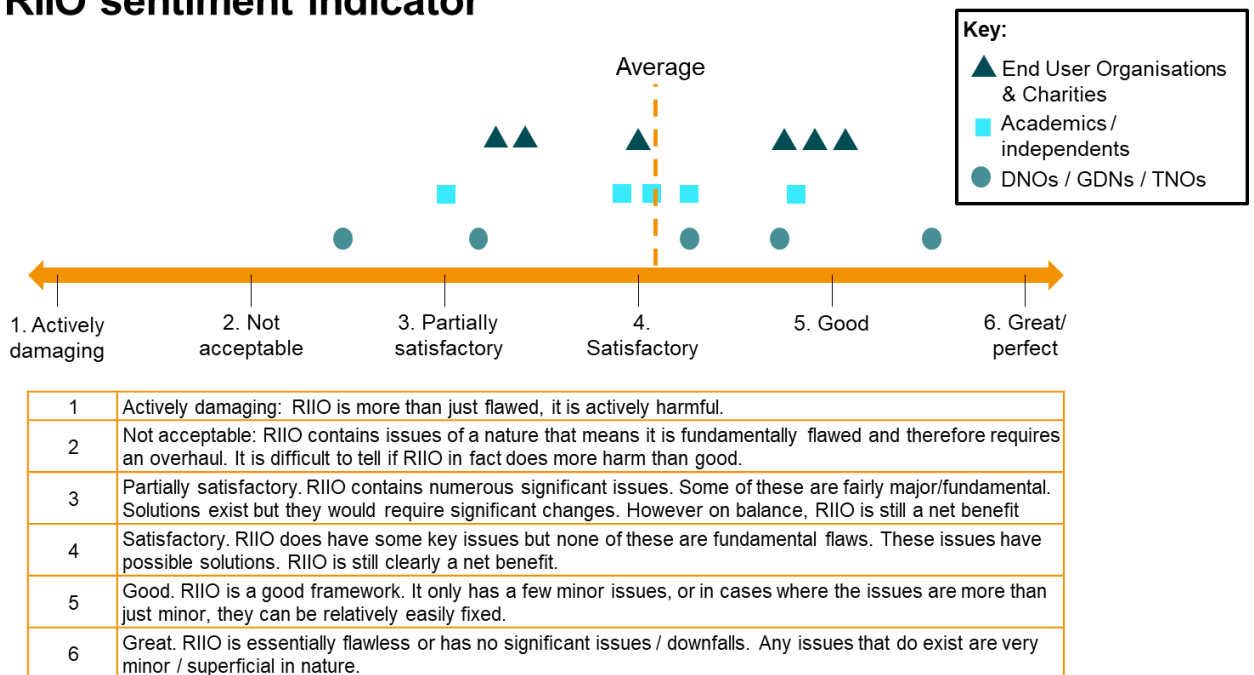
Following the alternative regulatory frameworks case study review, Delta-EE hosted an online workshop in April 2022 to facilitate an in-depth discussion of both the specific issues within the RIIO framework and alternative frameworks and solutions that were identified in stage 1 and further analysed in stage 2. Attendees from the workshop included stakeholders that were interviewed in stage 1 of the research (including some of their colleagues), the expert partners, and Citizens Advice. Where relevant, feedback and further analysis from the workshop were incorporated into the analysis.

# 2. Issues identified with the RIIO framework

## 2.1. Overall views of the RIIO framework

The purpose of this work was to review key literature sources and illicit the views of stakeholders regarding issues with RIIO and potential ways in which RIIO could be improved. Therefore, given these research aims, the literature review and interviews naturally tended toward focussing on “what is wrong with RIIO”. However, before covering the issues identified, it is important to recognise that the RIIO framework also has its merits. One source called it “best in class across Europe”. Figure 1 below presents the range of overall views of RIIO that were expressed by the interview participants<sup>1</sup>.

### RIIO sentiment indicator



**Figure 1: Overall views of RIIO expressed by interview participants, classified according to their organisational type**

The figure illustrates that a wide range of views were encountered from the interview participants. On average, they rated RIIO slightly above satisfactory, with all interviewees except one indicating RIIO is an effective framework. One source also made it clear they think

<sup>1</sup> Sentiment rating was compiled largely based on the response to the warm up question, “overall, what do you think of the RIIO framework?”

RIO is a good regulatory framework and the 'issues with RIO' are, "more of a failing of how the framework is being implemented rather than a failing of the framework itself"

## 2.2. Overarching issues identified

The focus of this research was on issues relating to: resources required for delivery, stakeholder and consumer engagement, and the framework's fitness for the future. The issues raised have been grouped into these three topic areas. However, there were a few issues raised that did not fall within these topics. These more overarching issues are described below.

### 2.2.1. The regulations do not adequately account for differences across companies

Some sources noted that Ofgem's approach of having a centralised framework applied to all companies does not adequately account for regionally specific challenges.

In two cases this was raised by researchers in relation to customer representation and the value of place-based solutions. Another source said that using the same average cost of debt for all DNOs is misleading, since interest rates can vary widely depending on when capital was borrowed. This creates "winners and losers" for historical reasons beyond DNOs control since they may need to raise debt at different times to address local needs.

On the other hand, one charity raised a concern that the RIO process still results in too much of a postcode lottery – with different customers receiving different levels of service quality delivered by their DNO/GDN.

### 2.2.2. Targets are set too far in advance and have historically not stretching enough

As detailed in the NAO's 2020 audit of the electricity networks, performance targets were set too far in advance and proved too easy to achieve. This contributed to excess returns in the RIO-1 price control period. This was echoed in Helm's 2017 Cost of Energy Review as well as in in calls with two sources. As an example, one source felt that historically the baseline performance for customer service was too closely linked to past performance, and not reflective of where companies should ultimately be aiming for.

### 2.2.3. Ofgem lacks strategic vision and companies lack a sense of purpose

Several academics and think tanks were concerned that Ofgem lacks focus on the real strategic outcomes it should be regulating for, and hence what role it wants the networks to play. These sources felt that regulation is not conducive to the promotion of "purposeful" utility companies. Instead, network operators are playing the "regulatory game" of trying to satisfy Ofgem, rather than working to achieve the underlying objectives that the incentives are intended to promote. In IGov's comparison of RIO with the New York Reforming the Energy Vision (NY REV), Professor Catherine Mitchell levels the criticism that:

*"RIO is not part of a process which is questioning traditional utility models...; it is not questioning how to deliver energy policy goals in a way which is best for society...; it is not part of a transformative new value proposition, which enables new markets, reveals new values and new system economics; it is not a rebalancing of markets and regulation; and it does not link policy programs with regulation."*

## 2.3. Issues relating to the costs and time taken to deliver the process

A number of challenges were raised on the topic of costs and time taken to deliver the price control process. These have been grouped into two primary issues: the complexity of the regulatory process and Ofgem's lack of resources.

### 2.3.1. The regulatory process is long, overly complex, too bureaucratic, and unnecessarily adversarial

Many of the network companies consulted stated that the business planning guidance provided by Ofgem is opaque, confusing and complex, and that the level of justification and evidence required for RIIO-2 has increased significantly compared to the RIIO-1 price control period. They also said that Ofgem does not provide enough guidance in terms of what good looks like and felt frustrated that no feedback was provided on the various draft submissions. One think tank suggested Ofgem is too concerned with not wanting to be seen to be awarding funding that is extravagant. They also expressed the concern that Ofgem isn't getting the balance right between the big picture and the detail - focusing too much on proof / evidence (e.g. line by line aspects of the business plan) for what is effectively an educated guess.

Some sources described the relationship between Ofgem and the network companies as adversarial, saying that the back-and-forth nature of the process extends its duration unnecessarily and can lead to legal challenges. Another source thought that the positioning was more defensive than adversarial. Generally, though it was agreed that the process needs to be more transparent and collaborative.

Two sources were particularly critical of the open hearings that were held towards the end of the GD2 / T2 negotiation process, saying they had no evidential impact on the final business plans. A significant amount of preparation was required for the hearings as they were strictly managed by Ofgem. It was also time consuming for stakeholders to attend each of the company hearings, yet they were not given the opportunity to ask questions. One source noted that the ED2 hearings held earlier in the process were an improvement, but it is still not clear what their impact was on the final decision.

The resource requirements for price control negotiations varied across the companies. Distribution network operators cited teams of anywhere from 3-40 people for 3-4 years of the negotiations. Transmission system operators mentioned having teams of between 10-40 for the 2-3 years leading up to the price control period, in addition to their usual business planning resources. This excludes further involvement from executive boards and the different engagement groups, including statutory ones like Citizens Advice. Companies also each spend several millions of pounds during the negotiation period on external consultants. One company noted that these amounts are the same whether the price control period is 8 years or 5 years, so the move to 5-year price control periods will drive up costs overall.

### 2.3.2. Ofgem lacks the resource and expertise to deliver RIIO

Several sources noted that Ofgem is currently under-resourced to deliver the RIIO periodic review process. It also struggles to retain experience and relevant expertise because many Ofgem staff only stay for a few years. This is in contrast to the network companies where many employees have spent their entire careers. As a result, Ofgem struggle to judge the accuracy of the information provided. It is unable to engage in the level of detail provided, and its understandings of how networks operate are too simplistic. This contributes to Ofgem's distrust of the information it is provided. Sources also claim the resourcing issue leaves Ofgem unable to understand the basis for claimed savings by the network companies. Some sources were also concerned that a lack of consistency due to staff turnover at Ofgem will impact its ability to effectively deliver future iterations of RIIO.

## 2.4. Issues relating to consumer and stakeholder engagement

Overall, it was agreed that the enhanced engagement approach taken in RIIO-2 is a significant improvement on RIIO-1. However, issues were raised around the resource intensity of engagement, end consumer polling methods, and how the engagement findings are used.

### 2.4.1. Stakeholders do not have sufficient resources to meaningfully engage in the complex regulatory process

All the stakeholder organisations consulted spoke of the heavy resource burden that engaging with the RIIO process places on their organisations. As one of the charities put it, “the time required to properly engage is a major barrier to genuine engagement”. This has led to a situation where meaningful engagement is not possible unless an organisation specifically has dedicated RIIO resources/personnel. One source said there is “disproportionate engagement from those with the resources to engage”. In addition to the time commitments required, organisations also need the right skills to engage given the complexity of some of the information they need to understand.

One stakeholder organisation objected to the poor stakeholder management processes employed by some network companies. An example given was the “scattergun” approach used by some network companies to send out stakeholder surveys, where these are emailed to everyone in each organisation rather than targeting just the relevant individuals. There is also a lack of coordination across network companies, many of whom engage with the same stakeholder organisations. Concerns of “stakeholder fatigue” were raised by several sources.

### 2.4.2. End consumer engagement is not specific enough and research methods can yield misleading results

The network companies interviewed generally believed that they were using all methods and forums possible to illicit meaningful input from end consumers<sup>2</sup>. Some agreed this can be challenging because consumers struggle to engage with such technical topics, while others felt they were able to explain concepts effectively and have constructive debate.

One academic was critical of the polling responses captured by current consumer engagement processes, saying these are not necessarily reflective of actual consumer needs. Consumers may not understand the questions they are asked, and questions can be constructed in a way that simply gives companies their desired answer. Another source was critical of gathering views of students to represent future consumers, as they are not in a position to say what they might be willing to pay in 10 years’ time.

A few sources were concerned that current sampling methods are too focused on ‘diversity’ and might obscure differences between customer groups based on regional or demographic characteristics. For example, willingness to pay can vary widely between wealthy households versus those in vulnerable circumstances.

Views on vulnerable consumers in particular were mixed. One source felt they are effectively represented, while others felt that definitions were too broad, and that engagement could be difficult because of their vulnerable circumstances. Some indicated that vulnerable customers may be better represented by relevant stakeholder organisations, including Citizens Advice specifically. Another also suggested that vulnerable consumers should be represented across all parts of company business plans, rather than considered in just a single section. Several sources agreed that networks should take a more collaborative approach towards vulnerable

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<sup>2</sup> In the context of this report, end consumers refer to households or domestic customers



customers, saying the regulator should only encourage competitive benchmarking where companies have a monopoly (e.g., the physical infrastructure).

