National Infrastructure Commission Call for Evidence on the Future of Regulation

Summary of Consultation Responses

July 2019

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1. Consultation report analysis

1.1 Background to consultation

In October 2018, the government asked the National Infrastructure Commission (NIC) to conduct a new study into regulation of the UK's energy, telecoms and water industries.

The aim of the study is to assess what changes might be necessary to the existing regulatory framework in the long term, to facilitate future investment needs, promote greater competition, increase innovation, and meet the needs of both current and future consumers.

On 18 February 2019, the NIC published a Call for Evidence[1], inviting interested parties to submit evidence, ideas and solutions to the key issues which the study aims to address. The key issues, as set out in the Terms of Reference[2], are:

- **What future changes will affect the regulated sector**: based on NIC's view of infrastructure needs to 2050, what are the drivers of change, how will they impact regulators, and what will regulators need to do to adapt.
- **Competition and innovation**: whether the current model of regulation has led to enough competition and innovation, what benefits it brings, whether regulators need to be more adaptive to change, and what mechanisms they can use to encourage it.
- **Regulatory consistency**: how the framework can facilitate collaboration on cross-cutting challenges, whether existing structures promote this, the impact of regulatory consistency on infrastructure projects, and possible improvements
- **How government and regulators work together**: how government meets its objectives for regulated sectors while keeping regulatory independence, and how the current arrangements could be improved

The study is also considering the potential implications of any changes, particularly the need to keep bills affordable and to ensure vulnerable customers are protected.

The call for evidence closed on 19 April 2019 having received 84 responses from across industry, regulators, investors, academics, trade associations and other interest groups. This document summarises the main points and evidence put forward.

1.2 Overview of responses

There were 84 responses to the call for evidence, with the largest share of responses focussing specifically on the energy sector, and a smaller number on water and telecoms. There were also 26 responses which covered multiple sectors, with some including relevant examples from other regulated sectors such as transport.

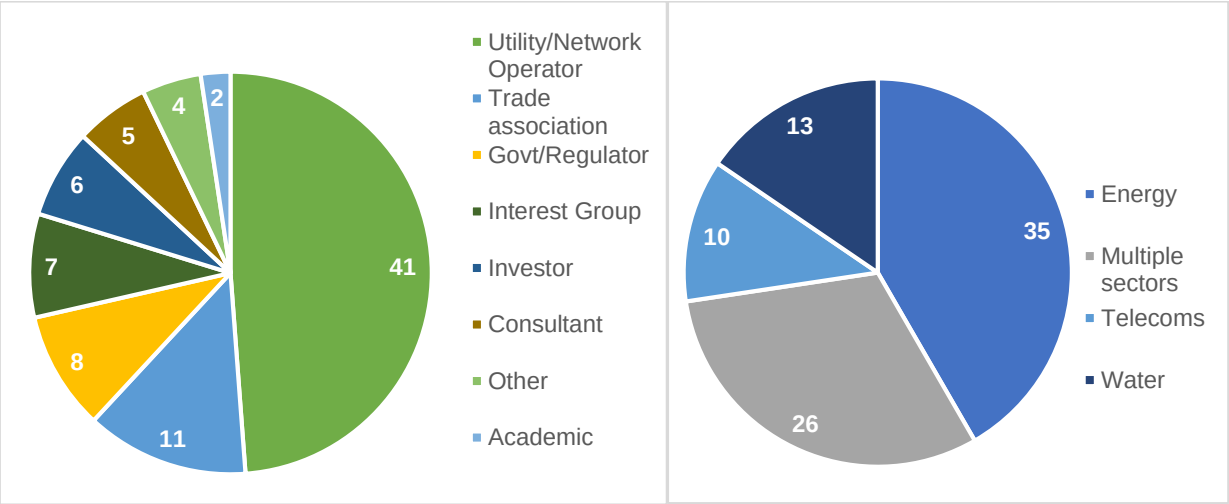
Almost half of the respondents were utilities / network providers, including 8 out of the 10 respondents in telecoms and 9 out of the 13 respondents in water. However, these were supplemented by views from investors, interest groups, consultants and trade associations, which all tended to cover multiple sectors. There were two academic respondents, both focussing on the energy sector.

[1] https://www.nic.org.uk/publications/future-of-regulation-study-call-for-evidence/
[2] https://www.nic.org.uk/publications/future-of-regulation-study-terms-of-reference/

Several government bodies and regulators also responded. Out of the regulators for the three sectors only Ofwat responded directly. However, there was also a response from the UK Regulators Network, which includes Ofgem and Ofcom.

A full list of respondents is provided at Appendix B.

Figure 1: Number of respondents by type and by sector



1.3 Approach to consultation response analysis

Responses were logged with a reference number and allocated a respondent sector and type. Structured responses were analysed to identify key issues and themes for each answered question. Unstructured responses were similarly analysed, but with a first step of allocating text to the consultation questions where possible.

We initially categorised each response by sector and type of respondent, using the categories set out in **Error! Reference source not found.**. We then reviewed each response, and briefly summarised the points made under each question in a spreadsheet, which has been provided to the NIC separately. To create this summary document, we collated the responses to each question, noting themes by sector and type of respondent.

Not all respondents directly answered all questions and where the response covered multiple areas we have apportioned the views to the questions where they are most appropriate. In some cases, this has meant our summary covers slightly more than the scope of the question.

For some questions we have split the summary by sector, as the views tended to be specific to that area. However, where views across sectors mostly overlapped we have not done this.

Where possible we have provided summary statistics. For example, under Question 10 which asks what the case is for a multi-utility regulator covering energy, digital and water, we have provided an overview of whether respondents tended to agree that a multi-utility would be positive or negative. To do this we analysed the responses to these which category was most appropriate, including a category where responses did not give a clear view. However, we have limited this analysis to cases where the majority of responses presented clear views so as to avoid potential bias in our analysis.

Additional evidence submitted by respondents has not been analysed as part of this exercise.

1.4 Cross-cutting themes

Many respondents welcomed the Call for Evidence, noting that this was an appropriate time to review regulatory arrangements considering the significant challenges faced by these sectors to 2050, including decarbonisation, digitalisation, new emerging business models, and the significant need for investment in infrastructure.

Future changes

The majority of respondents thought that increasing availability of data will present a significant opportunity, but that it must be balanced against other considerations such as security and privacy.

Respondents also pointed towards a need for regulatory reform due to shortcomings of the current system, and views were presented that regulation is too prescriptive in some areas, that the relationship between government and regulators is not clear, and that a more holistic approach to decision making is required.

A number of responses noted shorter-term issues including the lower returns established by regulators in the upcoming electricity and water price controls, RIIO-2 and PR19. Network companies tended to suggest too little focus on investment, while consumer bodies welcomed regulators reducing returns. A number of respondents suggested they reflect the nature of regulatory decisions, therefore suggesting the need to change the regulatory framework, for example by giving regulators clearer objectives around trade-offs between short-term and long-term consumer interests.

Respondents suggested a number of opportunities for regulatory reform, including moving to more outcome-focussed regulation, but there was no clear consensus on the most important changes which need to be made over the next 30 years.

Competition and innovation

In their responses, many stakeholders suggested the current regulatory regime has been successful in attracting investment into infrastructure, driving cost savings from competition, and enabling innovation. However, stakeholders also pointed to potential issues, including questions of fairness of outcomes as well as the recent performance of regulated utilities.

Whilst the majority of responses were positive about the prospect of regulatory reforms, many also recognised the need to ensure reforms do not adversely impact on the stability of the current framework. Respondents tended to note the difficulty in this trade-off, with some advocating longer-term planning and more predictable decisions, whilst others provided a range of examples where they felt the regulators have been too slow to make changes in the past.

A range of views were expressed about whether it would be beneficial to increase competition in future or whether regulators needed to reassess whether competition was working for consumers.

Regulatory consistency

A number of respondents suggested overarching themes which regulators face, such as sustainability, decarbonisation, and consumer protection, and the majority of respondents thought that regulators would benefit from working more closely together, increasing consistency, sharing best practice, and avoiding treating sub-sectors in isolation. There were also a number of suggestions of where regulators might be able to share resources, including back-office functions. However, the majority of respondents did not support introducing a multi-

utility regulator, with many suggesting that the current specialism of the regulators needs to be retained.

Policy and regulation

There was a mix of views received on whether the traditional role of economic regulation would need to change as regulators face challenges in delivering major infrastructure programmes, such as around decarbonisation. But most respondents did not express support for changing the boundaries between Government and independent regulation, believing it could risk complicating the regulatory landscape.

A number of respondents identified areas where closer partnership between Government and the regulator would be needed to deliver on complex programmes. And a number of respondents thought there was a lack of clarity over the roles of different regulators and governments, with potential gaps between them.

A significant majority of respondents expressed support for the government's current principles of economic regulation – accountability, focus, predictability, coherence, adaptability and efficiency – though a number of further principles were suggested such as transparency and stability.

Most respondents expressed support for moving from a prescriptive rules-based regulatory framework to a more principles-based framework.

2. Future Changes

2.1 Question 1

Where has the economic regulation of water, energy or telecoms systematically failed or succeeded to:

a. facilitate future investment needs;

b. promote competition and innovation; and

c. meet the needs of both current and future consumers;

and what do you see as the most important improvements that could be made to the UK's system of economic regulation?

In total, 75 respondents answered this question. Many respondents cited successes and failures in economic regulation, including specific issues, as well as systemic ones. There was also a wide range of regulation considered, not limited to strictly economic regulation, and some respondents noted the scope of regulators' roles was broader than a purely economic one. There was no clear consensus on the overall success or failure of economic regulation in each sector and there tended to be disagreement about the improvements that should be made to the UK's system of economic regulation.

Energy

In total, 32 respondents from the energy sector answered this question, with a further 23 respondents covering multiple sectors.

A) Systematic successes and failures of economic regulation in facilitating future investment needs in the energy sector

Many respondents thought that the regulatory framework has succeeded in encouraging investment in the energy sector. Several respondents suggested RIIO has been successful, with one citing that around $100 billion of investment has been delivered by network companies since privatisation. Other respondents suggested the cap and floor regime has been successful in facilitating the investment of nine new interconnector projects, and that the Offshore Transmission Owner (OFTO) regime has delivered 21 projects amounting to around £5bn of investment.

In addition to economic regulation, respondents also pointed towards a range of policy schemes facilitating investment, including the Renewables Obligation, Feed-in Tariffs, the Renewable Heat Incentive, the Capacity Market and Contracts for Difference.

However, some respondents suggested there were barriers to investment, particularly in new technologies, due to the complexity of the regulatory framework and the lack of long term vision set out in certain areas such as the decarbonisation of heat. One respondent thought that regulation does not provide sufficient contract duration outside of specific policy mechanisms. Another respondent noted a failure to facilitate investment in large scale energy storage. One respondent noted that investment has been inconsistent across technologies and sectors, and driven by political support.

Though arguably not a systemic issue, many respondents noted their disagreement with Ofgem's proposals for the RIIO-2 framework, suggesting that returns are insufficient to facilitate future investment needs.

B) Systematic successes and failures of economic regulation in promoting competition and innovation in the energy sector

Most respondents suggested that economic regulation has promoted competition and innovation in the energy sector. Several respondents thought that price controls, including

RIIO, have set the right incentives for competition, for example through cross-sector benchmarking of costs and incentive targets, and encouraging companies to “compete” when submitting their business plans. Respondents also pointed towards competition created by the OFTO regime. Those respondents tended to also suggest that the regulatory framework had set the right incentives for innovation, citing formal innovation funding through the low carbon network fund (LCNF), network innovation allowance (NIA) and network innovation competition.

However, some respondents disagreed, with one suggesting that statistics on R&D spending show that innovation has been sluggish, and another suggesting that competition in network innovation fails to explicitly address the Committee on Climate Change (CCC) targets. One respondent suggested that innovation allowances should be seen as a “stop loss” rather than “top-up” revenue, and that those who don’t innovate should expect to see significantly lower returns. One respondent thought that there is a contradiction in allowing distribution network operators (DNOs) to “innovate” given the use of competitive markets. Another respondent suggested there are no market mechanisms to ensure that local infrastructure investments are optimised for the locality.

Respondents were generally less positive about economic regulation in energy retail markets. Several respondents said that the current regulatory environment is overly complex, prescriptive and burdensome, preventing innovation and the development of new business models. It was suggested the current regime is weighted in favour of large, existing companies who understand the regulatory framework. Another respondent mentioned that the price cap imposed by Ofgem on all domestic default electricity could undermine competition, and similar concerns were raised by previous policies such as Retail Market Reform, which limited the number of different tariffs offered by a supplier. One respondent thought that in general Ofgem had not held enough confidence in competition.

Several respondents were positive about regulatory steps addressing some of these issues. A few respondents commented on the introduction of Ofgem’s Innovation Hub as a successful initiative that has enabled testing of innovative products in a sandbox environment. Other respondents suggested the retail market has seen competition through new services such as price comparison websites, energy brokers and automated-switching services. And several respondents welcomed moving towards principles-based regulation. One respondent noted the number of suppliers had increased from ten active domestic suppliers in 2006 to 69 in September 2018.

C) Systematic successes and failures of economic regulation in meeting the needs of both current and future consumers in the energy sector

Respondents gave views across the energy value chain:

Wholesale markets: One respondent suggested the wholesale market regulatory framework had facilitated the reduction of CO2 emissions in the power sector. However, one respondent suggested the wholesale power market does not adequately account for the long-run average cost of generation assets. One respondent commented that there has been a lack of investment in gas storage capacity and that this has impacted consumers with higher gas price volatility and higher winter gas price than on the continent.

Networks: Several respondents thought the price control framework had been positive for consumers, and that the Regulated Asset Value (RAV) model used in the UK provides an equitable approach to distributing costs between current and future consumers. One respondent suggested a major success of RIIO is the emphasis placed on customer service, stakeholder engagement and vulnerability.

Retail markets: Several respondents thought that the economic regulation of energy retail markets has brought benefits to energy consumers in the form of lower prices and greater variety of products and services. One respondent suggested that compared to other consumer retail markets, switching levels are considered healthy and have been increasing over recent years (5.9m switches in 2018 compared to 3.2m in 2013). However, several respondents suggested failings with economic regulation, including that regulation has become too

prescriptive, and the institutional arrangements that have substantially underpinned this are in need of review and revision. One respondent suggested that obligations to deliver Government policy could have been imposed on all suppliers to avoid unfairness.

Some respondents suggested competition has caused issues, including distributional unfairness, poor service standards and energy supplier failures. One respondent thought less emphasis should be put on competition as the best way to protect consumers. These points are explored further under question 5, which asks how competition has impacted on investment, innovation and outcomes for consumers.

Other specific issues in the energy sector

Respondents mentioned a number of other specific issues with economic regulation, including that:

- Efficiency measures which suppliers are obligated to deliver, such as the Carbon Emissions Reduction Target (CERT), Community Energy Savings Programme (CESP) and Energy Company Obligation (ECO), could have been financed more progressively.
- Ofgem's reforms to network charging arrangements have not considered whole systems impacts.
- New suppliers have been licensed without proper checks on their ability to finance their investments.
- Network returns are higher than needed, allowing investors to benefit at the expense of consumers.
- Switching rates are an inappropriate success measure given consumer disengagement.
- Competition has failed to facilitate investment in large-scale energy storage.
- Higher business rates in England compared to EU and OECD economies has discouraged investment.

Recommendations by respondents

Respondents gave a number of suggestions of the most important improvements that could be made to the UK's system of economic regulation. Some respondents talked in broad terms about the need for the regulatory regime to encourage collaboration, innovation and protect consumers, while others proposed specific steps, many of which were focussed on current regulatory debates:

- **Regulation of new infrastructure and markets:** A few respondents pointed to a need to regulate new markets, including heat infrastructure, heat supply and Third-Party Intermediaries. One respondent thought a RAV approach could be used to support new nuclear projects while another suggested it could be used for carbon capture and storage infrastructure.
- **Local:** a few respondents noted a local element to regulation, with one suggesting the creation of local strategic customers (commissioning bodies) for energy infrastructure. Another respondent suggested Local Area Energy Planning (LAEP) for heat decarbonisation.
- **Network charging reforms:** Several respondents noted their support of Ofgem's Targeted Charging Review and the Access and Forward-looking Charges reviews, believing they should be implemented in 2023. Other respondents thought these code reviews should have waited until the completion of Ofgem and BEIS review of the process for amending industry codes.
- **Competition**: Stakeholders disagreed on the future use of competition. One respondent suggested that competition, where possible, is the best way to protect

consumers. However, other respondents disagreed, suggesting that regulators should actively avoid pursuing competition without strong evidence that it will provide demonstrable consumer benefits.

