



Making a positive difference
for energy consumers

To interested parties.

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Open letter on the RIIO-2 Framework

Ofgem¹, as the energy regulator, sets price controls for the companies that operate Britain's gas and electricity networks, to protect the interests of current and future consumers. Our price controls determine the amount of revenue that these companies can recover over the price control period for providing network services to their customers.

The current set of price controls for gas and electricity transmission networks and gas distribution networks are due to end on 31 March 2021. Those for electricity distribution will end on 31 March 2023. Once these price controls end, we will put new controls in place to continue protecting the interests of consumers.

This letter marks the beginning of this process and sets out the context for the development of the new price controls (called "RIIO-2") and seeks views from stakeholders on:

- our overarching objective for RIIO-2,
- the key principles we should consider; and
- our broad approach to stakeholder engagement including the high-level timetable for the framework review stage.

Context

In 2010, Ofgem overhauled its approach to price controls and introduced RIIO - namely setting Revenue using Incentives to deliver Innovation and Outputs. This new performance based framework sought to put consumers at the heart of network companies' plans for the future and encourage longer-term thinking, greater innovation and more efficient delivery. The RIIO framework has been applied to both gas and electricity, transmission and distribution networks. The current price controls (called "RIIO-1") are the first generation of controls under this new framework. Under them, network companies have been allowed to recover revenues of around £96bn² over an eight-year period to provide safe, secure, reliable, low carbon and smarter network services.

As we look forward towards a new generation of price controls, we have to take account of the dramatic changes that are underway in the energy sector, as well as the experience of,

¹ References to the "Authority", "Ofgem", "we" and "our" are used interchangeably in this document to refer to GEMA, the Gas and Electricity Markets Authority. The Office of Gas and Electricity Markets (Ofgem) support GEMA in its day to day work.

² Based on estimated allowed revenue in 2015/16 prices following the Annual Iteration Process 2016.

and lessons learned, from RIIO-1. This first phase is therefore a comprehensive review of the RIIO framework. We want to ensure that the framework for the RIIO-2 price controls is fit for the future, and delivers the best possible outcome for consumers.

A changing energy system

The energy system has changed substantially over the past decade (see Annex 2). Demand for gas and electricity has fallen. The share of electricity produced from renewable sources has increased dramatically as costs for new technology (including storage, solar and wind power) have fallen at impressive rates. In April 2017, the UK recorded its first working day without coal power since the Industrial Revolution. Much of the new generation is connected to the distribution, rather than the transmission networks.

There is every possibility that the transformative trends we have seen in the past ten years will continue. However, there may be other innovations that we are not yet fully sighted on, such as the application of new information technology (eg blockchain and artificial intelligence), new business models (eg local energy, aggregators and energy services) and dramatic new uses for gas and electricity (eg changing role of hydrogen or biogas in the gas networks, the deployment of electric vehicles and the electrification of heat). Energy suppliers must also aim to roll-out smart meters to all their domestic and small business customers by 2020, enabling further innovation in both demand and supply-side business models.

As a result, there is a wide range of plausible future scenarios for how the networks may be used to transport gas and electricity. For instance, the demand for gas might continue to fall with greater decarbonisation of energy generation; even more so if there is a high degree of electrification of heat. However, the gas network may continue to play a significant role either through technological changes (eg if gas continues to be used in hybrid heat pumps) or through unanticipated changes in how the network is utilised (eg to transport hydrogen rather than natural gas if that becomes the fuel of choice for heating).

On the electricity side, the growth of distributed generation (both generation which is connected to the distribution network, and “behind the meter” generation which is produced by households and businesses) may continue. The growth of distributed generation and storage is changing how the transmission and distribution networks are used. In some scenarios, these changes have the potential to reduce future investment in parts of these networks, but this is highly dependent on the location and operation of new generation and storage facilities. In other scenarios, large increases in demand for electricity, driven by the electrification of heat and transport may require new sources of baseload low carbon electricity such as new nuclear power, with corresponding investment needs in the network.

So although it is very likely that the transformation of the energy system will continue, there is wide uncertainty about the direction and pace of change. We will shortly be publishing our strategy for regulating the future energy system. This strategy will guide how we intend to advance consumers interests through our work in relation to the energy system and approach to network regulation. The RIIO-2 price controls – as a key part of this wider integrated strategy for network regulation – will need to be adaptable to a wide range of future scenarios while enabling network companies to innovate and proactively respond to changes in how networks are used to secure the best outcomes for consumers.

RIIO-1 Experience

For each year of the current price controls, we report on how network companies have performed against a broad range of measures, including outputs, expenditure and financial returns. We are only half-way through the existing set of price controls for gas and electricity transmission and gas distribution, and we have only analysed one year of data

for electricity distribution. Nevertheless, our current assessment of the experience of RIIO-1 is as follows:

- **Outputs:** For gas distribution, electricity distribution and gas transmission network companies we currently expect outputs to be fully delivered by the end of the price control periods. For electricity transmission, all Transmission Owners (TOs) expect that output delivery will meet or exceed the targets set out against five of the six output categories.
- **Expenditure:** On 2015-16 figures, gas distribution network operators (GDNs) are collectively forecast to spend 12.3% less than their allowances over the entire price control period. For the electricity transmission price control, all TOs are expecting to outperform their forecast allowances over the entirety of RIIO-1 on 2015-16 figures. After the first year of the RIIO-1 electricity distribution price control, network operators are now forecast to spend 3% less than their allowances over the course of the price control. On 2015-16 figures, National Grid Gas Transmission (NGGT), are projected to overspend against their total expenditure (totex) allowance by around 9%.
- **Financial Returns:** Like other regulators, we measure the financial performance of network companies using the return on regulatory equity (RoRE) measure. When we set RIIO-1, the intention was that the best performing companies (in terms of delivering output targets and efficiency against totex allowances) could achieve low double digit RoRE returns. In practice, the majority of network companies are delivering strong earnings towards the top end of our expectations for each sector.

An incentive based price control framework is designed to align the interests of consumers with those of network companies. Where companies outperform by innovating and delivering more cost effectively, this reduces costs to consumers and also provides companies with additional revenue. However, where outperformance has arisen from forecasting errors in setting allowances or over provisioning, this is not in the consumers best interests. For example, our forecasts for real price effects (RPEs) in setting allowances for electricity transmission and gas distribution appear in some instances to have resulted in gains for the companies. Similarly, consistent outperformance through companies delivering outputs at lower costs than the allowances, suggests that the output targets could be tightened in the next price control.