#### **2.4.3. It is unclear how the engagement findings are utilised by the network companies and by Ofgem**

A number of sources mentioned that Ofgem does not seem to fully recognise or trust the depth of stakeholder engagement that has gone into business plan formation. Some companies complained that in some cases Ofgem will outright disregard or heavily discount the views gathered from stakeholders. Another source suggested “Ofgem seemed to have a plan beforehand” rather than taking the consumer engagement group (CEG) advisory input on-board. Some companies thought this is not only a waste of resources but will disincentivise stakeholder engagement in future.

One source suggested that Ofgem’s distrust might be due to a lack of comparability between companies. Academics and stakeholder organisations complained there is a general lack of clarity on how end consumer and stakeholder engagement ultimately influence the network company plans. Several sources agreed more guidance was needed on what good looks like.

Some sources indicated that Ofgem is also not clear on how it takes into account the Challenge Group (CG) findings when formulating its response. There is a perception that a disproportionate weighting is given to the CG conclusions, placing it above the direct stakeholder engagement.

While most sources recognised that the CG brings value, some pointed out that they contest certain issues to the point where it can be divisive. One source went so far as to suggest that the CG should be removed as it adds an additional layer of complexity and should rather be a role that Ofgem plays itself.

### **2.5. Issues relating to the framework’s fitness for the future**

All sources agreed that the RIIO framework’s fitness for the future could be improved. The main issues raised were around delaying network reinforcements, the framework’s inability to adapt to change, and the lack of coordination between networks. One source felt that although the framework is set on sound principles recognising there would be significant shifts, Ofgem has been much too focused on correcting the failings of RIIO-1 rather than looking forward.

#### **2.5.1. Networks are disincentivised from investing in network reinforcements and resilience, which disadvantages future consumers**

When asked whether RIIO protects the interests of future consumers, several sources raised concerns that companies are delaying network reinforcements, due to the RIIO framework limiting the degree of anticipatory/strategic investment that can take place. This lack of investment for load that will occur outside of the price control period puts security of supply and reaching net zero targets at risk in the future.

Some sources felt that Ofgem is overly concerned about asset stranding given the significance of the transformational changes happening, as well as the fact that load related expenditure is a relatively small component of total spend. They suggested that pre-emptive reinforcements should be incentivised where this is most efficient. However, one cautioned against reinforcements being misused as a way for networks to increase their regulated asset base. Another added that Ofgem should be careful to ensure that companies do not “pocket savings” from unspent budgets on pre-emptive reinforcements, only to ask for the budget again in the next price control period.



On network resilience - one source pointed to the impact of recent storms as evidence of a lack of network resilience. Another source thought there would be network capacity shortfalls if electrification of heat and transport progressed faster than anticipated in their areas, with DNOs having limited ability to quickly ramp up network capacity.

### **2.5.2. The framework is not agile enough to adapt to a rapidly changing landscape**

One of Helm's main criticisms of the RIIO framework is that the existing structures and processes are not agile enough for an uncertain future. Another source corroborated this view by saying, 'price control is designed around solving issues of the past, not modern issues'. Helm believes that the current licence distinctions will inhibit effective solutions to solving local constraints. He also feels that the periodic reviews will become an ever-greater barrier to the energy transition, and that uncertainty mechanisms are inadequate for dealing with the "unknown unknowns" that fundamental technological changes will bring. There is also the tension that too many or too broad an uncertainty mechanism risks undermining incentives and adds to the burden of regulation.

### **2.5.3. There is a lack of coordination between networks and across sectors**

Many sources spoke of a lack of coordination within networks, between networks or across sectors. One source described coordination between the network companies being viewed as a 'nice to have' rather than a core requirement. Some noted that flexibility procurement is not coordinated across transmission and distribution networks – for example, the best solutions for local constraint management might not always be the optimal use of flexibility from a whole system perspective. Others pointed to the lack of coordination between gas and electricity networks, such as control rooms not being allowed or able to share data. Coordination between gas and electricity will become increasingly important as home heating is electrified. One source also mentioned the need to consider other sectors in a more joined-up manner, such as telecoms and water, which will be needed for electrolysis to generate hydrogen.

In addition to the regulatory "silos" limiting whole system coordination, there is also the issue that RIIO creates false competition between companies, which one source said undermines the sharing of information and learnings for best practice.

One further underlying issue that forms a barrier to a joined-up approach is the mismatch in timing across the price control periods for electricity distribution, electricity transmission as well as gas distribution and transmission. Aligning the price control periods could arguably provide a greater ability to ensure a coordinated approach at the regulatory level as well as the network company level. The counter to this is that this may also exacerbate the Ofgem resourcing issue (Section 2.3.2) due to loss of diversity in timing.

# 3. Solutions proposed to address the issues identified

Although the focus of the first stage of this research was on issues with the RIIO framework, sources also suggested numerous solutions for the problems identified. The solutions proposed are summarised in this section. Many of solutions would be an evolution of the existing framework. These “evolutionary” solutions have been classed as either exogenous, cultural, procedural or structural solutions. Other suggestions would require more fundamental changes – these more “revolutionary” solutions are described at the end of this section. A lot of the solutions proposed are complementary, with very few being mutually exclusive in their nature.

## 3.1. Exogenous solutions proposed

Several sources noted a need for clarity regarding government’s net zero strategy and where responsibility for vulnerable consumers lies. These solutions are beyond Ofgem’s control, and so have been classed as “exogenous” solutions.

### 3.1.1. Give Ofgem a mandate for net zero and set a clearer net zero strategy

Two sources suggested that Ofgem should have a net zero statutory duty, saying it needs “skin in the game” to incentivise meaningful action. One think tank suggested adding public purpose as a licence condition for network companies and recommended that more use should be made of Strategic Policy Statements by government to set out its priorities for Ofgem. Government also needs to set a clearer net zero strategy, with more certainty regarding the role gas networks will play in future<sup>3</sup>.

### 3.1.2. Assign responsibility for welfare

One academic noted that addressing the needs of vulnerable consumers when it comes to energy is ultimately the government’s decision. This was reiterated by a think tank, which stated that the government needs to decide whether bill payers or taxpayers should pay for meeting the needs of vulnerable consumers. This is against the backdrop of comments from certain sources saying that network operators are best positioned to address the needs of the vulnerable (through the priority services register) as well as counter arguments being made that the government should coordinate all support for vulnerable households. A good example of this ‘grey area’ around responsibility is the government’s approach to energy efficiency.

## 3.2. Cultural solutions proposed

Some of the solutions suggested were around how Ofgem directs and engages with network companies. These have been classed as “cultural” solutions, though they may require some procedural or structural changes to achieve.

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<sup>3</sup> The House of Lords Industry and Regulators Committee recently concluded that “Explicit reference to having due regard to net zero should be added to its duties. [https://publications.parliament.uk/pa/ld5802/ldselect/ldindreg/162/16203.htm#\\_idTextAnchor001](https://publications.parliament.uk/pa/ld5802/ldselect/ldindreg/162/16203.htm#_idTextAnchor001)

### **3.2.1. Ofgem should be more collaborative, transparent, and prescriptive throughout the RIIO process**

Many of the sources consulted called for a more continuous and interactive relationship between Ofgem and the network companies. It was suggested that positions could be discussed in meetings or workshops in order to iron out any potentially adversarial elements before final settlement. It was also recommended that Ofgem outsource some assurance functions to de-escalate regulator/company tensions. This could be analogous to the Ofgem Innovation Link, which provides a source of non-legally binding, but rapid and useful advice to energy businesses and organisations.

It is clear that Ofgem needs to clarify the role of consumer and stakeholder engagement in the final determinations. To address Ofgem's lack of trust in the consumer engagement process, one source said there needs to be more structured dialogue between Ofgem, consumer engagement practitioners and the network companies. Others suggested that Ofgem should be more directly involved in engagement. In addition, another organisation felt that Ofgem should be more prescriptive about what the minimum requirements are in terms of engagement and what it considers to be best practice. Companies and stakeholders want Ofgem to explain how the engagement findings are factored into final determinations. In particular, where Ofgem has disregarded stakeholder views, it should say why. One company also said that if they put forward something because it was specifically requested by stakeholders/consumers, they should not be penalised if Ofgem deems it to be inefficient.

More generally, some sources also argued that Ofgem could be more prescriptive in all that it expects/requires from network companies. This is closely tied with standardising data collection and calculation methodologies (discussed in Section 3.3.3).

### **3.2.2. Put more focus on what is not working and reporting of bad practice**

It was suggested by a trade association that there should be more of a focus on the consumers who were not happy with the level of service they received. Having more of a focus on what is not working will help companies to improve further. It was also proposed that the competitive nature of the regulatory process be used in a way that drives the right behaviours. For example, there could be more reporting of bad practice and encouraging of laggards to do better. It is important to note that some sources indicated they believe reputational drivers to be fairly weak and direct financial implications are the only way to drive behaviour change.

## **3.3. Procedural solutions proposed**

The following solutions were classed as procedural, meaning they would likely require the introduction of standard processes by Ofgem. These procedural solutions would likely serve to speed up the process, make it less resource intensive and less ambiguous.

### **3.3.1. Make certain in-period adjustments easier**

Given the uncertainty around how the energy transition is likely to progress in different areas, a few sources suggested that it should be possible for companies to make certain in-period adjustments without the need for formal re-openers / administratively intensive uncertainty mechanisms. It will, of course, be necessary to define the triggers for these adjustments. For example, they could be more like the pre-defined volume driver uncertainty mechanisms built into the current framework where there is clarity in advance regarding the evidence required to trigger the mechanism and what the resulting next steps are.

### 3.3.2. Centralise and standardise certain engagement promises.

Several solutions were proposed to address the overlaps and lack of standardisation in current engagement processes. One source suggested that Ofgem should have dedicated standing groups that engage with both Ofgem and the network companies on topic areas such as vulnerability and decarbonisation. These groups could meet every one to two months to discuss strategic issues and lessons learned. Other sources suggested that each company should have a type of citizens' jury or performance panel with local end users, businesses and local authorities to help standardise and formalise direct engagement with end consumers. This would give consumers and stakeholders the opportunity to have their say on how networks are performing on an annual or bi-annual basis, provide route for recourse, and create more competition between companies (due to the greater ability to compare outcomes across organisations). It was also advised that distribution network operators be required to help local authorities with their local energy plans<sup>4</sup>. Another source recommended that Ofgem define and maintain a catalogue of current and future consumer interests, and then ensure that companies act in accordance with those interests.

When asked whether the creation of an independent DSO might increase opportunities for stakeholder interaction, sources were generally wary of adding complexity to the process, citing concerns about increased bureaucracy and overloading independent bodies. One source said that if a DSO was created, the objective should be to standardise procedures and processes across the network operators and support co-operation.

A few sources noted the resource constraints of the RIIO-2 Challenge Group. They suggested that the Challenge Group should be better resourced to engage with companies and also be allowed some budget to commission work. This might also enable engagement from organisations that do not currently have the budget to engage, such as Greenpeace or Friends of the Earth.

### 3.3.3. Standardise data collection, calculation and reporting processes

To make the price control process more streamlined and transparent, several sources called for improved information infrastructure and investment in digital system architecture. It was said that Ofgem should be more prescriptive about how data is collected, how it is interpreted or used in calculations, and how it is reported. Automating and standardising the way companies provide information would save Ofgem time comparing business plans and also make it easier for stakeholders to engage. One source said that ideally the whole RIIO process should, "require little information over and above the information the companies need anyway to carry out their duties efficiently".

## 3.4. Structural solutions proposed

The final evolutionary solutions are structural – changes and improvements that could be made to the RIIO structures and mechanisms.