- **RIIO framework:** Several utilities noted their support of the current totex approach, though respondents provided a range of possible changes to the framework for RIIO-2 and beyond, including:
    - Adopting an alternative approach to performance criteria that assesses against broader outcomes valued by consumers including social capital, natural capital and economic capital
    - Strengthening incentives by including annual dynamic targets based on benchmarked revealed performance
    - Making innovation a part of network companies' core business
    - Providing longer-term signals on the future of particular asset types
    - Implementing symmetrical rewards and penalties based on enhanced performance targets
    - Enhancing flexibility by using volume drivers alongside new uncertainty mechanisms, for example the number of Electric Vehicles (EVs) connected
    - To align the timescales for the electricity distribution and transmission price controls
    - Ofgem to be much more specific when setting targets and objectives
- **Interventions:** Several respondents thought Ofgem should be less involved in the market, noting that interventions create regulatory risk.
- **Whole system and strategic planning:** Several respondents noted the need for regulators to consider a whole system, multi-vector approach to network development. One respondent suggested that Ofgem's Innovation Link should be committed to considering longer-term solutions. Another suggested more weight should be given to the interests of future consumers than currently, and the trade-offs between the two should be more transparent.
- **Governance:** Several respondents suggested changing regulators' relationships with government, including making dialogue more transparent, and that the government should specify more clearly how it intends to address certain issues, such as decarbonisation and future funding for EVs. A few respondents thought government should avoid intervening in competitive markets, while others suggested a greater role for government in certain areas including the OFTO regime. One respondent thought there should be a renewed Government commitment to regulatory decisions to be reviewable by expert appeals bodies. One respondent suggested more clarity on the respective roles of government, regulators and industry.

Water

In total, 11 respondents from the water sector answered this question, with a further 23 respondents covering multiple sectors.

A) Systematic successes and failures of economic regulation in facilitating future investment needs in the water sector

Several respondents suggested that economic regulation has historically supported investment in the water sector, with one respondent noting that since privatisation there has been £126 billion of capital investment in water and wastewater services and environmental improvements.

However, several respondents raised doubts about future investment. Several utilities noted their disagreement with the proposed rate of return under PR19, with one respondent

suggesting that pressure to keep bills low has delayed investments in strategic infrastructure. One consumer advocate thought that it is not clear whether the regulatory process is equipped to deliver nationwide or multi-company, long-term investments to deliver resilience for future consumers.

One respondent also noted that the timing of certain cycles can hinder investment, for example the river basin management planning process takes place every six years, which does not align with investment cycles.

B) Systematic successes and failures of economic regulation in promoting competition and innovation in the water sector

Competition: In relation to competition, respondents noted that vertical integration of the industry has made it difficult to promote competition historically, though some respondents did suggest ways in which the industry is competitive, for example by categorising companies as fast track and slow track, through New Appointments and Variations (NAVs), and through retail competition for non-household customers.

However, one respondent suggested there was not a level playing field for full service NAVs, as there were significant barriers to competing with incumbent monopolies, including the existence of cross-subsidies. Another noted that NAVs in most cases don't give the end-consumer a choice.

Innovation: In relation to innovation, respondents tended to think the current economic regulation provided a number of barriers:

- Several respondents noted the lack of a bespoke fund for network innovation, unlike the energy sector. It was suggested that water infrastructure requires large investment with short-term returns, which is a major barrier for innovation.
- Several respondents noted that regulation has continued to increase in complexity, despite a strategic policy statement from DEFRA, with one respondent noting that the need to be compliant with both an economic and quality regulator complicates innovation.
- One respondent suggested that non-symmetrical incentives in price controls encourage incremental gains but discourage transformational improvements, because of the penalties that would follow from unsuccessful innovation.
- One respondent argued that the long-term view of water infrastructure is unclear, both in vision and delivery.
- One respondent thought that water companies are not incentivised to work collaboratively, as there is no overarching organisation responsible for water.

However, several respondents noted that Ofwat had been supportive of innovation, with one citing catchment management as an example, and another suggesting Ofwat has done well in promotion of procedural innovation with consumers. One respondent noted that the totex approach gives incentives to innovate. One respondent also suggested that outcomes-based regulation has given companies greater freedom to innovate.

C) Systematic successes and failures of economic regulation in meeting the needs of both current and future consumer in the water sector

One respondent noted that customer satisfaction with water (over 90%) is high but customers perception of the value for money they get (around 72%) is low, as are customers view on the fairness of their charge (61%). The same respondent suggested the biggest category of complaints received is about disputed metered bills but there is little regulatory focus in this area.

One respondent suggested that since non-domestic competition was introduced in 2017, the water retail market seems to be working better for the larger business customer than the smaller non-household customer, as larger consumers have a greater awareness of the chance to switch or renegotiate with their supplier.

One respondent noted that complaints about retailers and wholesalers increased after the opening of the retail water market.

One respondent thought that there is a greater need for local, community-based, solutions to ensure trust and legitimacy.

Recommendations by respondents
Respondents gave a number of suggestions of the most important improvements that could be made to the system of economic regulation in the water sector:

- One respondent suggested a more local, approach to regulation was needed, for example encouraging de-mergers and by focussing on local innovation.
- One respondent suggested giving customers the power to appeal Ofwat's decisions.
- Respondents suggested areas of the price control framework that could be changed in future.
    - One respondent thought a more holistic approach is needed to assess capital structure, for example by accepting an A3 credit rating by two agencies as sufficient.
    - Several stakeholders suggested introducing incentives for innovation such as an innovation fund.
    - One respondent suggested that future economic regulation should take account of different metrics of the value of investment to inform infrastructure decisions, including the value added to regional, or national, economies, carbon and energy use reduced, environmental and societal benefits and the impact on customers' bills.
    - One respondent suggested that longer-term incentives for investment are needed.
- One respondent proposed greater alignment between water, floods and wastewater planning and investment cycles to help optimise investment and encourage partnership approaches.

Telecoms

In total, 9 respondents from the telecoms sector answered this question, with a further 23 respondents covering multiple sectors.

A) Systematic successes and failures of economic regulation in facilitating future investment needs in the telecoms sector

Several respondents thought economic regulation has worked well in facilitating investment. One respondent noted that significant investment is being made to significantly increase rollout of full fibre. One respondent suggested that for mobile, the exclusive spectrum licences are broadly appropriate for fostering investment.

However, respondents also pointed to failures of economic regulation. Several respondents thought that regulation has performed poorly in terms of incentivising the deployment of full fibre and 5G services, with several responses suggesting that promotion of competition in the sector was deterring parties from making new investments.

One respondent suggested that a legacy of higher returns for BT than its cost-of-capital had reduced its incentive to invest in fibre to the premises (FTTP).

B) Systematic successes and failures of economic regulation in promoting competition and innovation in the telecoms sector

Respondents tended to be positive about the level of competition and innovation in the telecoms sector. A few stakeholders noted that the regulatory environment has enabled a high degree of service level competition, and the market is moving towards infrastructure-based competition.

Respondents suggested competition and innovation at both the retail and wholesale level are being promoted by new entrants. One respondent suggested Ofcom has succeeded in creating a competitive downstream market in broadband and ethernet products based on cost-reflective upstream regulation.

Several respondents were negative about economic regulation's impact on competition and innovation. One stakeholder suggested that, while there has been some regulation of competition in services, it has been only partially successful and in recent years BT's downstream business has successfully recaptured market share. One respondent was cautious about the use of infrastructure competition, suggesting that it will lead to duplication of assets and the possibility of the levels of competition and prices differing by region. In terms of innovation, one respondent thought that regulation has not been effective in promoting roll-out and take-up of FTTP technology.

C) Systematic successes and failures of economic regulation in meeting the needs of both current and future consumer in the telecoms sector

Several respondents thought that economic regulation had succeeded in meeting the needs of current and future consumers. One respondent noted that broadband prices are the lowest in Europe. Another noted that the UK has led the way in creating standards that protect vulnerable users.

However, respondents raised a number of concerns. Several respondents suggested that whilst the UK compares well for affordability and for connectivity of broadband and 4G, it currently has low levels of full fibre penetration compared to other developed markets. In a similar vein, one respondent suggested that the system has performed adequately to protect consumers' short-term interests but poorly in relation to their longer-term interests by limiting infrastructure investment.

A few respondents suggested that regulatory decisions have not been strong or timely enough. One respondent thought Ofcom had been reluctant to apply any sanctions to BT, even when it had breached its regulatory obligations. Another suggested Ofcom is slow to respond to changed market conditions and is too cautious in regulating new products and services. The same respondent thought that regulation of superfast products was not cost-reflective as Ofcom was overly cautious in its analysis, allowing BT to earn returns in excess of its cost of capital between 2013-2016.

Recommendations by respondents

Respondents gave a number of suggestions of the most important improvements that could be made to the system of economic regulation in the telecoms sector:

- Several respondents suggested regulation needed to better facilitate risky longer-term investment such as ultrafast broadband, to respond to digital disruption, and to reflect the convergence of fixed and mobile when considering coverage.
- One respondent suggested considering a higher threshold for appeals and streamlining the proceedings of the Competition Appeal Tribunal.
- Some respondents wanted Ofcom to be more pro-active, for example being attuned to specific local market conditions to determine when an area is deemed competitive and price controls can be removed.
- One respondent suggested that national roaming should not be mandated, and that Ofcom should consider the Rural Mobile Coverage Pledge as an alternative.

2.2 Question 2

The National Infrastructure Assessment (https://www.nic.org.uk/ publications/national-infrastructure-assessment-2018/) outlined a number of changes and challenges in infrastructure to 2050 (eg the move to fibre in telecoms, decarbonisation in energy and the need for long term resilience in the water sector). How might the scope, functions or activities of economic regulators need to adapt in light of future challenges?

There were 67 respondents who answered this question in part or in full. Respondents raised a number of different ways in which the scope, functions or activities of economic regulators need to adapt in light of future challenges:

- **Long term framework:** A number of energy and water respondents argued that a longer term regulatory framework, applied in a consistent way, is important to tackle future sector challenges. In particular they suggested that:
    - Longer term planning is required to address challenges such as population growth, climate change and decarbonisation.
    - Regulators will have to take a much broader and longer-term view of investment needs, and balance this with shorter term pressures around affordability for current consumers. Some suggested that the challenge is to ensure investors know that a strategic shift will endure long enough for them to continue to commit capital to investment.
    - There needs to be a long-term view of water resources and resilience, including ensuring appropriate levels of investment.
- **Alignment between government and regulators:** Some respondents suggested that there should be better alignment between government policy and regulation, for example by requiring the regulators to report on their progress towards meeting the Government's objectives (sharing metrics for the regulators to work towards). It was noted by one respondent that Ofgem can better deliver if it has advanced sight of government plans.
- **Local challenges:** There were a number of views around local challenges. Several respondents thought that greater power should be given to local authorities to tackle sector challenges at a regional level, including being able to form their own consortiums using existing knowledge of their local areas, and be empowered to work with private energy network providers to deliver future infrastructure. One respondent suggested incentivising local government to invest in new technology and innovation. Another respondent suggested that Ofcom needs to consider how their regulatory powers can be used to encourage investment in areas where there is little or no broadband and mobile coverage and BT has dominance. It was also thought that a geographically varied approach to full fibre investment is needed to help both incumbents and challengers make the correct investment decisions.
- **Collaboration:** Stakeholders called for collaboration between sector regulators to address common challenges such as vulnerable customers. Respondents thought regulators will need to play a more active role in facilitating collaborative solutions in light of growing infrastructure challenges. In the water sector it was thought that there was a need for inter company, cross regional or national solutions to water resource issues in future. One respondent thought there is a need to coordinate cross-party funding for multilateral projects such as better management of catchment areas. One respondent suggested introducing common principles for data access, handling and security to allow for fair competition and innovative data-based services to be developed.

- **Regulatory objectives and approach:** Several respondents thought that the regulators' objectives needed to be focused on promoting effective competition and investment whilst safeguarding the consumer in an evidenced-based and proportionate way. One respondent thought that decarbonisation could be a statutory obligation for Ofgem. Other respondents suggested a simpler, principles-based regulatory framework is needed to allow innovation to develop.
- **Whole system approach:** respondents from the energy sector thought that regulation must take a whole system approach, for example optimising between resource adequacy, decarbonisation and system stability in the energy market.
- **Incentives:** Some respondents suggested new incentives needed to be introduced. In the energy sector, one respondent thought that Ofgem could enable electrification of transport by giving incentives to network companies. Another thought there was a need to incentivise negative emission generation technologies to deliver a negative emissions sector. In the water sector one respondent suggested incentivising NAVs and regional water companies to reduce water consumption per capita to reduce opex and capex.
- **New markets**: In the energy sector, a few respondents suggested that Ofgem needs to regulate the hydrogen and natural gas markets. One respondent recommended the creation of a coherent market and regulatory framework for heat networks. It was also suggested to define energy efficiency as part of the energy infrastructure. It was also suggested that integrating new products into existing systems is one of the key areas of capability that must be addressed.
- **Licences and codes**: Some respondents suggested changes to the licencing regime. One suggestion was a functional approach to licencing, rather than by entity, to enable companies who wish to serve only one part of a market to comply with a smaller set of requirements. Stakeholders thought there needed to be fairer and more transparent development of the industry codes.

Several respondents presented arguments that were related to their disagreement with specific regulatory regimes and decisions. One respondent thought the OFTO regime should be reviewed as it is overly prescriptive and blocks innovation. One respondent noted the need to avoid "clawback" of outperformance in price controls after it arises as it can dull incentives and increase regulatory risk. They thought that there was a need to understand the impact of capping the returns on investment, which could involve cross-sector and international studies.

2.3 Question 3

How might the increasing availability of data impact regulation in future? Can data increase the pace at which regulation responds to change, enabling innovation?

Impacts of data availability on regulation and the pace of innovation

A number of respondents thought that an increased availability of data would increase the pace at which regulation could respond to innovation. However, most respondents focussed on the first part of the question, and the majority believed the increasing availability of data will have a large impact on the future of regulation, including:

- Allowing more effective performance monitoring of regulated companies
- Enabling new robust metrics to measure the wider benefits of infrastructure investment, beyond traditional cost benefit analysis
- Helping regulators make better, evidenced-based decisions and implement new developments such as market-wide half hourly settlement in the electricity sector
- Helping measure consumer outcomes
- Removing data asymmetries between companies and regulators and eliminating the need for regulators to use “intrusive regulation”
- Providing information to customers, allowing better decisions, for example data about available broadband speeds could help consumers make purchasing decisions
- Information to customers can also increase engagement, and support confidence and trust – an example given was work between the Open Data Institute and Yorkshire Water which allowed customers to check reservoir stock levels
- Enabling reviews to be carried out in shorter cycles or on an ongoing basis, rather than at the end of price controls
- Enabling more effective collaboration between regulators through sharing insights
- Improving transparency

Greater data availability was also seen to have a large impact on the way the energy, water and telecoms sectors function, with a variety of potential indirect consequences for regulations in terms of providing and utilising data. Potential opportunities within the sectors suggested by respondents include:

- Supporting innovation, eg new markets for flexibility in electricity supply and demand, and supporting innovation by the wider market through open access to system data
- Creating new possible business models, increasing competition
- Helping investors make better decisions
- Finding efficiency improvements in the system and in network companies’ decision making
- Improving environmental management, for example by sharing data with environmental bodies, and allowing faster responses to potential environmental harm
- Unlocking a more whole-systems approach between electricity, water, heat and waste, for example by utilising data to enable constrained wind farms to be used for electrolysis of seawater
- Avoiding consumer lock-in by ensuring the inter-operability of interfaces
- Identifying opportunities for collaboration between utilities and with other partners, for example PI inventory information could reduce build costs for fibre investors

Unlocking the potential benefits of greater data availability

Several respondents highlighted that data alone would not be enough to achieve these possible benefits, noting that:

- regulators also need to have the capacity to respond to data, and to react quickly to remove barriers and enable innovation, noting these functions are not within the traditional remit of regulators;
- there is a barrier from the increased computational difficulty and modelling;
- the variety and quality of data are also important;
- data has commercial value and therefore sharing may be disincentivised;
- systems need to be up to date for storing and sharing data;
- there may be cultural or institutional reluctance to share data;
- there needs to be a consistent approach to sharing data;
- there is a financial hurdle from the cost of data;
- data driven solutions need to be tailored to the relevant markets.