The other key component of company returns is the cost of capital. The cost of capital combines the cost of equity and the cost of debt. In RIIO-1, the cost of equity was set at between 6% (for electricity distribution slow tracked companies) and 7% (for electricity transmission). The cost of debt index is calculated annually based on a historical trailing average and will vary during the price control, which changes the cost of capital. When the respective RIIO-1 price controls commenced, the vanilla weighted average cost of capital ranged between 3.76% (for electricity distribution slow tracked companies) and 4.76% (for electricity transmission). However, since the price controls were set, the risk free rates have fallen, with real yields to maturity on the Generic Britain 10 year UK Inflation Index Bond falling from around -0.8% in December 2012 (RIIO-1 final proposals), to around -2.0% in April 2017.³ We have observed an increased demand for 'safe assets', with investors seeking the safety of bonds, partly as a hedge against volatility. Alongside this, investors have shown remarkable appetite (and been willing to pay high premia) for stable regulated utilities. For instance, the recent sales of interests in gas distribution networks occurred at prices representing premia of more than 40% above the regulatory asset value (RAV), suggesting that investors were willing to accept very low yields. There has been a very similar story in the water sector, where acquirers have paid premiums of 40-80% above the RAV.

³ Bloomberg

RIIO-1 has brought benefits to consumers. We estimate⁴ that the average domestic consumer will pay less for the gas⁵ and electricity⁶ distribution network in 2017-18 compared to 2016-17. Over the same period, gas⁷ and electricity⁸ transmission network costs to consumers will broadly be in line with previous years. Whilst the operation of RIIO-1 is delivering some positive outcomes for consumers in terms of overall bill impact, we need to ensure that these benefits are due to genuine efficiencies and demonstrate value for money for the services provided.

A key part of RIIO was designing a framework that encouraged innovation. The totex approach and efficiency incentive sought to encourage companies to consider alternative, innovative solutions whilst the longer price control period allowed the companies to retain the benefits of any innovation for longer. A time-limited innovation stimulus package⁹ was also introduced to support the necessary culture change within these inherently conservative network companies to innovate. Based on assessment of the Low Carbon Network (LCN) Fund, the predecessor to the RIIO stimulus package, RIIO should deliver significant financial benefits as a consequence of the roll-out of innovative solutions.

In summary, there are many positive aspects to RIIO, such as a stronger focus on delivering outputs for consumers, supporting innovation, and incentives to encourage companies to plan for the long term. Equally however, there is clearly scope for getting consumers more engaged in Ofgem's process for setting demanding targets, setting appropriate allowances (including through the use of competition where appropriate) and setting costs of capital that are more in line with market conditions.

Finally, RIIO is a complex price control system, with many interlocking incentive mechanisms and a significant regulatory burden in terms of information production and reporting. We would like to take this opportunity to explore if it could be simplified and focused more on areas that are most valuable to consumers.

Objective for RIIO-2

Our overarching objective for RIIO-2 reflects the lessons learned from RIIO-1 as well as the need to ensure a framework capable of adapting to the wider range of plausible energy system futures. Our proposed overarching objective is:

"RIIO-2 will ensure regulated network companies deliver the value for money services that consumers want and need."

We will aim to achieve this overarching objective by:

- Giving consumers a stronger voice in setting outputs, shaping and assessing business plans;

⁴ We report costs on an annualised basis using our latest assumptions. Actual customer costs are sensitive to geographic region, meter type, consumption volume and the timing and duration of contracts. Our methodology is based on typical domestic consumption values. Individual customer costs may differ significantly from these values.

⁵ We estimate that the typical GB domestic customer will pay £121 in 2016-17 for gas distribution costs. This is estimated to decrease by 2% to £118 in 2017-18. (Source: RIIO-GD1 Annual Report 2015-16).

⁶ We estimate that the typical GB domestic customer will pay £93 in 2016-17 for electricity distribution costs. This is estimated to decrease by 8% to £86 in 2017-18 (Source: RIIO-ED1 Annual Report 2015-16).

⁷ We estimate that the typical GB customer will pay £10 in 2016-17 for gas transmission costs. This is estimated to remain the same in 2017-18 (Source: RIIO-GT1 Annual Report 2015-16).

⁸ We estimate that the typical GB domestic customer will pay £38 in 2016-17 for electricity transmission costs. This is estimated to remain the same in 2017-18 (Source: RIIO-ET1 Annual Report 2015-16).

⁹ The innovation stimulus package includes: the Network Innovation Allowance (NIA); the Network Innovation Competition (NIC); and an Innovation Rollout Mechanism (IRM).

- Allowing regulated companies to earn returns that are fair and represent good value for consumers, properly reflecting the risks faced in these businesses and prevailing financial market conditions;
- Incentivising companies to drive consumer value by shaping or proactively responding to changes in how networks are used and services are delivered;
- Using the regulatory framework, or competition where appropriate, to drive innovation and efficiency; and
- Simplifying the price controls by focusing on items of greatest value to consumers.

Under RIIO-2, network companies will be encouraged to further understand the services that consumers want and need at the start and throughout the price control, anticipating and adjusting to changing demands. These include continuing to deliver a reliable, safe and secure network system that supports the transition to a low-carbon future. In addition, recognising that the energy system is evolving, network companies should utilise flexible, non-traditional options where appropriate (eg purchase of flexibility services, such as storage or demand-side response services, to manage network constraints) to deliver quality services for which consumers are prepared to pay. Greater coordination across traditional network boundaries will be required and companies will need to adapt and play their part in meeting the challenges that the changing energy system presents. ***Do you agree with our overarching objective for RIIO-2 and how we propose to achieve it?***

In the rest of this open letter we set out in more detail how the overarching objective could be delivered and what we would like to seek views on.

Key principles for the framework review

1) Giving consumers a stronger voice in setting outputs, shaping and assessing business plans

Outputs that reflect what consumers' value are at the heart of the RIIO framework. We expect to retain an outputs-led approach in RIIO-2. By defining outputs (ie the desired outcome) rather than specifying inputs (ie how the desired outcome will be achieved) RIIO has encouraged companies to focus on providing services, in a cost effective way, that consumers want and need. Outputs have generally been defined at a high enough level to provide companies with discretion over the most appropriate way to deliver them and to innovate. We are keen to ensure that outputs developed for RIIO-2 continue to reflect consumers' expectations of network services.