### 3.4.1. Introduce longer term scenario plans with shorter interim review cycles for certain business planning elements

In answer to the questions of how to make the planning process more efficient and ensure plans are more forward looking, a number of sources proposed changes to the price control timescales. Several suggested that certain business as usual elements, such as load related spend, could be excluded from the 5-year plans as these are adjusted iteratively throughout the

<sup>4</sup> Ofgem have recently published a call for input to review into the effectiveness of institutional and governance arrangements at a sub-national level. <https://www.ofgem.gov.uk/publications/call-input-future-local-energy-institutions-and-governance>

price control period anyway. One said that companies could have 10+ year asset management plans, shared with Ofgem, that are updated annually, taking into account new innovations. They also suggested more continuous review and settlement, with yearly rolling reviews looking ahead 3-5 years (firm) and 5-10 years (provisional). Business plans would still need to be submitted every 5 years, but this way any potential concerns could be identified before the submissions. Another source called for longer price control periods, explaining that this incentivises investments in innovation that take longer than 5 years to pay off.

A few sources suggested that Ofgem and/or the network companies should have a long-term (20+ year) plan or scenario – this could be similar to Ofwat’s planned approach for PW24, where companies set out 5-year business plans in the context of a 25-year delivery strategy. It was agreed that there is a role for a centrally planned long-term strategy across the whole energy system. The strategy or scenario should be practical and deliverable, rather than illustrative like the Future Energy Scenarios. It should be planned by an independent body that is separate from Ofgem, National Grid and the day-to-day running of the energy system. For this reason, one source felt that “Energy Systems Architect” would be a more appropriate term for this body than “Future Systems Operator”.

#### **3.4.2. Give companies responsibility for facilitating demand reduction on their networks**

When asked whether network operators should play a more active or direct role in promoting energy efficiency, the majority of sources agreed that energy efficiency obligations should remain with energy suppliers, as they have the established relationships with customers as well as installers. However, some felt that there is still a role for network operators to provide energy efficiency advice or options. The ability to raise debt at low cost, the ongoing relationship between network operators and local authorities, and the direct network benefits of energy efficiency measures in targeted areas were given as potential drivers behind what could be a strong business case for doing so that companies should evaluate. One source raised a particular concern regarding the new Licence Condition 31E, which requires network operators to procure flexibility and give consideration to promoting and procuring energy efficiency measures. The concern was that Ofgem has issued reporting guidance on flexibility procurement but appears to have overlooked everything on energy efficiency.

#### **3.4.3. Adjust recovery mechanisms and reform incentives to encourage investment in innovation, whole systems thinking and resilience**

To address the issue of excess returns, several sources suggested that the Totex Incentive Mechanism<sup>5</sup> should be asymmetric, so that the cost of underperformance is borne primarily by companies. One source felt that the incentive mechanism is fundamentally flawed, and that company revenue should be closer to fixed to better incentivise innovation. It was also recommended that some kind of re-opener be introduced to recover excess returns arising purely from “financial engineering” – for example, an unanticipated reduction in the cost of debt.

Regarding Ofgem’s overestimation (or underestimation) of the risks to network companies posed by extreme weather events, it was suggested by one source that use of insurance should become more mainstream for managing energy risks in general. The argument here is that insurance companies are experts when it comes to efficiently assessing risk.

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<sup>5</sup> The Totex Incentive Mechanism incentive rate is the share of any efficient under or overspend retained or borne by the DNO. The current mechanism is symmetrical which means that for a given incentive rate (sharing factor) - e.g. 50% - then in the event of (efficient) overspend, customers would fund 50% of the increase – but in the event of efficient underspend customers would receive only 50% of the saving.

Many sources recommended the introduction of incentives to encourage behaviours like whole system thinking<sup>6</sup>, investment in resilience, investment in flexible solutions like battery storage, and deeper consumer engagement. The details of these potential incentives were not discussed, so it is unclear exactly what form they might take.

### **3.5. Revolutionary solutions proposed**

The following solutions were suggested by sources in the exploratory research and are classed as revolutionary; they would require the introduction of an entirely new regulatory framework.

#### **3.5.1. Whole system costing**

One source argues that “a fully costed system methodology must be used by all regulated assets, regulation and policy to uncover the knock-on costs and reveal the value sitting between the current silos”. In the fully costed system, demand side measures can provide better value (i.e., lower total system cost) than generation technologies and therefore they should be considered equal to generation. Linked to whole system costing, one source suggested that regulation would be better done across markets and not vertically along them.

#### **3.5.2. Regulate beyond pure economics/ price minimisation**

Some sources suggested that RIIO’s focus was too narrow to actually deliver net zero. RIIO is focused on price minimisation (through cost efficiency), innovation, and protecting energy consumers, but net zero goes beyond those two variables. Net zero isn’t just how you regulate the economics and protect consumers; it’s about making sure your entire ecosystem is solving all of its problems.

The system can’t achieve net zero without also helping the poorest households reach net zero; the regulatory framework needs to go further. The energy system needs an evolved regulation that is capable of centrally planning liberalised markets.

#### **3.5.3. Anticipatory Regulation**

Two sources identified anticipatory regulation as a more suitable framework for energy regulation. This is a highly flexible form of regulation that provides a set of behaviours and tools that aim to help regulators identify, build and test solutions to emerging challenges. They identified anticipatory regulation as being more future facing as it takes a proactive and collaborative approach; the goal of which is the iterative development of regulations and standards around the emerging field.

Anticipatory regulation also allows the regulator to be more experimental in their iterative development by more heavily relying on using practices like sandboxes to test new ideas. An example of anticipatory regulation is The Singapore Autonomous Vehicle Initiative which was established in 2014 to kickstart research and provide testbeds for autonomous vehicle transportation.

#### **3.5.4. Adaptive Planning**

There is a fundamental need for a new process of adaptive planning beyond 5-year price reviews. This adaptive planning should be based on scenarios and delivered over multiple price control periods. The scenarios and strategies would be co-created by companies, regulators and government in close consultation with end users / stakeholder representatives. Ofwat has

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<sup>6</sup> Ofgem recently published their decision to implement the Whole System Licence condition for transmission owners and electricity distributors. <https://www.ofgem.gov.uk/publications/decision-implement-whole-electricity-system-licence-condition-d177a-transmission-owners-and-electricity-distributors>



included adaptive planning in its proposed framework for the next price control period (PR24), stating that water utilities must define how their next 5-year business plan fits within their long term (25-year) delivery strategy (see Section 5.2 for further details).

### **3.5.5. Outcome-focused regulation**

Two sources suggested that there is a need to re-evaluate the purpose of the regulatory framework; to "put purpose at the heart" of utilities and the regulatory system. Governments and regulators should recognise the role that utilities must play in supporting distributive justice, intergenerational equity, and environmental sustainability.

One source noted the need to move away from viewing the regulatory framework as a competitive process and focus on meaningful outcome-based regulation, rather than simply being ambitious.

### **3.5.6. Negotiated Settlement**

A few sources identified negotiated settlement as an alternative to the current RIIO framework. Endorsed by Stephen Littlechild, a move to negotiated settlement would allow consumer groups and the energy network companies to come to an arrangement that is mutually agreeable, with the support of the regulator. Negotiated settlement within the business planning would allow different local groups to come to different settlement agreements, meaning local consumers would have a better chance of shaping outcomes that are more relevant and desirable to them. This more decentralised approach is perhaps somewhat at odds with the issue discussed in Section 2.2.1 regarding the current process resulting in too much of a 'post code lottery'. However, as one economist in favour of negotiated settlement approach noted, a debate would be needed on the acceptability of differential levels of service

There are sectors within energy networks, such as transmission, where consumer engagement is minimal, however there is potential for negotiated settlement between transmission (company) and suppliers + distribution (customers).

There are potential issues around trust, resource, and expertise. The regulator must have enough trust in the network companies and communities in order to cede control of decision making.

Negotiated settlement has been used effectively by other regulatory bodies in the UK, most notably, the Water Industry Commission for Scotland.

### **3.5.7. Open-source regulation**

To modernise the process, one source suggested that regulation become open-source – analogous to the way Wikipedia articles are written. Conceptually this does not mean doing anything new, in terms of the underlying principles of a particular regulatory framework, it just means regulators and governments are using modern tools to carry out the regulation.

In open-source regulation, the regulator plays the role of the factory, and all of the information is sent to them, digitally. The regulator takes an executive role, disclosing their methodology and ensuring that as many people as possible can see the information. Anyone can come forward and suggest alternative scripts or calculation processes and the system would become automated, which would essentially digitise the end-to-end regulatory process. The regulator is now outsourcing the regulatory process, rather than being a regulator who does everything inhouse.

The obvious pain point is the transition period, businesses across the industry can standardise and automate their engagement with the regulator – reducing the burden.

### 3.5.8. Network System Operators (NSOs) / Regional System Operators RSO model

Helm argues that “something much more flexible is needed”. The regulatory framework needs to be scrapped and we should allow the markets to reveal costs through auctions, as opposed to Ofgem trying to predict them. For example, putting *all* DNO activities – operations, maintenance, network enhancements – out to tender.

Public Network System Operators (NSOs) and Regional System Operators (RSOs), with a duty to ensure high-level outputs, would play a much greater role in a “post-periodic review world”. The decentralisation of the market could be facilitated by abandoning the distinction between distribution, generation, and supply licences in favour of a general license.

The NSOs and RSOs would not own assets, they would play an auctioning and coordination function. Under Helm’s NSO and RSO model, by placing these public duties on the NSO/RSO, they would take on the obligations that are currently shared between Ofgem, the government and network companies.

### 3.5.9. Force all network companies to be listed on a UK stock exchange

One source suggested forcing network companies to list on the London Stock Exchange. If these companies were forced to list on the London Stock Exchange, you could get a much more accurate and transparent figure with regards to the value of the companies, a much clearer indication of the impact regulatory decisions have on companies, and also provide a route for UK residents to become direct shareholders in the utilities that serve them.

A network company’s stock price will provide an improved understanding of the impact of price control as markets will be the best mechanism to estimate this.

### 3.5.10. Fundamental redesign of the incentives

To achieve net zero and to ensure a robust energy market in the future, the regulator needs to develop incentives that strongly encourage and appropriately reward companies to deliver on a long-term investment plan. One source felt as if there is currently too much of a focus on “what is the right length of a price review”. They claimed changing the length of the price review, without changing the infrastructure behind the mechanism, will not ensure suitable investment in future infrastructure. Therefore, the framework methodology needs to change as well. Where this solution differs from the evolutionary solutions focussed on lengthening the price control period and introducing periodic reviews, is the incentive structure. The suggested incentive structure for this solution calls for fundamental change. The key change would be to provide a return commensurate with the risk that the network company is bearing (with returns more in the region of 2-3%, rather than 7%).

One network operator stated that under the current incentive structure, network companies will just focus on beating the incentives set, regardless of length of period. The current incentives only encourage companies to show their own investors (and the regulator) that they’re outperforming the targets/incentives that the regulator has set for them and focus very little on the actual outcomes.

Another source highlights that the main determinant of network profitability is the WACC, with the other incentives being minor in comparison. Closely linked to this was the concern that network companies use maintaining an investment grade rating as a way to push Ofgem to be more lenient (so as to keep their cost of capital down). The source suggested that perhaps Ofgem should challenge network companies more on their investment grade ratings, ensuring no concessions are being made unnecessarily. Finally, as part of a fundamental redesign of the



incentives it was suggested that the regulator should also have the authority to step in after the investment period and take action if they deem that operator returns were unfair.

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# 4. Mapping issues to end-consumer impacts and solutions

Below, we define the key impacts on consumers that the various issues identified in this study have. We then map the issues identified (in Section 2) to end consumer impacts and to the different solutions identified (in Section 3). Our approach to mapping issues was as follows:

- First, we identified seven end consumer impacts from the issues uncovered in Section 2 (See section 4.1)
- Second, we mapped the issues arising from Section 2 against the seven key consumer impacts to understand the cross-cutting impacts of issues
- Third, we mapped the evolutionary and revolutionary solutions identified in Section 3 to the issues from Section 2 to understand the extent to which solutions addressed issues

## 4.1. Defining end consumer impacts

Following engagement with the expert advisory panel, seven consumer challenges were identified as representing the primary consumer impacts resulting from the issues uncovered in Section 2 of the report. Presented below are these consumer impact areas and their definitions.