Challenges to the increased availability of data

A large number of stakeholders warned that increasing availability of data presented challenges, and there were potential negative consequences:

- **Safety of data:** Many of the respondents who answered this question noted the need for privacy of personal information, for example through GDPR requirements, and protection of Critical National Infrastructure, leading to a greater need for cybersecurity.
- **Privacy:** Several respondents suggested that data needs to be used appropriately. One respondent thought that Ofgem's disengaged customer database, which compels suppliers to provide data about disengaged customers to Ofgem, does not do this. Another respondent noted there is a need to understand ownership and commercial rights of data
- **Managing data:** Respondents suggested that will be challenges and costs from managing the volume of data and updating it regularly. One respondent suggested that increasing amounts of data can actually make regulatory response times slower. Another respondent noted there are costs to maintaining, processing and preparing data.
- **Ethics:** Some respondents suggested that using data can lead to ethical questions, for example when used to identify vulnerable consumers
- **Customer engagement:** One respondent thought that greater automation from data could lead to lower customer engagement.
- **Interoperability:** One respondent thought that greater availability of data could make interoperability more difficult

Recommendations made by respondents

Several respondents made suggestions, including:

- **Greater collaboration**: several respondents suggested the NIC could work more closely with the Energy Data Taskforce to understand the challenges of utilising increased volumes of data. One respondent thought that regulators could work more closely with the Information Commissioner's Office (ICO).
- **Defined standards**: Respondents suggested that there would be benefit in having a single data portal or gateway, and to create standard data formats, and data sharing protocols.
- **Lessons from other sectors**: One respondent suggested there were lessons to be learnt from Open Banking.
- **Incentives**: one respondent suggested that regulators needed to encourage network companies to make use of available data
- **Data regulator**: one respondent suggested transferring responsibility for data privacy and access into an enhanced "data regulator" based on the current ICO

3. Competition and Innovation

3.1 Question 4:

How have the energy, water and telecoms sectors performed with respect to efficiency, since privatisation?

In total 39 respondents answered this question. Most respondents took a broad definition of efficiency, including inputs, outputs, quality, and the extent to which prices reflect the costs of provision to consumers.

Many respondents believed that on the whole industry had performed well since privatisation, and most respondents responded to this question with a wide range of statistics to establish their views. However, not all respondents agreed and there were a number of negative impacts presented. Below we set out the range of possible evidence put forward by respondents indicating a positive performance since privatisation, and then cover the range of arguments put forward suggesting negative effects since privatisation:

Water

In relation to productivity respondents suggested that:

- Productivity of the English and Welsh water sector grew 3% per annum over the first two decades: over a 30% productivity improvement and double the private sector average[3].
- Analysis of English and Welsh water company PR19 business plans shows that 14 out of 17 proposed a reduction in their maintenance spending as a proportion of total spending[4].
- Post-privatisation productivity growth averaged 2.1% per year when adjusting for output quality, with a total improvement since privatisation of 64%. Following the first price review in 1994, water companies significantly outperformed comparative industries until at least the mid-2000s[5].
- Comparison of private water companies from England and Wales with public utilities from the rest of the UK reveals a performance gap, with a 44% deficit in efficiency of Scottish public water companies compared to their privatised peers[6].
- In comparison to France, Ireland, Italy, Spain and Germany the England and Wales system delivers the best value for money, and has driven up standards and efficiency[7].

In relation to investment one respondent noted that £150bn has been invested in the water sector in England and Wales since privatisation[8]

In relation to consumer bills, respondents cited that:

- In 2010, Ofwat estimated that due to its efficiency challenges customers' bills were £110 lower than they would have otherwise been[9]
- Increases in productivity have meant savings of equivalently £3.2bn per annum for customers[10]

[3] 'Private vs Public Ownership of Water and Sewerage Companies', (p.5). John Earwaker, 2018.
[4] Analysis by the Consumer Council for Water
[5] https://www.water.org.uk/wp-content/uploads/2018/11/Water-UK-Frontier-Productivity.pdf
[6] Water Commissioner for Scotland (2001), Strategic review of charges 2002-06
[7] Global Water Intelligence study, 2018, https://www.globalwaterintel.com/global-water-intelligence-magazine/20/1/general/english-and-welsh-utilities-offer-best-value-for-money-according-to-new-report
[8] https://www.water.org.uk/news-item/michael-roberts-response-to-labours-clear-water-report/
[9] https://www.ofwat.gov.uk/wp-content/uploads/2016/01/prs_inf_afford.pdf
[10] http://www.first-economics.com/privatepublicwater.pdf

- One respondent thought that bill rises in the 1990s accounted for historic underinvestment in previous decades[11], and there has been no real term increase in water bills for 20 years[12]

In relation to water quality, respondents noted that:

  - There has been a 137% increase in the share of UK bathing waters achieving "excellent status", from 27% in 1990 to 65% in 2016[13] and overall compliance has increased from 65% in 1988 to 99.5% in 2014 in England, and from 77% to 100% in Wales[14]
  - Drinking water quality compliance has risen from 98% in 1989 to 99.96% now[15]

In relation to service quality and reliability, respondents cited that:

  - Since 1989 the number of customers at risk of being affected by low water pressure has reduced 100-fold from 1.84% to 0.01%[16]
  - Customers are now five times less likely to suffer supply interruptions and eight times less likely to suffer from sewer flooding incidents[17]

In relation to leakages, respondents cited that since 1994, the amount of water lost through leakage has been reduced by a third, from 5512 Ml/day to 3097Ml/day[18]. However, one respondent noted that this has levelled off recently, with improvement of only 6% over the last 7 years[19].

Telecoms

In relation to productivity, some respondents suggested that the productivity record of the telecoms sector has shown rapid growth since 1994 relative to the UK economy[20]. However, one respondent noted that Ofcom has persistently underestimated likely efficiency gains, resulting in higher prices for consumers.

In relation to bills, respondents noted that:

- Average monthly household spend on phone and broadband services has fallen in the last decade, despite huge increases in fixed and mobile data usage[21]
- The UK compares well for affordability and connectivity of broadband and 4G[22] but has comparatively low levels of full fibre penetration compared to other developed markets[23]

Energy evidence provided

In relation to productivity, respondents put forward that:

[11] https://www.ofwat.gov.uk/wp-content/uploads/2015/11/rpt_com_devwatindust270106.pdf
[12] http://researchbriefings.files.parliament.uk/documents/SN06596/SN06596.pdf
[13] No source given
[14] Ofwat (2015) 'Towards Water 2020 – meeting the challenges for water and wastewater services in England and Wales'
[15] World Class Drinking Water'. Water UK, 2018 and http://dwi.defra.gov.uk/about/annual-report/2014/sum-eng.pdf
[16] Ofwat data
[17] Working for Water', (p.1). Water UK, 2018
[18] Ofwat (2016) Service and delivery –performance of the water companies in England and Wales, https://www.ofwat.gov.uk/wp-content/uploads/2017/01/FOI-123102016-report.pdf
[19] Discover Water, Leaking pipes, https://discoverwater.co.uk/leaking-pipes
[20] https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/labourproductivity/articles/measuringoutputintheinformationcommunicationandtelecommunicationsindustries/2016
[21] https://www.ofcom.org.uk/__data/assets/pdf_file/0030/113898/pricing-report-2018.pdf
[22] Mobile Broadband Prices in Europe 2018, A study prepared for the European Commission DG Communications Networks, Content & Technology by Empirica and TUVRheinland.
[23] http://publications.europa.eu/webpub/eca/special-reports/broadband-12-2018/en/

- There were productivity increases between 1990 and 2016 of 34% for electricity distribution and 72% for gas transmission[24], while productivity in the public sector grew by only 1.2%[25], with some reports suggesting no increase at all[26].
- This compares with total UK factor productivity growth of 0.62% per year in the same period[27] with one respondent suggesting productivity improvement in the energy sector has been 30% greater than the rest of the UK economy[28]
- The cost of transporting a unit of electricity around Britain has fallen by 17% relative to the Retail Price Index since privatisation and restructuring of the industry in 1990[29] and are projected to remain flat, and in some areas fall, into the next decade[30]. The costs of transporting across the electrical transmission network have fallen by 30%[31].
- One respondent claimed that strong competition has meant retail firms have become more efficient through use of online and digital customer service.

In relation to investment, respondents suggested there has been between £80bn[32] to £100bn[33] invested into UK energy networks since privatisation.

In relation to reliability, respondents cited that:

- There has been improvement in network performance and GB transmission network reliability is now at 99.99%, while gas networks have a reliability that means the average customer can expect an unplanned interruption once every 140 years.
- Since RIIO-ED1 customer interruptions have fallen by 11% and the duration of interruptions has fallen by 9%[34], and since 2001 when reliability measures were introduced the number of power cuts has fallen by 48% and the length of power cuts decreased by 58%[35].
- One respondent suggested that overall, since privatisation, there has been a 50% reduction in the number of customer interruptions and a 60% reduction in their length[36]. A different respondent cited that the public now experiences 59% fewer power cuts since privatisation, while their length has been reduced by 84%, and that this means that the average property experiences a power cut once every two years and its duration is about 35 minutes long[37]

In relation to safety it was noted by respondents that the total incident rate for electricity network staff shows a tenfold improvement since 1990[38]

In relation to customer satisfaction, respondents suggested there has been increased customer satisfaction, as complaints fell by 60% between 1991/92 and 1997/98[39] and average customer satisfaction scores increased from 8.00 to 8.74 between 2012 to 2017[40]

In relation to the outcomes from RIIO-1, respondents suggested that transmission cost reductions for consumers exceed £500m from the volume adjusted targets in RIIO-T1 so far[41]

[24] Cambridge Energy Group Report for Ofgem https://www.ofgem.gov.uk/ofgem-publications/146010
[25] https://fred.stlouisfed.org/series/TFPGUKA
[26] https://www.pwc.com/gx/en/psrc/united-kingdom/assets/pwc-productivity-in-the-public-sector.pdf
[27] https://fred.stlouisfed.org/series/TFPGUKA
[28] No source given
[29] https://www.ofgem.gov.uk/news-blog/our-blog/tougher-price-controls-energy-networks
[30] http://www.energynetworks.org/assets/files/ENA%20Response%20to%20Helm%20Report%20Final.pdf
[31] National Grid calculation
[32] https://www.ofgem.gov.uk/system/files/docs/2018/02/february-the-energy-network.pdf
[33] https://www.ofgem.gov.uk/system/files/docs/2018/12/ofg1050_riio_fast_facts_web.pdf
[34] https://www.ofgem.gov.uk/data-portal/network-indicators
[35] Ibid.
[36] http://www.energynetworks.org/assets/files/ENA%20Response%20to%20Helm%20Report%20Final.pdf
[37] Offer & Ofgas, Review of Public Electricity Suppliers 1998 – 2000, May 1999 & Ofgem, Network performance under RIIO, 2017
[38] http://www.poweringimprovement.org/download/publications/PI_Progress_report_2010-2015.pdf
[39] No source given
[40] https://www.ofgem.gov.uk/publications-and-updates/riio-electricity-distribution-annual-report-2017-18
[41] NGET response

and that Ofgem reduced costs by £10.6bn from the network companies' initial business plans in the first RIIO round[42]

Respondents also pointed to some other potential efficiencies:

- Several respondents thought that the energy sector has been efficient in moving to renewable sources of power
- One respondent noted that National Grid's winter margins have decreased considerably since the introduction of the capacity market while Notices of Insufficient Margin (NISMs) have reduced
- Other respondents suggested that privatisation has also boosted the economy and supported innovation.

Cross-sector and other points

In addition to the sector specific points, one respondent suggested that efficiency has generally increased across all sectors, taking account of input-output and quality measures, according to a study of UK utilities[43].

A number of other general points were made by respondents. Several suggested the price control models, including RPI-X and CPI-X, used in the water and energy sector, by their nature require efficiency improvements. And several utilities pointed out their individual successes in terms of reducing costs and attracting investment, for example BT noted that its prices have fallen over the 30 years since privatisation, and headcount has more than halved.

In addition to the longer term evidence cited, a number of examples were given of more recent successes, for example that between 2015 and 2018 electricity distribution networks delivered £325m of savings to customers[44]

Negative impacts of privatisation

Several respondents commented on negative impacts of privatisation:

- One respondent noted that efficiency gains were largely due to reducing labour input, and quality improvements in energy and water have largely been converging to an average rather than pushing a frontier[45].
- One consumer group thought that efficiency should be designed in the context of consumer outcomes, ie the amount passed to them. Another respondent cited a study which suggested that in electricity generation gains were shared little with consumers[46].
- One respondent pointed to an academic study that did not find evidence of a widespread response to ownership and regulatory incentives from privatisation, noting that competition resulted in rebalancing which brought prices more into line with costs[47].
- One utility noted that the costs of gas and distribution networks have increased below the rate of inflation since privatisation but in more recent years have increased in real terms, and returns have been above the allowed equity level set by Ofgem.
- A few respondents noted that productivity growth has been materially slower since the global financial crisis.

[42] https://www.ofgem.gov.uk/publications-and-updates/energy-networks-should-prepare-tougher-price-controls
[43] Markou, E. and C. Waddams Price, 1999. UK utilities: past reform and current proposals Annals of Public and Co-operative Economics, 70(3), pp 371-416 10.1111/1467-8292.00118
[44] https://www.ofgem.gov.uk/system/files/docs/2019/03/riio-ed1_annual_report_2017-18.pdf
[45] Waddams Price, C., B. Brigham and L.Fitzgerald Service, 2008. Quality in Regulated Monopolies, Annals of Public and Cooperative Economics, 79(2), pp 197-225 14678292/2008/79/2
[46] Newbery, David M. and Michael G. Pollitt, 1997. The Restructuring and Privatization of Britain's CEGB – Was it Worth it? Journal of Industrial Economics 45(3) pp 269-303
[47] Giulietti, M. and C. Waddams Price, 2005. Incentive Regulation and Efficient Pricing Structures, Annals of Public and Co-operative Economics, 76(1), pp 1121-138 10.1111/j.1370-4788.2005.00273.x

Difficulty of measuring the impact of privatisation

A number of respondents noted it was difficult to measure efficiency improvements since privatisation because:

- after 30 years it is increasingly difficult to identify a good counterfactual
- there are conflicting impacts of lower retail efficiencies and higher network efficiencies
- it is difficult to disentangle efficiencies gained in retail energy markets with additional policy costs, such as the Energy Company Obligation
- the gas system has been subject to several restructurings since privatisation
- rapid efficiency gains in telecoms is a global trend and it is difficult to know how much of this is due to regulatory structures.

3.2 Question 5:

How has competition impacted on investment, innovation and outcomes for consumers across energy, water and telecoms since privatisation?

In total, 50 respondents answered this question, with half of those being in the energy sector. There were 7 responses in each of the Water and Telecoms sectors, and 11 responses covering multiple sectors.

Nearly all telecoms stakeholders that answered this question agreed that competition has had positive impact on innovation and investment, and brought good outcomes for consumers. Stakeholders from the energy sector held mixed views, with many examples of how competition has benefited investment, innovation and consumer outcomes, but a number of drawbacks noted. Stakeholders in the water sector pointed out that competition has been limited since privatisation, however, the recent opening of the non-domestic retail market has encouraged innovation and has potential to bring benefits to consumers.

A few stakeholders repeated arguments made under Q4, which asked how the energy, water and telecoms sectors have performed with respect to efficiency since privatisation. We have not repeated those answers here.

Energy

The majority of respondents tended to think the energy sector was competitive with competition in wholesale markets, retail markets and networks, for example through tendering out works, connection services from independent providers, and from potential mergers and acquisitions. A range of benefits were suggested related to investment, innovation and consumer outcomes:

- Providers suggested that, in general, competitive tendering can lead to lower opex and capex, lower financing costs, more innovation, and greater transparency.
- Several respondents suggested that the Contracts for Difference (CfD) scheme has provided a framework for low carbon generators to compete for contracts, pushing the unit price of electricity generation from these technologies down, and leading to technical innovations, such as larger turbines for wind turbines.
- It was suggested that competition in wholesale markets has also led to rapid reduction in the cost of other technologies such as battery storage. A few respondents thought that competition in the Capacity Market scheme has guaranteed security of supply at a decreasing cost.
- Respondents pointed to increased innovation delivered through Ofgem's Network Innovation Competition and through incentives from price controls. It was also suggested that unbundling the ownership of transmission cables from offshore wind farms has provided opportunities for the competitive allocation of offshore transmission licenses and the entry of new OFTOs.
- It was suggested the cap and floor regime has also led to competition in the delivery of interconnectors and that the regulatory process encourages innovation.
- Some respondents noted that competition in the retail market has provided more choice to customers, including dual fuel tariffs, low standing charge tariffs, fixed price tariffs, green tariffs, smart (time-of-use) tariffs and digital (internet and app-based) customer services. It was noted that the number of domestic suppliers has increased from 10 in 2006 to 69 in September 2018.

However, a range of different stakeholders thought there were downsides to competition.

- **Innovation:** A few respondents thought competition can lower innovation, and that it remains difficult to commercialise innovation in the energy sector as suppliers are not rewarded for it and cannot pass the value to customers. One respondent suggested

that it had been found that innovation in services for vulnerable consumers has been lower in retail markets compared to regulated networks. One respondent suggested that the unbundling of electricity storage from networks would increase competition but could hinder cross-sector innovation. One respondent thought that "traditional economic regulation" has led to a stagnant GB energy system, which does not meet the needs of new energy resources. They suggested innovation has been minimal because the rules, incentives and institutions of the energy industry continue to support conventional participants.