Consumer voice and business plans: Currently, the RIIO framework requires network companies to engage with a wide range of stakeholders including end-consumers (households and businesses), interest groups, local authorities, and other network users (generators and suppliers) ahead of the price control to shape their business plans and develop outputs which reflect what their consumers want and need. The RIIO framework does not specify the method of engagement; instead it allows companies to determine how best to gain information from their consumers. Once the price controls are set, companies are required to maintain engagement with their consumers on performance. A stakeholder incentive mechanism provides financial and reputational rewards to companies for effective engagement.

A key priority for RIIO-2 will be to ensure that end-consumers are effectively engaged in the setting of outputs and incentives, and that the cost of the network for an average domestic consumer is genuinely reflective of their willingness to pay for services. For RIIO-2, we would like to explore how the consumer voice could be strengthened further not just in setting the price controls but also throughout the price control period. We would consider more formal approaches to consumer engagement taken in other sectors. For example, the

Water Industry Commission for Scotland (WICS), Consumer Focus Scotland and Scottish Water, established a Customer Forum for Water that was given the mandate to try and reach agreement with Scottish Water on its business plan. The role of the regulator, WICS, was to provide regular guidance notes but they left the overall negotiation more in the control of Scottish Water and the Forum.¹⁰ A second example is in the airports sector, where the Civil Aviation Authority (CAA) pursues a process of “constructive engagement” in which airports are invited to try to reach agreement with their customers, the airlines. The CAA will accept the settlement reached subject to it satisfying the needs of users (passengers).¹¹

For the energy sector, the method for engaging end-consumers may well differ from that of engaging generators, suppliers and other network users. We will, therefore, review our existing approach to stakeholder engagement and consider measures that can effectively target the different range of interested stakeholders identified above. We will also consider the future role that Ofgem can play in facilitating this engagement by looking to best practice across other regulated sectors and reviewing the RIIO framework mechanisms designed to incentivise stakeholder engagement. The onus will continue to remain on network companies to determine the best way of engaging with their stakeholders. **How can we strengthen the consumer voice (primarily end-consumers), in the development of business plans and price control decisions? How should we support network companies in maintaining engagement with consumers throughout the price control period?**

We recognise that in order for outputs to fully deliver for consumers they need to be clearly defined, targeted at driving the right behaviour, and with a clear methodology for implementation and monitoring so that the network companies can effectively be held to account in the delivery of their outputs.

Outputs framework

The RIIO outputs framework has been designed around six output categories; safety, reliability, customer service, environment, social obligations and connections.¹² These categories reflect the broad role that network companies play in delivering the objectives of the RIIO model. Below these broad output categories sit the specific primary outputs that enable Ofgem, network companies and stakeholders to have a clear understanding of what is required in each area. To allow network companies to determine how best to deliver for the long term, and consistent with long-term value for money, we introduced secondary deliverables. These secondary deliverables provide another layer of detail, where required, to allow network companies to include costs in their business plans that are related to the delivery of primary outputs in future price controls. Alongside this framework is the Network Output Measures (NOMs) scheme that provides Ofgem with a measure to monitor, assess and quantify the impact of the actions taken and expenditure incurred by the companies on their networks over the longer term. **Does this structured approach to defining outputs provide the right level of clarity around delivery? How can the outputs framework be improved, including the introduction of additional output categories for example around efficient system operation for distribution network companies?**

Clarifying outputs

In our decision on the mid-period review (MPR) parallel work¹³, we considered two circumstances where it was ambiguous whether we would treat the network companies as having delivered their outputs. In one case, there had been a change of circumstances (SP

¹⁰ http://www.watercommission.co.uk/UserFiles/Documents/Legacy_report.pdf

¹¹ https://www.ofgem.gov.uk/system/files/docs/2017/01/consumer_engagement_in_the_riio_process_final_0.pdf

¹² For both RIIO-T1 price controls a total of six output categories are defined: safety, reliability, availability, customer satisfaction, connections (and wider works for ET only) and environment.

¹³ <https://www.ofgem.gov.uk/publications-and-updates/mpr-parallel-work-decision>

Transmission's voltage control output) and in the other, the identification of better ways to solve a problem (NGGT's compressor output). This led to some ambiguity as to what was required to deliver the detailed output specified in the licence. We said that, in general, we would focus on outcomes and treat outputs as met if network companies deliver them in a way that delivers greatest value to consumers. In reaching our decision, we said would take into account the nature of the output and why it was set to determine whether the output has been delivered. In RIIO-2, we will need to consider how best to define outputs to avoid such ambiguity.

In addition, in some sectors and for certain areas of expenditure where it is challenging to define meaningful and measurable outputs, we may want to consider alternatives – including the use of a more inputs-based approach to determine expenditure. For example, it may be appropriate to specify details of a particular project where this will deliver an output in a future price control period. We will also want to review our approach to areas of expenditure not linked directly to a specific output. In all cases, outputs and secondary deliverables should be clearly defined and where appropriate contained within final proposals and the licence. ***Did the outputs target the right behaviours? How can we address areas of expenditure for which a clear output is difficult to define?***

Output incentives

We have put in place financial and reputational incentive mechanisms to support the delivery of outputs. We will review the strength of the mechanisms to ensure outperformance in the delivery of outputs is appropriately rewarded and underperformance appropriately penalised. We will also want to ensure that incentive targets are suitably challenging, reflecting what consumers truly value as well as past performance by companies. The onus will remain on companies to take a leading role in determining the most appropriate options for meeting consumer needs and ensuring long-term value for money. ***Were the output targets and associated financial incentives set for RIIO-1 appropriate, reflecting what consumers value and are willing to pay for?***

2) Allowing regulated companies to earn returns that are fair and represent good value for consumers, properly reflecting the risks faced in these businesses, and prevailing financial market conditions

After the first three years of reporting for electricity and gas transmission and gas distribution and the first year for electricity distribution, all network companies are forecasting returns, as defined by the RoRE, above the baseline set at the start of the price controls.

A number of commentators (such as the Citizens Advice Bureau in their recent report¹⁴) have drawn attention to these high levels of returns, and made suggestions for reform. Fundamental to this debate is the concept of *legitimacy*. Stakeholders are more likely to view high returns as legitimate or fair when they are the product of efficiency or innovation. They are less likely to view them as legitimate or fair when they are perceived to be the result of companies' exploiting the information asymmetry or windfall gains due to economic conditions differing from original forecasts.