Consumer impact	Definitions
Cost to consumers	Issues that will result in increased energy bills for end consumers due to, for example, inefficiencies in the regulatory process or excess returns earned by the network companies.
Lost voices	Issues in which the opinions and ideas of key stakeholders are lost or incorrectly represented in the regulatory process.
Inequality	Includes issues that result in disproportionate representation of certain stakeholders compared to others as well as issues that create unfair disparities between different regions or customer types.
Slow / delayed decision making	Issues which slow down decision making by, for example, increasing the levels of bureaucracy in the regulatory process.
Lack of Transparency	Reduction in the openness of any decision-making process, which can lead to reduced trust in the regulatory process. Also includes a lack of clarity regarding how certain inputs lead to specific outcomes for consumers.
Delivery of Net Zero	Issues which hamper the achievement of national net zero emissions targets.
Network resilience to climate change	Issues which result in an electricity network that is unprepared for the future risk caused by climate change, particularly increased number and duration of extreme weather events.

## 4.2. Mapping issues identified to end consumer impacts

The project team, including the expert advisory panel, assessed how the issues identified (Section 2) impact on consumers - illustrated in Table 2.

**Table 2: Mapping issues identified to end consumer impacts. Dark blue cells indicate key consumer impacts of the different issues.**

	Cost to consumers	Lost voices	Inequality	Slow / delayed decision making	Lack of Transparency	Delivery of Net Zero	Network resilience to climate change
<b>Overarching issues</b>							
The regulations do not adequately account for differences across companies	Dark Blue		Dark Blue				
Targets are set too far in advance and are not stretching enough	Dark Blue			Dark Blue		Dark Blue	Dark Blue
Ofgem lacks strategic vision and companies lack a sense of purpose		Dark Blue		Dark Blue	Dark Blue	Dark Blue	
<b>Cost &amp; Time Issues</b>							
Regulatory process is long, overly complex, too bureaucratic, and unnecessarily adversarial	Dark Blue	Dark Blue		Dark Blue	Dark Blue		
Ofgem lacks the resource and expertise to deliver RIIO	Dark Blue			Dark Blue		Dark Blue	
<b>Consumer &amp; Stakeholder Engagement Issues</b>							
Stakeholders do not have sufficient resources to meaningfully engage in the complex regulatory process	Dark Blue	Dark Blue	Dark Blue		Dark Blue	Dark Blue	
End consumer engagement is not specific enough and research methods can yield misleading results		Dark Blue	Dark Blue				
It is unclear how the engagement findings are utilised by the network companies and by Ofgem		Dark Blue	Dark Blue		Dark Blue		
<b>Issues with the framework's fitness for future</b>							
Networks are disincentivised from investing in network reinforcements / resilience, disadvantaging future consumers	Dark Blue	Dark Blue		Dark Blue		Dark Blue	Dark Blue
The framework is not agile enough to adapt to a rapidly changing landscape				Dark Blue		Dark Blue	Dark Blue
There is a lack of coordination between networks and across sectors	Dark Blue		Dark Blue			Dark Blue	Dark Blue

What is apparent from Table 2 is how the issues and consumers impacts are cross-cutting – i.e., each issue identified has several consumer impacts. Cost to consumers and delivery of net zero are the two impact areas that are affected by most issues. Lost voices and slow / delayed decision making are other impact areas with a significant number of issues affecting them.

The two issues that touch on the most consumer impact areas are stakeholders not having sufficient resources to meaningfully engage in the complex regulatory process and network companies being disincentivised from investing in network reinforcements / resilience disadvantaging future consumers.

Below, we comment on each of the consumer impact areas and the issues impacting them.

#### **4.2.1. Cost to consumers**

Many of the issues identified would have either a direct or indirect impact on the cost to consumers. Any issue that relates to the current process being inefficient, overly bureaucratic, or too complex will ultimately require more time and resource to deliver. This additional time and resource will have a cost implication that will be reflected in consumer bills. In terms of targets not being stretching enough or not clearly defined, this leaves rooms for companies to either generate excess returns or not deliver value for money – driving up costs. Network companies not investing enough now in upgrading their networks will ultimately lead to future consumers paying more than they should for overdue upgrades or suffering a degradation in the quality of service they receive. Finally, a lack of coordination between networks and sectors ultimately means that opportunities to exploit synergies and deliver coordinated cost savings will be diminished. Optimising across sectors could potentially unlock significant savings.

#### **4.2.2. Lost voices**

At an overarching level, Ofgem lacking strategic purpose and the network companies focusing on playing the regulatory game creates a space where consumer voices are not being heard in the right way or to serve the right purposes. All issues related to consumer and stakeholder engagement issues ultimately result in lost voices. Key here are the issues related to insufficient resources to engage properly and the underlying methods not being suitable – these factors ultimately contribute to stakeholder's views either being misrepresented or not heard at all.

Lack of appropriate future investment in networks serves to disenfranchise future consumers from having a fit for purpose network – hence not representing the interests of those future consumers. The overly long and complex nature of the regulatory process means there are high barriers to being able to have input into the process. These high barriers to entry result in fewer stakeholders being able to meaningfully participate.

#### **4.2.3. Inequality**

Inequality in consumer outcomes can arise due to regulations not counting for things such as regionally specific challenges and differences in the cost of debt for companies. Some refer to the current regulatory framework still contributing to a form of postcode lottery which is a significant aspect of inequality.

Similar to lost voices, issues related to consumer and stakeholder engagement issues can result in inequality. Lack of resources to engage, lack of specific engagement and poor clarity in how engagement findings are used ultimately can all lead to the disproportionate representation of certain stakeholders compared to others as well as issues that create unfair disparities between different regions or customer types.

Lack of coordination across network companies (within and across sectors) can also have impacts on inequality. For example, customers on the border of a network licence area may receive different responses to similar issues - e.g. outages in extreme weather events.

#### **4.2.4.Slow decision making**

The regulatory process being overly complex and bureaucratic as well as Ofgem lacking the relevant resource to deliver RII (the two 'cost and time issues') directly result in delayed decision making. Ofgem lacking strategic guidance also can lead to protracted decision making since there is not a clear sense of purpose driving things on the regulatory side. The lack of sufficient agility in the framework to adapt to a rapidly changing landscape also arguably has a significant impact on making the right decisions in a timely manner.

#### **4.2.5.Lack of transparency**

The two key issues that contribute to the lack of transparency are the complexity of the current process and the fact it is unclear how Ofgem uses certain findings, especially related to the engagement process.

While in theory the regulatory process is quite open with all decisions and responses being documented, the sheer complexity and length of the process results in it being quite opaque and ultimately makes the overall process difficult to follow. This has knock-on impacts on the ability to trust the findings. Industry experts not directly involved with the process day-to-day claim they are not even able to determine how certain decisions have been made.

#### **4.2.6.Delivery of net zero**

Delivery of net zero, given it is a future goal, ties in closely with all the issues related to the fitness of the framework for the future. It closely ties in with the issue of the framework not being agile enough to adapt. This is largely from the perspective of energy trends changing rapidly, e.g. being able to deal with a faster uptake in electric heating compared to what was predicted.

Delivery of net zero also tied in with sufficient engagement with stakeholders to capture both their current as well as their future needs in relation to moving towards net zero. The lack of an Ofgem mandate to drive towards net zero as well as the price control being limited to looking 5 years out (rather than planning decades out to a clear net zero target) is a key issue regarding the delivery of net zero.

#### **4.2.7.Network resilience to climate change**

Like with net zero, the resilience to climate change touches on a lot of issues related to the framework's fitness for the future. A key issue is whether the current incentive regime is set up correctly to properly promote and reward developing more resilient networks. Shortcomings in network resilience have knock-on consumer impacts (e.g., reduced reliability of supply). The IIS mechanism isn't suited to encouraging investment in network resilience to rare severe storm (or flooding) events that can cause prolonged interruptions to a relatively small number of customers.

Targets not being stretching enough is also indirectly a contributing factor in the networks potentially not being resilient to climate change.

### **4.3. Mapping issues to solutions**

Table 3 shows how the different 'evolutionary' solutions identified in Sections 3.1 – 3.4 might address the issues identified. It is important to note that during the literature review and stakeholder engagement process, we did not seek direct solutions to each of the issues identified. Many of the 'solutions' can also be characterised as possible improvements that can be made to the regulatory framework.

**Table 3: Mapping issues to the ‘evolutionary’ solutions. Dark blue cells indicate a solution that directly address the issue whereas a light blue cell indicates a solution that may help indirectly address the issue.**

	Exogenous solutions		Cultural solutions		Procedural solutions			Structural solutions		
	Ofgem net zero mandate and a clearer net zero strategy	Assign responsibility for welfare	Ofgem more collaborative, transparent, prescriptive	Focus on what is not working + reporting bad practice	Make in-period adjustments easier	Centralise and standardise engagement processes	Standardise data collection, calculation and reporting	Long term scenario plans, shorter interim review cycles	Companies responsibility for facilitating demand reduction	Adjust recovery mechanisms and reform incentives
<b>Overarching issues</b>										
The regulations do not adequately account for differences across companies										
Targets are set too far in advance and are not stretching enough										
Ofgem lacks strategic vision and companies lack a sense of purpose										
<b>Cost &amp; Time Issues</b>										
Regulatory process is long, overly complex, too bureaucratic, and unnecessarily adversarial										
Ofgem lacks the resource and expertise to deliver RIIO										
<b>Consumer &amp; Stakeholder Engagement Issues</b>										
Stakeholders do not have sufficient resources to meaningfully engage in the complex regulatory process										
End consumer engagement is not specific enough and research methods can yield misleading results										
It is unclear how the engagement findings are utilised by the network companies and by Ofgem										
<b>Issues with the framework’s fitness for future</b>										
Networks are disincentivised from investing in network reinforcements and resilience, which disadvantages future consumers										
The framework is not agile enough to adapt to a rapidly changing landscape										
There is a lack of coordination between networks and across sectors										

The shading in Table 3 indicates how not all the solutions identified have a direct impact on issues. In some cases, there are solutions, such as the 'standardisation of data collection, calculation and reporting processes', that address several issues directly. In other cases, some solutions proposed, such as the need to 'assign responsibility for welfare', only have few indirect benefits on the issues identified. This does not imply solutions that do not map to many issues are less valuable than other solutions identified, merely that they do not address the issues identified in the context of this work. Furthermore, even in cases where there is a solution (or multiple solutions) that address an issue directly, this does not mean the solution will solve that issue entirely.

The procedural solutions proposed around 'centralising and standardising the engagement processes' as well as 'standardising data collection, calculation, and reporting processes' map well to the three consumer and stakeholder engagement issues. This suggests procedural standardisation could help address the apparent lack of stakeholder resources to engage properly, the lack of specific consumer engagement outcomes, and help clarify how engagement findings are used by network companies and Ofgem. Perhaps unsurprisingly, the structural solutions proposed seem to address the issues associated with RIIO's fitness for the future. The issues associated with the framework's fitness for the future are largely structural issues in themselves.

All the issues identified in Table 3 map to one or more solutions except for the issue relating to 'Ofgem lacking the resource and expertise to deliver RIIO'. The table indicates that standardising data collection, calculation and reporting processes might help partly address this issue but not solve it entirely. In this case, as could be argued the case for some of the other issues, the solution here is somewhat self-evident - Ofgem's RIIO team should be sufficiently resourced and efforts made to retain key expertise.

Given the multifaceted nature of many of the issues, in most cases it is not possible to address the issue in its entirety through one of the solutions. One example of this may be the issue that 'networks are disincentivised from investing in network reinforcements and resilience, which disadvantages future consumers. This issue could be tackled via a number of routes, such as giving Ofgem a clearer net zero mandate (assuming this then translates into the regulations set for the networks), making in period adjustments easier, introducing longer term plans that would force network companies to look out to 2050, make companies responsible for demand reduction, and adjusting recovery mechanisms / reforming incentives to encourage investment in innovation, whole systems thinking and resilience.

Table 4 sTable 3 shows how the different 'revolutionary' solutions identified in Section 3.5 might address the issues identified.