- **Fairness:** One respondent thought that competition had led to improvements in short-term efficiency, quality of service, and short-term resilience but struggled to deliver consumer-focused outcomes including long-term resilience and fairness. Another noted that although there is evidence of general gains from competition in lowering consumer prices, customers are highly heterogenous and evidence suggests gains have principally gone to richer households, which is a result of differences in usage, payment methods and switching rates. Respondents also noted that many consumers in the retail energy market do not switch and may not receive the benefits of competition, a "loyalty penalty". Another respondent pointed towards price discrimination in the retail market as one potential unfairness. It was noted that competition has led to the need for intervention such as the price caps in the retail energy market.
- **Customer services:** Several respondents suggested there is a danger that competitive pricing leads to poor service for customers.
- **Challenges for investment:** One respondent thought that competition in retail energy does not drive competition in infrastructure markets because all suppliers use the same infrastructure. They suggested that innovation in energy infrastructure is more challenging than in other industrial sectors because the market is controlled by a small number of buyers and there is limited end-user pressure to reduce costs.
- **Interoperability issues:** In energy retail it was thought that competition has led to excessive fragmentation, especially in metering, creating interoperability and delivery challenges that have impacted innovation. It was suggested that issues with competition have led to a delay in smart meter rollout.
- **Lack of new business models:** One respondent thought that competition in the energy sector has led to innovation in products and tariffs but not necessarily business models.

Some respondents, including industry commentators, questioned the real level of competition, for example suggesting the six large vertically-integrated companies in the energy sector have significant market power, and noting there have been accusations that energy prices have been held at levels that do not reflect underlying economic fundamentals.

Water

Respondents tended to note competition in the water sector has been limited since privatisation but pointed to a number of potential areas, with some disagreement over successes and failures.

- One respondent noted that Thames Tideway Tunnel is the only example in the water industry of a capital programme being competitively tendered, suggesting it attracted capital and facilitated a large investment.
- It was also noted that the creation of the business retail market in April 2017 is a significant development in water sector competition:
    - It was suggested that the key benefits of this relate largely to innovation and outcomes for consumers. Ofwat noted that time has been saved from more convenient billing and better customer services; that there has been around £8

million savings for consumers from lower bills, and approximately 270 to 540 million litres of water has been saved due to water efficiency measures from switching.
    - Not all respondents agreed about the benefits of competition. One respondent suggested competition had led to greater engagement by larger multi-site customers but lower engagement by microbusinesses and small and medium sized enterprises. It was noted that significant benefits for customers in terms of customer service and cheaper bills have not yet been seen, reflected in the significant increase in customer complaints since market opening.
    - Other respondents suggested it was too early to assess the outcome and further monitoring is required.
- One respondent thought that opening competition to domestic consumers in the water sector will be essential to quality and price.
- One respondent suggested that full service NAV competition can deliver more sustainable outcomes, suggesting that performance measures for billing, greenhouse gas emissions, pollution incidents and leakage all beat those achieved by regional companies.
- Some respondents suggested a tension between competitive and collaborative approaches, and it was suggested that there needs to be a more explicit framework for considering how to balance the two.

Telecoms

Respondents tended to be positive about the impact of competition on the Telecoms sector.

- Some respondents thought that the creation of Openreach, and the functional separation model introduced in 2006, has driven a highly competitive retail broadband market, and that the competitive landscape has been key to achieving higher coverage levels and providing consumer choice. One respondent pointed out that the UK has some of the lowest broadband prices in Europe.
- One respondent thought there is a very competitive mobile market, with high levels of investment and innovation, and that market-driven infrastructure competition has delivered strong outcomes. They cited Ofcom research showing a downward trend in mobile prices since 2013.
- It was suggested that competition has also stimulated investment over recent years, including that it encourages operators to invest and build ‘full fibre’ networks to create alternatives to Openreach’s fibre product portfolio. One respondent claimed that competition will be essential for FTTP roll-out in enabling new network operators to grow and establish the customer base needed to support upfront investment.
- Stakeholders suggested that the UK telecoms market has seen considerable innovation with a wide range of choices of provider and product offerings and a lower prices.

However, one stakeholder thought that competition has had limited impact when measured industry wide. And another respondent noted that without an obligationfor delivery of full fibre, competition means providers are incentivised to invest where it is commercially viable. They noted that investment is clustered in London’s central activity zone, potentially at the expense of other, more poorly served, areas of London, and that it can lead to overbuild, which itself can cause disruption.

3.3 Question 6:

How has regulation affected the level of innovation in energy, water and telecoms, compared to these utilities in other countries and/or other comparable industries?

In total there were 46 respondents to this question, with exactly half from the energy sector, 9 from the water sector, 7 from the telecoms sector, and 7 covering multiple sectors.

Respondents gave a mix of views about the impact of regulation on innovation across the energy, water and telecoms sectors. There was disagreement in the energy sector, with the majority suggesting that RIIO had been successful but that market rules have hindered innovation in the retail market. The majority of water and telecoms respondents consider that the current regulatory framework has slowed innovation in their industries.

Energy

Many respondents commented on the existing RIIO regulatory regime, and although a mix of views was given, the majority believed it has been successful at driving innovation:

- Some respondents thought that RIIO is internationally recognised as global leading practice that leads to greater innovation and competitive dynamics. One respondent pointed out that Energy Networks Australia had highlighted RIIO as a beneficial alternative to Australian regulation. They also pointed to evidence of the UK ranking highly in innovation, citing a Poyry study and the World Energy Council's Energy Trilemma Index.
- A range of networks and utility respondents suggested that RIIO successfully encourages innovation through its output-based approach, and explicit mechanisms such as the Low Carbon Networks Fund (LCNF), the Network Innovation Allowance (NIA), the Innovation Funding Incentive (IFI) and the Network Innovation Competition. These respondents suggested RIIO had been effective at supporting innovation in business efficiencies, safety, decarbonisation, the environment, new technologies such as robotics and automation, and delivering a smarter, more flexible energy system, for example through smart grid technology.

However not all stakeholders agreed. One respondent thought that innovation initiatives have not been deployed on a business-as-usual basis, and not caused cultural change in network businesses, meaning innovations only happen when there is money in it for the network. Another respondent thought that network innovation funding was worthwhile, but does not create a genuinely competitive market and can be subject to supply-side distortions. And one respondent thought RIIO's innovation funding can slow down the speed of the projects, which can be harmful for start-ups.

Several respondents commented that the benefits of innovating are not always realised by the same organisation that makes the investment, and that innovators lose ownership of their innovations, making some businesses wary of accepting funding. One respondent suggested that network operators receive the majority of compensation while utilities get only small gains, while assuming a very high-risk burden.

One respondent also noted that the mix of different network regulation (RIIO, OFTO, and cap and floor) meant it was harder to drive innovation at a national level for better carbon outcomes.

Several energy respondents pointed towards the upcoming challenge from the requirement for Distribution System Operators (DSOs), with one suggesting that the New York State's Reforming Energy Vision provides an example of these challenges being tackled.

Many stakeholders also commented on innovation in the retail market, presenting a mix of views, though with the majority suggesting that regulation has not provided the stimulus for investment and innovation in new business models and customer experience.

- One utility thought that innovation in the energy sector has been slowed by Ofgem taking decisions slowly and without a clear evidence base, and multiple respondents pointed towards risk-aversion and prescriptive regulation, for example retail market reforms limiting tariff innovation – one respondent noted that they found it far easier to introduce innovative tariffs in Germany than the UK.
- One respondent commented that although the UK has demonstrated strong performance in the developmental phases of innovation relating to electricity utilities, it lacks similar success in subsequent phases of product development and technology diffusion. Another respondent thought energy products appear less developed by comparison with the consumer-friendly interfaces in other markets such as communications.
- Some respondents pointed to Ofgem's Innovation Link, and its usefulness in facilitating impactful innovation. However, one utility suggested their experience with the programme revealed that projects still require sponsorship by a network utility and because innovations may run counter to the interests of network utilities, this presents a block to real-world testing of new technologies. The same respondent pointed to the examples of Norway, Sweden, and Singapore, suggesting they have mechanisms that can lessen network requirements in order to test new technology.
- One respondent thought the practice of price socialisation has slowed innovation.

Stakeholders tended not to comment about innovation in wholesale energy markets, however one renewable energy producer thought the UK's offshore wind sector has driven innovation in the global sector.

Water

Most respondents indicated that innovation in the water sector has been slow and that there are limited incentives for innovation under the existing regulatory framework, though some evidence was provided that suggests the UK may have seen higher innovation than international comparators.

- Some respondents suggested the scale and complexity of the current regulatory approach can limit the scope for innovation.
- Several respondents suggested innovation is hampered by a risk-averse culture created by the design of the price controls. They pointed to the low rate of return, the prevalence of greater penalties than rewards, a lack of competitive pressure, and an efficiency challenge regime which did not encourage less certain outcomes such as R&D. One respondent noted the periodic nature of most price controls means companies have limited time to earn return on innovation.
- Ofwat pointed to analysis commissioned by the European Commission which suggested a relatively long innovation to market life cycle of 3 to 7 years. They also pointed to research by Macquarie which suggests that, compared to comparable companies in the US and France, listed water companies in the UK have lower operating expenditure per customer, and more customers per employee. They thought this higher productivity could be an indication of greater past innovation and efficiency.
- One respondent suggested there had been limited segmentation of consumers and a slower move towards e-business compared to other industries.

Telecoms

Most stakeholders believe that the current regulatory framework has not encouraged investment in telecoms networks, potentially limiting innovation in the sector.

- Some telecoms providers noted that competition can drive innovation, and this has been facilitated by wholesale access regulations and the pro-competition design of

spectrum auctions in mobile. It was suggested there had been high levels of innovation with rapid changes in the products and services available. However, another telecoms provider suggested that there have been a number of fragmented incentives to invest in infrastructure, removing the ability of providers to compete and resulting in fewer areas to innovate.

- A number of respondents noted a slower pace in rolling out new services than international benchmarks. One respondent pointed to a slower rollout of 4G than experienced internationally due to repeated legal challenges delaying the spectrum auction for 4G services. Another respondent suggested the UK is substantially lagging both within the EU and the OECD in terms of the deployment of full fibre networks, with another respondent suggesting Ofcom's regulatory policy did little to incentivise fibre to the cabinet (FTTC) roll-out. They noted that the UK was ranked 7th out of 28 states in its rollout of Next Generation Access broadband connections by the European Commission's 2018 Digital Economy and Society Index.
- Several respondents pointed towards Ofcom's decision making. A couple of respondents thought that slow decision making by Ofcom has slowed the pace of innovation, and that regulation has been slow to respond to changes such as bill shock. Another respondent thought Ofcom had been too cautious about wide ranging remedies such as Dark Fibre Access. Another respondent pointed towards a lack of partnership with government and industry compared to other countries.

Recommendations made by respondents

Several respondents made suggestions relating to innovation:

- One respondent thought regulators could be given a duty to incentivise innovation in their respective sectors, putting it on a similar footing to the promotion of competition. Another thought regulators should carry out comparative benchmarking nationally and internationally.
- Several respondents in the energy sector suggested that regulators could move to a principles-based regulation model.
- One respondent suggested assessing the quality of innovation using both financial impacts and non-financial benefits.
- Many of those respondents who were positive about the RIIO framework supported continuing innovation mechanisms. One stakeholder suggested introducing similar innovation funding mechanisms in the water sector.
- There was support from one respondent for greater alignment between Ofgem, BEIS and other stakeholders such as local authorities who are working through local energy planning to facilitate market access and innovation.
- Several stakeholders suggested forms of regulatory sandbox, where regulators can test out alternative arrangements. One respondent suggested greater encouragement of industry and consumer groups to co-design smarter consumer protection. Another respondent suggested that regulators could open new channels for market participants and investors to proposed solutions.
- One respondent noted it was important to ensure that the benefits of innovation flow to everyone including vulnerable groups.

3.4 Question 7:

When has regulation been too slow to adapt to changing market circumstances and what have been the consequences for consumers and investors?

There were 45 respondents to this question, with 25 from the energy sector, 7 from the water sector, 6 from the telecoms sector and 7 covering multiple sectors.

Several respondents repeated a number of concerns they had with the current regulatory system, which are covered under other questions, primarily Q1, which asks what the most important improvements are to the UK's system of economic regulation, and we do not repeat those arguments here. Similarly, respondents suggested improvements which overlapped with their responses to other questions and we do not repeat those suggestions here.

Energy

Respondents gave a mix of views. The majority of respondents agreed that there were areas where regulatory decision making has been too slow, resulting in disruption to consumers and increased uncertainty to investors. Some respondents indicated that Ofgem has taken successful, though not necessarily timely, decisions in relation to a number of areas including embedded benefits, cyber-security obligations and shifting towards principles-based regulation. Particularly, respondents referred to:

- **Flexibility**: a number of respondents thought that flexibility markets have not been introduced soon enough. One respondent thought the BEIS/Ofgem Smart Systems and Flexibility Plan has had limited benefit, as it is a set of individual actions without clear implementation dates. Another respondent suggested that the capacity market and balancing market are designed for short term timescales and do not allow long term investment frameworks. They suggested it risks locking the UK into high carbon backup alternatives such as CCGTs rather than lower carbon options, which could cost consumers an extra £1.35bn.
- **The move to Distribution System Operators:** Some respondents thought there were insufficient incentives to move to a DSO model, and that networks continue to be incentivised to add network capital and to maintain control over their network, and that this may lead to less competition and innovation.
- **Unsustainable supply business models:** respondents noted that since January 2018, 14 suppliers have exited the supply market, 10 of which have activated Ofgem's Supplier of Last Resort (SOLR) mechanism. They believed this to have had significant disruption to consumers, and competition, pointing towards an estimated total cost of mutualised debt of over £130m. One respondent also thought that when energy suppliers shut down, regulation can be too slow to look after customers.
- **Electric Vehicles**: some respondents thought there was no overall strategic direction for EVs, with the risk that an absence of strong and visible infrastructure provision in critical locations will act as a barrier to rapid electric vehicle adoption.
- **Renewable generation**: some respondents thought regulations have been slow to adapt to renewable generation, with changes taking a long time to implement, combined with a lack of clarity over longer term direction. One respondent suggested that electricity distribution companies had based their RIIO1 regulatory business plans on National Grid's low scenario for PV development, meaning that solar farms in the South West had to be 'constrained off' if connecting to the distribution network.
- **Embedded benefits**: some respondents believed that Ofgem had managed successfully to remove the distortion in the market caused from network charging for embedded generation but that the process was too slow.
- **Smart meter roll-out programme**: one respondent thought that the supplier licence obligations have not been adjusted to reflect challenges which arose during the

implementation of the smart meter programme leading to additional costs and lack of confidence in the scheme .

- **Electricity Interconnectors**: One respondent noted that Ofgem has only made cap and floor available through a series of application windows, which means that projects that are identified later do not have a route to secure a regulatory arrangement. They believe this results in the benefits of increased interconnection not being realised by GB consumers.
- **Future of gas**: some respondents thought there had been uncertainty in the market about the future of natural gas, greener forms of gas and CCS. It was stated that there had been no clear steer from policy makers to help the market plan and invest in future gas solutions.
- **Electricity storage –** respondents noted the charging arrangements have been slow to move through the usual code processes. One respondent noted that Ofgem's consultation for storage generation licences closed in November 2017 and they are yet to release a decision.
- **Private wires:** One respondent thought that Ofgem has been too slow to address distortions favouring independent distribution network operators (IDNOs) and private wire network models, which they thought could have been addressed through charging arrangements.
- Slow progress in rolling back aspects of the Retail Market Reform initiative and moving towards principles-based regulation (due to strong political pressure).
- **Whole system approach:** Several respondents thought there was slow progress towards a whole system approach covering gas, electricity, heat, transport, and waste. One noted that RIIO-2 only considers gas and electricity. Another thought regulation has been too slow to adapt to the growing interactions between gas and electricity. They noted that the absence of price signals for the intraday value of the gas has created a cross-subsidy from the gas system to the electricity market.
- **Digital transformation:** one respondent suggested there is a lack of regulatory incentives for the digital transformation of the industry. They suggested the GB gas market still relies on manual processes, whereas European gas markets use secure electronic data exchanges.