Company returns should be demonstrably good value for consumers. This can best be achieved where the gains from innovation and efficiency are shared between companies and consumers and where opportunities to outperform and make high returns by over-provisions or misforecasting are minimised. An effective price control should also create a natural dispersion of returns corresponding to the dispersion of company performance on measures that matter to consumers, with the best performers making the highest returns, and the worst performers the lowest. ***What changes in the RIIO framework would***

¹⁴ Energy Consumers' Missing Billions – 12 July 2017

facilitate returns that are demonstrably good value for consumers? How can we minimise the scope for forecasting errors?

Both Ofgem and network companies must ensure that there is continued public understanding of, and legitimacy for, the work that we do. In setting a price control, we need to secure network licensees ability to finance their activities, whilst ensuring that the interests of existing and future consumers are protected. We do not see any conflict between these two different aspects of our objectives as it is not in the interests of consumers for an efficient network company to fail. However, we need to ensure that returns remain legitimate with stakeholders. ***What constitutes a fair return for a regulated monopoly network company, and how can we ensure that returns remain legitimate in the eyes of stakeholders?***

Cost of capital

A key component of company returns has been the cost of capital. For RIIO-2 we want to ensure that the cost of capital we set for companies properly reflects the risks they face and remains in line with prevailing market conditions. Current market conditions, for both debt and equity, have diverged significantly from expectations at the time the cost of capital for RIIO-1 was set. At the same time, we have seen investors willing to buy regulated assets at high premia to the regulated asset values, suggesting a willingness to accept long-term yields considerably lower than the cost of capital set for RIIO-1.

Together with other regulators in the UK Regulators Network (UKRN)¹⁵, we are commissioning a study by expert academics and consultants that will help us understand the implications of this market environment for our cost of capital estimates. While we cannot speculate as to the final conclusions of the study, the evidence seems to point towards a significantly lower cost of capital for regulated network companies than that set for the RIIO-1 price controls. For example, in their most recent framework consultation document, Ofwat also state that they will set the allowed return based on the prevailing market evidence, which points to a lower cost of capital at the 2019 price review (PR19).

At the same time as reviewing the parameters that determine our assessment of the costs of capital, we also intend to review the methodology for keeping them appropriately aligned with market conditions. We index the cost of debt to a historical trailing average which has brought down the cost of debt, and removed a significant source of risk for both companies and consumers. However, there may be further refinements we can consider. We will also need to consider whether we could take a similar approach to determining the cost of equity or whether there are other options we could adopt. ***What factors do you think are relevant for assessing and setting the cost of capital so it properly reflects the risks faced by companies? Can we improve our methods for the indexation of the costs of debt and equity?***

Financeability

Whilst the cost of capital is key to the financeability of network companies, we also need to consider a range of other financial metrics to make judgements about financeability in line with our past practice. We will therefore review our approach to tax, capitalisation rates and depreciation. ***Are there specific amendments to any core aspects of financeability that we should be considering in light of performance during RIIO-1 and the change in the financial environment?***

Inflation and price indices

Currently we index the RAV using the retail price index (RPI). We also use RPI to present information in real terms or constant prices. We will need to consider whether we continue

¹⁵ <http://www.ukrn.org.uk/>

to use the Retail Price Index (RPI) or the Consumer Price Index including a measure of owners housing costs (CPIH) as our index for inflation. The Office of National Statistics has moved to using CPIH as its preferred measure of indexation¹⁶ and other regulators such as Ofwat have taken the decision to move away from RPI. This naturally raises questions about our longer-term use of RPI. ***Should we consider moving to CPIH (or another inflation index) and how should we put into effect any change to ensure it is present value neutral for investors?***

3) Incentivising companies to drive consumer value by shaping or proactively responding to changes in how networks are used and services are delivered

In a rapidly evolving environment, there is value in being able to respond to changes in an agile manner. Particularly on the electricity network, new smart technologies can increasingly defer or negate the need for traditional network investment and can reduce long-term costs for consumers. This will be a particularly important feature for distribution network operators who are in the process of transitioning to more actively managing their networks (taking on distribution system operator roles).

Incentivising whole system coordination

Changes in the location and type of generation are increasing the interactions between traditional network sector boundaries, particularly electricity distribution and transmission companies. There will need to be greater coordination across network boundaries to manage the system in a flexible way and reduce overall costs to the whole energy system (both short term operational costs and longer term investment). Going forward, evolving generation and demand patterns mean that there could be distribution level solutions to transmission network constraints and vice versa. The roles and incentives on the various parties will therefore need to adapt to ensure that actions taken are those that best meet consumers' needs whilst maintaining system security and accommodating new connections to the system. There is also potential for increasing interaction across electricity and gas networks, for example through power to gas technology or increased interaction around different heat decarbonisation options.

For the RII0-2 price control, we will need to ensure that network operators and the SO are clear on how they need to interact with each other, and that their outputs and incentives are aligned to reduce total system costs. For example, the Demand Turn Up trial between National Grid and Western Power Distribution demonstrates that this transition is already underway. The aim of the trial has been to develop best practice in meeting transmission and distribution network requirements efficiently through the procurement and dispatch of a demand side service on behalf of both the SO and DNO by National Grid.¹⁷

Potential for greater price control alignment

As noted above, we will need to ensure alignment of the various price control structures around whole system coordination. There is an argument that this alignment would be easier if the two price controls were settled at the same time. Currently the next electricity transmission price control will start in 2021, with the electricity distribution price control starting two years later in 2023.

Whilst the current price control schedule results in a fairly uniform split in terms of value and the number of companies concerned, alignment between the price controls (in particular, between electricity distribution and transmission) could result in potential benefits to the consumer, namely the possibility of improved coordination and greater

¹⁶ The UK Statistics Authority's Regulation Committee considered the matter of whether CPIH should be designated as a National Statistic at their April meeting. They will consider the matter again at their July meeting, recognising the significant progress made against many of the Requirements set out in their Assessment of Compliance with the Code of Practice for Official Statistics for CPIH which was published in March 2016.

