



# STRATEGIC INVESTMENT AND PUBLIC CONFIDENCE

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NATIONAL  
INFRASTRUCTURE  
COMMISSION

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# Foreword

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Good infrastructure needs effective regulation. The services we receive from water, energy and telecoms companies, and the bills we pay, depend on it. Regulators set targets for providers, determine new investments they should make and protect consumers' interests.

The current system has yielded unprecedented and much-needed investment in the utilities we all rely on, with improved outcomes for the public in recent years. But it was designed for different times. The world is changing and the consequences for our regulatory landscape will be significant in the coming decades.

Last year's National Infrastructure Assessment envisioned how different the future must look. To reduce our carbon emissions, we need to use clean alternatives for producing energy, heating our homes and powering our cars. With the UK having now adopted an ambitious target to reach net zero by 2050, urgent progress must be made towards this transition. We also need to build resilience against the effects of climate change, which will continue to make floods and drought more likely. And we need to prepare for every aspect of society to become increasingly digitalised and connected.

Regulation will need to step up to these challenges and facilitate the changes they require, within a long-term strategic context. Regulators must be empowered to support the low carbon revolution, and safeguard the security and reliability of our mobile and broadband supply. Delivering such innovative infrastructure could mean opening up these typically hard to enter markets to new players and ideas.

The scale of this strategic investment will place unfamiliar demands on the regulatory system and it will have to respond in ways it has never had to before. This won't require a fundamental change in approach, but it will need adaptation. While the investor voice is important, ultimately it will be bill payers who fund this transformation. Regulation must ensure that consumers are getting a good deal, and that all of them – including the most vulnerable – can access these services at a reasonable price. Investors will also benefit from a regulatory system that the public and politicians can believe in, which can provide predictable regulation insulated from political cycles.

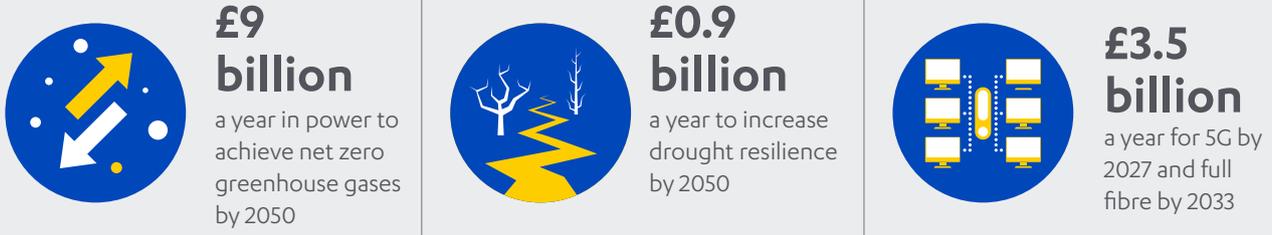
Updating our system of regulation is overdue and necessary. This report aims to spark a much-needed conversation between regulators and the government, investors, suppliers and the public about how we will move forward. We can't afford to get this one wrong.



**Sir John Armitt**  
**Chair, National Infrastructure Commission**

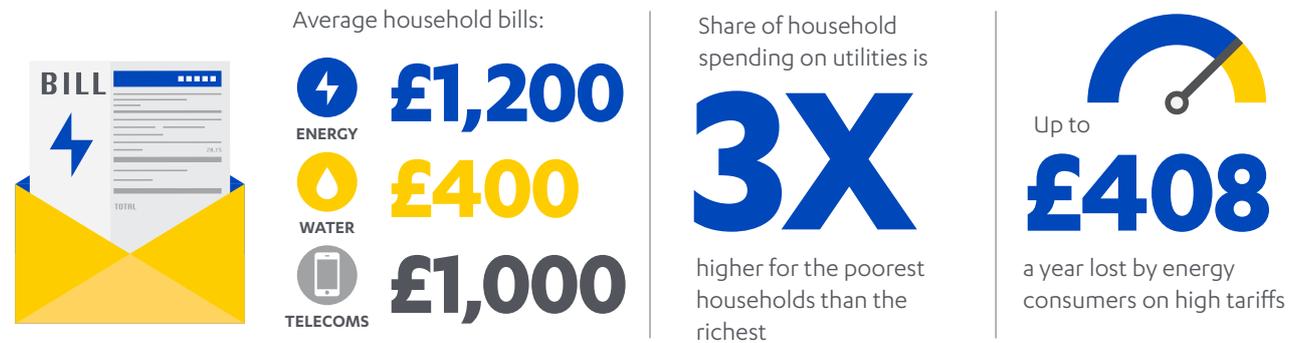
# REGULATION NEEDS TO ADAPT TO NEW CHALLENGES

## SIGNIFICANT ADDITIONAL INVESTMENT IS NEEDED IN ENERGY, WATER AND TELECOMS



## REGULATION MUST SUPPORT PUBLIC CONFIDENCE

Regulation needs to work better for consumers to support predictable regulation for investors



## SOCIAL RESEARCH FOUND



## THE COMMISSION RECOMMENDS

### FACILITATING STRATEGIC INVESTMENT:

- 1 Set strategic frameworks for investment
- 2 Give devolved government its say
- 3 Create duties on net zero and resilience
- 4 Increase competition to drive innovation

### BUILDING PUBLIC CONFIDENCE:

- 5 Balance risk and reward for investors and consumers
- 6 Tackle unfair pricing
- 7 Enable regulation to address fairness
- 8 Improve regulatory coordination

Sources: BritainThinks; ONS; Committee on Climate Change; analysis for the Commission by Infrastructure Transitions Research Consortium, Regulatory Economics Ltd, Prism and Tactis; Ofgem; Ofcom; Water UK; DCMS; Commission calculations

# In brief

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**The UK’s model of regulation for energy, water and telecoms must be updated to meet the coming challenges of achieving net zero, adapting to changing weather patterns, and increasing digitalisation. The regulatory system must facilitate investment in a strategic way to address these challenges effectively. And public and political confidence in the regulatory system must be improved.**

The current system of regulation does not need to be completely reconfigured. But it was not designed to meet the coming challenges, including: achieving net zero greenhouse gas emissions; increasing water resilience; providing 5G coverage; and delivering full fibre networks. To facilitate this long-term strategic investment, an updated and strengthened regulatory system should:

- provide a strategic framework to deliver the UK’s long-term investment needs
- make investment decisions reflecting the priorities of the whole of the UK
- have statutory duties that support long-term investment
- use competition to drive innovation.

The high levels of investment required in future will ultimately be funded by consumers, so they must have confidence that: their money is being spent on the right things; consumers, especially those in vulnerable circumstances, are not being exploited; and consumers are sharing the benefits of regulation with investors. Investors benefit from a regulatory system with high public and political confidence, as it has a lower risk of political intervention and provides predictable regulation. An updated and strengthened regulatory system should therefore:

- balance risk and reward between investors and consumers
- ensure retail markets work for consumers
- ensure regulation acts fairly for all groups of consumers
- improve coordination between the regulators.

Individual regulators have already made some steps in this direction. But these changes should be implemented across Ofgem, Ofwat and Ofcom. All these recommendations are designed to be long term and should not impact price reviews already underway.

# Executive summary

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The UK's model of regulation for energy, water and telecoms has generated significant investment over the past decades. But it is increasingly facing new challenges that it was not designed to address. Regulators, industry and government must now adapt to face the coming challenges of achieving net zero, adapting to changing weather patterns, and increasing digitalisation. The system must be strengthened and updated, and public and political confidence in it must be improved.

The current regulatory system has generated investment and improved performance. But the system was not set up to provide strategic direction for investment to tackle issues such as achieving net zero greenhouse gas emissions by 2050, transitioning to full fibre digital networks, and managing the increasing risks of floods and drought. Nor does the system always protect consumers where the market is not working in their favour. And since the high levels of investment required in future will ultimately be recovered from consumers, it is important that consumers have confidence that their money is being spent on the long-term strategic investments that will benefit them. Public confidence in the system must be improved to enable long-term certainty for investors and promote investment.

The Commission does not believe wholesale change would deliver better outcomes than strengthening the existing model. The whole system does not need to be redesigned. But it needs to be updated to achieve a well regulated market economy which can respond to the coming challenges.

The Commission has identified recommendations to strengthen and update the UK's model of regulation for energy, water and telecoms, and achieve the stability and consensus needed to enable the sectors' long-term transformation:

- 1 Facilitating strategic investment:
  - 1.1 Meeting the country's long-term needs
  - 1.2 Investment decisions reflecting the priorities of the whole of the UK
  - 1.3 Updating the regulators' duties to support long-term investment
  - 1.4 Increased use of competition to drive innovation

## 2 Building public confidence:

### 2.1 Balancing risk and reward between investors and consumers

### 2.2 Making retail markets work for consumers

### 2.3 Ensuring regulation acts fairly

### 2.4 Improved coordination of the regulators

## Background

In October 2018, the government asked the Commission to conduct a study into the regulation of the UK's energy, telecoms and water industries, to ensure the necessary levels of investment, competition and innovation whilst keeping these critical services affordable for everyone. The Commission was asked to assess what changes might be necessary to the existing regulatory framework to facilitate future investment needs, promote greater competition and increase innovation, and meet the needs of both current and future consumers. The Terms of Reference for this study preclude options which “have significant impact on the public balance sheet.” The Commission has therefore not considered the case for or against public ownership, however many of the issues in this report would also be relevant with a publicly owned system. The full terms of reference for this study can be found at [nic.org.uk/our-work/regulation](https://www.nic.org.uk/our-work/regulation). Throughout this report we use the term ‘the regulators’ to refer to Ofgem, Ofwat and Ofcom, the three economic regulators of the sectors this study covers.

The Commission's National Infrastructure Assessment (the Assessment), published in July 2018, identified the major strategic challenges in these sectors: energy and transport will need to be decarbonised; the speed, capacity and reliability of telecoms infrastructure will all need to increase as demand for data grows; and drought will become more common, putting pressure on the UK's water infrastructure. The government is developing a National Infrastructure Strategy in response to the Assessment. And since the Assessment was published, the government has agreed a net zero target for greenhouse gas emissions by 2050.

The current regulatory system has mostly achieved what it set out to do. Independent regulators balance the needs of infrastructure owners and consumers. The regulators set forward looking price regulation for certain products and services to incentivise efficient outcomes. Over the last thirty years, this regulatory system has delivered the high and stable investment it was designed to achieve, improved performance, and provided stability and predictability for investors.

However, the regulatory system has not adequately addressed societal interests: it needs to work more effectively to achieve net zero greenhouse gas emissions by 2050, transition to full-fibre digital networks, and manage the increasing risks of floods and drought. To achieve the transformational change required, public and political confidence in the system must be improved, to provide greater stability and certainty for investors. It is vital that the right conditions are in place to ensure government, regulators and industry can respond as effectively as possible to these challenges.

The regulatory system does not need to be changed in its entirety. But this report does suggest some major shifts in perspective:

- Regulatory independence should be maintained, and government should better fulfil its role to set strategic policy direction and to provide guidance to the regulators, if requested, on choices about how the impacts of regulation will affect different groups of consumers
- All the regulators must have duties to enable them to more consistently consider vital, long-term factors such as resilience and environmental impact, which cannot be left completely to the market, alongside price and quality
- The aim should not be to have as little regulation as possible
- Most major strategic investments should be removed from the price control processes, where appropriate, and opened to competition to support innovation
- The regulatory system needs to work better for the public, and particularly for consumers, if the benefits of independent, predictable regulation are to be maintained for investors. Consumers need to have confidence that their money is being spent on long-term strategic investments that will benefit them.