Respondents gave a number of recommendations of how the regulatory system could adapt to these challenges:

- **Regulatory decision making**: Several respondents suggested that the regulatory system needed to be more flexible. It was thought that dynamic regulation is fundamental to help networks enable new, low carbon technologies while responding to the changing needs of consumers. However, a number of other stakeholder suggested greater stability, and one respondent suggested finding a better balance between standardisation and regulatory certainty for long-term investment decisions. One respondent
- **Innovation**: One respondent suggested that regulators need to be alert to potential regulatory barriers and help accelerate new products and services to market by enabling and encouraging community, local authority and regional level trial and demonstration of innovation.
- **Digital:** One respondent suggested that a new communication protocol should be developed, including a joint working group, to identify who has responsibility for digital products that cross regulatory remits. Another respondent suggested that access to key data increasingly crucial for preparations for electric vehicle take-up.
- **Collaboration:** Several respondents noted a need for greater collaboration. One respondent thought that regulators needed to work with government and industry participants to address the significant scale-up challenge required to decarbonise the energy system. Another respondent thought there needed to be greater alignment between

Ofgem, BEIS and other stakeholders to make sure that, should a project succeed in the regulatory sandbox, regulatory and policy changes are made to facilitate market access.

Water

A majority of respondents pointed to areas where regulation in the water sector has not responded quickly enough to market changes. Particularly, respondents referred to:

- **Decarbonisation**: one respondent suggested that there have been no incentives for water companies to reduce their greenhouse gas emissions.
- **Financing issues**: One respondent thought that Ofwat had been too slow to acknowledge that its determinations on financing issues were over-generous and led to higher bills for water customers, and allowed a much higher gearing across most of the sector. They suggested this has, in part, contributed to a legitimacy problem across the water sector. It was also suggested that Ofwat had been slow to react to financial engineering that took place in the sector period 2005 to 2015 - such as securitisation - which led to higher gearing in the sector, and commensurate increases in dividends and executive pay.
- **Innovation**: One respondent suggested that regulation has been historically slow to accept innovative choices for companies to achieve outcomes that benefit society at least cost. One respondent suggested the transition towards specialist regulatory economists rather than industry experts may have hindered the regulator's ability to adapt to external and market change.
- **Surface water charging:** One respondent thought that the surface water charging arrangements were too rigid and had a cooling effect on innovation in Sustainable Drainage Systems.
- **Competition**: One respondent thought that failure to introduce a level playing field for full serve NAVs has led to incumbents delivering expensive, traditional solutions.
- **Regulatory periods:** One respondent thought that misalignment of the various regulatory cycles means that investment needed has taken time to secure funding, resulting in a slower rate of improvements in the environment and outcomes for customers.

Respondents gave some recommendations of how the regulatory system could adapt to these challenges. One respondent thought a more continual and iterative process would provide a level of agility that would allow government policies, environmental improvements and customer outcomes to be delivered more quickly than the current systems allow. Another respondent thought there needed to a more explicit framework for considering when competitive or collaborative approaches would be appropriate.

Telecoms

Respondents in the telecoms sector tended to believe that regulatory decisions were not timely enough to take advantage of market dynamics, which favoured traditional market players and delayed network investments. However, some respondents said that the current market environment of fierce retail competition and the rapid deployment of superfast broadband benefited consumers. Particularly, respondents referred to:

- **Transition to full fibre:** One respondent thought that the need to transition to full fibre was obvious when Ofcom undertook its in 2005 Telecommunications Strategic Review but that Ofcom acquiesced to BT/Openreach's preferred strategy of meeting increasing demand with an FTTC rollout programme, reflecting an unintended consequence of a policy approach focused on mandating regulated access to the incumbent's network.
- **Fixed telecoms:** One respondent thought that Ofcom had missed an opportunity to move to a new regulatory model for fixed telecoms regulation earlier, though they suggested that UK consumers saw benefits from the previous model.

- **Decision making:** One respondent suggested Ofcom reviews the market with a backward-looking approach, assessing and reflecting on historic market shares that do not reflect current market dynamics and recent entry. One respondent suggested Ofcom has been too slow to translate its intentions into policy but this likely reflects the difficulty in implementing a strategic shift in a relatively large organisation rather than a gap in their powers.
- **Length of regulatory periods:** One respondent noted that markets defined at the start of a five-year regulatory period may not be relevant at the end of the period.

4. Regulatory Consistency

4.1 Question 8:

Where could regulators work together more consistently to meet future challenges, achieve efficiencies within the regulatory system or to promote better outcomes for consumers, investors or society?

In total 53 respondents answered this question in part or in full. Some responses covered ways in which regulators might work together, for example by sharing services, that overlapped with Q10, which asked what the case was for a multi-utility regulator. We have not repeated those answers here.

Most respondents saw benefits in greater collaboration and communication between regulators, breaking down siloed thinking, seeking commonality, sharing best practice, creating holistic solutions and avoiding treating sub-sectors in isolation.

There was recognition of a number of shared and overarching themes which regulators face, including sustainability, decarbonisation, consumer protection, management and protection of data, and population growth.

However, a few respondents, including Ofwat, thought that the different challenges and technicalities of each sector should continue to be recognised, and one network company thought that regulatory stability is more important than consistency between sectors for investors.

Many respondents made note of existing collaboration mechanisms and practice, including:

- The UK Regulators Network (UKRN)
- International organisations such as the Agency for the Cooperation of Energy Regulators (ACER)
- The use of memorandums of understanding
- Regulators sharing best practice, for example comparing mechanisms in other sectors when designing price controls, and Ofwat looking to Ofgem's OFTO regime when developing its approach to Direct Procurement for Customers
- Ofwat's Regulators Alliance with the Environment Agency and the Drinking Water Inspectorate to consider national water resources issues and resilience planning
- Ofgem and Ofwat's work with water and energy companies on data sharing to identify and support vulnerable consumers
- Regulators work to address the Competition and Markets Authority (CMA)'s collective recommendation to regulators on Digital Comparison Tools
- The Digital Framework Task Group (DFTG), which is looking at sharing of infrastructure data
- Publication of a set of consistent guidelines on power of attorney for use across sectors

There was a wide variety of suggestions of areas where regulators could work together more consistently to meet future challenges, achieve efficiencies within the regulatory system or to promote better outcomes for consumers, investors or society:

- **Vulnerability**: A large number of different respondents favoured creating a consistent approach to consumer vulnerability, with suggestions including an aligned definition of vulnerability, and a shared understanding of affordability interventions and vulnerability identification.
- **Data**: Closer collaboration on data protection, access and use was raised by many of the respondents to this question, and seen as a priority area by some. One respondent

thought there should be much greater sharing of data, and another suggested creating "common spines" for databases. One respondent noted that collaboration requires consistent data standards for asset management, such as location, and asset condition.

- **Innovation**: Identifying innovation needs and providing shared support services to innovators. This could include identifying future change programmes, providing funding options and making rules more flexible.
- **Co-ordinated timing:** Several different respondents thought timing could be co-ordinated, including aligning the timelines of decisions and price controls, to phase infrastructure spending, and to ensure that asset management periods are not synchronised so as to make better use of civil engineering contractors.
- **Future infrastructure planning, cross-industry projects and whole system thinking:** Multiple respondents pointed towards the need for a strategic and integrated approach to planning and delivering investment projects. It was noted that delivery of strategic infrastructure could be assessed against a broader range of parameters.
- **Resilience**: Several respondents thought that regulators could collaborate on resilience and planning for emergency scenarios, with the opportunity to identify interdependencies and identify multi-sector resilience investment.
- **Develop common principles of monopoly regulation:** a few respondents suggested a more consistent approach to setting the weighted average cost of capital, and one respondent suggested that Ofcom could look to Ofwat's longstanding RAB-based approach to regulating the market when determining whether to move to a RAB-based approach for rural areas of the UK. One respondent suggested better co-ordination in the way companies are scrutinised, including for financial robustness.
- **Shared metrics, standards and calculations**: A few respondents suggested developing shared metrics or standards which could promote interoperability across industries. A couple of respondents thought that regulators could work together on measuring the shared system benefits delivered through cross-sector projects and new metrics on the benefits of infrastructure investment should be developed collaboratively to provide consistent measures.
- **Enforcement:** One respondent thought regulators could collaborate on the way they enforce against companies with cross-sector offerings, for example a company which might be offering EVs bundled with energy supply, financing and insurance, but might fail in one or more of these offerings. It was also noted that consideration should be given to how to avoid consumer harm where a third-party aggregator is used by customers to engage in multiple markets.
- **Market rules:** One respondent suggested aligning consumer retail market rules as firms are increasingly offering products and services that are regulated by multiple different bodies. One utility believed that competition policy could be regulated via standard competition policy across sectors.
- **New regulatory approaches:** One respondent suggested regulators could work together to test, co-invent and iterate new regulatory approaches.
- **Governance:** One respondent thought there should be greater clarity over roles and responsibilities.
- **Resourcing**: One respondent noted that regulators could share resources for periodic price controls.
- **Management of assets**: One respondent thought that a cross-infrastructure approach to management of physical assets could minimise accidents and disruption.
- **Low carbon interactions:** One respondent thought collaboration could improve handling of low carbon transition interactions.

- **International coordination**: One company noted that international regulatory cooperation is key to advancing complex projects involving multiple countries, for example expanding offshore wind in the North Sea.
- **Taxation**: A gas storage provider suggested more consistent taxation, citing that business rates have made it difficult to invest in gas storage.

In addition to the general ways in which collaboration might take place, some respondents suggested specific examples where regulators could work together more consistently, including:

- A co-ordinated strategy between the Oil and Gas Authority (OGA) and Ofgem to enable reuse of oil and gas pipelines for CO2, to enable carbon capture and storage
- To enable “sector coupling” for decarbonisation, such as power-to-gas schemes
- Greater alignment between the environmental regulators and Ofwat with regard to the Water Industry National Environment Programme
- Greater cooperation between Ofcom and Ofgem on active network management (to secure the necessary radio spectrum) and smart roll-out (to share solutions for areas with poor signal)
- Better collaboration between Ofgem, the CMA and ICO on the CMA Database Order 2016 to resolve questions on the handling of user data
- Greater alignment between Ofwat, the Drinking Water Inspectorate and the Environment agency in setting consistent requirements for companies

The role for UKRN

A number of different respondents suggested ways in which the UKRN could help to realise some of the opportunities mentioned above, including:

- Regularly reporting to government on how regulators are collaborating and making recommendations for improvement
- Facilitating access to the passive infrastructure owned by other utilities and transport providers
- Expanding to include other regulators, including the ICO
- Doing more industry engagement
- Sharing best practice more often

Co-ordination between regulators and other bodies

Many respondents saw a role for co-ordination not only between regulators but between other bodies. One respondent noted that greater alignment at the regulatory level requires better alignment across government departments to ensure consistent interventions and to deliver policy outcomes. One respondent thought that better alignment between regulators and government was also needed. Another respondent noted that industry can play a valuable role in helping regulatory coordination.

A couple of respondents noted the need for collaboration between regulators and other statutory consumer bodies and redress bodies. One respondent suggested a cross-regulatory working group be established that would include consumer groups, ombudsman and redress services to share consumer outcome information and regulatory best practice.

A couple of respondents also noted there were opportunities for greater alignment within sectors, for example aligning the price controls of electricity transmission and distribution network companies.

Other recommendations by respondents

Respondents made a number of other suggestions to ensure regulators work together more consistently. One respondent thought that all regulators should work to Strategic Policy

Statements, which is currently done in water and telecoms, but not in gas and electricity. Another respondent recommended a stocktake to identify current formal collaboration and measure how effective it is. One water utility suggested that regulators should have a duty to work formally and strategically together on issues, such as data protocols and vulnerability.

4.2 Question 9:

What changes to the existing regulatory framework would be necessary to promote greater collaboration and regulatory consistency? Are there functions that might better be provided on a multi-utility basis without the need for wider organisational change?

There were 46 respondents which answered this question in part or in full.

Some respondents pointed out that to promote greater collaboration and regulatory consistency regulators needed to work more closely together, with many repeating the points delivered under Q8, which asked where regulators could work together more consistently. We do not repeat those arguments here.

Some stakeholders noted other changes they would like to see to the regulatory regime, without explicitly setting out how these changes might promote greater collaboration or regulatory consistency.

While the majority of respondents to this question suggested ways in which the regulatory framework might change, several respondents thought it was not necessary to change the current regulatory framework, though some suggested that more could be done within the existing framework.

Most respondents treated the concepts of collaboration and consistency to be interrelated and so treated them together, however we have split the points put forward for clarity, noting that broad definitions were taken and that some points are likely to be relevant for both concepts.

We did not find particular themes by sector or the type of respondent, with most respondents suggesting a variety of ways in which to promote greater collaboration and regulatory consistency.

Changes necessary to promote greater collaboration

Most respondents treated collaboration as comprising relationships between all industry participants, including regulators, government, industry and other stakeholders.

Many respondents gave examples of where the existing regulatory framework could be changed to promote greater collaboration:

- **Statutory duty:** Some respondents suggested introducing a statutory duty on regulators to collaborate. However, it was noted this needs to be squared with regulatory independence and one respondent explicitly disagreed that a formal statutory duty to cooperate is necessary.
- **Objectives:** One respondent thought that regulators should be required to set out joint working plans. Another pointed to the National Audit Office (NAO)'s statement that regulators "do not have a joined-up way of setting objectives for issues that cut across sectors, such as affordability and debt".
- **Incentives:** A few respondents thought incentives for collaboration should be created, for example for the sharing of Priority Services Register (PSR) data, which is not currently funded. One respondent suggested the regulatory framework needed to move away from full comparative competition towards more collaboration and co-invention.
- **Licencing:** One respondent suggested the system of licencing needs reforming, as it may restrict an entity with a licence in one market operating in another.
- **Mechanisms for collaboration:** Several responses focussed on potential mechanisms for collaboration. One response suggested establishing a regulator peer group. Other respondents thought the UKRN was the right forum for collaboration and could have a stronger role. One respondent suggested creating a single system architect in the water sector that would have accountability for delivery of outcomes in the long-run.

Changes necessary to promote greater regulatory consistency

The majority of respondents treated consistency as being both about consistency between different regulators and consistency of individual regulators over time.

- **Single regulator:** Some respondents thought the way to create a consistent approach is to have a single regulator for some functions, for example by creating a single consumer market regulator, or creating a new GB Data Regulator, which would operate across sectors.
- **Objectives:** It was suggested by one respondent to define an explicit objective for regulatory consistency. Another respondent suggested that strategic authorities could set regulatory priorities across sectors.
- **Sharing best practice:** One respondent suggested establishing a process for ensuring learning and best practice are disseminated, for example by identifying the logic for differences in RIIO-2 and PR19 parameters.One respondent thought UKRN should publish sector specific guidelines and best practice guidelines to ensure consistency.
- **Stakeholder input:** One respondent thought that improving stakeholder engagement would increase consistency. Some respondents suggested giving stakeholders a greater ability to challenge decisions. It was noted that companies currently have no mechanism to challenge Ofwat's decisions apart from the CMA process, which they believe is a disproportionately high hurdle.
- **Common practices:** Some respondents thought that regulators could share common views on certain parameters, including alignment of demand and growth assumptions, and Retail Price Effects (RPE). It was also thought that aligning the timeframe of the regulatory frameworks could help consistent decision making.
- **Decision making process:** Several responses focussed on the process of how decisions were taken:
    - One respondent thought there could be more transparent alignment of economic, social and environmental goals, and reporting on regulatory progress against a balanced scorecard of public interest outcomes.
    - A couple of respondents thought the decision-making processes of the boards of regulators needed to be reviewed. One respondent suggested including environmental, employee and future consumer champions, and elected national and local representatives on boards.
    - A couple of respondents thought moving towards principles based regulation would help consistency.
    - One respondent thought there should be consideration of cross-sectoral policy issues when making decisions.
    - One respondent recommended considering whether separation of rulemaking from implementation has merit in the UK, as is the case in Australia.
- **Accountability:** Other responses focussed on accountability for consistent decision making:
    - One response suggested a clearer role for Parliament, Select Committees and All Party Groups in holding both government and regulators to account on delivery of strategic goals for utility regulation and exploring new alternatives.
    - It was noted that the NAO had recommended more clarity, transparency and accountability of who signs off the technical aspects of a plan.
    - Some respondents thought regulators should be held accountable for the delivery of policy objectives in a more quantifiable and transparent way.
    - Another respondent thought that regulators should have a requirement to report progress against Government objectives and get cross-sector scrutiny from a relevant Parliamentary committee.

- **Knowledge:** One respondent thought consistency could be improved by regulators building a stronger understanding of engineering and operational realities of individual sectors to inform the application of theoretical tools such as econometric models.

Functions that might be better provided on a multi-utility basis without the need for wider organisational change

Many respondents provided their views on the prospect of a multi-utility regulator in Q10, which asked what the case was, for and against, a multi-utility regulator covering energy, digital, and water. Accordingly, we do not repeat their views here.

A few respondents commented that alignment of functions would provide little or no value, and could even be detrimental, as there are pronounced sector specific differences. One network respondent thought that any efficiencies would be limited and synergies should not be overstated compared to the drawbacks of less focussed organisations.