¹⁷ <http://nationalgridconnecting.com/new-balance/>

information synergies. Any rescheduling would need to take into consideration a range of factors, including the knock-on effects on internal resourcing for stakeholders, the effect of other changes proposed to the price controls and the means through which we allow changes to be addressed within existing price controls (eg through reopeners). We also recognise that a decision was made at the start of the RIIO-1 price controls to align electricity transmission and gas transmission. We will consider whether there is now a stronger need for alignment across electricity rather than transmission. **Do you think there are sufficient benefits in aligning the electricity price controls to off-set the disadvantages we have outlined? Are there any other realignment options we should consider?**

Flexibility

Whilst we are seeing increased use of flexible services to manage the system, more needs to be done to ensure that network management solutions make full use of these opportunities where these offer better value over building new infrastructure. Making use of demand side response or storage solutions, or rolling out energy-efficiency measures may well defer or avoid the need for costly network enhancement. The use of a totex approach (where revenue is based on total expenditure rather than separating out capital expenditure (capex) and operational expenditure (opex)) reduces the bias towards capex solutions and encourages operational solutions where this is more cost effective. However, we will consider whether we need to further incentivise network companies to implement alternative solutions. **What amendments to the RIIO framework, if any, should we consider in supporting companies to make full use of smart alternatives to traditional network investment?**

Managing asset utilisation risk

Given the highlighted uncertainty around the future of the network (across the different sectors), network operators need to carefully consider how best to manage their existing asset bases and the need for future investments. As the nature of the charging base and consumer responses evolve, network operators will also need to consider the recoverability of these costs. A number of industry participants have discussed the question of stranded network assets and we will need to consider how the RIIO-2 framework can best support companies in making the right investment decisions in light of this issue. **Given the uncertainty around demand for network services, how much of an issue might asset stranding be and how should this risk be dealt with?**

Options for managing uncertainty

Much of the underlying demand, supply and price uncertainty was present in RIIO-1. The framework design is structured to mitigate against these potential uncertainties. Our approach to uncertainty under RIIO has been to recognise the challenges associated with a longer price control period. We provide the option of revenue adjustment during the price control.

The various types of uncertainty mechanism include, but are not limited to: mechanisms that allow revenue to vary with changing volumes; triggers allowing revenue to increase or decrease if and when certain events occur; and, pass-through items which fully or partially compensate companies for costs outside their control. The scale of uncertainty has changed for RIIO-2 due to the wider range of plausible demand and supply scenarios. That is why we need to ensure that the framework can adapt and flex as necessary with changes in how consumers use these networks.

Whilst a full and final evaluation of the uncertainty mechanisms in RIIO-1 will not be possible until the end of the current price control period, we still need to consider whether an eight-year price control and the mechanisms put in place to manage uncertainty are robust to the range of futures we might see in RIIO-2. **How do we need to adapt the**

RIIO framework, and the uncertainty mechanisms in particular, to deal with this uncertainty? Is an eight-year price control period with built-in uncertainty mechanisms still appropriate given the greater range of plausible future scenarios?

4) Using the regulatory framework, or competition where appropriate, to drive innovation and efficiency

The RIIO framework seeks to incentivise network companies to find delivery solutions that are lowest cost over the long term. For example, the introduction of an eight-year price control provides greater revenue certainty to network companies and investors, encouraging them to make decisions that are focused on the long-term value for consumers. Similarly, the setting of outputs at a high level enables companies to have discretion over the most appropriate way to deliver. The totex incentive mechanism provides incentives for companies to minimise the cost of delivering what consumers want. The resulting savings are shared between companies and consumers.

Cost assessment of business plans

In terms of setting the totex levels, we expect to maintain the toolkit approach adopted in RIIO-1 for assessing efficient costs in the companies' business plans, involving a range of different levels of analysis. There are a number of key issues that we will need to address, such as: further refining totex analysis; the role of disaggregated analysis; how best to use benchmarking and from what sources; the assessment of innovative solutions and any potential associated gains or the avoidance of investment; determining appropriate cost drivers; regional factors; the treatment of insourcing versus outsourcing; and finally, costs related to technological change.

We recognise we can improve the way we evaluate the companies' business plans. We want to set expectations up front about the economic and efficient costs of running the networks based on previous price control information and other benchmarking. This would allow us to take an independent view of the likely costs the network company could incur. It would then be the network companies' responsibility, through their business plans, to justify deviation away from this expectation. ***What improvements should be made to the assessment of business plans? Should we give further consideration to companies' historic performance against their business plans? Should we determine the revenues an "efficient" network company requires before seeking information from the companies themselves?***

Length of price control

The introduction of an eight-year price control aimed to provide greater revenue certainty to network companies and investors, encouraging them to make decisions focused on long term value for consumers, including investing in appropriate innovation. Whilst considering the benefits to innovation and efficiency as a result of a longer price control period, we will want to review the ongoing appropriateness of the eight-year price control period given the potential scale of future uncertainty facing network companies. ***What has an eight-year price control period allowed network companies to accomplish or plan for, that would not have occurred under a shorter price control period?***

Efficiency incentive

RIIO provides an upfront and symmetric efficiency incentive rate to encourage efficient delivery by network companies. Through the efficiency incentive rate, or 'sharing factor', investors share the benefits of any underspend with consumers. Conversely, consumers and investors share any additional costs if the network company spends more money than envisaged. The Information Quality Incentive (IQI) is used to determine the efficiency

incentive rate each company faces according to differences between its forecast and our assessment of its efficient expenditure requirements. We will need to consider how successful the IQI has been in revealing the efficient costs of running the networks and what impact the efficiency incentive rates for each of the sectors have had on driving companies' behaviour to deliver services at lowest cost. **How well has the IQI and efficiency incentive worked in revealing efficient costs through the business plan process and encouraging efficiency throughout the price control period? What alternative approaches could we consider to encourage companies to give us high quality information which minimises the damage from their information advantage?**

In addition to the regulatory measures outlined in the RIIO framework, we will also want to review other elements of the price control regime that seek to drive innovation and efficiency. Whilst we expect network companies to respond to strong commercial incentives to innovate, we recognise that there may be less appetite to take on the risks inherent in novel technologies.