Individual regulators have already taken some steps in this direction. But these changes need to be implemented across the board. This report also sets out a range of more incremental changes, such as improving the coordination of the regulators, alongside these bigger shifts. In some cases, there is a strong case for legislation to be made to deliver these changes. Regulators may need to be given additional powers and resources to enable some changes to take place; government should identify the detailed legal changes needed. Investors benefit from a regulatory system with high public and political confidence, as it has a lower risk of political intervention and provides predictable regulation. All recommendations are designed to be long-term and should not impact price reviews that are already underway.

## 1. Facilitating strategic investment

When the regulatory system was originally conceived, the role of regulators was intended to be narrowly focussed on promoting competition and price setting where market power was identified (to protect consumers, enable companies to make profits through efficiency savings, and provide predictability to investors). The energy, water and telecoms sectors all provide essential services and have large fixed costs (and energy and water are both natural monopolies). These characteristics meant a regulator was required, at least initially, to introduce competition and protect consumers against high prices. The assumption was that once the markets were functioning well the regulators would gradually need to have less and less input.

This system has effectively generated investment and improved performance. Together these sectors account for around four per cent of the UK's GDP, but over 13 per cent of total UK private sector investment. The predictability of the price control process and the current independent regulatory system has enabled this stable and efficient large-scale investment in infrastructure. This is an achievement. For example, investment in the water sector in the 1990s rose 80 per cent from the level of the 1980s, to meet the requirements of new environmental regulations, and these investment levels have been sustained since.<sup>1</sup>

## 1.1 Meeting the country's long-term needs

In the water sector, water and sewerage networks must respond to the increasing pressures of more frequent floods and droughts, as well as a growing population; £930 million on average each year will be required between 2020 and 2050 to increase drought resilience. In the telecoms sector, digital networks must respond to the increased demand for data and must migrate from copper to fibre; an additional £1.3 billion each year is needed to provide 5G coverage to most of the country by 2027, and an additional £2.2 billion each year is needed to deliver full fibre networks by 2033. Electricity and gas networks must reduce their greenhouse gas emissions to meet the government's legislated climate commitments of achieving net zero greenhouse gas emissions by 2050, including by accommodating: variable renewable generation technologies; substantial new sources of electricity demand from electric vehicles and, potentially, heat; and eliminating the use of natural gas in homes and offices. This is expected to require £20 billion of investment a year in the power sector until 2050, £9 billion more than current annual investment.

The current system leaves strategy primarily to infrastructure owners and providers. But they may not be best placed to assess the coming challenges, and they do not have the right incentives to build the right infrastructure to address them. The current regulatory process for monopoly providers in the energy and water sectors incentivises infrastructure owners to propose new investment to maximise their regulated asset base (see box 3), the costs of which are recovered over time from consumers. The regulators decide whether these investments can go ahead, protecting consumers from unnecessary costs. This requires regulators to be sceptical towards new investment proposals, the benefits of which are often difficult to prove against cheaper, short-term solutions. And there is a potential risk of building unnecessary infrastructure which the consumer will ultimately pay for. There are some good examples of the system delivering strategic, long-term investment, however in general the system is not designed to deliver this. A more strategic approach would help tackle the coming challenges and provide investors with greater clarity on the opportunities available.

Regulators should be empowered to approve long-term, high quality, strategic investments in infrastructure, but government also has a role in providing strategic leadership. The government can: consider the long-term needs of the public alongside the needs of consumers, for example on climate change; make collective choices such as deciding the acceptable level of flood risk; and take strategic decisions to be an early mover in new technologies that come with a certain level of risk.

Although government can find these aspects of its role difficult, the Commission was set up to provide impartial, expert advice to government on these strategic, long-term decisions. It issues a National Infrastructure Assessment once a Parliament setting out recommendations for government on long-term infrastructure strategy. The government have committed to endorse or reject these recommendations within six months, and certainly within a year. Regulators should have regard to endorsed recommendations from the Commission. And the government should also issue strategic policy statements to the regulators within the first year of every Parliament, building on the recommendations of the most recent National Infrastructure Assessment, and setting a clear strategic direction to help guide their prioritisation of investment.<sup>2</sup>

**Recommendation 1: Forward looking regulation, by independent regulators, remains the best approach to balancing the needs of consumers and investors, whilst incentivising efficiency. However, this should be embedded in a clearer strategic framework for the long-term investment needs of the country:**

- The government should introduce legislation by 2021 to fulfil its previous proposal that regulators have regard to endorsed recommendations from the Commission
- The government should set out a long-term strategic vision for each of the regulated sectors, through strategic policy statements, within the first year of each Parliament, to support lasting plans and stable funding.

## 1.2 Investment decisions reflecting the priorities of the whole of the UK

The process for making long-term strategic investment decisions needs to reflect the changing decision-making landscape, and the varying needs of consumers, across the UK. Devolution to Scotland, Wales and Northern Ireland, and to city regions within England, has implications for the regulatory system.

Where powers for energy, water and telecoms are devolved and there is not a separate regulator for the nation, the regulators should look to the devolved administration for strategic direction.<sup>3</sup>

Some decisions taken by the devolved administrations will interact with reserved matters. Formal mechanisms should be put in place with the devolved administrations to enable them to influence the regulator and central government on the long-term investment strategies that will interact with matters that are devolved. Robust and transparent engagement mechanisms should also be put in place with metro mayors and local authorities to understand their priorities where they have material interactions with these three sectors.

For certain issues, the regulators look to government to represent the public. The UK government has typically represented the public to the regulators in these scenarios. But devolution has changed how government works. With increased devolution, the relationship between regulators and government cannot be assumed to be solely with central government, and nor can they assume that the public's preferences are the same in every part of the country. The regulators should look to engage with consumers' views, both directly and through utility companies, consumer advocate groups, and elected representatives.

However, while these mechanisms should ensure effective consideration of perspectives from all parts of the UK, this does not mean there is a case for more ambitious policy or investment priorities in one area to be cross subsidised by another area.

**Recommendation 2: Regulatory frameworks should reflect the devolution of powers within the UK:**

- Ahead of the next price controls, regulators should put in place formal mechanisms, such as advisory committees, to ensure they have regard to the strategic vision set out by devolved administrations, where devolved and reserved powers interact
- In future price controls, regulators should demonstrate how they have taken consideration of the strategic vision of metro mayors and relevant local government, within devolved powers, where this has material impacts for network investment
- Regardless of specific devolved powers, regulators should engage with the views of elected representatives, alongside other sources of insight into consumers and the public's preferences.

**1.3 Updating the regulators' duties to support long-term investment**

Government provides guidance to the regulators through three main channels: the government better regulation framework; strategic policy statements; and statutory duties. Duties are set for the regulators through legislation and are the most important of these; they are the primary basis around which the regulators base their decisions. Regulators originally focussed predominantly on setting prices, although some wider issues, such as protecting vulnerable consumers or ensuring security of supply in energy, were added to regulators' roles from the outset. Elsewhere, regulators have had to try to balance real world factors such as climate change against duties that do not always cover these important areas. As a result, the default is for regulators to be sceptical of new investment, and so addressing long-term challenges such as climate change is insufficiently prioritised.

The regulators' duties vary considerably. They do not have consistent duties on resilience or security of supply, or sustainable development. And none of the regulators have a direct duty to consider the government's long-term policy commitment of achieving net zero greenhouse gases by 2050.

Regulators should have an updated set of duties to ensure stable and predictable regulation over the long term which meets the needs of consumers and the general public. Strengthening and updating each regulator's duties to enable them to consider the environment, quality and resilience alongside price would ensure that regulation is better able to deliver the best results for the public, and particularly consumers, over the long term. Requiring regulators to collaborate would also support performance in all four of these areas and allow them to make choices that might increase costs in their own sector but could reduce costs for consumers as a whole.

**Recommendation 3: Regulators' duties need to be coherent, covering price, quality, resilience and environment. Government should introduce legislation by 2021 ensuring that, where they are currently missing, Ofwat, Ofgem and Ofcom have duties to require them to seek to:**

- Ensure their decisions promote the resilience of infrastructure systems
- Ensure their decisions are consistent with, and promote the achievement of, the government's legislated greenhouse gas emissions targets, currently achieving net zero greenhouse gases by 2050
- Collaborate with other regulators, where relevant, to avoid contradictory regulation and promote efficient outcomes for consumers on cross-sectoral issues.

## 1.4 Increased use of competition to drive innovation

In the coming years there will be a need for major transformation, identified through strategic guidance from government. Since these projects are likely to be novel (e.g. decarbonising heat), it makes sense to open these up to proposals from a wide range of potential providers. Competition incentivises innovation; leaving delivery of these new projects to the incumbent provider will not always deliver the best solution.

Competition is already used to varying degrees in the telecoms, energy and water sectors and has been critical to improving the reliability and quality of service for consumers and keeping prices low. In particular, Ofcom has been able to use competition to drive major strategic investments, such as 5G and full fibre coverage. However, price controls remain the principal mechanism through which many new investments are proposed and decided upon in water and energy networks.

Removing major strategic investments from price control processes, where appropriate, and opening them up for competition will support innovation. While it is possible to incorporate ‘for the market’ competition into the price control process, this has proved cumbersome in practice, and has further complicated the price control process. Medium-term price controls may also not be the appropriate length of time to deliver a major transformational change; ideally an infrastructure provider should be confident of the price structures they will be allowed to use to fund the new piece of infrastructure for at least the time that it takes to deliver this. Separating out strategic investment will provide a wider range of opportunities for potential investors and increase the scope for new investors to enter the market, as well as enabling simpler price controls for incumbent companies.

Competition to build major new infrastructure should be the preferred route, to deliver the most innovative solutions for these transformational projects. Allowing investors and infrastructure providers to bid to deliver the project would also give regulators more information on the real cost of capital. The regulators, or the system operator, should agree a set of criteria for how to determine whether an investment counts as strategic and should be opened to ‘for the market’ competition, and a bespoke price control agreement set. Major projects would then only fall to the incumbent provider where they demonstrably have the best bid, or where integration risks would rule out using competition.

Government should ensure that regulators have enough resources to carry out the competitive processes. Market codes should be updated where necessary to ensure they are clear, up to date, and do not effectively rule out new providers.

**Recommendation 4: The use of competition should be enhanced as the most reliable means of supporting innovation, particularly where there is rapid technological change:**

- Regulators should focus ‘standard’ periodic price controls on the maintenance of existing networks and marginal enhancements
- Ofcom should continue to promote infrastructure competition for fibre and mobile networks
- Government should introduce legislation, ahead of the next price controls, to remove any barriers to the use of competition in the provision of strategic enhancements to water and energy networks
- For future price controls, Ofwat and Ofgem should separate consideration of strategic enhancements from the ‘standard’ periodic price control. Ofwat and Ofgem should develop tendering processes for strategic enhancements, with a clear, public justification required where tendering is not used
- Government should ensure that regulators have the resources they need to carry out competitive tenders for transformational investments.

## 2. Building public confidence

The regulatory model needs to work better for the public, and particularly for consumers. Long-term investors, who bring significant capital and subsequent benefit to the UK market, such as pension funds, value stability and predictability. Investors should receive a fair return on their investments, and be insulated from political cycles by predictable, stable regulation. To ensure the benefits of predictable regulation, it is important that forward looking regulation should not be changed retrospectively.