**Table 4: Mapping issues to the ‘revolutionary’ solutions. Dark blue cells indicate a solution that directly address the issue whereas a light blue cell indicates a solution that may help indirectly address the issue.**

	Whole System costing	Regulate beyond pure economics	Anticipatory Regulation	Adaptive Planning	Outcome focused regulation	Negotiated Settlement	Open-source regulation	NSO / RSO model	Force network companies to list	Redesign the incentives
<b>Overarching issues</b>										
The regulations do not adequately account for differences across companies					Light Blue	Light Blue	Light Blue	Dark Blue		Light Blue
Targets are set too far in advance and are not stretching enough			Light Blue	Light Blue	Light Blue	Light Blue	Light Blue			Light Blue
Ofgem lacks strategic vision and companies lack a sense of purpose						Light Blue	Light Blue	Dark Blue		
<b>Cost &amp; Time Issues</b>										
Regulatory process is long, overly complex, too bureaucratic, and unnecessarily adversarial					Light Blue	Light Blue	Dark Blue	Dark Blue	Light Blue	
Ofgem lacks the resource and expertise to deliver RIIO					Light Blue	Light Blue	Dark Blue	Dark Blue	Dark Blue	
<b>Consumer &amp; Stakeholder Engagement Issues</b>										
Stakeholders do not have sufficient resources to meaningfully engage in the complex regulatory process						Dark Blue			Light Blue	
End consumer engagement is not specific enough and research methods can yield misleading results						Dark Blue				
It is unclear how the engagement findings are utilised by the network companies and by Ofgem						Dark Blue				
<b>Issues with the framework’s fitness for future</b>										
Networks are disincentivised from investing in network reinforcements and resilience, which disadvantages future consumers	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue					Light Blue
The framework is not agile enough to adapt to a rapidly changing landscape	Light Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue		Dark Blue			Light Blue
There is a lack of coordination between networks and across sectors	Dark Blue	Light Blue		Light Blue	Light Blue			Light Blue		



Once again, the shading in Table 4 indicates how not all the solutions identified have a direct impact on the issues. The revolutionary solutions are arguably slightly more polarised than the evolutionary solutions regarding the issue they address. Furthermore, it is possible to argue that some of the revolutionary solutions could in fact help address all the issues identified. For example, open-source regulation could be used to help address all the issues identified, but we have limited the mapping to the key/fundamental issues that the revolutionary solution would help address – guided by the context in which the source that identified the solutions raised it.

The first few columns of Table 4 largely address issues associated with RIIO's fitness for the future. Negotiated settlement is an example of an alternative type of regulatory framework that is the only revolutionary solution proposed that directly addresses all the consumer related issues identified. Open-source regulation is identified as a potential way to address the issues associated with the cost and time taken to deliver the current process. Lastly, Helm's highly free market driven Public Network System Operators (NSOs) and Regional System Operators (RSOs) proposal, where markets reveal costs through auctions rather than being calculated by regulators would in theory help address some of the overarching issues identified as well as the issues associated with the cost and time taken to deliver the current process.

# 5. Case Studies

Using a comparative case study approach, drawing on regulatory frameworks from different models and states, this section aims to suggest alternatives or adaptations to the RIIO framework that may help address current end consumer impacts shortfalls. It should be noted that the case studies are not covered in sufficient depth to provide actionable insights, only high-level recommendations. Furthermore, the analysis is based on the current structure of RIIO and does not account for potential changes being proposed in the sector, e.g. FSO role etc. Future such changes might mean that other case studies may become more relevant – e.g. learning from how countries with nodal pricing limit the impact of this on end consumers.

To start, a long list of relevant case studies was compiled based on the literature covered as part of phase 1, suggestions from the interviewees (from phase 1), and from suggestions by the expert project partners. From this long list, three case studies were taken forward for detailed review. The case studies were chosen based on their general applicability and their potential to help address a wide range of the issues and consumer impacts associated with the current RIIO framework (as per Section 4.2).

The long list of case studies considered included:

- **Scottish Water and a customer negotiated settlement model (Water Industry Commission for Scotland – WICS)**
- Negotiated Settlements and Just and Reasonable Rates (Canada)
- Negotiated Settlements, Long-term Profits and Costs (Canada)
- Negotiated Settlements and the National Energy Board (Canada)
- South Wales Valleys Climate and Fairness Panel (Australia)
- Online Citizens Jury: Energy Generation in NSW (Australia)
- **New York’s Reforming the Energy Vision (REV) approach.**
- Local engagement with England’s East Coast communities to deliver offshore and onshore infrastructure.
- UK Civil Aviation Authority - Constructive engagement
- USA National Highway Traffic Safety Administration (NHTSA) – principle-based regulation
- Singapore’s Committee on the Future Economy (CFE)
- **Adaptive planning as per the Ofwat PR24 approach**

The final three case studies taken forward for detailed review are bolded in the list above and discussed in detail in the sections to follow. The case studies were chosen primarily based on their complementary coverage across the different consumer impact areas, as shown in Table 5.

**Table 5: Consumer impact areas addressed by each case study. Dark blue cells indicate that the case study directly address the consumer challenge whereas a light blue cell indicates an indirect relationship.**

<b>Consumer challenges:</b>	<b>Negotiated settlement - Water Industry Commission for Scotland (WICS)</b>	<b>Adaptive planning - Ofwat PR24</b>	<b>Next generation performance incentives - New York Reforming the Energy Vision (NY Rev)</b>
<b>Cost to consumers</b>			
<b>Lost voices</b>			
<b>Inequality</b>			
<b>Slow/ delayed decision making</b>			
<b>Lack of Transparency</b>			
<b>Delivery of Net Zero</b>			
<b>Network resilience to climate change</b>			

The Canadian negotiated settlement examples were not taken forward to be investigated in detail given that there are other more applicable UK based negotiated settlement case studies. The England's East Coast communities and the UK Civil Aviation Authority cases studies, despite having interesting regulatory approaches, were not examined in detail given that they cover sectors too far removed from energy. While Singapore's Committee on the Future Economy and the USA NHTSA had interesting regulatory approaches, these were not examined in detail given the combination of the fact they relate to different sectors as well as exist in very different overall regulatory environments (e.g. the USA's Federal vs state system).

## **5.1. Negotiated settlement as per the Water Industry Commission for Scotland (WICS)**

### **5.1.1. Background/context**

The Water Industry Commission for Scotland (WICS) is the economic regulator of Scottish Water, the publicly owned provider of water and sewerage services across Scotland. WICS is tasked with determining service performance targets and the acceptable level of charges which may be put onto customers' bills over a given regulatory period<sup>7</sup>. WICS originally set these parameters via a benchmarking process against the water utilities in England, which traditionally performed better than their Scottish counterpart. However, Scottish Water had begun closing the gap in performance compared to English water utilities and as such WICS was questioning whether the existing benchmarking process was still suitable to ensure sufficient efficiency gains could be achieved under the existing framework. Furthermore, WICS wanted to include in the process a way of legitimising household bills for end consumers. Therefore, they decided to move towards a negotiated settlement approach, putting a Customer Forum at the heart of the negotiation process, to determine incentive mechanisms and price controls for the next regulatory period.

<sup>7</sup> Note that in Scotland consumers do not pay water bills, instead water costs are included as part of their council tax bills

### 5.1.2. The regulatory framework

The Customer Forum for Water was created in September 2011 as the focal point of the WICS negotiated settlement framework after a formal cooperation agreement between WICS, Scottish Water and Consumer Focus Scotland. The Customer Forum contained eight representatives of which five were chosen by Consumer Focus Scotland and 3 were chosen by WICS. The Forum was not meant to be representative of the whole Scottish Water customer demographic, rather they were to act as an expert challenge group working on behalf of the customer, ensuring that the preferences and opinions of the consumer, as expressed in research, were properly taken into account in the decision-making process.

Initially, the focus of the Forum was to play a formal role in setting price controls for the 2015-2020 period. In 2012 this role was expanded to include the task of reaching an agreement with Scottish Water on its business plan. Legally WICS retained the final decision-making power over business plan approval, but it had been clearly signalled early on that WICS would accept the business plan agreed between The Forum and Scottish Water. While not technically part of the business deal negotiation, WICS retained a key role throughout the process by playing an active role in facilitating successful negotiations between the parties, providing expertise when necessary and giving clear indications to the two parties of what it would deem acceptable on a range of issues in the final proposal. This gave the negotiating parties a clear idea where the negotiations would achieve a realistic chance of acceptance at the end of the process.

In the current review period (2021-2027), things have moved on from the negotiated settlement model. In particular, WICS too are facing a much more complex set of challenges around net zero, an aging infrastructure and considerations around cost to consumers. In light of this, WICS have evolved the Customer Forum to have more of a strategic role<sup>8</sup>.

### 5.1.3. What has been achieved

The negotiations between the Customer Forum and Scottish water resulted in acceptance of the business plan by WICS on first submission (for the 2015 – 2021 price control period). Further, the negotiation was deemed a success in establishing real engagement with the consumer group. Three areas are identified as key results of the Forum's engagement in the process. Firstly, the wording used and framing of Scottish Waters business plan was less technical and as such was seen to be more accessible to a wider audience, increasing transparency. Secondly, Scottish Water moved from using the metric of Retail Price Index to Consumer Price Index which is seen as more meaningful to consumers. Lastly, a tougher price cap had been accepted by Scottish Water for the 2015-2021 regulatory period than had previously been seen as feasible by WICS at the beginning of the process<sup>9</sup>.

According to Bush and Earwaker<sup>10</sup>, the achievements of the regulatory process have gone beyond the results of the business plan itself. The process has been seen to have driven a culture change within WICS, with its role as a regulator moving to more of a facilitator in the interaction of other parties. This resulted in WICS requiring fewer staff with a different mix of skills compared to the previous regulatory process.

### 5.1.4. Which consumer issues this can address

The main strength of the negotiated settlement process is its ability to put customer opinions and ideals at the heart of the regulatory process. The Customer Forums remit was to ensure

<sup>8</sup> "Spending for a rainy day" – Interview with Alan Sutherland from WIC. The Water Report, November 2020.

<sup>9</sup> "Innovation through customer engagement and negotiated settlements in water regulation Towards a transformed regulatory state?", Eva Heims and Martin Lodge, 2016

<sup>10</sup> "The Future of Customer and Stakeholder Engagement in the Water Industry", Harry Bush and John Earwaker, 2015

that consumer interests, as expressed in research, were properly accounted for in the decision-making process. This reduced the “**Lost Voices**” of certain groups that often feel left out or are unable or ill-equipped to enter the regulatory process. In general, it is also expected that increasing consumer engagement will increase the **transparency of the regulatory process** and help reduce overall **inequality in consumer outcomes**. An example of this is the changing of the language used in the final business plan being seen as more accessible to the wider public. However, in the WICS case, the negotiation process was not necessarily more open and transparent as it was still conducted between only two parties (Scottish Water and the Customer Forum) with one source stating that there was little transparency throughout the negotiation process into how Scottish Water moved to challenge the Forums views during the process.

As noted previously, WICS played a key role in facilitating guidance on key issues ensuring that the negotiating parties were aware of what would be deemed an acceptable result of the negotiations. This resulted in acceptance of the business plan on first submission, reducing the time taken which in turn should reduce the cost on consumers. The fewer staff required by WICS to deliver the process should reduce the final **cost on end consumers**.

#### 5.1.5. Applicability to RIIO and lessons that can be taken from it

Water (and sewage), like energy, is critical national infrastructure which has a role in achieving net zero, and which also needs to consider the impact of climate change (for example with rainfall levels and requirements for reservoir capacity) and their impact on the environment. Therefore, the WICS case study shows that a negotiated settlement approach in energy involving local stakeholders would be capable of considering wider strategic, societal and environmental objectives, although one would want to look at how WICS have evolved the approach more recently to take more account of these factors.

It is important to note some of the differences between this case and that of Ofgem and RIIO. Firstly, Scottish Water is a publicly owned utility and as such certain parameters are set by the government rather than the regulator, such as outperformance. Secondly, another difference due to the fact Scottish Water is publicly owned, there are not the same concerns regarding excess returns as in RIIO where the underlying entities being regulated are for profit companies. Thirdly, WICS only regulates one entity whereas Ofgem regulates many. This creates greater complexity to the process when applying it to RIIO, particularly in gathering the necessary range of expertise for the Customer Forums.