However, other respondents noted ways in which functions might be provided on a multi-utility basis:

- Several respondents noted that back office and support functions could be combined, with suggestions including HR, finance, admin and IT. One respondent noted that combining IT would help to ensure that reporting systems are standardised.
- In addition to support functions, it was suggested that regulators could share expert economists, lawyers and project managers.
- It was also suggested that regulators could share specific activities, including efficiency assessments, and productivity monitoring of regulated utilities.
- One utility recommended a shared disputes function, which could use an Oversight Board or something like the 1st Tier Tribunal system in Defra or the Treasury.

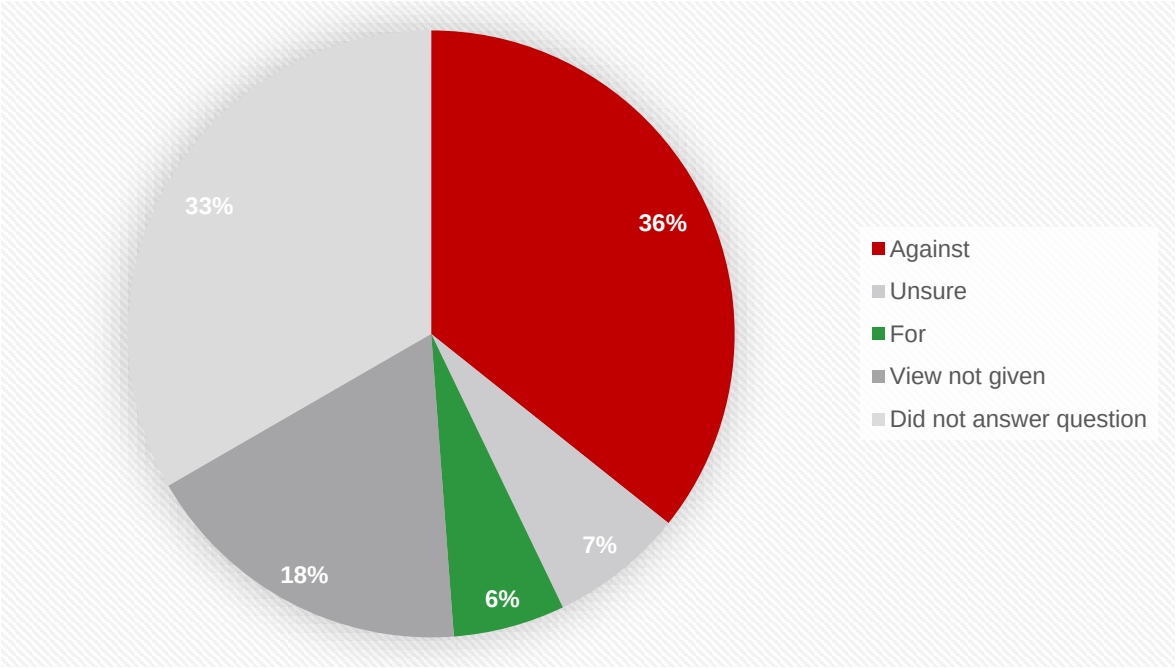
Some respondents noted that it would be difficult to move functions to a multi-utility regulator, particularly in the short to medium term, and these points were generally expanded on in response to Q10.

4.3 Question 10:

What is the case for or against a multi-utility regulator covering energy, digital and water?

There were 56 respondents that answered this question in part or in full. The majority of those which gave an answer were against the introduction of a multi-utility regulator, with a small proportion unsure, or supportive[48].

Figure 2: Respondents views on creating a multi-utility regulator

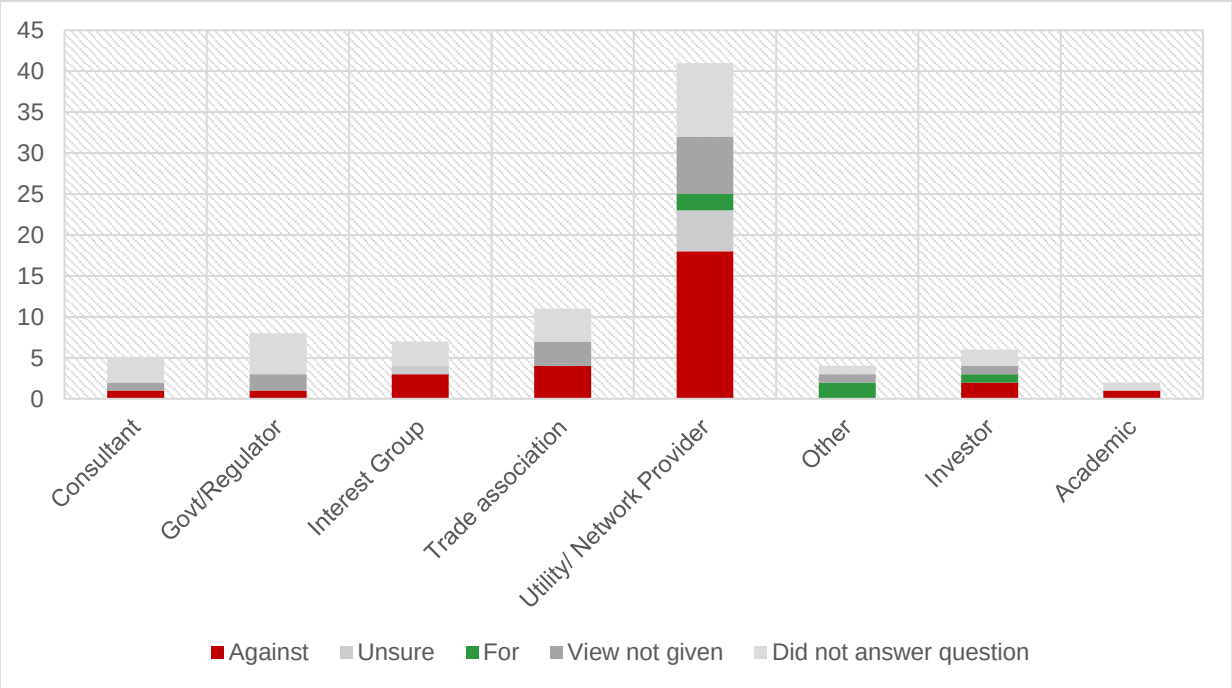


Views on creating a multi-utility regulator by type of respondent

Consultants, trade associations and interest groups tended to be against the introduction of a multi-utility regulator, while regulators and investors were less likely to give a view. The majority of utilities who gave a view were against a multi-utility regulator though there were several respondents who were unsure or agnostic.

Figure 3: Breakdown of views on creating a multi-utility regulator by respondent type

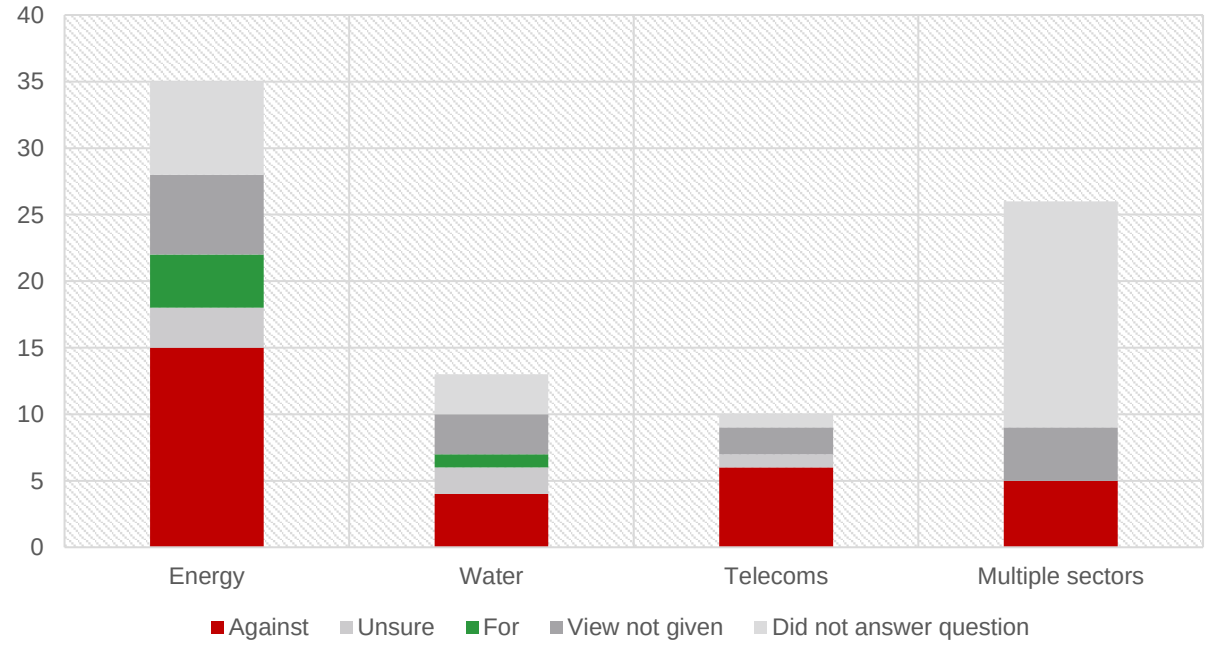
[48] Those listed as For are those which either stated explicitly that they were in favour of a multi-utility regulator, or generally thought the pros outweighed the cons. Those listed as Unsure are those who presented a range of pros and cons and generally thought there was no definitive case either way, or who thought more analysis needed to be done. Those classed as Against are those who stated explicitly that they did not support the introduction of a multi-utility regulator and those that thought the cons generally outweighed the pros. Those classed as View not Given are those that either noted they were agnostic, or which did not state any preference but commented in some way about multi-utility regulators. Those listed as Did not Answer Question, are those which did not give any explicit answer to Question 10.



Views on creating a multi-utility regulator by sector of respondent

There was not a strong difference between respondents from the water and energy sectors, with around 30-40% against the introduction of a multi-utility regulator, and under 10% for its introduction. Respondents from the Telecoms sector were more likely to be against, with around 60% of respondents not supporting the introduction of a multi-utility regulator. Those covering multiple sectors tended not to give views, though of those that did all of them were against a multi-utility regulator.

Figure 4: Breakdown of views on creating a multi-utility regulator by respondent sector



Not all of those who were for a multi-utility regulator agreed on the form it should take. Respondents noted there are different models of multi-sectoral regulation, and one covering energy, digital and water may not be the best option.

- One respondent suggested a mix of regional multi-utility regulators within a framework set by national, single-utility, market regulators.
- It was suggested a distinction could be made between horizontally integrated regulators (across sectors) and vertically integrated regulators (across functions). One energy utility believed there would be a better case for a single “consumer markets” regulator, and a separate “monopoly networks” regulator. Another suggested a regulator to focus on wholesale markets and one to focus on retail markets.
- Several respondents suggested a consumer market regulator, with some suggesting it could cover other services, including transport and banking, and unify consumer protection which currently sits in several places, including the CMA and the Financial Conduct Authority (FCA). It was noted that in this case sector regulators could continue to exist and revert to pure economic regulation of their sectors.
- Several respondents pointed towards differences between telecoms and the water and energy industries (more details are given in the section covering views against a multi-utility regulator). One respondent suggested that aspects of communication regulation, such as regulation of TV, on-demand services, and potentially social media, could be separated out from core economic regulation. Another suggested merging Ofgem and Ofwat while keeping Ofcom separate.

Arguments put forward by respondents for a multi-utility regulator

Respondents, including many of those against the introduction of a multi-utility regulator, suggested benefits to its introduction, including:

- economies of scale from reduced management, and removing duplication of work
- maintaining a pool of expert regulatory staff, and reducing competition between regulators for scarce specialist technical skills
- more effective prioritisation
- sharing of ideas and expertise
- access to more data
- better development opportunities for staff, and better staff retention
- harmonisation and rationalisation of rules across similar products
- better consistency, including:
    - in addressing common challenges for consumers, such as data privacy, service failures and challenges for vulnerable consumers;
    - a common approach to specific areas, such as regulatory oversight, the use of RAV approaches, and principles based regulation;
    - in addressing common roles for regulators, such as competition regulation.
- improved investor confidence, if decisions are more consistent
- a better ability to remove regulatory barriers
- better capability of regulating multi-utility services such as quad-play
- reduced risk of absence of regulation, ie regulatory gaps between sectors
- an ability to focus on strategic cross-sector areas such as climate change
- a clearer relationship - with greater independence from - government departments (though several respondents thought it could decrease regulatory independence and make communicating with different government departments more difficult)
- a more level playing field between market participants in different sectors
- better efficiency at a sub-national scale, as cross-sector issues often materialise in local contexts

Arguments put forward by respondents against a multi-utility regulator

Respondents suggested a wide variety of reasons against the introduction of a multi-utility regulator:

- **Differences between sectors:** A concern raised by many respondents was that a one-size-fits-all approach may not account for key differences between sectors, including the cost structures, physics, challenges, and paces of change.
    - Respondents within the Telecoms sector in particular thought there were important differences. Respondents noted that Broadband differs from other sectors because it can differ in its quality (eg speed, reliance, resilience), and the ways in which it can be delivered (copper, fibre, wireless). It was also considered that Telecoms may differ from energy and water because of infrastructure competition in the access layer, the complexity of switching decisions, and that there is increasing convergence between telecoms and media sectors, for example cable providers differentiating themselves through exclusive media content.
    - Respondents thought there was a risk of remoteness from consumers in each sector
    - It was noted that pressure to apply consistency could stifle creativity and innovation
    - Respondents noted that sectors may have different “working cultures”, for example the water sector, which has 50-year assets, may value slower decision making than telecoms, where there is greater technological change
    - One respondent thought the complexity of challenges faced by each sector are too large for a single organisation
- **Consumer focus:** In addition to differences between sectors, one respondent thought that if introducing a cross-sectoral monopoly network regulator there could be a loss of focus on consumer interests.
- **Expertise:** A similar concern to the one-size-fits-all approach was that a multi-utility regulator would not retain the expertise held by sector-specific regulators, and that much staff experience is not-transferrable between sectors. Specific concerns included:
    - Less board-level sector expertise, bringing into question whether it can make appropriately informed and considered decisions.
    - A risk of losing deep subject matter expertise and corporate memory, which could reduce the effectiveness of challenges to regulated companies on technical aspects of their businesses, such as the cost of capital.
- Respondents noted that if a multi-utility regulator was to avoid the above concerns there would be no gains of efficiency, as work would have to be delegated to specialist teams.
- **Unnecessary:** Some respondents thought a multi-utility regulator was not necessary as consideration of common issues is already done through the UKRN. It was also noted that bunded telecoms and energy products already exist, showing cross-sector offerings are possible with sector regulators.
- **Loss of regulator competition**: Several respondents noted the potential loss of rivalry and learning between sectoral regulators, which could reduce the pressure on them to innovate and improve. It was also thought this could lead to a reduced range of approaches to regulatory problems, removing the ability for different approaches to be tested and outcomes compared.
- **Prioritisation:** Some respondents thought certain issues may be deprioritised if they have to compete against a larger set of policy areas, and that they could lose the current room sectoral regulators have for timely decision making. It was thought this could be the case for smaller regulated industries, such as postal services and independent public gas transporters. Though other respondents thought prioritisation of issues would be a potential benefit of a multi-utility regulator.

- **Bureaucracy:** A number of respondents thought that a multi-sector regulator would be bureaucratic and unwieldy, with potential diseconomies of scale and increased red tape. Some respondents suggested it would be less agile and decisions would take longer as they would involve more people. A few respondents thought that it would be more difficult for stakeholders to engage with a large organisation. And one respondent noted that current silos could remain but with less visibility.
- **Interaction with government:** Some respondents believed there would be an increased risk of political intervention, as it would make it easier for government to interfere. It was also suggested that there would be weakening of the partnership with sponsoring government departments, and a risk of competing departments driving different agendas. However, we note some respondents thought a single organisation would be better able to manage the relationship with government.
- **Accountability:** It was thought that a multi-utility regulator would have more power, increasing questions of accountability and control, with one respondent suggesting it would dilute accountability. It was thought there could also be greater risk, as ineffective regulation would impact consumers across multiple sectors.
- **Disputes:** One respondent noted that the tried and tested challenge mechanisms with respect to each sector would be lost. Another respondent stated that any multi-utility regulator must remain structurally separate from the CMA, so that it can continue to act as the independent appellate body for economic regulatory decisions.

Although not a long-term argument against a multi-utility regulator, many respondents suggested there could be a difficult and disruptive transition, which could: cause regulatory uncertainty; risk investment at a time when it is most important; and distract from more urgent regulatory changes. Several responses stressed the need for certainty over the terms of risky investments and several energy networks suggested that it could disrupt the decarbonisation transition. One respondent noted there would be one-off merger costs, and another noted the regulators could lose staff and expertise. One regulator noted that there would be a need to determine which Government Department should take overall sponsorship and policy oversight of a new regulator.