A model that works better for consumers does not simply mean lower prices; long-term investment will need to be paid for. Since the costs of the required transformational investments will eventually largely be recovered from consumers (some costs may also fall to taxpayers, for example via government subsidy), it is important that consumers have confidence that their money is being spent on the long-term strategic investments that will benefit them, such as improved services or tackling long-term issues such as climate change. While significant investment is needed, creating new opportunities, investors may have to recognise a proportionate rate of return for low risk infrastructure investments in the regulated asset base, returns on which will be recovered from consumers.

The Commission’s social research suggests that public confidence in regulation may not be as low as previously thought. However, there are indications that public confidence in markets is low, and these low levels of public trust in the sectors can create political risk, which may deter investors. There is currently a lack of political consensus around the existing model of ownership and regulation, exactly when there is a need for a transformational programme of investment.

As well as government and regulators, the utility companies have a key role in supporting and rebuilding public trust. An emphasis on public purpose by company boards could be an important contribution to greater public trust.

The UK needs to bolster the effectiveness of the regulatory system to preserve and improve public and political confidence in the system. Regulation must be rebalanced to ensure it is fair to both consumers and investors, and to address company behaviour that is not beneficial to long-term investment. The regulators need to be able to address utility providers who are overcharging their customers much more quickly. Distributional decisions that affect consumers need to be made by government. And the regulators need to be better coordinated and have clear objectives against which their performance can be assessed to improve consumer outcomes.

## **2.1 Balancing risk and reward between investors and consumers**

In future, to achieve public confidence in the regulatory system, there will need to be a rebalancing of the benefits of economic regulation towards the consumer. Whilst there will be significant opportunities for investment in new, strategic infrastructure, investors may have to recognise a proportionate rate of return for low risk infrastructure investments in the regulated asset base. Regulators should actively work to protect the wider interests of consumers and ensure the benefits of companies' activities are shared with billpayers.

Regulators seek to ensure that, where these are used, the weighted average cost of capital set for companies' regulated asset base and allowed total expenditures for activities such as maintenance and enhancement of the network are set at a level that is fair to investors and consumers. There are concerns about the potential for companies to overestimate the costs they provide to regulators to increase their profits over price control periods, leading to the weighted average cost of capital or allowed total expenditures being set at a higher level than appropriate. Regulators face asymmetries in the information they have; companies have a better understanding of their costs and the context in which they operate than the regulator.

The regulatory system was designed so that companies would have to reveal their information advantage in order to benefit from it, so that the benefits could be eliminated over time. However, the true cost of capital is never fully revealed, whilst with rapid technological change new information asymmetries can arise faster than regulators can offset them with the traditional approach. In future price controls, regulators should therefore seek to take direct account of the fact that their best estimate of costs, based on the information available to them, is likely to be biased in the interests of the companies, and 'aim off' for this effect. If regulators overlook these asymmetries, they cannot regulate efficiently to reduce costs for consumers.<sup>4</sup>

There have also been concerns raised about high debt to equity ratios ("gearing levels") in natural monopoly companies. There are benefits to having high gearing levels, especially when debt is cheap; the debt can finance investment that benefits consumers, without significant increases in bills. However, high gearing levels increase the risk of company failure, and this risk falls in part to consumers.

Where the perceived risk of company failure is high, there is a risk that regulators may, even unconsciously, become lenient on highly geared companies during price determinations, increasing their settlement. Regulators should ensure that where gearing levels are high, benefits from financing outperformance are also shared with consumers. This is already happening in the water sector: Ofwat's 2019 price review methodology will require companies to set out proposals to share outperformance benefits with customers where companies have gearing levels higher than 70 per cent.

High gearing levels also represent a risk if the companies fail. Company failure would be managed through the Special Administration scheme, and the costs would fall in part to consumers. To alleviate the risk of company failure and protect consumers, regulators should also evaluate the case for constraining levels of gearing.

Remuneration levels should be linked to performance. Executive remuneration is still a cause for concern as remuneration packages do not always appear to sufficiently reflect consumer satisfaction. Consumers' satisfaction levels are lower in the utilities sectors than other retail sectors, customer service can be poor, and public interests are not being fully considered.

**Recommendation 5: Regulators should be more proactive in addressing financial risk and corporate governance, to ensure that rewards reflect performance and risks that are genuinely taken by investors:**

- In future price controls, regulators should take direct account of information asymmetries in assessing the weighted average cost of capital and total expenditure allowances, 'aiming off' to ensure a fair outcome for consumers and investors
- In future price controls, regulators should introduce outperformance sharing mechanisms to allow consumers to share in the benefits that equity investors achieve from high gearing, where companies have gearing levels which significantly exceed the level assumed by the regulators
- For natural monopoly companies, regulators should evaluate the case for an absolute cap on gearing
- For firms with a natural monopoly, regulators should ensure executive salaries are demonstrably linked to long-term performance for consumers and the public.

## 2.2 Making retail markets work for consumers

The regulatory system has come under challenge over the lack of protection for customers. The benefits of markets need to be rebalanced towards consumers, particularly in the retail energy market, which has faced criticism for the lack of protection for vulnerable consumers, the difficulty of switching providers, the lack of readily available information about the different tariffs, and 'loyal' customers getting stuck on high tariffs.

Retail energy companies compete on an ongoing basis to provide services to individual customers. In theory, companies should compete on quality and price, and be rewarded by the market for doing this well. But all customers are being sold the same product, so consumers tend to stick with their energy provider rather than shop around purely to get a lower price: only around 20 per cent of energy consumers switch providers annually, and 27 per cent have never switched.<sup>5</sup> Companies seem to rely on this consumer disengagement, charging different customers different prices ("price discrimination"), however this does not always appear to provide an overall benefit to consumers. This means many consumers stay in contracts that are not giving them the best deal. Although this is primarily seen in the energy market, there has been a loss of public trust and political confidence in the system across the utilities. This risks further political intervention, undermining the predictable regulatory environment that benefits investors. There is no reason why it should be up to the consumer to do extra work to avoid being exploited, with consumers in vulnerable circumstances often the hardest hit.<sup>6</sup> Markets should be structured to avoid this in the first place.

The practice of price discrimination must be much more transparent. In some cases, price discrimination can provide benefits to consumers and companies, for example consumers getting lower introductory rates to encourage them to switch providers. However, companies must make it clear where and how they are using price discrimination; if they are using price discrimination, they should be able to justify that it is providing an overall benefit to consumers, rather than exploiting them. Such an assessment needs to reflect actual consumer behaviour and not theoretical assumptions about how consumers should behave.

Regulators should be given clear powers to swiftly constrain companies' abilities to charge different customers different prices where this cannot be demonstrated to provide an overall benefit to consumers. At present, the regulators' ability to take action under the current court-based consumer enforcement regime is considered to be ineffective, arduous and time consuming. Changing the regulators' remit to enable an administrative compliance and enforcement model for consumer protection would strengthen their ability to address consumer detriment.

**Recommendation 6: Regulators should be able to prevent companies from engaging in price discrimination that does not provide an overall benefit to consumers:**

- **Regulators should require companies to report annually on which groups of customers are paying more for the same service; companies should be required to publicly justify their price discrimination policies or rectify them**
- **Regulators should be able to require companies to change their price structures where price discrimination cannot be justified by benefits to consumers**
- **Government should introduce legislation, by 2021, to replace the current court-based enforcement of consumer law with an administrative compliance and enforcement model, subject to appropriate scrutiny by the courts.**

### 2.3 Ensuring regulation acts fairly

It is inevitable that some regulatory choices will impact one group of consumers more than others. Taking decisions on who can be allowed to lose out requires democratic accountability. The energy, water and telecoms regulators are not directly democratically accountable,<sup>7</sup> so government should provide guidance on these decisions. But government often fails to provide this guidance, and regulators may as a result either do whatever is most economically efficient, without considering the distributional consequences, or take the 'do nothing' approach.

Government struggles to provide this guidance for two key reasons. Firstly, because they would require the government to specify that a certain group would have to pay more, and secondly, because government does not always have the necessary detailed information and knowledge of the context to take these decisions.

The existing tools for government to provide guidance to regulators do not seem to be fit for this purpose. Government can provide strategic guidance to regulators by issuing strategic policy statements, but it would likely be challenging for government to make decisions in general on distributional issues in such a statement without specific context from the regulators.

A new mechanism is needed that allows the regulators to request guidance on these issues from government. If government does not give guidance on a distributional decision that is their responsibility in a strategic policy statement, regulators should be able to present government with a set of worked up options on these difficult distributional choices, including identifying a lead option, and require them to provide guidance. Government should then have to choose one of the options within an agreed timeframe, accepting the consequences; if no guidance is provided, regulators should proceed with the lead option.

**Recommendation 7: Government and regulators cannot rely on a flawed assumption that market design and distributional consequences can be separated. For future regulatory proposals with significant distributional consequences:**

- **Regulators should publish an analysis of the distributional consequences for consumers and businesses of their proposals, and of the impact of possible mitigations for significant adverse effects**
- **Regulators' boards should be given the power, by 2021, to seek explicit guidance from ministers on strategic policy direction and distributional choices, against a menu of feasible options provided by the regulator and within a fixed three-month period.**

## **2.4 Improved coordination of the regulators**

As the regulators increasingly face the same difficult challenges, there needs to be increased collaboration at a working level across the three sectors so that they can learn from each other, and increased monitoring of their performance so that regulators can be held to a high standard. The Commission received evidence both for and against the idea of a multi-utility regulator. However creating a multi-utility regulator would be highly disruptive at a time when long-term decisions need to be made, and without a compelling case for change, this cost is hard to justify.

The UK Regulators Network currently works to coordinate across 13 regulators, including Ofgem, Ofwat and Ofcom. It has achieved progress on cost of capital work, vulnerable consumers and data sharing, but could do more and as it has no independence from the regulators themselves it cannot effectively challenge them.

The regulators need to work together to ensure that competitive markets deliver for consumers. There is currently no body that considers the overall effect on consumers' bills from all three sectors; it is possible that the same consumers are losing out on price across the board, or that regulators are not making choices that would increase costs in their own sector, even if they could reduce costs for consumers as a whole. An independent chair of the UK Regulators Network would help challenge regulators to expand the ambition of their coordination, and to identify best practice for other members to emulate. This could also address ongoing issues due to the lack of coordination where the work of the regulators interacts, for example property developers needing new utility connections.

The Regulators Network could also better promote information and knowledge sharing across the three sectors. This could support better decisions on data, the approach to cross-sector issues such as resilience, and identifying and supporting consumers in vulnerable circumstances. Better processes for knowledge sharing could also help the three regulators improve their data management capability.

Regulators are held to account for their performance against their legislative duties by Parliament's select committees, the National Audit Office and by third party organisations such as consumer advocates. To enable these organisations to hold regulators to account effectively, the regulators need to: set clear, timed and measurable objectives; provide transparent data on their own performance and consumer outcomes in their sectors; and evaluate the impact of their past decisions. Learning from each other's mistakes and best practice should improve the regulators' performance, and ultimately benefit consumers and investors.