Innovation stimulus package

Ofgem's role is to balance network companies' responsibility to be proactive in the delivery of a sustainable energy sector, alongside our responsibility to provide a regulatory framework capable of incentivising innovation. In developing the RIIO framework, we understood that there would also need to be a change in culture within the companies for these incentives to be effective. As such, we introduced a separate, time limited innovation stimulus intended to act as a catalyst for this culture change. Following on from the publication of our policy decision on the Network Innovation Review in March 2017¹⁸ we will continue to evaluate the innovation stimulus package throughout the development of RIIO-2. We will also consider to what extent the RIIO framework can further internalise the benefits of innovation so that companies are naturally incentivised to innovate in the way they deliver solutions. For example, we will consider the extent to which the efficiency incentive encourages innovation. **What impact has the innovation stimulus had on driving innovation and changing the innovation culture? Have the incentives inherent in the RIIO model encouraged network companies to be more innovative and what should we consider further?**

The role of competition

Competition has been, and should continue to be, used within the RIIO framework where it can drive better value for consumers. There are two main areas where competition can be used: identifying the right system level solutions; and revealing the efficient costs for delivery. Models of competition such as the Offshore Transmission Owner (OFTO) regime, the interconnector cap and floor regime, and the process run by Scottish Hydro Electric Power Distribution (SHEPD) for electricity supply on Shetland have generated considerable value for consumers and could provide useful templates for RIIO-2. In RIIO-2, we will consider whether the scope of competition should be expanded to include the majority of new, high value and separable projects in the onshore sector, and how third parties can bring in new ideas to solve network system problems. **Do you agree that the scope of competition should be expanded in RIIO-2? What further role can competition play?**

¹⁸ https://www.ofgem.gov.uk/system/files/docs/2017/03/the_network_innovation_review_our_policy_decision.pdf

5) Simplifying the price controls by focusing on items of greatest value to consumers

As for the previous RIIO price controls, companies will be required to develop well-justified business plans setting out their long term view of what they intend to deliver, how they intend to deliver it and their view on the cost of delivery. This will also include how they intend to manage uncertainty over the length of the price control. The business plans should be informed by stakeholder engagement and reflect consumers' willingness to pay for the services network companies provide. We will consider ways in which elements of the price control process and framework can be simplified to enable improved stakeholder engagement and the submission of quality business plans. **Which elements add the most complexity and how do you think that these and the broader RIIO framework could be simplified?**

Developing a common methodology for business plans

In RIIO-1, we set out guidance for how network companies should develop well-justified business plans for each of the sectors and we intend to build on this work to develop future guidance for RIIO-2. However, we consider that there is scope for further improvements, particularly with respect to a common methodology for justifying investment that is likely to provide longer-term benefits and longer term forecasting beyond the price control period. We will also look at making the plans more consistent (eg terminology and presentation) to make them easier to navigate and compare, possibly creating a template for companies to work to. Network operators already have some additional guidance in the form of our views on their business plans submitted for RIIO-1. Our new guidance will also set out the level of disclosure we expect from the companies, again to allow stakeholders to understand and compare companies' plans. **What improvements could be made to the format and presentation of the business plans? Should the plans be revised at any stage during the price control, for example annually?**

Fast tracking

We intend to maintain a transparent and proportionate approach to assessing business plans, with the intensity and timescale of assessment reflecting the quality of the individual business plan and the company's record for efficient output and customer service delivery. However, within this approach we will consider whether "fast-tracking" is still appropriate for each of the sectors based on whether it delivered on its primary objective to incentivise high quality business plans through competition and an earlier settled price control. **Should we retain fast tracking and if so, for which sectors?**

Monitoring and information

As a regulator, it is vital that we effectively monitor and have a clear understanding of the performance of the network companies. We strive to maintain public confidence by transparently reporting on delivery against outputs and secondary deliverables. As part of our performance monitoring, we publish an annual report for each price control that broadly assesses performance across output delivery, expenditure, financial and customer bill impact. We want to ensure that the information we collect from one price control can be used to inform and improve the next one. We recognise the importance of requesting and receiving meaningful information in a format that is fit for purpose. We therefore intend to review the data we require companies to provide and consider whether there are improvements that can be made to what we collect, how often we collect it and how it is presented. **Do we collect the right information in the right format and are there better ways to monitor the performance of companies?**

Electricity system operator (SO) price control

Ofgem, the Department for Business, Energy & Industrial Strategy (BEIS) and National Grid issued a statement in January 2017 setting out our joint aspirations for the future of the SO, including our belief that a more independent electricity SO can realise benefits for consumers. In parallel to this statement, Ofgem published a consultation on the future role of the electricity SO and proposals for the electricity SO to become a legally separate company within National Grid.¹⁹ Starting from April 2018 we also intend to introduce a new regulatory framework for the electricity SO to reflect its evolving role in the energy system. We have consulted on our intention to separate the current price control between the new electricity SO company and National Grid Electricity Transmission.

When the existing electricity transmission price control ends in 2021, we will need to consider the best way of financing and incentivising the electricity SO going forward. We will also need to consider the interaction between these arrangements and the other four price controls and specifically whether a separate price control under the RIIO framework should be established for the electricity SO. **What are your views on how the changing role of the electricity SO should be factored into the RIIO framework, including whether or not the electricity SO should have a separate price control?**

Providing for stakeholder engagement during the framework review

During the Framework Review stage, we would like to engage with a wide range of stakeholders. This includes network companies, end-consumers, suppliers, generators, Government, regulators, representatives and other bodies, and investors.

In keeping with the principle of “enhanced engagement”²⁰ the key responsibility will remain with network companies to effectively engage stakeholders in developing their response to the Framework Review. We will publish a more detailed stakeholder engagement plan covering the Framework Review Stage in mid-Q3 of 2017.

During the Framework Review Stage, we will put in place a number of channels (set out below) whereby stakeholders can engage with us, in addition to our participation at existing forums, seminars and working groups.²¹ The table below sets out the key milestones during this Framework Review Stage.

Date	Key milestones
Jul 2017	Publication - Open letter consultation on Framework Review Stage
Jul-Aug 2017	Bilaterals with interested parties
Q3 2017	Publication - Framework Review Stage Stakeholder Engagement Plan
Q3-Q4 2017	Workshops, Webinars and Working Groups
Q1 2018	Publication - Framework Consultation
Q1 2018	Workshops, Webinars and Working Groups
Q2 2018	Publication - RIIO-2 Framework Decision

Where appropriate we will consider opportunities to coordinate resources and collaborate with network companies and the wider stakeholder community in the holding of stakeholder events and other fora.

Consultation documents: we intend to publish a Framework Consultation document during Q1 2018 and a Decision document during Q2 2018. These will provide an update on our thinking and allow interested parties to express their views formally.

¹⁹https://www.ofgem.gov.uk/system/files/docs/2017/01/future_arrangements_for_the_electricity_system_operator.pdf

²⁰ Developed during the RPI-X@20 review

²¹ <https://www.ofgem.gov.uk/about-us/how-we-engage/forums-seminars-and-working-groups-full-list>

Workshops and webinars: we will hold a number of workshops and will look to use alternative engagement methods such as webinars to discuss key areas of focus during the Framework Review Stage.