A variety of views were put forward on other approaches which could be taken as an alternative to introducing a multi-sector utility, including focussing on implementing other improvements first, introducing a series of evolutionary changes, and ensuring regulators share knowledge. One respondent suggested that synergies in back office functions could be achieved through a shared services model, and another respondent suggested that bodies could be set up to cover specific functions, for example an agency for cooperation of regulators to address climate change

A few respondents thought that regulatory functions could be made more specific rather than broader, for example scaling back Ofgem's powers so it would act purely as an economic regulator. An energy network suggested that since the mid-2000s there has a been a trend to break up regulated companies, and they point to an infrastructure investor that has maintained separate platforms when investing in water and energy networks. One respondent believed that before considering a merger of regulatory functions, a question should be asked whether to de-merge content and economic regulation of communication networks.

Other views put forward

Some respondents were agnostic on whether to introduce a multi-utility regulator. Some focussed on the principles which should be preserved in either case, such as independence from government, transparent and stable objectives, sector expertise, a robust appeals process, principles of how data is dealt with, a strong consumer voice, and a long-term vision for the industries being regulated. One respondent thought that the focus of the NIC's review should be on the form of regulation, rather than the organisation which delivers it.

Some respondents suggested case studies to help determine whether a multi-utility regulator should be introduced, including the formation of BEIS and the Office of Low Emission Vehicles (OLEV), models of regional utility commission in the US, and the multi-utility regulator in Ireland. One Telecoms provider suggested that experience from Spain and the Netherlands, shows that there are trade-offs between simplification and consistency.

5. Policy and Regulation

5.1 Question 11:

Is the traditional role of economic regulation, to mimic the outcome of a competitive market, sufficient to ensure future investment and to meet the needs of current and future consumers, and if not, how might this role need to change?

In total, 50 respondents answered this question. They highlighted a range of objectives for economic regulation beyond mimicking the outcome of a competitive market. There was a mix of views received on whether the traditional role of economic regulation would need to change as regulators face challenges in delivering major infrastructure programmes, such as around decarbonisation and deployment of 5G infrastructure.

Traditional role of economic regulation

A range of views were expressed on whether mimicking the outcome of a competitive market was an appropriate role for economic regulation:

- Some respondents supported the traditional role of economic regulation in mimicking the outcome of a competitive market, noting its success in facilitating investment since privatisation.
- Other respondents did not recognise mimicking the outcome of a competitive market as the traditional role of economic regulation – for instance, noting that it is not the statutory duty of regulators, and that there has been constant legislative change to the content and presentation of regulator duties (particularly with the expansion of environmental and social obligations). One respondent claimed that regulators over-focus on competition is primarily a cultural issue rather than one set through their legislative remit.
- A significant number of respondents cited reasons why the aim of economic regulation could not be reduced to mimicking the outcome of competitive market: Competitive markets may not deliver optimal societal outcomes if there are market failures, such as externalities associated with climate change. Wider market failures could also be understood to include fairness and protection of vulnerable customers as well as a lack of trust in the market and shortcomings in corporate governance. Concern was expressed by several respondents that in some cases competition has been pursued as an end in itself or prioritised over other policy objectives.

A significant challenge identified by several respondents is the importance of balancing short- and long-term consumer interests and delivering intergenerational fairness, with concern expressed that regulators had engaged in short-termism. Concern was also expressed that policy-makers are failing to make hard decisions that resolve trade-offs, for instance between short-term and long-term consumer interests, or between affordability and environmental and social objectives.

In their response to the questions, several respondents noted the difference between monopoly network assets and other assets. They suggested that outside of monopoly network assets, the aim of regulation isn’t to "mimic" competition but to enable a competitive market to thrive while guaranteeing consumer protections.

It was noted that competition inevitably leads to failures, as evidenced by recent supplier bankruptcies in the energy sector. This creates challenges for economic regulation where

essential services are being provided. Some respondents expressed views on what constitutes an essential service, for instance with access to internet increasingly seen as such.

Evolution of the role of economic regulation

A number of changes were noted by respondents as affecting the role of economic regulation going forwards:

- Technological change has enabled multi-sector business models which have the potential to deliver social benefits yet face regulatory barriers to entry as a result of not fitting the traditional market roles and definitions.
- There is an increasing need to consider the dynamics of digitally-enabled competitive markets. One approach suggested is to apply the concept of technology adoption curve or technology adoption life cycle when thinking about the future consumer.
- The decarbonisation agenda increasingly requires coordination across companies, regions and sectors. Respondents suggested the regulator has an important role in setting out the vision for the sector how it can be achieved and in ensuring there is the sector co-ordination needed to deliver this vision. Examples given include the increased scope for anticipatory network investments in the energy sector, for instance for EV charging and network reinforcements.
- The increased challenges around lack of trust in competitive markets means that the regulator has an important role in explaining to the public how the regulatory framework benefits consumers and addressing misinformation. Respondents commented that this will help promote a stable regulatory framework and reduce costs to consumers.
- The benefits of sharing data and barriers to doing so frequently cut across traditional business and functional boundaries. Respondents thought identifying, realising and measuring benefits to commercial owners and for the public good may necessitate challenging long-established business case criteria and regulatory regimes in order to provide appropriate incentives.

There was a mix of views on how the role of economic regulation would need to change in light of the challenges increasingly faced. Some respondents advocated a narrower approach for regulators in future (with Government needing to provide more direction and legitimacy), while others advocated the regulator taking a stronger role, for instance in coordination of industry.

Several respondents highlighted the importance of the regulator recognising tradeoffs, particularly around intergenerational fairness. Concern was expressed, particularly by energy- and water-sector respondents, that regulators have overly prioritised short-term consumer interests over long-term consumer interests.

One respondent noted the importance of the regulator facing scrutiny and checks and balances around its decisions – for instance through investors being able to appeal decisions on merits to an expert body in addition to judicial review.

A move to principles-based regulation was identified by some respondents as a better means of promoting competition while protecting consumer interests.

Energy

One respondent noted that the 2010 Energy Act changed the role of the regulator in energy networks to intelligently judging whether and how to apply competition to benefit consumers.

Consistency in how economic regulation is applied was highlighted by a few respondents as important. Ofgem's move away from the default RIIO-1 model of Strategic Wider Works in the case of Orkney transmission project was cited as an example of inconsistency in approach.

Suggestions were made about how Ofgem could best incentivise network companies in RIIO-2, including through a common Totex-sharing factor for all network companies.

One respondent noted the opportunity to create new competitive markets to incentivise alternative infrastructure to support decarbonisation – for instance auctions for flexible technologies, and new routes to market for onshore wind, solar and “negawatts”.

Decarbonisation of the heat sector was identified by a range of respondents as a significant challenge for economic regulation, with a need for the regulator and government to take a more proactive and anticipatory role in facilitating investment, including across current sectors and price controls.

Water

Specific challenges to water infrastructure requirements identified in the water sector included population growth and climate change. Water availability was noted by one respondent as a limiting factor to competition in the sector.

Suggestions were made about how Ofwat could best incentivise water and wastewater companies – including through separate long-term settlements for water company enhancement expenditure, with lighter-touch five-yearly reviews.

Support was expressed by a few respondents for the role of a system architect considering issues holistically in line with government policy objectives, and with economic regulation advising the system architect on promotion of efficiency and innovation.

One respondent noted that within the water industry there is currently a desire to understand the value of social capital and the services this can provide. This respondent suggested that Ofwat as regulator can lead the way in helping the sector understand how value is measured i.e. moving to a system of ‘output per input’ rather than ‘investment’.

One respondent argued that Ofwat’s attempts to introduce non-household water retail competition have not been successful and suggested that the implementation costs may outstrip the benefits to consumers.

Telecoms

It was noted by one respondent that the shortcomings of the traditional approach to economic regulation have been recognised by Ofcom.

Concerns were raised by several respondents about Ofcom’s approach to economic regulation of BT – with the regulator aiming to set prices at cost rather than reducing excess returns over time through competition. Some respondents argued that mimicking the outcome of competitive markets had led to underinvestment in infrastructure. Evidence cited was that 5G deployment in the UK is much lower than in the US, where average revenue per user (ARPU) is higher due to lighter-touch regulation. The stronger level of partnership between the regulator, industry and Government in Japan and South Korea was also cited as a good example of an approach enabling operators to take a longer-term approach to investment.

One respondent noted that regulation of different aspects of the broader digital market needs to evolve to reflect the growing influence of digital companies, including platform providers, so that responsibilities are shared in a more balanced way.

It was noted by one respondent that the appropriate approaches may differ by region, as promoting competition in some areas is more likely to limit investment in full fibre networks. Alternative solutions, including public funding, may be needed in these cases.

5.2 Question 12:

What should be the boundary between government setting policy and strategic direction and independent regulation in these sectors? Do the existing duties and functions of regulators need to be adjusted to reflect this?

There were 54 respondents to this question. Typically, respondents emphasised the importance of government in setting policy and strategic direction, with independent regulators left to determine the detail of regulation. However, a number of respondents identified areas where closer partnership between Government and the regulator would be needed to deliver on complex programmes, for instance around decarbonisation and 5G broadband deployment.

Overarching themes from respondents

There was widespread overall support expressed for the principle of Government setting long-term policy and strategic direction and targets, with independent regulation delivering on those policy and strategic objectives. The Strategic Policy Statement (SPS) was seen by some respondents as a useful tool for doing so.

Most respondents did not express support for changing the boundaries between Government and independent regulation, believing it could risk further complicating the regulatory landscape.

However, challenges around the delivery of the decarbonisation programme led some respondents to identify an increasing need for Government and the regulator to co-deliver on certain projects as well as formal processes for government and the regulator to discuss conflicting views on each other's approach. One respondent recommended consideration of a strategic regulatory organisation – citing positive experience in Australia of the creation of the Energy Security Board as well as of Productivity Commission's regular reviews of economic regulation of airport services. Further challenges were identified around accountability for decisions around distributional issues within and between generations.

Most respondents expressed support for independent regulation in delivering predictability and coherence to the market, which is important to fostering the investor confidence needed to deliver long-term infrastructure investment. One respondent noted that NIC could have a role in the delineation of roles between Government and regulators.

A number of respondents supported Government taking a clearer role in articulating how trade-offs between regulatory and policy objectives should be managed. They thought that the level of guidance that Government provides to regulators can vary significantly, leading to regulators having significantly more discretion in some areas than others.

Concerns were raised by several respondents about instances of Government interference or pressure on what should be matters for independent regulation. Stakeholders cited examples of political interference in the energy and water sectors (particularly on consumer prices) and noted the impact on cost of capital (for instance with Moody's downgrading the UK water sector over concerns of political interference).

Some support was expressed for aligning changes to the duties and functions of regulators with the timing of price controls. There was also support expressed for maintaining checks and balances on the role of the independent regulator, including through a merits-based appeals process.

Energy

Several respondents identified instances of Government applying undue pressure on Ofgem, including to address concerns about retail competition.
A few respondents identified increasing areas where Government and Ofgem will have joint duties as a result of complex delivery programmes, such as under the Smart System and Flexibility Plan and in the decarbonisation of heat. Several respondents noted that a shift to a greater role for anticipatory investment in energy networks also implies that there is a need for greater strategic direction from government as to the nature and scale of investment which is considered necessary at a national level to meet carbon or other relevant infrastructure targets. Support was also expressed for regulators to consider investment decisions on a whole systems basis (i.e. across gas and electricity / transmission and distribution).

One respondent noted that the boundary between the roles of Government and Ofgem vary considerably by area – for instance with Government developing the detail of support regimes for generation while leaving Ofgem much greater discretion to develop the regime for interconnectors.

One respondent noted that implementation of CCS is likely to create challenges for the current boundary between government and independent regulation: If a RAV model were selected for the industry, Government and regulators (Ofgem and OGA) would have to work closely to replace the existing regulatory framework, and new regulatory roles and boundaries would be needed for the sector upon deployment.

Concern was raised about Ofgem's perceived impartiality as an economic regulator while it is increasingly being tasked with delivering on environmental programmes in-house.

One respondent proposed the creation of an Energy Transformation Commission, acting as a provider of information and coordinator of action across regulators and government departments, though it was noted this would entail changes to Ofgem's duties.

Concern was expressed by one respondent that Ofgem had failed to sufficiently consider decarbonisation objectives as part of its Targeted Charging Review.

One respondent thought that the CMA's proposal for redefining its statutory duties would risk inappropriately shifting the boundary between government and independent regulation.

Water

One respondent expressed support for the role of a system architect to be created to determine how the Government's strategy direction means for the sector outcomes required.

It was noted that the regulatory framework differs by region – for instance with a closer working relationship between the state and the water sector in Scotland, whereas in Northern Ireland regulation is impacted by annual changes to budgets.

Telecom

Respondents recognised the need for government to set strategy and priorities for the sector. Some respondents expressed concerns that government needs to provide sufficient detail through the SPS on how to deal with tradeoffs in policy objectives. One respondent noted that the default minimum interval of five years between Statements is too long, given the pace of developments in telecoms.

There were mixed views received on the current allocation of regulatory duties in the telecoms sector. One respondent said that Ofcom's statutory duty could be interpreted in several ways. Another respondent recommended adding "promoting investment" to Ofcom's current duties. Several respondents noted that the Communications Act 2003 does not explicitly state a role

for government in setting long term strategic objectives – a situation which is only partly mitigated by the SPS framework giving government a “super-stakeholder” role in the development of Ofcom’s strategy. Another respondent expressed support for the balance struck in Ofcom’s current statutory duties in the Communications Act.

Respondents expressed concerns over government prescribing detailed regulatory methods, such as in the area of consumer price interventions, which undermine the independence of the regulator. One respondent also noted that the government published its Draft Statement of Strategic Priorities for Telecommunication, the Management of Radio Spectrum and Postal Services, urging Ofcom to take action in several areas, even though Ofcom have generally been proactive, for instance in using its fining powers and using innovative switching practices.

5.3 Question 13:

Has there been a lack of clarity over strategic goals? What is the cause of this and what has been the impact on investment?

There were 47 respondents who answered this question in part or in full. Most respondents provided examples of instances of a lack of clarity over strategic goals in the different sectors and cited investor uncertainty as a driver of cost of capital.

Most respondents welcome the SPS process for government to provide statements of policy objectives, with many respondents urging that Government should provide these on a more regular basis or recognising how trade-offs between objectives should be managed.

A few respondents noted risks in the SPS framework that policy statements by government outside of the framework would act to undermine the clarity provided by the SPS.

One respondent proposed a strengthened role for the NIC in assessing how government statements of strategic goals align with its infrastructure strategy and in developing long term scenarios and sharing research with Parliamentary committees to facilitate scrutiny.

Energy

A few respondents cited positive examples of there being sufficient clarity over strategic goals in the energy sector:

- **Electricity market reform**: some respondents supported the use of market-based mechanisms to deliver security of supply and decarbonisation goals. The deployment of offshore wind through the CfD mechanism was cited by some respondents as a success in terms of reducing technology costs
- **Coal closure:** One respondent thought that the 2025 end date for the closure of coal-fired generation provided a clear signal for the market.

Most respondents answered the question by citing examples of where there has been insufficient clarity over strategic goals in the energy sector:

- **Decarbonisation of the heat sector:** decarbonisation of heat was noted by most energy-sector respondents as an area where there is insufficient clarity on strategic goals.
- **CCS:** a few respondents cited CCS as an area where Government has provided insufficient clarity on how it intends to support the industry following its cancellation of the CCS Commercialisation Programme. One respondent cited the CCC's 2018 assessment the cancellation of programmes such as the CCS Commercialisation Programme have "led to uncertainty, which carries a real cost."
- **Network charging**: several respondents cited energy network charging policy as an area where a piecemeal approach has been taken that is not in line with decarbonisation objectives.
- **Renewable incentives:** respondents suggested that the withdrawal of subsidies for onshore wind and solar without a plan for replacement incentives has led to a boom and bust investment cycle with limited clarity on the continued role of these technologies in the generation mix.

Common features driving the lack of clarity over strategic goals cited by respondents have included the lack of cross-sector alignment over objectives, the proliferation of statutory duties, and ambiguity over reconciling competing objectives (particularly decarbonisation and affordability). Several respondents highlighted the need for a long-term, durable and cross-sector policy framework for decarbonisation to help address these obstacles.

Water

Several respondents welcomed the SPS framework as a means of Government providing clarity over policy and strategic goals for the sector. However, concerns were raised by some respondents about the level of alignment between the objectives of the relevant departments and regulators (Defra, Treasury, Environment Agency, Drinking Water Inspectorate and Ofwat). One example cited of this lack of alignment was the conflicting approaches and incentives to target setting for pollution incidents between the EA and Ofwat. Several respondents also noted that the primacy of EU legislative compliance also negatively affected the clarity of UK policy objectives by diverting cost-beneficial investment away from other goals.

One respondent noted a lack of clarity over the prioritisation and pacing of improvements in water sector, except where specific legislative deadlines exist, such as the Urban Waste Water Treatment Directive.