**Recommendation 8: The UK Regulators Network should have a stronger role, supported by an independent chair:**

- By the end of 2020, the UK Regulators Network should appoint an independent chair
- By the end of 2020, the government should review data sharing powers by regulators to ensure they can develop a 'whole customer view'
- By the end of 2021, regulators, with the support of the UK Regulators Network, should develop joint data sets to enable whole customer analysis
- By July 2021, the independent chair of the UK Regulators Network should publish a business plan setting out how the network will support:
  - collaboration on the achievement of common goals
  - coordination to avoid contradictory regulation and inefficiency
  - data and knowledge sharing, including supporting the regulators to improve their data management capability
  - improved performance reporting by regulators.

# 1. Facilitating strategic investment

The UK's current regulatory system was not designed to deliver transformational change. The system needs to be updated to adapt to the coming challenges of achieving net zero, digitalisation, and building resilience to extreme weather events. The system should enable strategic, value for money investment for the long-term, to reflect the UK's long-term strategic requirements. It should also reflect the new devolved landscape.

The current regulatory system has successfully supported large scale investment in the energy, water and telecoms sectors over the past decade: around £6-8 billion a year for telecoms, £10-13 billion a year in energy generation and networks, and £4-5 billion a year for water.<sup>8</sup> This has generated significant improvements in the UK's infrastructure networks. But investment will be needed at an even larger scale, and in a more strategic way, to meet the coming challenges, including achieving net zero greenhouse gas emissions, increasing water resilience, delivering full fibre networks, and providing 5G coverage.

The system does not need to be entirely redesigned to deliver this investment (see box 1). The current model has generated investment in the past. However, it is important that future investment is targeted towards the right projects that will provide innovative solutions to the UK's needs. To enable a system that facilitates the strategic investment the UK needs, there must be some major changes:

- Government needs to provide a strategic framework to deliver the UK's long-term investment needs
- Regulatory decisions on strategic investment must better reflect the priorities of the whole of the UK
- The regulators' duties must enable them to support long-term investment
- There should be an increased use of competition to drive innovation in major projects.

## Box 1: Alternative future models of regulation

There are alternative models to the current system of regulation. The key alternatives being proposed are set out below. Some aspects of these ideas have been incorporated in the Commission's recommendations.

### Negotiated settlements

Under this model, customers themselves, or representative bodies, would negotiate price settlements directly with incumbent monopoly firms. The argument for replacing the current model is that the formula and process has become too complicated and that it has developed into a single buyer model, where the regulator buys services on behalf of the whole country. This alternative approach has been introduced successfully in utilities including in Canada and Australia. This model seeks to make the regulatory process simpler, strengthens the consumer voice and makes the companies directly accountable to customers. The major concern, however, is that customers, and customer groups, would need to be very skilled and informed to negotiate with the companies. This holds less risk in markets where the customers are other large companies who are well informed and have strong views. A way to deal with this would be to have a well-informed consumer panel who would negotiate, but a well-informed, expert consumer panel starts to look a lot like the regulator.

### The Systems Regulation Model

In this model the government would be responsible for setting the high-level outcomes the sectors should deliver. Once the outputs had been set, a national coordinator would work with regional system operators to set plans on how to deliver the outcomes. The contract to deliver these plans would then be put to the market. The winning bidders would own and operate the network infrastructure and recover their costs through their Regulated Asset Base (RAB) (see box 3). This proposal addresses the issues of the government needing to fulfil its role in setting strategic policy guidance and making decisions which impact different groups of consumers (see section 2.3). However, in this model, the national coordinator would take on a lot of the work currently done by the regulator and would also make all the plans for the sector. In the current system the government, the National Infrastructure Commission, and infrastructure providers all have a role to play in this process, providing checks and balances. Putting the contract to deliver all plans to the market also has integration risks; sometimes the incumbent provider is arguably best placed to coordinate and possibly build new infrastructure.

## 1.1 Meeting the country's long-term needs

The utilities networks must undergo transformational change to prepare for the coming challenges. But the existing regulatory system was not designed to deliver transformational changes.

### The regulated sectors now face transformational change

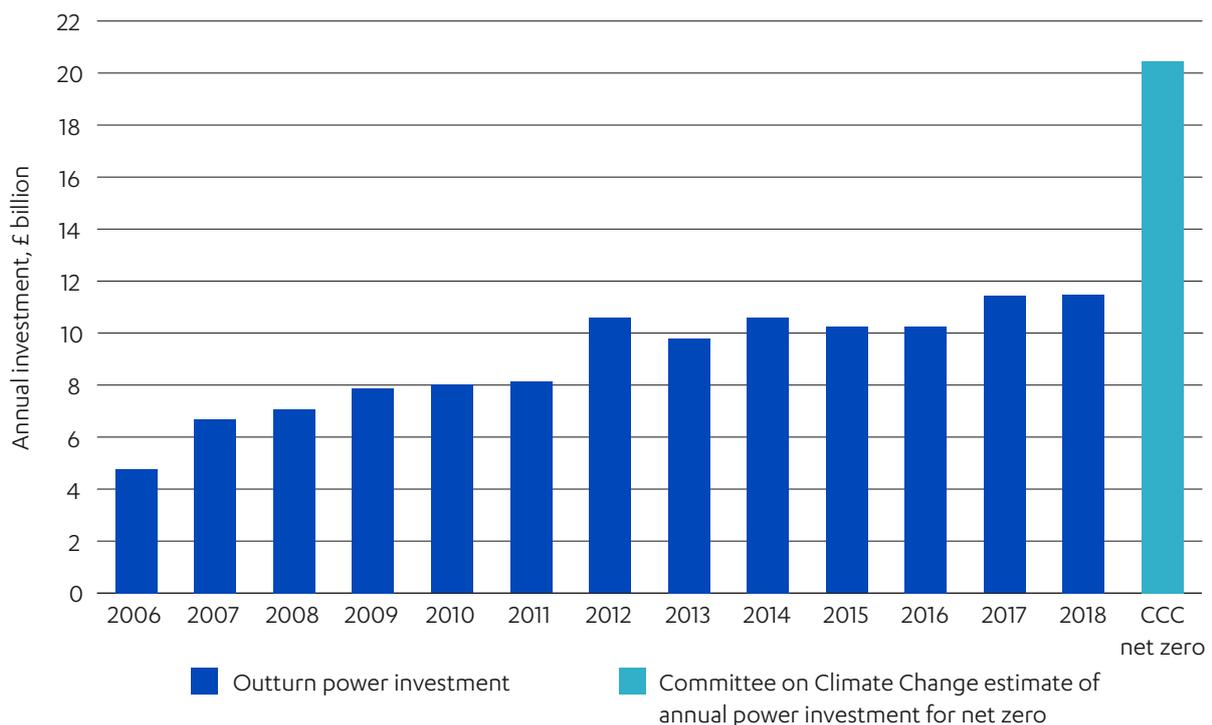
Future strategic investment in the UK's infrastructure needs to be directed towards meeting the coming challenges. Electricity and gas networks must eliminate their greenhouse gas emissions

to meet the government’s legislated climate commitments of achieving net zero greenhouse gas emissions by 2050, including by accommodating: variable renewable generation technologies; substantial new sources of electricity demand from electric vehicles and, potentially, heat; and eliminating the use of natural gas in homes and offices. This is expected to require £20 billion of investment a year in the power sector until 2050, £9 billion more than current annual investment.<sup>9</sup>

In the water sector, water and sewerage networks must respond to the increasing pressures of more frequent floods and droughts, as well as a growing population; on average £930 million will be required each year between 2020 and 2050 to increase drought resilience.<sup>10</sup> In the telecoms sector, digital networks must respond to the increased demand for data and must migrate from copper to fibre. An additional £2.2 billion each year is needed to deliver a full fibre network by 2033, and an additional £1.3 billion each year is needed to provide 5G coverage to most of the country by 2027.<sup>11</sup> These challenges are set out in detail in the Commission’s National Infrastructure Assessment,<sup>12</sup> with 5G covered in the Commission’s separate report on 5G, Connected Future.<sup>13</sup>

All these major transformations will require the regulatory system to generate significant investment over the coming years. Figure one shows the Committee on Climate Change’s expected annual power sector investment needed to achieve net zero by 2050, against current levels of investment.

**Figure 1: Recent and future power investment<sup>14</sup>**



## The regulatory system was designed in a different context

The UK’s regulatory system was designed over thirty years ago and was world leading. With privatised utilities networks, regulation was developed to allow monopoly networks to be operated effectively by the private sector without adverse impacts on consumers.<sup>15</sup> While significant new investment was needed, the utilities networks were expected to stay more or less the same; only incremental changes

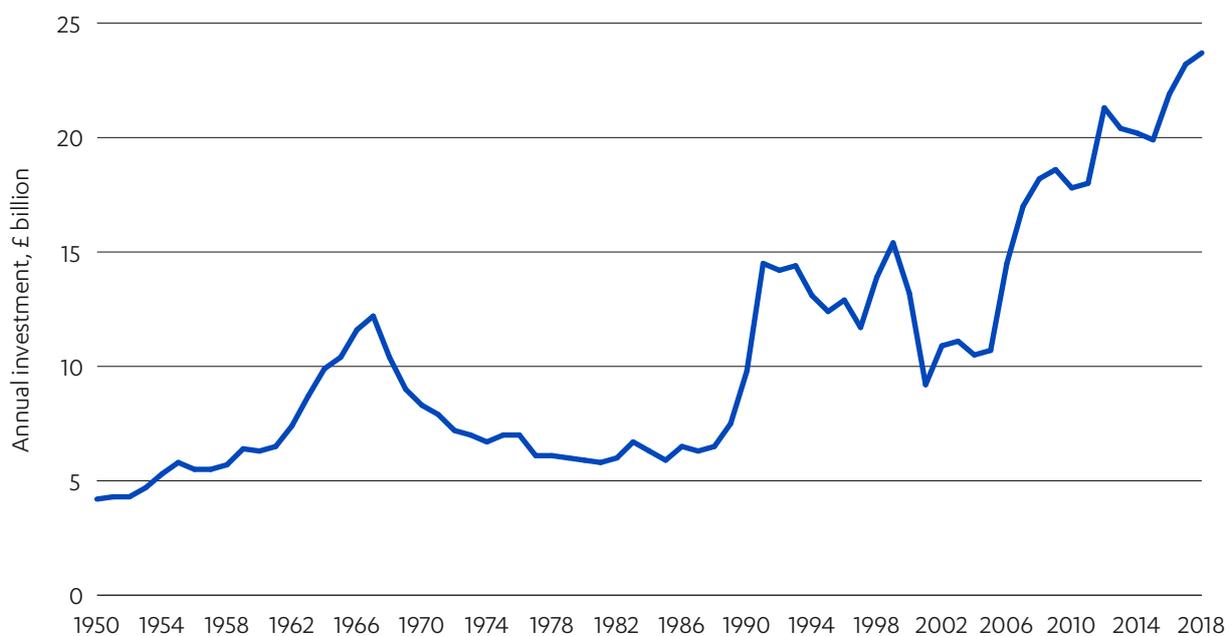
were expected to be required.<sup>16</sup> The role of regulation was meant to address problems of major and unavoidable monopoly power, such as the access to and pricing of monopoly network services, and encourage competition.<sup>17</sup>

In the current regulatory system, regulators set the revenues companies can make. Consumers are protected from monopoly infrastructure providers charging extortionately high prices. Infrastructure companies are incentivised to become more efficient, as they can make greater profits through efficiency savings. These efficiencies are then factored in at the next round of price controls, meaning that efficiency savings eventually represent a gain to consumers too.