More broadly, one arguable differentiator between water and energy is the fact that there is no national water grid meaning that water infrastructure tends to be more islanded with consequently fewer opportunities for ‘whole system’ solutions. By comparison, energy (and electricity in particular) infrastructure extends from offshore networks to now include behind-the-meter assets, with the onshore electricity system operating as an interconnected synchronous island. Moreover, electricity (and potentially gas depending on the future role of hydrogen) infrastructure is undergoing a major end-to-end transformation which requires national strategic objectives to be met as well as serving the end-customers’ immediate needs. Hence in the case of electricity, it is more important that companies have a stronger consideration for the ‘whole system’ to ensure the most efficient and economical network operation in any local area.

However, there are some key takeaways from this case study for the RIIO process:

- It shows the beneficial role that increased consumer engagement can have on driving culture change in the regulatory process, including ceding some regulatory functions to a customer forum.

- By devolving responsibilities to the Customer Forum, WICS was able to reduce the resource it needed and focus on the skills required to deliver its role.
- There is also the sense that the genuine dialogue between the parties involved results in a less adversarial process than RIIO (which may have been aided by the fact Scottish Water is publicly owned).
- While WICS continued to provide a strong steer on technical parameters such as efficiency, the Customer Forum could provide more legitimacy around discussions on customer service levels.
- It displays the different perspective that consumers bring to the negotiation and the beneficial outcomes for both parties that this can result in. This includes reaching tougher settlements that initially thought to be possible. It further includes reducing wasted time (and resources) given the acceptance of the plan on the first go.
- The framework in this case study is very much a tripartite one between WICS, Scottish Water and the Customer Forum. This contrasts with the Ofgem model where there is a challenge group, and the companies have CEGs. In ED2 there was more dialogue between Ofgem and the CEG chairs, but Ofgem could likely make more use of that resource.
- In respect of energy, and electricity networks in particular, the views, needs and wishes of local stakeholders need to be balanced against wider objectives, recognising that local distribution networks are part of a national interconnected grid, and play a key role in respect of achieving net-zero and national energy security objectives.

## 5.2. Adaptive planning as per the Ofwat PR24 example

### 5.2.1. Background

Ofwat, the regulator of water and sewerage utilities in England and Wales, has recognised the severe repercussions that climate change will have on the water sector stating that climate change 'threatens both the resilience of companies' networks and their water supply'. On top of this, customer expectations of how water systems should be managed are also changing with customers increasingly worried about the damage caused by water usage and wastewater discharges. These combined issues will require significant capital investment by the water utilities, but with heightened tensions around the current cost of living this must be balanced with issues around affordability.

In response to this challenge of balancing the current cost to consumers with the requirement for long term strategic planning due to climate change, Ofwat has had to consider making fundamental changes to their regulatory process in the next price regulatory period (PR24) to encourage innovation and ensure the water sector can meet these challenges.

### 5.2.2. Regulatory framework

PR24 sets the wholesale price controls for water and sewerage utilities for the 2025-2030 period and as such is still in the planning stages. Ofwat is set to publish the draft methodology in July 2022. Ofwat has however published their initial ideas on how they want to change the regulatory process for PR24<sup>11</sup>.

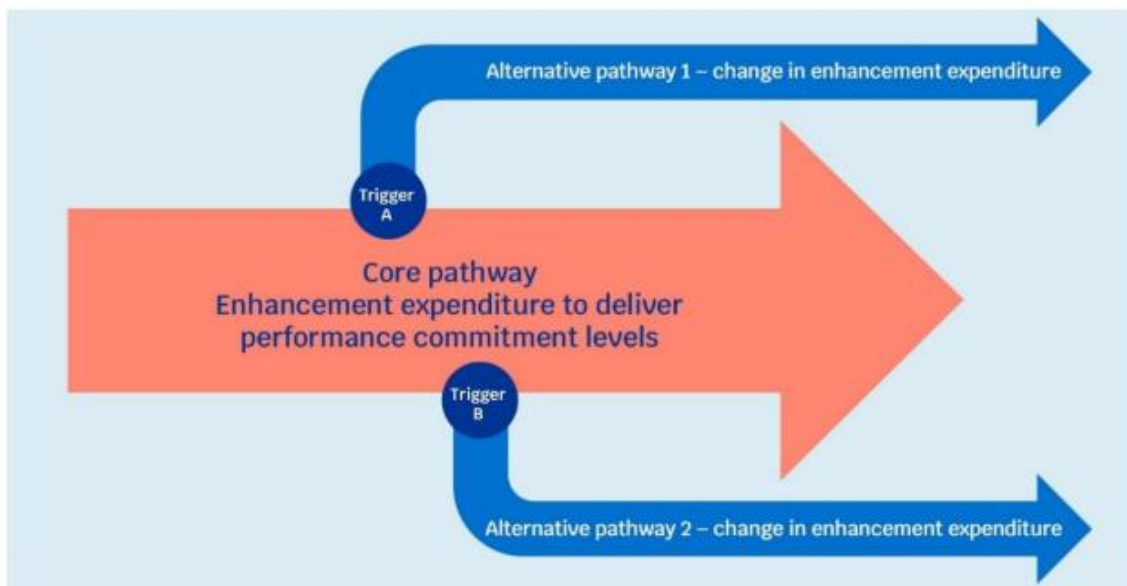
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<sup>11</sup> As of April 2022, two reports have been published, the "PR24 and beyond: Creating tomorrow, together", published in May 2021, outlined Ofwat's initial views on the outline of PR24. The second report was "PR24 and beyond: Long-term delivery strategies and common reference scenarios", published in November 2021, and provided further detail on Ofwat's approach to long term delivery strategies in PR24.

The draft methodology covers a range of initiatives that cover the whole regulatory process however for the purposes of this case study we will only be considering the methodology's increased focus on long term and adaptive planning. Ofwat has stated that in PR24 they expect companies' business plans "to explicitly represent the first five-year 'chunk' of the accompanying long term delivery strategies", which are expected to look over a 25-year period. To make long term planning work in an inherently uncertain future, the business must be flexible enough to adapt to changing environmental and social challenges. For this reason, Ofwat have stated that adaptive planning should be at the heart of each companies' business plans, enabling strategies to be developed in the context of different future scenarios. This will help ensure companies short-term actions better align with the longer-term needs of the water industry.

The adaptive framework that Ofwat has outlined states that companies' business plans should provide "adaptive pathways" which set out how decisions will be made in the future. A "core pathway" will outline the company's current favoured approach to meet their strategy targets for the next 25 years. From this core pathway, trigger points should be identified which would make the decision to deviate to an "alternative pathway" (see Figure 2). The business plan should state the likely time that the trigger point may occur and the circumstances which would lead to this alternative pathway being followed. The likelihood and details of each alternative pathway must also be described in each proposal.

Adaptive planning is an iterative process and will therefore require consistent monitoring and review points to ensure that the long-term strategy remains up to date. For this reason, Ofwat states that business plans should include a specific monitoring plan.



**Figure 2: Illustration of adaptive planning framework. Source: Ofwat, "PR24 and beyond: Long-term delivery strategies and common reference scenarios"**

### 5.2.3. Response to the proposed regulatory framework changes

As PR24 is still in its planning stages, it is not yet possible to determine its real impact or performance. However, there have been early industry reactions to the initial ideas that Ofwat



has proposed<sup>12</sup>. It is also important to note that there are many other aspects to PR24 (i.e. those aspects not related to adaptive planning) that we have not covered here that certain commentators have been critical of. These other aspects are not considered in this case study<sup>13</sup>.

The industry response to an increased focus on long term planning has been overwhelmingly positive. Jo Harrison, director of environment, planning and innovation at United Utilities, stated that “it’s been something the industry has needed for some time” and that it works well with the recent reforms to the Water Industry National Environmental Program. This is reiterated by Stuart Colville, director of policy at Water UK, who says that there are big challenges in particular areas, such as long-term water resource security, and that it is “a really welcome sign” that “both industry and regulators, are increasingly looking to the long term”.

The adaptive planning framework that Ofwat has proposed increases investment flexibility into company business plans. This enables companies to decide whether it is best to make a decision now or defer to a later date, at which point lower cost alternative technologies become available. However, Greg Bradley, a utilities and infrastructure expert at PA Consulting, warns that the increased flexibility and ability to defer must be balanced with some industry certainty in spending programmes as “an unintended consequence of adaptive pathway flexibility could be to create either inflationary pricing, or embedded inefficiency due to uncertainty on workload”. Bradley goes on to say that it is therefore vital that any company’s long term delivery strategy is “underpinned with practical and contractable work delivery plans”.

Due to the scale of the changes and the nature of the adaptive planning process that Ofwat is proposing, many commentators believe it is likely to take multiple regulatory periods to fully implement. It also therefore follows that any benefits will also take a long time to be fully realised. Ofwat state that they see PR24 as an “initial step towards integrating long-term considerations more fundamentally into the price review process” and that they expect their approach “will continue to evolve for PR29 and beyond”.

#### 5.2.4. Which consumer issues does this address

The core strength of an adaptive regulatory framework is its ability to allow companies to incorporate future uncertainties into their business plans. **Meeting net zero goals** will inherently include a large amount of uncertainty and the potential regulatory framework that Ofwat has proposed for PR24 will make utilities explicitly include the effects of these future uncertainties into their business plans making them better prepared for future challenges. This should also **reduce the time taken on decision making** as the circumstances under which an alternative pathway will be followed and the point at which the decision to change to the alternative pathway will have already been detailed in the business plan.

The adaptive planning framework proposed enforces companies to provide significantly more detail in their business plans in terms of what their future goals are, what they believe are the best pathways to meet them and what metrics they are using to monitor progress. This should **provide greater transparency** to the utilities’ decisions making process as it will be much clearer as to why the companies are making decisions.

The higher level of detail required in the initial business planning stages may require more resourcing which may ultimately increase cost to consumers in the short term. However,

<sup>12</sup> The perspectives from industry in this section were taken from “PR24 Shaping and preparing for the price control”, Utility Week in association with PA Consulting, 2022

<sup>13</sup> It is worth noting, Ofwat are proposing a move to do more collaborative customer research (to inform common performance metrics). As this is related to one the proposed solutions in Section 3, more standardised engagement, it would be worth assessing the outcome of this once implemented.



adaptive planning can mean that expenditure more closely reflects future requirements. Therefore, instead of building large infrastructure projects based on uncertain assumptions of future demand, expenditure can be spent on projects based on more certain outcomes hence reducing the potential for overspending and asset stranding – **reducing cost to consumers** in the long term. The effective monitoring process that adaptive planning strategies need also means that expenditure delivers a better service level to customers over the short and long term.

### 5.2.5. Applicability to RIIO and lessons that can be taken from it

Whilst the PR24 methodology has not been fully agreed yet, the implementation of an adaptive regulatory framework in the UK should be watched closely for its potential implications in the energy sector as it has the potential to bring many benefits if it were adopted into the RIIO framework. The concept of business plans covering a 25-year development period with the first five-years on a 'firm' basis has much to commend it, not least because it more closely reflects how many different network operators currently conduct business planning.

Arguably, the energy sector has significantly more potential future scenarios to meet net zero targets compared to the water sector. This brings greater uncertainty into the long-term business planning process making it potentially well suited to an adaptive regulation framework. This will, however, increase the number of pathways that must be considered in each energy company business plan and hence increase complexity and resource requirement.

Taken overall, the idea of a more adaptive approach to energy system planning could bring many benefits. It would enable a more transparent insight into how a company is continuously monitoring, reviewing and adapting its business plan through effective internal governance and change control to ensure the plan remains aligned both with strategic objectives and with the outcomes required by customers, even in the face of new drivers for investment or intervention. This is particularly relevant to an uncertain energy future where low carbon transition might take different pathways.