One respondent expressed concern that Ofwat's strategic focus has become one of cost-minimisation over delivering the government's long-term goals. They cited Ofwat's reliance on top-down econometric models to set the level of investment as leading to insufficient capital maintenance.

Ofwat's investor study was cited that investors value regulatory stability and regulator independence. This was claimed as evidence by a respondent that government intervention in the sector outside of the SPS framework weakens investor confidence in regulatory independence, which can have a knock-on effect on investment and cost of capital.

One respondent cited a lack of clarity in government objectives over reducing customer demand for water following the removal of codes associated with water efficiency from building regulations. The respondent also noted that lack of clarity over long-term targets for water consumption have limited progress in the area of water labelling.

Telecoms

Most respondents welcomed the clarity provided by the SPS, which sets goals for the rollout of full fibre by 2033, noting that the telecoms sector has been late to benefit from a strategic set of priorities from Government and that the SPS provides a means for Government, Parliament and others to hold the sector to account. However, some respondents expressed concerns about how fibre goals could be met, including whether Ofcom's end-to-end infrastructure competition model was capable of delivering this programme.

One respondent raised concerns that whereas Ofcom used to produce broad and forward-looking strategies (including the Spectrum Framework Review), they are increasingly carrying out reviews focused on more specific issues and making regulatory decisions in isolation of the wider context. An example cited was the piecemeal release of spectrum in the 3.4-4.2GHz band.

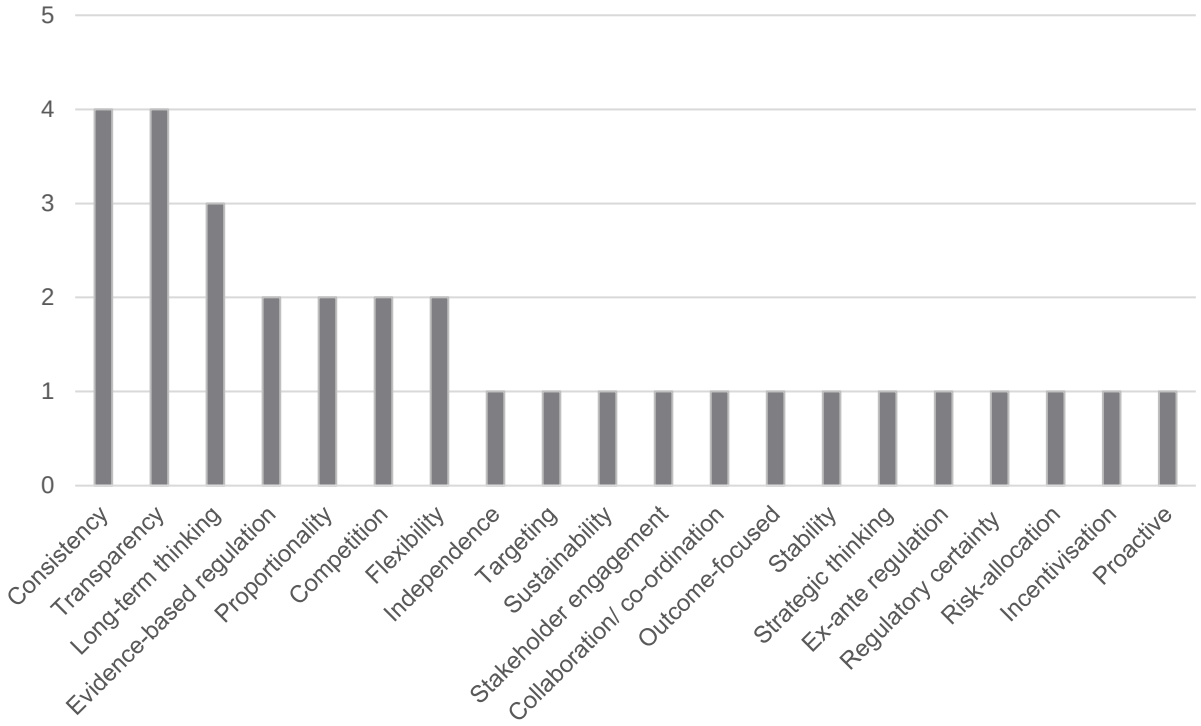
5.4 Question 14:

Are the government's principles for economic regulation – accountability, focus, predictability, coherence, adaptability and efficiency – fit for purpose; and if not, how should they change?

There were 35 respondents to this question. A significant majority of respondents expressed support for the stated principles as being fit for purpose, and most respondents expressed support for moving from a prescriptive rules-based regulatory framework to a more principles-based framework.

There was a mix of views on whether amendments should be made to the existing principles. A significant number of respondents argued that the existing principles should not be amended. However, several respondents suggested the addition of principles, such as transparency, stability, being proactive and strategic in responding to infrastructure requirements, having sustainability as a principle, and setting appropriate allocation of risk and incentives. There were also suggestions to align the existing principles with the 2006 Better Regulation principles, such as proportionality, targeting and evidence-based regulation and to require regulators to have regard to principles of best regulatory practice.

Figure 5: Additional principles suggested by number of respondents



Most respondents identified challenges around the practical application of the principles to economic regulation. Several respondents noted that there are likely to be trade-offs between principles and that guidance was needed on how these will be assessed. A number of examples were given where regulatory decisions did not appear to align with regulatory decisions (set out in the sector themes below).

Several respondents also noted that government needs to state how regulators will be assessed on how effectively they are applying these principles, and that this guidance should be transparent and public. Several respondents also noted that bodies such as the NAO, NIC and Public Accounts Committee should be scrutinising the application of these principles in economic regulation, and that this would be facilitated by regulators being clearer on the priorities they are trying to deliver. Several respondents also noted that there needs to be an effective system of checks and balances, including the ability of parties to appeal decisions

that have not been taken in line with the principles to independent expert appeal bodies – although they believed this needed to be balanced against the risk of long delays in the decision-making process. Without measures in place to ensure compliance with the principles, several respondents expressed scepticism around the relevance and impact of the principles.

Energy

One respondent noted that it would be beneficial to consider the application of the principles in the context of energy sector policy statements, including the industrial strategy, low carbon plan and the upcoming energy white paper.

A few respondents noted the importance of network investment to be proactive and make anticipatory investments, for instance to deliver the network charging infrastructure to facilitate the rollout of EVs. One respondent noted this should be considered in the application of the "coherence" principle, while another respondent thought that specific principles should be added to make this clear (i.e. proactive planning, strategic thinking)

One respondent noted that the increased complexity and prescriptiveness of the regulatory framework in the energy sector was conflicting with the principle of adaptability. This was seen as inconsistent with, or supportive of, the rapid growth of smaller organisations with non-traditional business models using technology to deliver consumer-targeted outcomes in a more efficient, sustainable and flexible way than incumbent providers.

One respondent cited the principles they considered should be applied in respect to the RIIO-2 framework, including allocating risks to the parties best able to handle them, incentivising innovation and efficiency, promoting true (rather than proxy) competition across the full value chain where it will drive consumer value, setting allowances, incentive targets and outputs on an ex ante basis to better incentivise performance, building in ex-ante mechanisms to allow flexibility, and avoiding windfall gains and losses.

One respondent suggested a range of other criteria for assessing regulatory decisions, including whether options are public-interest outcome focused, fair, transparent and accountable, anticipatory, risk-based, collaborative, agile, consistent and enabling.

Water

Several respondents called for regulators to be held more accountable for decisions taken – including for regulators to have to report to Parliament on the progress they have made with achieving the Government's priorities for the sector. One respondent called for greater clarification to be provided of the role of all three water regulators.

One respondent called for updating some of the principles to reflect the different context since these principles were developed in 2011. Principles suggested were for economic regulation to be outcomes-focused, collaborative (including across sector lines), and long term.

One respondent expressed concern that the current principles do not promote long-term thinking, and that this could be better addressed by a provision for setting out the future requirements that will be expected of the industry and applying legacy test to ensure the customers of today pay for what they consume, and don't leave a mounting debt and greater risk to services for tomorrow's customers.

Telecoms

One respondent noted that regulatory accountability and predictability will become increasingly important in the context of Brexit as regulators take on a wider and more complex role and the risk of regulatory overlap increases.

One respondent noted that regulatory certainty, rather than predictability, should be held as the gold standard for decision-making. Another respondent noted that there should be a more explicit commitment to evidence-based decision-making.

One respondent considered that the principal role of government and the regulator must be to promote effective competition to help deliver benefits for consumers, businesses and society as a whole. They thought that in some instances, this will mean reducing the regulatory burden on businesses, while in other cases, more robust intervention will be needed to ensure appropriate access to existing infrastructure and to avoid over-dominance by any one particular provider. A one-size-fits all approach to regulation was considered inappropriate in the telecommunications market.

A few respondents noted the importance of predictability in the telecoms sector, particularly given the scale of investment required in fibre roll-out and the pay-back periods for investor businesses cases.

5.5 Question 15:

The National Infrastructure Assessment (https://www.nic.org.uk/ publications/national-infrastructure-assessment-2018/) outlined a number of changes and challenges in infrastructure to 2050 (eg the move to fibre in telecoms, decarbonisation in energy and the need for long term resilience in the water sector). How might the scope, functions or activities of economic regulators need to adapt in light of future challenges?

There were 46 respondents who answered this question. They provided a wide range of views on ways in which regulators can act in future to support public trust in the regulatory system for water, energy and telecoms. These have been summarised below in terms of key themes – noting that many of the responses received were relevant across the different sectors. The most common themes raised were for regulators to clearly state their key consumer objectives, provide greater transparency in their decision-making and communicate how they have dealt with tradeoffs between objectives.

Several respondents also called for the regulator to take a greater role in championing the benefits of independent economic regulation to the public and for more mechanisms for regulators to have their decisions scrutinised and challenged.

Several respondents noted the balance that regulators must strike in setting allowed returns and performance targets within price controls – set too generously and they will erode public trust, whereas set too ambitiously and they will be setting up utilities to fail and compromising the long-term interests of consumers.

Transparency and communication
Most respondents stated that greater transparency by the regulator would support public trust in the regulatory system, and that this transparency would include being clearer on their intended consumer outcomes and how they will measure and report on their performance.

One respondent argued that the regulator should make clear which areas of regulation are non-negotiable and which are more flexible and provide mechanisms for these areas to be addressed.

One respondent advocated regulators should follow an evidence-based decision-making process, including meaningful consultation with all interested stakeholders.

The use of natural capital accounting in the water sector was identified by one respondent as potentially beneficial for valuing regulated services and building public trust.

Regulatory independence and investor confidence
Several respondents argued that the regulator should avoid short-term knee-jerk interventions in response to political pressure in order to maintain investor confidence in regulatory independence. Similarly, respondents noted the importance of Government not applying undue pressure on regulators.

Several respondents also called for the regulator to take an active role in defending how the regulatory system works, championing the principles of independent regulation, and challenging misrepresentations in the media. A few respondents noted that most of Ofgem's public communications are highlighting instances of failures by industry and rarely celebrate successes.

One respondent noted that the regulator needs to act quickly to close loopholes and stop free-riding once identified to avoid incidents where the public loses faith in the effectiveness of regulation.

Adopting best practice and promoting innovation
A few respondents advocated regulators taking a more proactive role in identifying encouraging the uptake of best practice and providing support to innovators.

One respondent called for greater use of regulatory Sandboxes and Living Labs to develop customer-friendly proposals that will enable more radical innovation and consumer confidence.

Stakeholder engagement and customer protection
Several respondents noted the importance of stakeholder and customer engagement by the regulator to build public trust in the regulatory system.

One respondent noted that in the energy sector, people should be engaged not just as consumers but as citizens (for instance involved in planning processes) and energy service providers (for instance potentially offering demand response and autogeneration). Enabling of personalised services (rather than existing generic customer tariffs) would help engage citizens in the energy sector.

The #tappedin campaign in the water sector was welcomed by one respondent as a good example of Ofwat's increased focus on customer engagement in PR19.

Regulatory accountability
Several respondents restated their calls for greater mechanisms for holding regulators to account. These include mechanisms for parties to appeal regulatory decisions on merits to independent expert bodies, and a greater role for the NAO, NIC, Public Accounts Committee (PAC) and other public bodies to scrutinise the effectiveness of regulatory actions.

One respondent called for the creation of new bodies in the energy sector to hold regulators to account, including a market monitor, consumer protection regulator, an energy data body and a data regulator.

One respondent noted the importance of greater clarity on the roles of government departments and regulatory bodies in setting the regulatory framework.

A few respondents noted the importance of regulators acting collaboratively across sectors.

Strategy
Several respondents from each sector called for a more long-term framework for strategy and regulatory decisions. In the water sector, Defra's 25-year strategy for the water sector was highlighted by one respondent as a good example of this. Some respondents called for more long-term regulatory planning by enabling enhancement expenditure over multiple price control periods.

For some respondents in the water and energy sector, criticism of short-termism by regulators was in part motivated by concern that returns were being set too low for upcoming price control periods in the water sector and that unobtainable performance targets were being set. However, one water-sector respondent noted that customer perceptions of value for money were the key driver of public trust in the regulatory system and therefore discouraged the regulator from being overly generous in cost of capital allowances.

A few respondents called on regulators to take a more long-term and proactive approach to regulation, including through independent assessments of investment requirements out to 2050 and enabling proactive action (including anticipatory investment) to facilitate least-cost transition to a decarbonised economy.

A few respondents advocated a shift in regulatory focus from promoting competition as a proxy for consumer benefits to actions and innovations that genuinely benefit consumers.

One respondent said that Ofgem must act in line with the Government's own ambitions to improve the environment within a generation, as outlined in the 25 Year Environment Plan, noting that an environmentally responsible regulator is needed to grow and support public trust in the regulatory system for energy.

A few respondents in the telecoms sector noted Ofcom is generally a well-regarded regulator by stakeholders. However, they suggested that customer trust in Ofcom's role will depend on the perceived achievement of beneficial customer outcomes (particularly the timeliness of fibre and 5G deployment) as well as whether the public holds Ofcom rather than the government responsible for delays to their deployment.

Appendix A: Glossary

ACER	Agency for the Cooperation of Energy Regulators
ARPU	Average Revenue Per User
CCC	Committee on Climate Change
CCC	Competition and Markets Authority
CCS	CCS
CD	Contracts for Difference
CERT	Carbon Emissions Reduction Target
CESP	Community Energy Savings Programme
DFTG	Digital Framework Task Group
DSO	Distribution System Operators
ECO	Energy Company Obligation
EV	Electric Vehicles
FCA	Financial Conduct Authority
FTTC	Fibre To The Cabinet
FTTP	Fibre To The Premises
ICO	Information Commissioner's Office
IFIIFI	Innovation Funding Incentive (IFI)
LAEP	Local Area Energy Planning
LCNF	Low Carbon Network Fund
LCNF	Low Carbon Networks Fund
NIA	Network Innovation Allowance
NIA	Network Innovation Allowance
NIC	National Infrastructure Commission
NNN	New Appointments and Variations
NNN	Notices of Insufficient Margin
OFTO	Offshore Transmission Owner
OLEV	Office of Low Emission Vehicles
OOO	Oil and Gas Authority
PAC	Public Accounts Committee
PSR	Priority Services Register
RAV	Regulated Asset Value
REV	Reforming Energy Vision
RPE	Retail Price Effects
SPS	Strategic Policy Statement
SSS	Supplier of Last Resort
UKRN	UK Regulators Network

Appendix B: List of respondents

We present a list of 77 respondents, which excludes 6 confidential responses and one response from an individual

Association for Decentralised Energy
Albion Water
Anglian Water
Arup
Bristol Water
Broadband Stakeholder Group
BSI
BT
Carbon Capture and Storage association
CECA
Centre for competition policy
Centrica
Citizens Advice
CityFibre Holdings Ltd
Consumer Council for Water
DRAX
Economic Insight
EDF
EDP Renewables
Elexon
Energy Capital
Energy Networks Association
Energy Systems Catapult
Energy UK
EON
Exeter Energy Policy Group
Faraday Grid
Gamma
Gemserv
Global Infrastructure Investor Association
Green Alliance
InfraRed Capital Partners
The Infrastructure Forum
Innogy
Joint Radio Company
Morrison and Co
National Grid
National Grid ESO
National Grid Ventures
Northern Powergrid
Northumbrian Water
npower
Ofwat
Ombudsman Services
Ordance Survey
Ørsted
RenewableUK
Royal Town Planning Institute
RWE
Scottish Carbon Capture and Storage
Scottish Power
Scottish Renewables
Severn Trent
Smartest Energy
Southern Water
SP Energy Networks
SSE
Storelectric
Storengy
Sustainability First
Tech UK
Tideway
UK Power Networks
UK Regulators network
United Utilities
USS
uSwitch
Utility Week
Vattenfall
Virgin Media
Vodafone
Water Resources South East
Water UK
Welsh Government
Wessex Water
Wildlife Trusts
Worcestershire County Council