Revenues are set, and investment decisions made, through the regular price control reviews operated by Ofgem, Ofwat and, to some extent, Ofcom. The regulators make settlements based on the utility companies' plans and priorities for the period of the price control, and determine their financial framework for the period, setting limits on the income companies can collect through charges to end users. Ofgem is currently in an eight-year price control period, but the next will last five years, Ofwat's price control periods also last five years, and Ofcom is moving from three-year to five-year market reviews. Since the regulators are independent of government, and revenues are fixed over multi-year periods, investors can rely on a stable return on their investments.

Together the energy, water and telecoms sectors account for over 13 per cent of total UK private sector investment, although they account for only around four per cent of UK GDP.<sup>18</sup> Compared to 1992, the frequency of mains bursts has fallen by 28 per cent, sewer flooding incidents by 75 per cent, and the rate of properties experiencing low water pressure by almost 99 per cent.<sup>19</sup> Over the same period the number of power cuts has fallen by 59 per cent and the length of power cuts has decreased by 70 per cent.<sup>20</sup> Figure 2 shows the capital investment in energy, water, sewerage and waste since 1950, demonstrating the jump in investment post privatization from the mid-1980s.<sup>21</sup>

**Figure 2: Investment (Gross Fixed Capital Formation) in energy, water, sewerage and waste<sup>22</sup>**



## Box 2: Changing ownership

Proposals have been made to move water companies, energy suppliers, and the distribution and transmission networks in energy back into public ownership, municipal ownership or not for profit structures. Historically, England operated a mixed economy in water, with both government owned and private companies operating until privatisation in 1989. The electricity distribution and transmission networks were nationalised in 1948 and privatised in 1990, while the gas industry was nationalised in 1948 and privatised in 1986.<sup>23</sup>

The Terms of Reference for this study preclude options which “have significant impact on the public balance sheet.” The Commission has not therefore considered the case for or against public ownership of energy, water and telecoms assets.

However, many of the issues considered in this report would also be relevant in a nationalised system. There would still be a requirement to balance the need for long-term, stable investment against the pressures of the political cycle in price setting. Regardless of ownership, it is unlikely that incumbent providers would have all the best solutions to challenges such as decarbonisation, so the use of competition would continue to be an important means to promote innovation (see section 1.4). There would also still be a need to balance the interests of consumers with those of asset owners (see section 2.1); past experience of public ownership suggests that the Treasury would expect a suitable return on publicly-owned assets, not least since this provides an alternative source of revenue to general taxation.<sup>24</sup> Where issues of efficiency come into conflict with impacts on different groups of consumers, as for example with time of use tariffs, there would continue to be a need to make difficult trade-offs in a transparent and legitimate manner (see section 2.3).

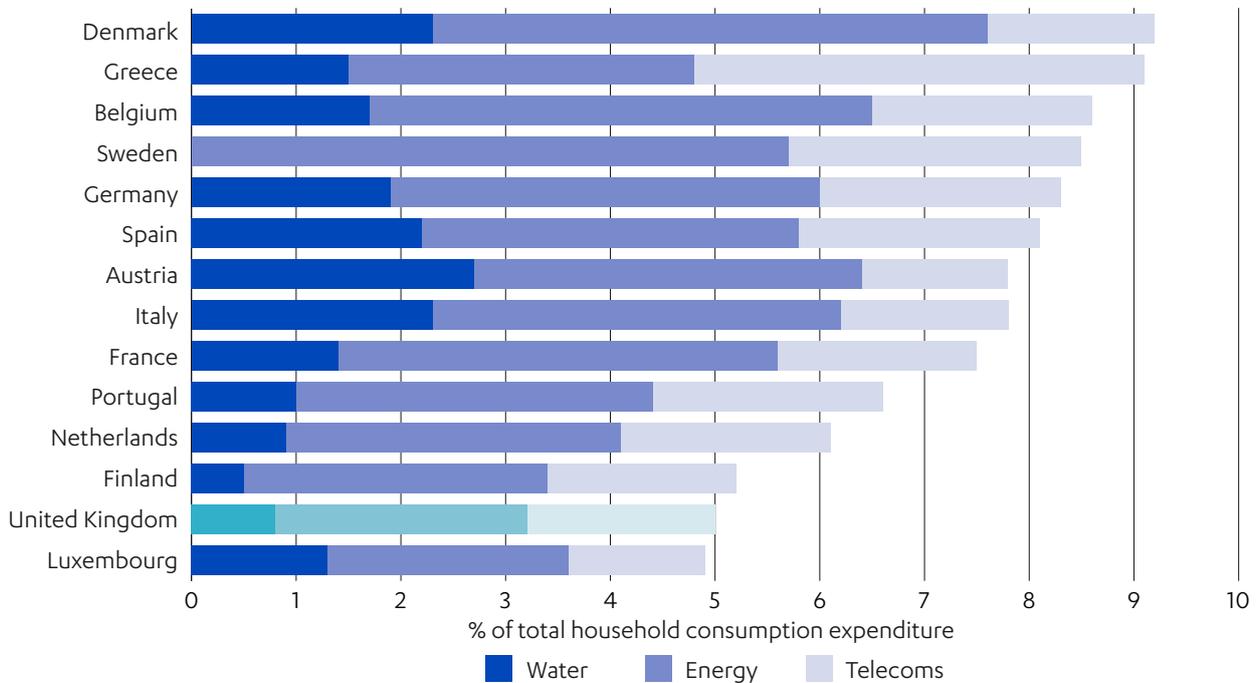
Depending on the UK’s future relationship with the EU, there may be a continued legal requirement for independent economic regulators in some sectors. Whether or not this is the case, however, the value of independent regulation to insulate long-term investment needs against short-term political pressures would remain high, even in a system under public ownership.

The UK is a high performer compared to other European countries on drinking water quality and water stress, and has been one of the biggest improvers on these measures since 1990.<sup>25,26</sup> Since 2006, the number of power cuts has fallen 28 per cent and the duration of power cuts has fallen by 41 per cent, faster improvements than France and Germany.<sup>27</sup> The UK is one of the highest consumers of fixed broadband data in the world.<sup>28</sup> However, despite these improvements, the UK still lags behind other countries on measures such as bathing water quality, share of energy from renewable sources, and the availability of full fibre broadband, so there is still plenty of potential for future investment to support further improvements.<sup>29,30,31</sup>

Investment in utilities has ultimately been funded by consumers through bills. Prices have risen, but consumers have generally been protected from monopoly pricing (although perhaps not entirely, see Chapter 2), and investors have benefited from predictable, independent regulation. Energy prices are around or below the EU average,<sup>32</sup> telecoms prices are broadly in line with international comparisons,<sup>33</sup> and whilst water prices went up after privatisation, this was complemented by much higher levels of

investment.<sup>34</sup> Figure 3 shows that water, energy and telecoms are a low share of household expenditure in the UK compared to other EU countries, although bills are not always affordable for everyone. Overall the regulatory system has succeeded in what it set out to do.

**Figure 3: per cent of total household consumption expenditure on water, energy and telecoms, UK and EU-15 countries, 2017<sup>35</sup>**



Economic regulation remains necessary to supervise the delivery of energy, telecoms and water by the private sector. These industries have natural monopoly characteristics, which has the potential to constrain innovation, although regulators have worked to introduce competition at different levels of the supply chain to achieve the benefits of competitive markets. Regulation is also required to ensure that the companies meet wider, long-term objectives, such as protecting the environment. And to ensure that companies are not exploiting consumers, particularly those in vulnerable circumstances.

Nevertheless, the regulatory system has come under challenge over time, both for its ability to work in the interests of all consumers, covered in Chapter 2, and for its ability to deliver strategic investment to respond to major challenges such as climate change, covered in this section.

### The regulatory system does not facilitate transformational change

While the current system has generated significant investment to meet growing consumer demand, the current regulatory system incentivises regulators to be sceptical of major new infrastructure investments (see box 3).

### Box 3: The RAB model of investment

Under the current regulatory system, most investment in the water and energy sectors operates under the 'Regulated Asset Base' (RAB) model. This model is designed to encourage private sector investment in infrastructure by allowing infrastructure providers to recover their costs over time from consumers.<sup>36</sup>

If an infrastructure provider wants to build a piece of infrastructure, such as a new reservoir, during the next price control period, they must obtain permission from the regulator as part of the price control process to pass the costs of building the reservoir through to end users in their monthly water bill. The regulator decides whether the project can go ahead with costs recovered from consumers, attempting to protect consumers from unnecessary costs. When the regulator gives their permission, the cost of the reservoir is added to the infrastructure provider's RAB. The total of the RAB determines the total costs the infrastructure provider can recover from consumers.

The RAB model allows infrastructure owners to borrow money to build at low costs, as investors can be certain it will be recovered from consumers, especially given that demand for essential utilities is not likely to change significantly. However, this model could incentivise infrastructure owners to build more infrastructure, and overestimate the costs of building it, to inflate the value of their RAB; the higher the value of the RAB, the more money companies can make from end users. Therefore, regulators must be wary of new additions to a company's RAB and try to protect consumers from unnecessary costs (for example, from building short-sighted investments that will require companies to build further in future). This means the regulators' de facto position must be to be sceptical of new investments.

The RAB model creates a regulatory barrier to transformational new investment, particularly those that would represent a cost to existing consumers, even if they would benefit the public in the future. The benefits of long-term strategic investment are often difficult to prove against the potential risk of building unnecessary infrastructure which the consumer will ultimately pay for. It is right that companies should face scrutiny for new investments that may turn out not to be value for money for consumers. But this needs to take place within the context of an overall strategic plan for what the networks need.

In the water sector, the Environment Agency and water companies work together to produce long-term water resources management plans, which gives the Environment Agency (a non-departmental public body) a strategic role in long-term water planning. However, elsewhere, the coming transformational changes will require much stronger strategic direction. Regulators must be empowered to approve major new infrastructure projects that fit within an overarching strategy for the sector.

## Government must provide strategic leadership on infrastructure investment

Transformational change requires strategic leadership both from regulators and from government. Although regulators should maintain their independence, there are some general areas where an overarching strategy could support the regulators on these major transformational changes. These include:

- **To address coordination challenges** – a clear strategy can provide consumers and investors with the confidence they need to make the right investments at the right time e.g. giving consumers the confidence to switch to electric vehicles (which relies on charging infrastructure being available), giving investors the confidence to invest in charging infrastructure (which relies on demand from consumers buying electric vehicles), and giving regulators the cover to approve strategic investments in charging infrastructure<sup>37</sup>
- **To set national standards** – a clear strategy is needed for some decisions that are hard to take e.g. consumers and water companies find it hard to judge and evaluate the risk of rare but very high impact events like droughts accurately and are not incentivised to do so as government would underwrite attempts to solve the crisis, so government must set a national required level of drought resilience
- **To promote the interests of the general public** – a strategy can support the interests of the general public where regulators only take into account their interests as consumers e.g. consumers' interests in climate change are not well defined, but a strategy from government could enable regulators to act to address climate change in the interests of consumers and the general public
- **To overcome excessive caution** – a strategy can enable strategic investments where the benefits are not yet proven, such as supporting the development of new technologies e.g. the next step in decarbonising energy will be to decarbonise the way homes and businesses are heated and the best technology for doing this is unclear.

In the future, with such high levels of time-critical investment required to meet pressing challenges, it will not be possible to postpone investment in critical new network investments until demand materialises, the benefits are entirely proven, and the investment is seen as low risk. The regulatory system must be adapted to ensure that regulators are better able to evaluate and drive strategic investments where this does not already happen. As well as meeting the country's long-term challenges, this will provide investors with greater clarity on the opportunities available. Government must set out a clear, coherent strategy, and empower the regulators to support these strategic investments.