Ideally, an adaptive planning approach would reduce the need for 'uncertainty' mechanisms and go some way to displacing the bureaucracy surrounding five-year reviews of company business plans through a more transparent and open process, potentially facilitated by digitalisation and more readily available energy data. An adaptive approach to planning and regulatory settlements might enable 'lighter touch' periodic interim reviews (say annually) whilst being more reflective of how companies actually undertake their planning (i.e. on a continuous review basis taking account of network performance, load growth, asset condition risks etc). It could conceivably allow formal reviews to be extended to 10-years, or a narrower review to be undertaken every 5 years, greatly relieving the regulatory burden and avoiding some of the concerns over perceptions that companies are benefitting (through the Totex incentive mechanism) by inaccurate forecasting. Under such an arrangement, base allowances would be adjusted at each yearly interim review according to latest expenditure projections whilst DNO benefits under the Totex incentive mechanism would be limited solely to expenditure savings arising from genuine efficiency and innovation initiatives.

The key areas of interest for the implementation of adaptive regulation for RIIO-2 include:

- Learning from the success with which Ofwat manages the balance between short-term and long-term goals in each company's business plan.
- DNOs often say, reasonably, that they deal with uncertainty all the time and apply risk management techniques to optimise timing of investment or interventions. When something exceptional happens, there are reopeners. But these can be painful and slow. The PR24 process appears to be more flexible to uncertainty and more rapid to

react to change than RIIO. Learning from PR24 could inform how to avoid painful and slow reopener processes in RIIO.

- It would be more reflective of how companies actually undertake planning – i.e. on a continuous review basis through internal governance with established risk management and change-control procedures.
- The current Totex Incentive Mechanism is perceived as rewarding companies for inaccurate forecasting, allowing them to defer load-related or condition risk-related expenditure without needing to apply mitigating measures rather than through innovation and efficiency, whereas a more transparent process which enabled interim reviews and adjustments to base revenues based on companies' latest projections should more effectively reward genuine efficiency and innovation.
- It opens up the possibility of a more transparent and inclusive form of regulatory settlement potentially limiting bureaucracy and regulatory burden for both Ofgem and network utilities.
- It has the potential to ensure better customer outcomes whilst still delivering wider national strategic objectives.
- It has the potential for delivering a more equitable sharing of benefits arising from innovation and efficiency between company shareholders and customers.

### **5.3. Next generation performance incentives as per the New York Reforming the Energy Vision (NY Rev)**

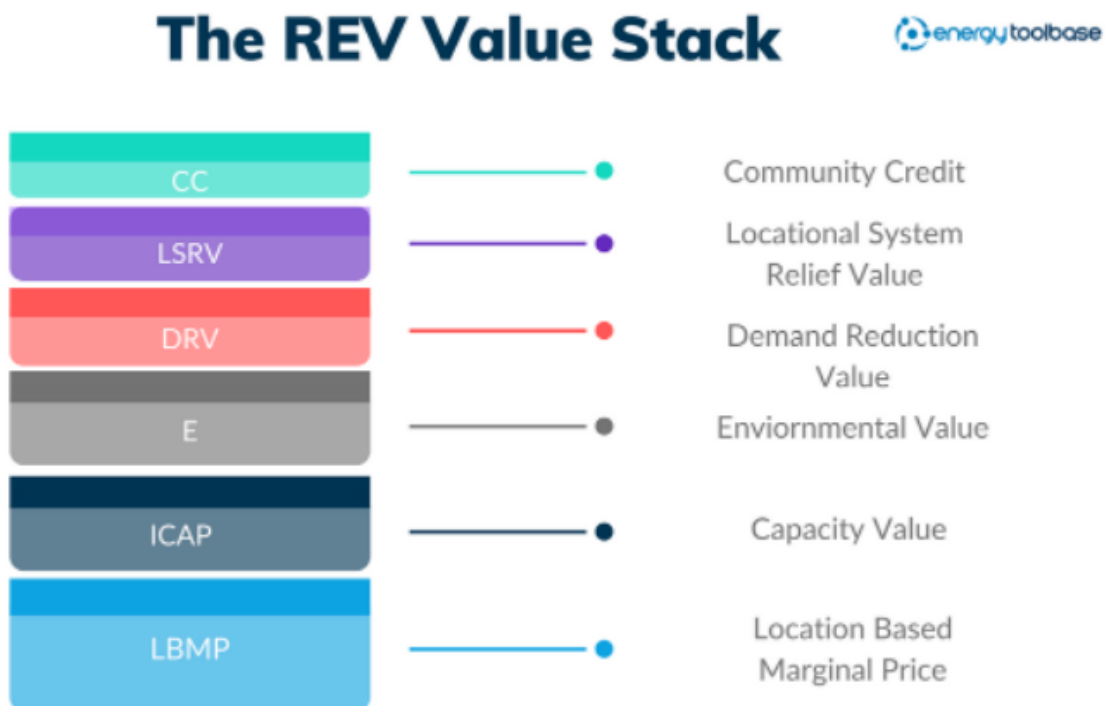
#### **5.3.1. Background**

New York's Reforming the Energy Vision (REV) is a set of multi-year regulatory proceedings and policy initiatives largely created in response to Hurricane Sandy which, in October 2012, resulted in 8.1 million New York homes and businesses losing power and parts of New York city remaining without power for over a week. A further driver was the high cost of transmission network upgrades being put to the public utilities commission. Therefore, in 2014, REV was launched with the aim of aligning energy markets and utility business models with the state goals. These goals included improving New York's energy networks resiliency in the face of increasingly common extreme weather events, avoiding costly transmission network upgrades where possible, and putting the state's energy sector on course to meet its increasingly ambitious net zero targets.

#### **5.3.2. Regulatory framework**

The first iteration of REV's framework was introduced in 2015. REV is a form of performance-based regulation and uses earning adjustment mechanisms (EAM) to incentivise energy utilities to achieve the state's key policy objectives. REV's more than 40 initiatives were developed in collaboration between New York's regulatory agencies and its system stakeholders. One of REV's core, and most innovative, objectives was to encourage utilities to increase energy system efficiency through customer and third-party distributed energy resource (DER) solutions rather than via grid-scale network investments. This was to be achieved by encouraging utilities to integrate and operate DER solutions, often located in customer premises, but not to explicitly own the assets. REV therefore aimed to enact a culture change within the utilities, moving them to evolve towards becoming distributed system platform providers (DSP) facilitating market-friendly platforms for DERs, large scale generators, customers and other parts of the energy system, and have less of a focus on owning the assets themselves.

The New York REV also aimed to ensure DER providers were paid for the full value their assets brought to the energy system, rather than only being remunerated for the energy that they could provide. The New York REV therefore established the concept of 'VDER' (value of distributed energy resources) as a market-based mechanism which holistically looks at the benefits DER can provide, aiming to encourage the deployment of DER in a way that maximises their overall value to utility customers. VDER provides a value stack (see Figure 3) to DER owners, compensating them for: market value of energy delivered; market value of capacity delivered; value of the emission reductions it provided to the system; value of the reduction in network demand it provides; and the value it provides within its specific region of the network. This serves to make the economics of deploying new DER assets highly location dependent.



**Figure 3: The VDER value stack. Source: Kevin Mulvey, June 2020, [www.energytoolbase.com](http://www.energytoolbase.com)**

### 5.3.3. What has it achieved?

It is important to note that the New York REV is a “vision” rather than a framework for a specific regulatory period and as such it does not have a pre-defined end date and is continuously evolving to meet its long-term goals of creating a smart, primarily decentralised, market-based, reliable and secure energy system. Danny Waggoner, Policy Director at Advanced Energy Economy, states that REV has made impacts that “still reverberate through New York’s regulatory process” and that its core objectives have made meeting the state’s net zero goals “easier, faster, and more cost-effective”. That said, REV aimed to enact a huge culture change, particularly on the part of the utility companies, and in certain areas has struggled to achieve many of its initial policy objectives as quickly as it had originally intended to. One example of this is the failure to advance the DSP concept as originally intended due to differences between existing capabilities and the REV vision, instead relying on several different mechanisms to achieve similar goals. Another example is the amount of time and resources required from all stakeholders to deal with a number of contentious issues around establishing the VDER. Waggoner states that the VDER debates “took a lot of commission bandwidth” and “side-

tracked the settling of other issues like EAMs", and that as a result, whilst "The original EAM concept was sound, but a stronger framework to align them with state goals was not completed"<sup>14</sup>.

There has, however, been several successes from the REV process. Whilst the VDER debates may have affected other REV ambitions, what was eventually agreed upon has been found to be very successful. Dave Gahl of Solar Energy Industries Association states that it has "allowed New York solar markets to explode" and because of it "some mid-sized community solar projects" have gone ahead that would have been unlikely to come online without the VDER tariff, "especially in disadvantaged communities". Further, it has recognised the full value of DER solutions to the network and engaged DER owners to recognise the cost of the system and that they still have to pay their fair share of the energy networks running cost.

Another key success was the REV non-wire alternative (NWA) initiative, which asked utilities to consider DER solutions ahead of large infrastructure investments to meet reliability needs. Whilst it has been stated that there has not been as many NWAs as REV stakeholders had originally hoped, without the market opportunities that this mechanism provided, less projects would have been deployed.

#### 5.3.4. Which consumer issues does this address

At the heart of the New York REV was the acknowledgement of climate change with the specific aim of ensuring that New York's energy networks can meet the future challenges that climate change is likely to bring. By achieving this through distributed energy solutions it aimed to **increase the energy systems resiliency to climate change** by enabling consumers to reduce and create their own energy and hence reducing demand on the network. This in turn will help the state meet its increasingly ambitious **net zero goals** faster and more cost effectively by reducing the requirement for expensive network upgrade projects, reducing the potential for asset stranding and the overall costs for the utility and hence, **costs on the consumer**. REV also aimed to recognise the full value of DER services and assets to the whole energy system rather than just focusing on the energy it can provide. This could potentially provide customers greater incentives to invest in DER solutions which should both reduce their carbon footprint and save them money.

#### 5.3.5. Applicability to RIIO and lessons that can be taken from it

The New York REV is an example of a performance based regulatory framework that puts network resiliency and net zero targets to the heart of its operations. It is therefore a useful example for the UK due to our increasingly ambitious net zero targets and increasingly common extreme weather events. REV has a much wider set of reforms than has been mentioned in this report but the key ambition of enabling third party DER owners to more cost effectively improve network resiliency and security could have important implications if brought into the next RIIO framework. However, due to the vertically integrated nature of New York utilities and the REV's focus on VDER, it is difficult to draw lessons from the New York REV in the context of RIIO as it is a fundamentally different market structure and approach to regulation.

Whilst in GB there is no equivalent to the VDER tariff, DER services are now increasingly being procured for capacity, ancillary and balancing services. Value stacking depends on the asset owner (or more likely aggregator) managing the asset to extract maximum value from as many

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<sup>14</sup> The perspectives within this section were taken from "New York's landmark Reforming the Energy Vision framework remains both vital and unfinished, analysts say", Published: December 9<sup>th</sup>, 2021, [www.utilitydive.com](http://www.utilitydive.com) (last viewed 13/05/2022)

markets as possible (e.g. a battery storage system providing frequency response as well as network constraint management, operating reserve and balancing services)<sup>15</sup>.

Since Ofgem now promotes ‘flexibility-first’, DNOs are all now procuring a range of distribution constraint management services (four standard services in total). This was achieved originally through the commercial trading platform Piclo, and is still used by some DNOs (such as UKPN). Most DNOs now work with a standard platform, accessed through a single website<sup>16</sup>.

DNOs under RIIO are not performing in the same way as DSPs in the REV model as their flexibility procurement objective is limited purely to distribution network constraint management, and primarily as a means of maintaining planning levels of security of supply. That said, the ENA Open Networks project is aiming to maximise DNO coordination with ESO in both procurement and dispatch of flexibility services. In some ways the role of DSP providers under the REV model has similarities to Helm’s (2017) proposal for Regional System Operators<sup>17</sup>.

Although the GB approach is different, it’s not obvious that it wouldn’t ultimately achieve similar objectives to the REV model, albeit through aggregators coordinating DERs for maximum market participation and revenue stacking, rather than through DSP providers. Moreover, with the rollout of smart meters and the advent of half-hourly settlement, some more adventurous suppliers are beginning to introduce Time of Use (ToU) and dynamic tariffs which can allow customers with DERs (or flexible assets) to benefit by aligning usage with energy market prices (for example day-ahead wholesale prices).