Working Groups: we are proposing to establish small working groups to develop thinking on specific areas. We propose that the workshops will be based around the following themes reflecting those in this open letter:

- Consumer engagement during the price control period
- Finance framework
- Responding to the wider changes in how networks are used
- Efficient delivery solutions and innovation
- Simplifying the price controls

We propose that these working groups should not be limited to network companies but should be open to wider stakeholders who can make a significant contribution to considering the issues. ***Do you agree with our broad stakeholder engagement approach set out above?***

Views welcome and next steps

As noted above, this is the start of the process for setting the next price controls and we are keen to ensure that we get views from a wide range of stakeholders. We have set out specific questions regarding the price control framework in this letter.²² We would welcome written comments on these questions, or any other issues you believe we should address in the framework, by 4 September 2017. Please email responses to RIIO2@ofgem.gov.uk. Unless clearly marked as confidential, we will publish responses on our website shortly after the response deadline.

During this Framework Stage, we will also publish a consultation document on the proposed structure of the framework in Q1 2018. We will be using the responses to this letter to inform that consultation. The Framework Stage will culminate in the publication of our Framework Decision in Q2 2018.

If you would like to discuss the contents of this letter in more detail, please contact Marcia King on 0207 901 1888.

Yours faithfully,



Jonathan Brearley
Senior Partner, Networks

²² A complete list of questions is included in Annex 3 of this letter.

Annex 1: RIIO Background

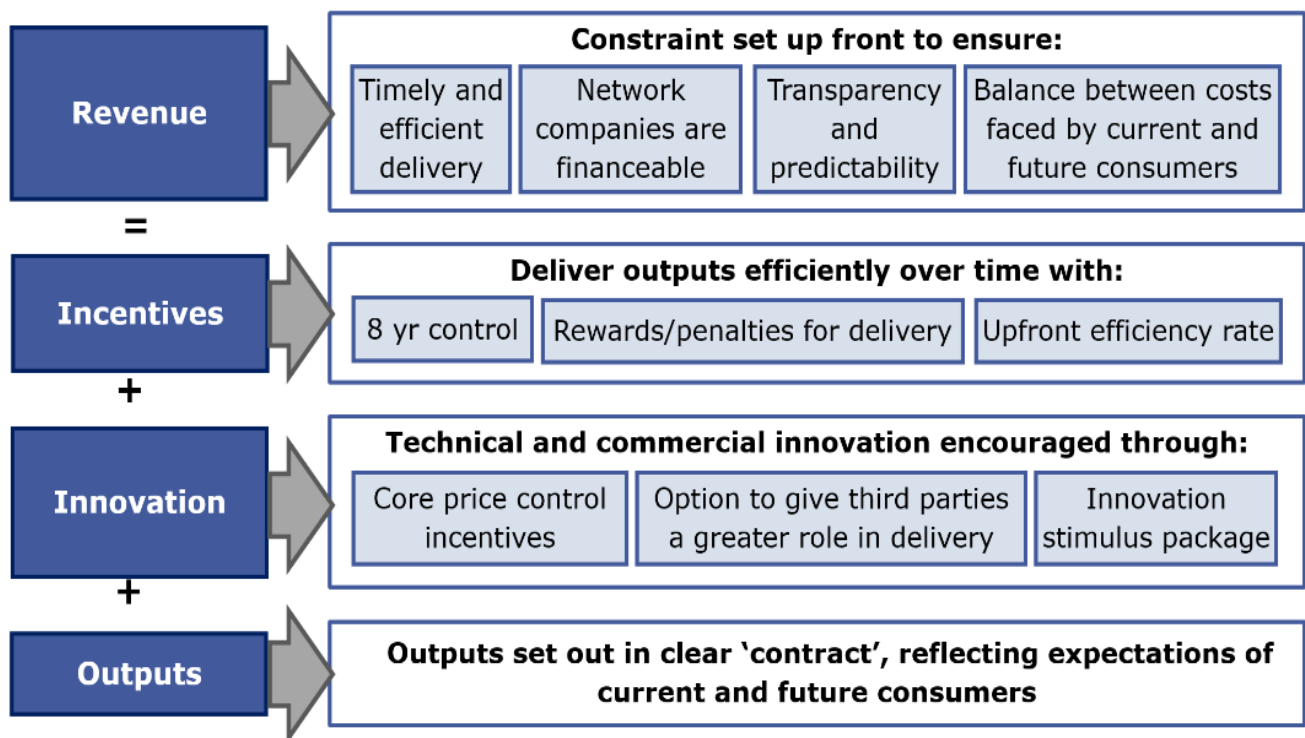
RPI-X@20 was a detailed review of energy network regulation and resulted in our new RIIO regulatory framework, which was set out in the RPI-X@20 Decision Document²³. We also set out more details of how the RIIO model would work in practice in the "Handbook for implementing the RIIO model"²⁴.

RIIO (Revenue = Incentives + Innovation + Outputs) is designed to encourage network companies to:

- Put stakeholders at the heart of the decision-making process
- Invest efficiently to ensure continued safe and reliable services
- Innovate to reduce network costs for current and future consumers
- Play a full role in delivering a low carbon economy and wider environmental objectives.

In 2013 we completed the first price control reviews to use the RIIO framework: RIIO-T1 (gas and electricity transmission) and RIIO-GD1 (gas distribution). In 2015 we published our final determinations for the RIIO-ED1 price control review for electricity distribution. Each of the RIIO-1 price controls are currently set to run for an eight-year period.

Figure 1: The RIIO model



²³ <https://www.ofgem.gov.uk/ofgem-publications/51870/decision-docpdf>

²⁴ <https://www.ofgem.gov.uk/ofgem-publications/51871/riiohandbookpdf>

Annex 2: A brief review of changes in the energy sector over the past ten years

The energy sector is changing. The emergence of renewable technologies has not only altered the way in which electricity and heat are generated, but also changed the way in which supply and demand are considered across the energy network.

On the retail side, domestic energy demand has fallen steadily; from 52,229 ktoe in 2002 to 42,328 ktoe in 2015, a fall of 19%²⁵. Fifty supply companies of varying sizes now supply consumers using a wide range of business models. We also have numerous price comparison websites and other intermediaries offering services to help consumers engage in the market.