## A new process to provide strategic direction for investment

Government can provide strategic direction for new investment. Government has set out a clear path towards reducing its greenhouse gas emissions, for example, and the Department for Digital, Culture, Media and Sport, and Ofcom have set out the need for a national fibre network and a strategy to deliver it.<sup>38</sup> But often government struggles to make these kinds of decisions. The government can provide strategic guidance to the regulators through strategic policy statements; but government does not always use these to provide sufficient long-term guidance on these difficult issues, and the

statement for the energy sector has not got beyond draft stages. The mechanisms for government providing guidance should be updated to take account of the establishment of the National Infrastructure Commission.

### **Commission recommendations**

Infrastructure strategy has often been impeded by political disagreement and short-termism. To address this, the Commission was set up to support government in making these strategic choices by providing expert advice to government on the long-term infrastructure strategy for the UK. The Commission publishes recommendations for the UK's economic infrastructure, including 2018's National Infrastructure Assessment. The government is required to respond to all the Commission's recommendations, setting out which it accepts. The government has committed to publishing a National Infrastructure Strategy this year, in response to the Assessment.

Currently the regulators have no obligation to have regard to the Commission's endorsed recommendations. Requiring the regulators to have regard to them would help provide long-term certainty to regulators and investors. The government's response to its initial consultation on the governance, structure and operation of the National Infrastructure Commission at its establishment said that: "Commission recommendations that the government intends to take forward will be accorded a special legal status, becoming 'Endorsed Recommendations' and government policy... the government proposes to create a requirement for regulators to 'have regard' to Endorsed Recommendations and to explain how they will 'have regard' to the recommendations."<sup>39</sup> This approach has not been followed to date; legislating to pursue this approach would enable the regulators to consider these strategic, long-term priorities without further action from government. The government may wish to consider whether this would work most effectively if the Commission were made a legal entity.

### **Strategic policy statements**

Strategic policy statements provide a useful mechanism for the government to set out its long-term strategic vision for the regulators. The statement for the water sector published in 2017 emphasised the need for securing long-term resilience in the water sector and the statement for the telecoms sector, published in draft form in 2019 and due to be designated, sets out government ambitions for the sector based on the Future Telecoms Infrastructure Review and 5G vision.

The Commission does not believe that strategic policy statements alone are sufficient to provide the regulators with all the guidance they may need from government (see section 2.3). Nevertheless, these statements should continue to form part of the relationship between government and the regulators.

Publishing a strategic policy statement for each sector within the first year of each Parliament, building on the recommendations of the most recent National Infrastructure Assessment, will make it more likely that the statements are genuinely forward-looking and focused on the long term. This will mitigate against ad hoc changes that could undermine regulatory predictability, by ensuring that the statements are issued on a predictable timetable, and not too frequently. This assumes that Parliaments change once every five years. If there is an election after a shorter time period which returns the same party in government, it may not be necessary to produce new strategic guidance.

Including a simple list of all the steers government is proposing to regulators will help make the guidance as clear as possible. Current strategic policy statements contain a lot of contextual material. However, this can mask the key steers to regulators, and incline government towards including purely tactical or detailed matters that risk infringing regulatory independence. Having a clear, simple list will help to identify where government is being strategic or tactical and will help regulators to identify the key steers contained in the statements. The list should not comprise a wish list of new projects but should identify key strategic objectives to meet. The regulators and industry could identify the best way of meeting these.

### **Further government guidance**

The regulators may have to make further difficult decisions regarding long-term investments, which require them to make trade-offs between their duties. Where guidance is not provided through a strategic policy statement or endorsed Commission recommendations, there should be an alternative mechanism for detailed options to be referred to government for a decision; more detail on this is set out in Chapter 2.

**Recommendation 1: Forward-looking regulation, by independent regulators, remains the best approach to balancing the needs of consumers and investors, whilst incentivising efficiency. However, this should be embedded in a clearer strategic framework for the long-term investment needs of the country:**

- The government should introduce legislation by 2021 to fulfil its previous proposal that regulators have regard to endorsed recommendations from the Commission
- The government should set out a long-term strategic vision for each of the regulated sectors, through strategic policy statements, within the first year of each Parliament, to support lasting plans and stable funding.

## **1.2 Investment decisions reflecting the priorities of the whole of the UK**

Strategic investment decisions should reflect the needs and priorities of the whole of the UK. Since the regulatory system was designed, there has been substantial change to the governance of the UK, with relevant powers devolved to the legislatures of the nations of the UK, and to metro mayors in England.<sup>40</sup>

Regulators should maintain their independence. But in some cases, it is appropriate for them to engage with devolved government:

- Where powers for sectors they regulate are devolved to the legislatures of the nations of Scotland, Wales, or Northern Ireland, regulators must look to the devolved administrations for the strategic direction (including through national strategic policy statements), they would otherwise get from the UK government
- Where powers for the sectors they regulate are reserved, but devolved powers interact with these sectors, the regulators should have a formal mechanism to ensure the strategic vision of the devolved administrations are reflected in plans for the sector

- Where powers held by metro mayors and local authorities interact with reserved matters, regulators should be able to demonstrate how they have taken consideration of the strategic vision of metro mayors and local government where this has material impacts for network investment
- In some cases, devolved administrations, metro mayors, or local authorities may be better placed to reflect the public's views on specific matters; in these circumstances, regulators should consider evidence from the devolved governments and legislatures, alongside other sources of insight into the public's and consumers' preferences.

## Box 4: Devolution in the UK

The current devolution of energy, telecoms and water is set out below.

### UK nations

The table below sets out matters reserved and devolved to the legislatures of Scotland, Wales and Northern Ireland for areas relating to the matters covered in this report. Devolved matters are outside the scope of the Commission.

Sector covered in this report	Level of devolved responsibility		
	Scotland	Northern Ireland	Wales
Energy	Reserved (with exceptions, including energy efficiency)	Devolved, aside from nuclear	Reserved (with exceptions, including energy efficiency)
Water and sewerage	Devolved responsibility	Devolved responsibility	Devolved responsibility
Digital	Reserved	Reserved	Reserved

Other relevant devolved matters (devolved to all three nations), include waste, flood risk, transport (with exceptions), economic development, the environment, housing, and local government.

### Metro mayors

There are now eight metro mayors.<sup>41</sup> None of them has devolved responsibility for energy, water or telecoms. Metro mayors and local authorities in England are however responsible for housing and planning decisions, which interact with regulators' decisions on network capacity.

## Regulation needs to reflect the devolution of powers

Some powers relating to energy, water and telecoms are devolved in their entirety to the administrations in Scotland, Wales and Northern Ireland (see box 4). In most cases where powers are devolved there is a separate regulator. However, in Wales where powers are devolved, the water sector is still regulated by Ofwat. The Welsh Government has issued a statement to Ofwat on their strategic priorities and objectives.<sup>42</sup>

Infrastructure powers that sit with the devolved nations are not in the Commission's remit. The Commission's role is to advise the UK government, but the Commission works with both the UK government and the devolved administrations where responsibilities interact. Where powers are devolved, regulators should continue to look to the devolved administrations and relevant National Infrastructure Commissions for devolved nations for the strategic direction they would otherwise hope to receive from the UK government.

## **Some devolved decisions interact with regulated matters which are reserved**

### **Scotland, Wales and Northern Ireland**

The devolved administrations have some powers in areas that interact with reserved matters for energy, water and telecoms, such as economic development, the environment and housing.

There should be a mechanism by which devolved decisions that affect the regulation of reserved matters can be taken into account by the regulators. For example, the Scottish government has a Reaching 100 per cent Broadband programme, which aims to make superfast broadband available to all premises in Scotland by 2021.<sup>43</sup> Powers over telecoms, including broadband, are reserved, but the Scottish government can provide additional funding (using devolved powers for economic development) to meet this commitment. Similarly, the Welsh government provides additional funding and is responsible for the implementation of the Superfast Cymru successor scheme. The Scottish government has formal input into the regulation of telecoms in Scotland, as Ofcom has implemented formal governance measures to facilitate working with the Scottish Government, including a Memorandum of Understanding (MoU) agreeing that Ofcom will consult on strategic priorities with the Scottish Government and Parliament, and that Scottish ministers can make an appointment to the Ofcom board following consultation with the Secretary of State.<sup>44</sup> Ofcom has put similar governance measures in place to facilitate working with the Welsh government.

Following the example of Ofcom, regulators should put formal mechanisms in place which enable them to have regard to the decisions made by the devolved administrations that interact with reserved matters. These mechanisms must recognise the limited resources of the regulator, but the regulators must be able to demonstrate how they have considered decisions made by the devolved administrations in their decision-making processes. Mechanisms could include, but are not limited to:

- Agreeing an MoU between the regulator, the UK government, devolved government and devolved legislature; this could commit the regulator to consult with the devolved administration and parliament on strategic priorities in their draft annual plan, and set out the process, where legislation allows, for ministers from the devolved administrations to appoint a suitably qualified member to the regulator's board following consultation with the relevant Secretary of State for the devolved nation
- Setting up a national advisory committee each for Scotland, Wales and Northern Ireland to the regulator, where relevant;<sup>45</sup> this should be comprised of representatives from the relevant devolved nations, and provide advice to the regulator about the interests and opinions of persons living in their devolved nation, in relation to the specific infrastructure sector

- Introducing a requirement for the devolved nations to have a representative on the regulators' consumer panels, and for the regulator to take account of the views expressed by the panels.

However, while these mechanisms should ensure effective consideration of perspectives from all parts of the UK, this does not mean there is a case for more ambitious policy or investment priorities in one area to be cross subsidised by another area.

### **Metro mayors and local authorities**

Metro mayors and local authorities in England have responsibility for housing and planning decisions,<sup>46</sup> which interact with the regulators' powers to approve new investments on their networks. All new developments need to be connected to the utility networks. For major new settlements, such as those the Commission has recommended as part of its study *Partnering for Prosperity: A new deal for the Cambridge-Milton Keynes-Oxford arc*,<sup>47</sup> it is vital that there is strategic intervention to ensure the required utilities connections can be made.

In energy, for example, there is often limited spare capacity on the network to accommodate new developments. This means it is necessary to find alternative, smart and flexible solutions to connect to the network. Where this is not possible, it may be necessary to 'reinforce the network'. This can impose a significant cost to new developments and be very time consuming.<sup>48</sup> This also applies to water where there are local capacity issues, for example in the availability of raw water and treatment works capacity constraints.

In most circumstances, the customer will pay for the new connection infrastructure and a proportion of the network reinforcement that they require. However, in certain circumstances, utility companies investing ahead of need can deliver longer-term benefits to network users. Regulators must ensure that the regulatory framework enables anticipatory investment where appropriate, to facilitate these new developments, where this can be shown to have an overall benefit to consumers.

Regulators need to engage with metro mayors and local authorities to understand the likely impact on infrastructure planning of large, strategic developments, such as Old Oak Common and major new settlements such as Ebbsfleet Garden City, so that these can be planned for in future price control settlements. Regulators should also specifically require companies to demonstrate how they have taken the strategic vision of the relevant metro mayors and local government (within their powers) into account where this has material impacts for network investment.