Moreover, the development of more holistic trading platforms, such as KrakenFlex, will allow DER / flexible asset owners to optimise their assets across wholesale markets such: as day-ahead auctions and continuous intraday, as well as ESO ancillary services markets (such as Dynamic Containment, Dynamic Moderation and Dynamic Regulation and STOR) as well as the Balancing Mechanism<sup>18</sup>. In other words, it will open up opportunities for DER owners to revenue streams beyond those derived solely from network ancillary services.

The key takeaway points from the New York REV in the context of RIIO is:

- The REV model aims to maximise the electricity grid contribution from DER and flexible assets through the concept of DSPs. This differs in some respect to the GB model wherein the DNOs’ focus is to procure flexibility (in conjunction with ESO for system management services where applicable) as a cost-effective means of easing network constraints and complying with their licence obligation to meet specified planning levels of security of supply.
- The approach taken by the REV raises the broader question as to whether the RIIO process and its incentive framework is sufficient to capture the whole system benefits that DERs can bring, for example in providing operating reserve, frequency response and both capacity and balancing market benefits in addition to network constraint management. Whilst DNOs and TOs now have a licence obligation towards ‘whole system’ solutions, in practice the scope is limited to transmission and distribution network synergies.

<sup>15</sup> Important to note that there has been well documented issues around value stacking in Great Britain, for example in the Smart Systems and Flexibility Plan.

<sup>16</sup> <https://www.flexiblepower.co.uk/>

<sup>17</sup>

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/654902/Cost\\_of\\_Energy\\_Review.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/654902/Cost_of_Energy_Review.pdf)

<sup>18</sup> [https://www.krakenflex.com/?gclid=CjwKCAjwjZmTBhB4EiwAynRmD8LZAJtaVe\\_e\\_db1v0pWhQAADL5ZgoJf-aC9y4VOf1c\\_fls82pu1BBoCTSoQAvD\\_BwE](https://www.krakenflex.com/?gclid=CjwKCAjwjZmTBhB4EiwAynRmD8LZAJtaVe_e_db1v0pWhQAADL5ZgoJf-aC9y4VOf1c_fls82pu1BBoCTSoQAvD_BwE)

- Whilst in GB, Energy suppliers are beginning to introduce ToU and (day-ahead) dynamic tariffs for domestic and SME customers facilitated by smart meters (and in future half hourly settlement) there is currently no equivalent to the REV VDER tariff.
- The amount of time and resources required in the REV process to establish the VDER was significant, and in many cases slowed down change in other areas of the regulatory process. There are also concerns that the reality of the REV is not living up to the vision, with many of the initiatives not panning out as planned; but progress was made.
- Although GB and New York State have adopted different strategies, both are seeking to maximise the electricity system contribution from DER and flexible assets, and it is not readily apparent that either is superior to the other.

# 6. Conclusions

While the focus of this study was to identify issues with the RIIO framework (and to highlight potential solutions that could improve the framework), it is important to state that the research carried out in this study shows that the RIIO framework is generally considered an effective mechanism that is viewed positively. All published evidence shows that RIIO is working well with levels of customer service improving, costs falling and surveys showing high levels of customer satisfaction. It was the consensus that improvements had been made since RIIO 1.

However, the literature reviewed, and the interviews conducted with industry experts for this project identified various issues with the RIIO framework. These issues are often interrelated and have multiple customer impacts, in part reflecting the complexity of the RIIO framework. For example, RIIO's complexity results in: reduced transparency in the regulatory process; a significant resource burden on Ofgem; issues around the timing and implications for stakeholder engagement; and, increases in the timescales required to deliver the process.

The core issues identified with the RIIO framework as well as its implementation can be categorised as follows:

- Fitness for the future – the current regulatory framework lacks agility to respond to a fast-changing landscape, misses true whole system coordination benefits, and networks are not investing sufficiently to meet future needs.
- Cost and time – the complex RIIO process results in unnecessary bureaucracy which drives up the time and resources required to deliver the process.
- Consumer and stakeholder engagement – the current engagement process is resource intensive, not transparent, nor specific enough.
- Overarching issues – the framework does not fully account for differences across companies and regions, the targets set by Ofgem are often not stretching enough, and Ofgem as well as the network companies being limited by their remit/license conditions in terms of adopting wholistic strategies.

Possible solutions to the issues above, as well as general improvements that could be made to the RIIO process/framework, are a mix of evolutionary (smaller incremental changes and improvements to the existing framework) and revolutionary (a transformational or wholesale replacement of the current framework). Both types of 'solutions' are not mutually exclusive. It is important to note that these solutions are also all borne out of the literature review and interviews held with key industry stakeholders. Some of the core evolutionary solutions identified were:

- Exogenous - assigning Ofgem clear net zero mandate and clarify its responsibilities in relation to welfare.
- Cultural – encouraging a more collaborative approach between the network companies and Ofgem, and placing a greater emphasis on reporting what is not working.



- Procedural – centralising and standardising customer engagement as well as data collection and reporting processes. Making in period adjustments easier to execute.
- Structural – introducing longer term scenario planning, adjusting incentives to further encourage innovation and whole system thinking (e.g. introducing asymmetric TIM incentives); giving network companies a clearer and broader remit for facilitating demand reduction.

Within the more revolutionary solutions, there were also numerous themes. Some deal with the value (economics) of regulation – on what should be valued – for example the whole system, or wider factors like the environment and societal good, or other important ‘outcomes’ and ‘incentives’. Some deal with how uncertainty should be managed – adaptive & anticipatory regulation. Some deal with the nature of engagement with the regulatory process – for example negotiated settlement or open-source regulation. There were also themes related to the fundamental questions of ownership – for example independent RSOs or forcing the DNOs to be listed on the LSE. The most promising ideas in the revolutionary solutions space, based on their ability to solve a range of consumer impacts (which arise due to the issues identified), were further explored via three case studies – summarised as follows:

- Leveraging the concepts embedded in a negotiated settlement approach to place far greater emphasis on the value of customer engagement. The fundamental approach to customer engagement encompassed by negotiated settlement has the potential to drive significant culture change and create a more efficient regulatory process. This highlights the potential for more reliance to be placed on the DNO engagement / CEG process in selected areas where the customer voice is particularly important.
- Using concepts from adaptive planning regulation to highlight the need for the 5-year review cycle to be more clearly embedded in a longer-term plan. The idea of a rolling one-year update and monitoring to identify triggers for actions would reduce resources required for the RIIO process and more closely reflect how companies actually manage their businesses. At the same time, it would help better deal with the challenges/ uncertainty associated with meeting net zero in a more transparent manner. Under such an arrangement, base allowances would be adjusted at each yearly interim review according to latest expenditure projections whilst DNO benefits under the Totex incentive mechanism would be limited solely to expenditure savings arising from genuine efficiency and innovation initiatives
- Introducing ‘next generation’ performance incentives to bring about the significant changes that need to happen to value distributed energy resources (DERs) across the system. While the flexibility first expectation in RIIO and other Ofgem / BEIS initiatives are driving flexibility in a UK context there are questions around whether this adequately allows whole system benefits to be captured which should be kept under close review.



# Appendix A: Interview discussion guide

This section displays an example copy of the discussion guide as used in the interview phase of the project. The discussion guide contained a number of questions which aimed to get the participants views on three key aspects of the RIIO process:

- 1) The cost and time taken to deliver the current RIIO process
- 2) The role of consumer engagement in the current RIIO process
- 3) The ability of the current RIIO process to meet the future requirement for a net zero network

For each of these key aspects we created hypotheses which we put to the interviewees (if time permitted) with the aim of encouraging an open discussion on the subject.

## Warm-up question / opener (~5 mins)

Question	Prompt	Answer
<b>Overall, what do you think of the RIIO framework?</b>	Prompt if answer to question is short: If you had a blank sheet of paper in front of you, and you could come up with a completely new regulatory framework, what would it look like?	

## The costs and time taken to deliver the existing process (~10 mins)

Question	Prompts	Answer
<b>How can the negotiation process be made more efficient?</b>	What works well about the process as-is?  What are the 'pinch points' for time and resources in the process?	
<b>[For DNOs, GDNs, TNOs only] How much time and cost does it take to go through the process?</b>		

**Is the process conducive to a fair settlement being reached efficiently?** Are there are trade-offs here?

*Hypotheses to test:*

- [Time & Resource consuming process] By agreeing positions at workshops and publishing agreements on the approach, or at least minded-to decisions rather than further consultations the time and resource required will be reduced.
- [The final settlement process] The 'adversarial' elements of the process can be avoided through greater openness and transparency between Ofgem and the DNOs in terms of minded-to positions and open access to key data (that justifies DNOs' proposed investment levels).

#### Consumer engagement (~10 mins)

Question	Prompts	Answer
<b>Should stakeholders be more meaningfully engaged? If so, how?</b>	In what ways can consumer engagement be improved or meaningfully increased?  Are there any aspects of RIIO that lend themselves more easily to co-creation or deeper engagement with end consumers?	
<b>Has engagement effectively represented the interests of vulnerable consumers?</b>		
<b>Might the creation of an independent DSO provide increased opportunities for stakeholder</b>		

interaction and joint working (e.g. energy communities)?

**Should operators play an active/direct role in reducing consumer demand?** e.g. DNOs taking on role of ECO/energy efficiency.

*Hypotheses to test*

- DNOs should have an obligation towards providing advice and supporting energy efficiency measures. A further benefit would be that DNOs are generally able to raise capital at relatively low cost and depreciate (and therefore recover) expenditure over a period of up to 45 years (broadly consistent with the lifespan of improved home thermal insulation measures) which in turn would reduce the impact on customers' energy bills.
  
- Stakeholder and Customer engagement – to create a more meaningful engagement process, 'challenge groups' where advocates (such as Citizens Advice) are able to better exert influence (for example in respect of fuel poor or otherwise vulnerable customers, small business and domestic customers) should be created.

**RIIO's ability to meet future requirements to achieve net zero (~10 mins)**

Question	Prompts	Answer
<p><b>Is the current regulatory regime agile enough to respond to rapid decarbonisation / the</b></p>	<p>Anticipatory investment vs asset stranding – how do you strike the right balance?</p> <p>Are price control reopeners and uncertainty mechanisms well-suited for dealing with the</p>	

<b>fast-changing landscape?</b>	challenges that arise from the Net Zero energy transition?
<b>How can RIIO be more forward looking?</b>	<p>Does RIIO promote and protect the interests of current and future consumers? If not, why not? <b>(CA consider this a key question)</b></p> <p>Does RIIO fully incentivise long-term innovation while minimising risk to the consumer?</p> <p>What elements of the current price control structure and network licence are least fit for purpose in the future?</p>
<b>Does the current regulatory structure encourage enough whole system thinking / optimisation?</b>	<p>Does DNO, TSO, GDN business separation / network licence constraints inhibit optimum 'whole system' investment?</p> <p>Is adaptive regulation/adaptive planning a potential route forward?</p>
<i>Hypotheses to test</i>	<ul style="list-style-type: none"> <li>■ [Preparing for Net Zero / fit for future] A methodology which allows annual reviews, and possibly even a rolling 5-year or 10-year settlement period, might be more suited in principle. This may better align with how business planning works and annual regulatory reporting, hence may reduce admin.</li> </ul>

### Close out question (~5 mins)

Question	Prompt	Answer
<b>Does the current framework set the right balance between network operators returns and the</b>	Should company shareholders' returns be linked to the service they deliver (as opposed to the savings they make)? In other words, having a lower TIM but a higher	

**costs paid by consumers?**

incentive rate for beating their targets for IIS, BMCS (broad measure of customer service), etc.?

Hypotheses:

- Rate of return is not much of an issue since customers also share in the benefits from outperformance – including from savings arising through DNOs securing a lower CoC, as well as through their innovation and efficiency savings through better risk-based asset management practices.
  
- Changing the balance of the TIM might be one way to address excessive shareholder returns e.g. from 50/50 to 70/30

[if time allows]

**Given all that we have discussed [maybe summarise the key points back to interviewee], how fit for purpose is RIIO / what would you change / what would that new regulatory framework look like?**