Changes in the retail market have been matched on the wholesale side. Perhaps the biggest structural change has been the growth of renewable electricity generation in the last ten years. Renewable energy sources provided 24.6% of the electricity generated in the UK in 2015 – beyond what most in the sector would have thought possible ten years ago²⁶. Much of this generation is local i.e. connected to the distribution network and has come from wind or solar sources. In parallel, electricity from coal-fired plant has reduced rapidly. Coal accounted for just 9.1% of electricity generated in 2016 (a decrease of 13% on 2015)²⁷, and in April 2017, the UK recorded its first working day without coal power since the Industrial Revolution.

In terms of gas, we have seen changes not only in the sources of gas but also the make-up, with the injection of biomethane gas, which is currently being produced by a small number of companies to feed into the national grid. The UK has been a net importer of gas since 2004, with net imports of gas in 2015 accounting for just over 40% of supply²⁸.

At the same time, the costs of new technology have been falling. For example, lithium-ion battery costs fell around 14% pa from 2007 to 2014 and are forecast to reduce further – at around 6% pa reduction for EV batteries from 2015-2020²⁹. Significant cost reductions have also been achieved for solar photovoltaic panels and onshore wind, which have seen cumulative cost declines of 40-60%³⁰ over 7 years. Smaller cost reductions are also evident in offshore wind, where bids have dropped to approximately £120/MWh³¹ from around £140/MWh in 2015³².

The electricity generation mix will continue to evolve, driven by technological and market changes - renewable electricity generation has increased from below 5% of total UK electricity generation in 2004, to around a quarter in 2015³³. However, the direction of other trends is less clear. Whilst it is possible we will see higher levels of distributed/behind the meter generation and higher proportions of intermittent generation these current trends could be impacted by changes in embedded generation charging, removal of subsidies, offshore wind cost reductions, and increases in interconnectors, gas, tidal and nuclear.

Significant shifts in demand are also likely – we could see greater fluctuations driven by behind the meter/distributed generation and electrification of heat and transport sectors, or we might see smoothed demand, with peaks offset by enhanced flexibility (eg demand side response (DSR), storage), permanent demand reductions (eg energy efficiency) and/or market frameworks that encompass electrification.

²⁵https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/573269/ECUK_November_2016.pdf

²⁶ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/547977/Chapter_6_web.pdf

²⁷https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/604695/Press_Notice_March_2017.pdf

²⁸ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/540923/Chapter_4_web.pdf

²⁹ Nykvist, B. & Nilsson, M. Rapidly falling costs of battery packs for electric vehicles. *Nature Climate Change*: 5, 329-332 (2015)

³⁰ Source "Utility of the Future", An MIT Energy Initiative response to an industry in transition, <http://energy.mit.edu/wp-content/uploads/2016/12/Utility-of-the-Future-Full-Report.pdf>

³¹https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/407465/Breakdown_information_on_CFD_auctions.pdf

³² <https://www.thecrownestate.co.uk/media/5643/ei-bvg-owcrp-technology-workstream.pdf>

³³https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/532963/Renewable_energy_in_2015.pdf

Annex 3: Full list of questions

1. Do you agree with our overarching objective for RIIO-2 and how we propose to achieve it?
2. How can we strengthen the consumer voice (primarily end-consumers), in the development of business plans and price control decisions?
3. How should we support network companies in maintaining engagement with consumers throughout the price control period?
4. Does this structured approach to defining outputs provide the right level of clarity around delivery?
5. How can the outputs framework be improved, including the introduction of additional output categories for example around efficient system operation for distribution network companies?
6. Did the outputs target the right behaviours?
7. How can we address areas of expenditure for which a clear output is difficult to define?
8. Were the output targets and associated financial incentives set for RIIO-1 appropriate, reflecting what consumers value and are willing to pay for?
9. What changes in the RIIO framework would facilitate returns that are demonstrably good value for consumers?
10. How can we minimise the scope for forecasting errors?
11. What constitutes a fair return for a regulated monopoly network company, and how can we ensure that returns remain legitimate in the eyes of stakeholders?
12. What factors do you think are relevant for assessing and setting the cost of capital so it properly reflects the risks faced by companies?
13. Can we improve our methods for the indexation of the costs of debt and equity?
14. Are there specific amendments to any core aspects of financeability that we should be considering in light of performance during RIIO-1 and the change in the financial environment?
15. Should we consider moving to CPIH (or another inflation index) and how should we put into effect any change to ensure it is present value neutral for investors?
16. Do you think there are sufficient benefits in aligning the electricity price controls to off-set the disadvantages we have outlined?
17. Are there any other realignment options we should consider?
18. What amendments to the RIIO framework, if any, should we consider in supporting companies to make full use of smart alternatives to traditional network investment?
19. Given the uncertainty around demand for network services, how much of an issue might asset stranding be and how should this risk be dealt with?
20. How do we need to adapt the RIIO framework, and the uncertainty mechanisms in particular, to deal with this uncertainty?
21. Is an eight-year price control period with built-in uncertainty mechanisms still appropriate given the greater range of plausible future scenarios?
22. What improvements should be made to the assessment of business plans?
23. Should we give further consideration to companies' historic performance against their business plans?

24. Should we determine the revenues an "efficient" network company requires before seeking information from the companies themselves?
25. What has an eight-year price control period allowed network companies to accomplish or plan for that would not have occurred under a shorter price control period?
26. How well has the IQI and efficiency incentive worked in revealing efficient costs through the business plan process and encouraging efficiency throughout the price control period?
27. What alternative approaches could we consider to encourage companies to give us high quality information that minimises the damage from their information advantage?
28. What impact has the innovation stimulus had on driving innovation and changing the innovation culture?
29. Have the incentives inherent in the RIIO model encouraged network companies to be more innovative and what should we consider further?
30. Do you agree that the scope of competition should be expanded in RIIO-2? What further role can competition play?
31. Which elements add the most complexity and how do you think that these and the broader RIIO framework could be simplified?
32. What improvements could be made to the format and presentation of the business plans?
33. Should the plans be revised at any stage during the price control, for example annually?
34. Should we retain fast tracking and if so, for which sectors?
35. Do we collect the right information in the right format and are there better ways to monitor the performance of companies?
36. What are your views on how the changing role of the electricity SO should be factored into the RIIO framework, including whether or not the electricity SO should have a separate price control?
37. Do you agree with our broad stakeholder engagement approach set out above?