### **Regulators should consider different national and regional priorities**

Regulators need to engage with consumers' views. Currently they do this directly through a range of tools and mechanisms including; consumer panels and research, customer groups, consumer expert challenge panels, surveys and workshops. In addition, they ask the companies they regulate to engage with stakeholders to understand what their infrastructure needs are. However, in some cases, the relevant devolved administration or metro mayors may also be well placed to represent consumers to the regulators.

Devolved administrations set policy ambitions in areas which impact reserved matters. Whilst the UK government provides strategic direction to regulators on these matters, regulators should also engage directly with relevant devolved administrations and listen to consumers' views, and this may include engaging with elected representatives in devolved legislatures in Scotland, Wales and Northern Ireland.

Although metro mayors and many local authorities have set out policy ambitions in areas where decisions can impact on utilities and vice versa, engagement with the regulator is often limited and on an ad hoc basis. The regulators should look to engage strategically with consumer views, both directly and through utility companies, consumer advocate groups, and elected representatives where relevant.

#### **Recommendation 2: Regulatory frameworks should reflect the devolution of powers within the UK:**

- **Ahead of the next price controls, regulators should put in place formal mechanisms, such as advisory committees, to ensure they have regard to the strategic vision set out by devolved administrations, where devolved and reserved powers interact**
- **In future price controls, regulators should demonstrate how they have taken consideration of the strategic vision of metro mayors and relevant local government, within devolved powers, where this has material impacts for network investment**
- **Regardless of specific devolved powers, regulators should engage with the views of elected representatives, alongside other sources of insight into the public's and consumers' preferences.**

## **1.3 Updating the regulators' duties to support long-term investment**

To enable regulators to take effective decisions on strategic investments to meet the coming challenges, particularly around achieving net zero and resilience to extreme weather events, the regulators need to have an updated set of primary duties that fully cover the four domains of price, quality, the environment and resilience. The Commission recognise that the regulators already face difficult decisions in making trade-offs between these important areas, and additional duties may increase regulatory complexity. The supplementary sectoral diagrams by the Centre for Competition Policy (CCP) demonstrate the complexities of the legislative framework underpinning the regulators. However, the regulators still need to consider resilience and climate change, whether their duties include these issues or not. Including these duties helps to provide clarity and can enable the regulators to address these with a clearer statutory basis for what they are trying to achieve.

### **Duties are the main basis for regulators' decision making**

Providing strategic policy statements to the regulators, as set out in recommendation 1, will give guidance to the regulators on the government's strategic investment priorities. However, the regulators' duties are their legislative and statutory basis; it is the duties that provide regulators with an understanding of their purpose and are the primary basis for the decisions they make.

Duties are set for each of the regulators through legislation and are the statutory basis for the regulators' activities. The three regulators in energy, water and telecoms have different statutory structures and their duties vary considerably (see table 1) as these have evolved over time. This can present a barrier to collaboration as the priorities for decision making can vary between the regulators. The regulators also have further primary and secondary duties in other areas not listed here.

**Table 1: The regulators' primary duties or principal objectives**

Primary duty/principal objective
<p><b>Ofgem: Principal objective</b></p> <p>Principal objective when carrying out functions is to protect the interests of existing and future electricity and gas consumers. This is done in a variety of ways including:</p> <ul style="list-style-type: none"> <li>(i) promoting value for money</li> <li>(ii) promoting security of supply and sustainability, for present and future generations of consumers, domestic and industrial users</li> <li>(iii) the supervision and development of markets and competition</li> <li>(iv) regulation and the delivery of government schemes.</li> </ul>
<p><b>Ofwat: Primary duties</b></p> <ul style="list-style-type: none"> <li>(i) protect the interests of consumers, wherever appropriate by promoting effective competition</li> <li>(ii) make sure water companies finance and properly carry out their statutory function</li> <li>(iii) make sure water supply licensees and sewerage licensees properly carry out their licensed activities and statutory functions</li> <li>(iv) secure the long-term resilience of water companies' water supply and wastewater systems and the steps taken to enable this.</li> </ul>
<p><b>Ofcom: Principal objective</b></p> <ul style="list-style-type: none"> <li>(i) to further the interests of citizens in relation to communications matters</li> <li>(ii) to further the interests of consumers in relevant markets, where appropriate by promoting competition.</li> </ul>

## Duties to support strategic investment decisions

The regulatory system was originally set up to predominantly focus on price setting.<sup>49</sup> The 1983 Littlechild Report stated that “regulation is essentially the means of preventing the worst excesses of monopoly; it is not a substitute for competition. It is a means of ‘holding the fort until competition comes.’”<sup>50</sup> It was hoped that other factors could be addressed by market forces or through general legislation. However, this does not appear to be the case in practice. Some additional considerations beyond price, such as protecting vulnerable consumers or ensuring security of supply in energy, were added to regulators’ roles from the outset (see table 1). But elsewhere, regulators have had to try to balance important factors, such as climate change, against duties that do not always cover these vital issues.

This has meant it is hard for regulators to prioritise investments for the long-term which would impose costs on consumers in the short-term. Ofgem has come under criticism for not being able to prioritise decarbonisation, making it more difficult to finance long-term projects to mitigate climate change (such as providing electric vehicle charging infrastructure and decarbonising heat).<sup>51</sup> This landscape has also led to incremental changes to the duties themselves; in 2014 the government legislated to add promoting resilience to Ofwat’s statutory duties.

### The case for imposing additional duties

The need for clarity in the regulatory statutory remits is crucial in enabling effective decision-making. The 2007 House of Lords Select Committee on Regulators’ report on the UK’s economic regulators noted that the regulators were unanimous in their belief that clarity was the most important quality a statutory remit could have. Clarity in remit enabled regulators to understand their purpose, and brought other major benefits, including increased legitimacy and greater consistency in decision-making. Whilst regulatory remits have continually expanded, leading to a risk that regulators become overloaded and unfocused, there is a need to make some changes to the regulatory legal frameworks to ensure they are fit for purpose for the future challenges.

Although it can be hard for the regulators to make trade-offs between their duties, not imposing additional duties regarding vital concerns such as climate change does not alleviate this problem. The nature of these services is that there are complex and difficult trade-offs to deal with. The regulators still need to consider resilience and climate change, whether their duties include these issues or not. Including these duties helps to provide clarity and can enable the regulators to assess the trade-offs with a clearer statutory basis for what they are trying to achieve.

The Commission has set out that there is a need for significant further investment in the system. There is a perception that more active regulation would potentially lead to higher cost of capital or reduced willingness to invest. However, a recent review found that significant regulatory changes in the past have had limited effect on the cost of equity and cost of capital for regulated companies.<sup>52</sup> The evidence does not suggest that the implementation of regulatory policies such as putting more emphasis on environmental performance, the public interest or helping vulnerable customers, would necessarily increase the cost of capital of these companies.

## Four domains: price, quality, environment, resilience

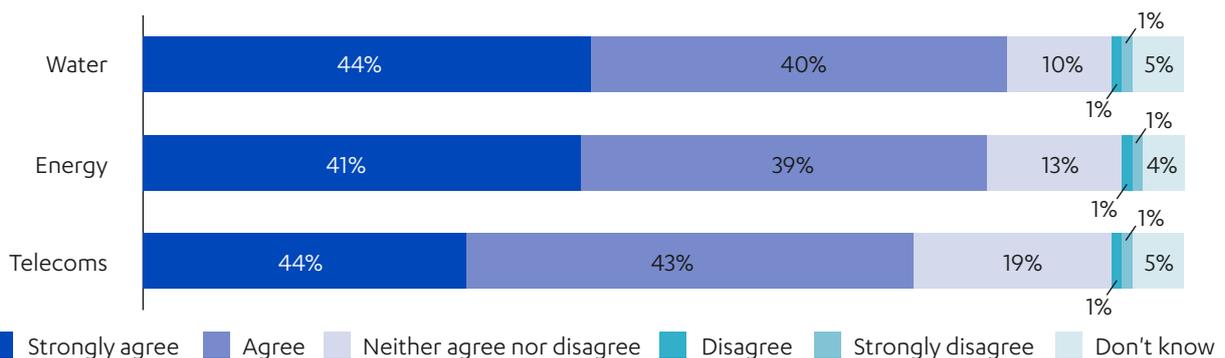
In the National Infrastructure Assessment, the Commission set out a framework for infrastructure services across four domains: price, quality, resilience and environmental impact. None of these can be left entirely to government legislation, policy or the market; they need to be considered in regulatory decision making. An updated set of duties for the regulatory system should cover all four domains.

Price and quality are both already covered through the regulators' duties towards current consumers (and duties towards future consumers and efficient financing where they exist). Where duties covering the four domains are already in place, there is no need to add further duties. However there are some gaps in the regulators' current set of duties on resilience and the environment: Ofcom does not have a specific duty to consider resilience; and although Ofgem has an explicit duty to protect consumer interests in reducing greenhouse gas emissions, none of the regulators have a duty to consider the government's legislated climate change target of net zero greenhouse gas emissions by 2050.

### Environment

If the government is to achieve its legislated commitment of net zero greenhouse gases by 2050, this will need to be factored into regulatory investment decisions on energy and, to a lesser extent, on water and telecoms. Adding a primary duty to meet the government's legislated climate change target, so that it can be updated if legislative commitments change, would allow the regulators to take the net zero target into account in their investment decisions. Adding this environment duty will in turn support the likelihood of the regulators being able to prioritise the strategic investments outlined in strategic policy statements. Such a duty would not conflict with the regulators' duties towards consumers. Even if consumers exact priorities on mitigating climate change are not clear, the Commission's social research shows that the majority of those polled agreed that companies should do their part to improve the environment (see Figure 4).<sup>53</sup>

**Figure 4: Public agreement that companies should do their bit to improve the environment, BritainThinks report<sup>54</sup>**



### Resilience

Ofwat and Ofgem both have duties around securing the long-term resilience of supply, however Ofcom does not (see table 1). Resilience is important to consumers. In the Commission's social research, "quality and reliability of service" appeared most frequently in respondents' top three priorities for all three utilities, with 80 per cent of respondents choosing this as one of their top three priorities.<sup>55</sup>

Imposing a primary duty on Ofcom, like Ofwat's duty to secure long-term resilience and Ofgem's on security of supply, would acknowledge that digital connectivity is becoming more central to everyday life, and will become ever more so in future, as more people work remotely, and the 'internet of things' becomes more widespread. This means network outages are likely to have more and more impact on people's everyday life, in the same way as energy and water outages do now. The duty would enable regulators to require regulated companies to take account of long-term considerations and ensure that resilience is considered at both the level of individual projects and at wider system level.

### **Collaboration**

The regulators should also have a secondary duty to collaborate with all relevant regulators on matters of common regulatory interest where relevant. This would support the regulators' performance across all four domains: keeping costs down and improving quality by sharing best practice and working together to achieve their shared objectives on the environment and delivering resilience. This is covered further in Chapter 2.

**Recommendation 3: Regulators' duties need to be coherent, covering price, quality, resilience and environment. Government should introduce legislation by 2021 ensuring that, where they are currently missing, Ofwat, Ofgem and Ofcom have duties to require them to seek to:**

- Ensure their decisions promote the resilience of infrastructure systems
- Ensure their decisions are consistent with, and promote the achievement of, the government's legislated greenhouse gas emissions targets, currently achieving net zero greenhouse gases by 2050
- Collaborate with other regulators, where relevant, to avoid contradictory regulation and promote efficient outcomes for consumers on cross-sectoral issues.

## **1.4 Increased use of competition to drive innovation**

For investment taking place within a strategic context set by government, it makes sense to consider a wide range of proposals to deliver the agreed outcomes. In the context of major transformational change and uncertainty about the future, the best approach may not be the obvious one. Competition has been critical to the performance of the regulated sectors and is the best way to promote innovation.

Although regulators are moving towards using more competition to deliver major new investments, its benefits have not always been realised across all the sectors. Competition should be used where possible in future to promote innovation on the major projects needed to meet the coming long-term challenges.

### **Competition to deliver strategic investments**

As set out in section 1.1, the government must provide strategic guidance to the regulators on long-term investment priorities. Currently, this role is mostly carried out by regulated utility companies, who propose new investments to the regulator at each price control period.

Many of these new transformational investments, such as decarbonising heat, will require finding new solutions to new problems; for example, a competition could be held for how to design, build and operate a portion of hydrogen gas network. At a time of rapid changes in technology, and fundamental shifts in the design of networks, innovation will be especially important. The best way to find innovative solutions to these new problems will be to open major new investments up to the widest possible range of proposals, through a competitive process. This can go beyond simply holding a competitive tender for the provision of a piece of network infrastructure. At its broadest, increasing competition can mean holding a competition for how to solve a demand and supply problem (explicitly allowing for the fact that the solution may not be additional infrastructure, or it may be infrastructure based on different technologies than the existing network).

Competition opens the market up to new ideas, and channels resources and opportunities to the ideas that are most successful. Old and ineffective approaches can be discarded. Competition also offers a wider range of opportunities to investors and may enable new investors to enter the market. The economic literature shows a strong link between competition and innovation. A Competition and Markets Authority study from 2015 found that competition is the strongest incentive for firms to innovate, citing research showing that markets with greater levels of competition tend to have higher numbers of patent applications for new products and technologies. The study also found that increases in competition will generally lead to greater levels of innovation which in turn leads to higher levels of productivity.<sup>56</sup>

Removing major strategic investments from the price controls and opening them up to competition would both boost innovation and give infrastructure providers confidence to deliver long-term projects within a stable regulatory environment. This will not be the case for all strategic investments, but in many cases using competition outside of price controls to drive innovation can provide benefits which outweigh these risks.

For networks currently subject to price control reviews in energy and water, competition should be the preferred route for the provision of major new strategic investments, to deliver innovation. However, this will require changes to the current system, which was not designed to deliver competition for the market.

## **Competition in the current regulatory system**

Competition is widely used already within utility sectors and has driven rapid innovation in mobile networks and renewable electricity generation. Mobile data per connection is over six times higher than five years ago, while the tenders introduced by Ofgem in 2009 to grant licenses to operate transmission assets for offshore wind have delivered savings for consumers of between £680 million to £1.1 billion over three tender rounds.<sup>57,58</sup> Competition has also been a key driver for new investment: the competitive tension between rivals Openreach and Virgin in providing superfast fibre and full fibre connections has led to both companies investing significant sums in their networks; and in electric vehicles, competition from Tesla has prompted all the major car manufacturers to develop and roll out electric vehicle models, as well as significantly increase their research and development on electric vehicle technologies.<sup>59</sup>

The use of competition has varied across the three sectors. In telecoms, Ofcom has used competition to deliver strategic investments, such as 5G and full fibre coverage, as demand for telecoms can, in some places, support the cost of multiple networks, although this continues to be a challenge in rural

areas. The water network, and the energy transmission and distribution networks, both have natural monopolies, so imposing competition would not be cost effective: building two or more sets of electricity transmission networks, for example, would be extremely expensive and lead to very high bill increases for consumers.

Despite these successes, the regulatory system was not designed to enable competition in this way. It can be difficult to enable competition through the current price controls. Legislative changes are sometimes required to introduce competition (for example for competition to provide water resources, and for the onshore energy transmission network). Legislative changes are difficult and lengthy to enact and often an adapted approach is used to avoid this. Licencing changes or new licencing for new companies is sometimes needed, which further adds time and cost.

Therefore, despite the benefits of using competition to deliver major new projects, and the steps towards using competition that have been taken so far, network investment is still predominantly carried out through the price control process by the incumbent provider. A change to the current process is therefore needed to deliver benefits.

## Price controls

Regulatory price controls have become increasingly complex, using substantial resources in both regulators and regulated companies, and taking many years from start to finish. Despite efforts by regulators to make their materials accessible, this complexity also makes it hard for anyone other than regulatory professionals to engage with the process. This could tip the balance of benefits towards the companies, since they have the resources to engage which consumer advocates, environmental groups, and the general public lack.

To some extent this is inevitable. These are complex issues. And the high level of scrutiny applied to these documents makes them even more complicated. But to an extent it reflects a widening of the scope of price reviews, as they seek to address issues raised by the need for transformational investment.

In an attempt to take a longer-term view and exert competitive pressure, regulators have continually tweaked the price control approach (for example the attempt to move to eight-year price control periods for energy). This has further added to the complexity of the regulatory framework; several responses to the Commission's Call for Evidence noted that regulation has continued to increase in complexity.<sup>60</sup> Ofwat's 2019 price control methodology documentation amounted to over a thousand pages.<sup>61</sup> There is inadequate evidence that this has driven a materially improved approach to long-term investment from either the companies involved in planning and delivering it, or the regulators tasked with encouraging and enforcing it.

For many investments, such as those with integration risks, or those making more incremental changes to the network, the current price control process provides a stable regulatory environment. However, for major transformational investments, a three, five or eight-year price control may not be the appropriate length of time to set prices. To give infrastructure providers confidence to deliver long-term projects in an innovative, efficient way, they should be certain that the regulator's view on their pricing structures will not change halfway through, potentially cutting back any profits they have managed to make from efficiency savings.

Furthermore, for some new technologies, their development or rate of adoption may be moving so fast (or so unpredictably) that it is difficult to fix plans for them over the length of a price control. Electric vehicles are a good example of this; the rate of future uptake remains uncertain. It would be easier for decisions on investment plans for these new technologies to be made outside of the fixed price control process.

Price controls already underway should go ahead as planned. However, in future, for major strategic investments, bespoke price controls should be set as needed, and for at least the time that it takes to deliver and efficiently operate the new piece of infrastructure.

## **Enabling competition to build major new projects**

Regulators should identify strategic investment needs, informed by the overall strategy (as set out in sections 1.1 and 1.2) as well as analysis by the system operator in energy and regional and national water frameworks, such as water resources management plans. Regulators will need to manage the trade-off between accessing the detailed system knowledge of industry operators, such as the National Grid Electricity System Operator, and the conflicts of interest that arise since existing operators may be inclined to propose solutions that incumbent firms are well placed to deliver. Different models may be appropriate to different investments.

The regulators should then scope the investment in more detail before holding the competition (late competition), or include the scoping and design of the network solution to be part of the competition (early competition).<sup>62</sup> Either or both models may be appropriate to particular circumstances and regulators should have the freedom to design the appropriate mechanisms.

Mechanisms to be used in competitions would be designed by the regulators. They may wish to apply a range of different models to different types of investment, building on their existing approaches such as the Offshore Transmission Operator model, Thames Tideway Tunnel or Ofwat's Direct Procurement approach. It may be that another party (such as the system operator in energy) is better placed than the regulator to structure and deliver the competitions, or to advise when more innovative solutions might be found in a different type of competition.

Regulators will need extra resource to be able to successfully carry out these tenders, and this may require a new skill set. This can be difficult when the regulators are constrained by civil service pay constraints; the government should consider whether there is a case for lifting these, as has been done for Ofcom. However, regulators have been able to use 'for the market' competition for complex issues in the past; Ofcom has used auctions to allocate the scarce resource of radio spectrum which is used to offer wireless communications services, such as using mobile data. Auctions can be designed to meet a certain set of objectives and the criteria for bidding can be set to deliver certain outcomes.

There will be some exceptions to the proposed competitive route. Opening new projects up to competition can generate integration risks, as parties other than the incumbent provider are involved in the functioning of the network; sometimes integration risks will mean the incumbent provider is best placed to deliver a new project. And in some cases, such as delivering rural broadband, provision will not be commercially viable, and subsidy will be needed. However, it is still worth considering the use of competition when designing these programmes; Building Digital UK is a government programme that stimulates commercial, competitive investment in superfast broadband and local full fibre networks.<sup>63</sup>

New investments will ultimately be funded by consumers. Developers will want to ensure that they can receive reasonable returns and cannot be shut out by incumbents. Individual assets could have their own regulated asset base, with charges passed through to bills. For these bespoke regulated asset bases, a bespoke price control should be set for at least the time that it takes to deliver and efficiently operate the new piece of infrastructure. In some cases, assets might be remunerated in competitive markets, such as the Capacity Market in energy. Regulators may wish to look at whether new or wider markets should be developed in some areas. It would also be possible in some cases for asset operation to transfer to existing utilities once they have been constructed, as with the Thames Tideway Tunnel, which will be operated by Thames Water.

Separating the 'standard' price control from these major new transformational investments may make consideration of each simpler, reducing some of the burdens of the price control process and making it easier for a wider range of people to engage in the issues that concern them.

### **Innovation funds**

A competitive market will also continue to require government support for some 'public good' innovations, for example to trial the use of hydrogen to decarbonise heat. Government has a range of innovation funds which provide funding to support public good innovations. Ofgem also has its own innovation fund which pays for innovation projects in the monopoly networks, and Ofwat is currently consulting on introducing one.<sup>64</sup> The European Investment Bank currently also supports innovation by lending to projects that develop innovation and skills.<sup>65</sup>

### **Market codes**

With increased use of competition, it will be important for efficient market integration that there is a system of technical and commercial rules that apply to market participants ('market codes') that are clear and can be applied consistently by those operating in the market. Many complicated systems, such as energy generation, or the internet, function successfully despite being fragmented, through the use of widely applied and understood standards. The government and Ofgem have recently consulted on reform to the electricity market codes in recognition that processes and accountabilities have not been able to adapt at the pace needed.<sup>66</sup> Lessons from the issues faced in the evolution of the existing market codes should be applied to the adoption of further codes across the sectors. This will enhance the efficiency of the recommended competitive markets and prevent future market codes from presenting a barrier to entry for new providers.

Recommendation 4: The use of competition should be enhanced as the most reliable means of supporting innovation, particularly where there is rapid technological change:

- Regulators should focus 'standard' periodic price controls on the maintenance of existing networks and marginal enhancements
- Ofcom should continue to promote infrastructure competition for fibre and mobile networks
- Government should introduce legislation, ahead of the next price controls, to remove any barriers to the use of competition in the provision of strategic enhancements to water and energy networks
- For future price controls, Ofwat and Ofgem should separate consideration of strategic enhancements from the 'standard' periodic price control. Ofwat and Ofgem should develop tendering processes for strategic enhancements, with a clear, public justification required where tendering is not used
- Government should ensure that regulators have the resources they need to carry out competitive tenders for transformational investments.

## 2. Building public confidence



**The high levels of investment needed over the coming decades will ultimately be recovered from consumers. Consumers must have the confidence that their money is being spent on the right things. But public confidence in the regulatory system, and political consensus around it, could be higher. The economic regulation of water, energy and telecoms must be updated now, to deliver the stability and consensus around the regulatory system that will support strategic, long-term investment.**

A model that works better for consumers does not simply mean lower prices. The previous chapter set out the predicted high levels of investment required to meet the challenges over the coming years. Over time, this investment in the energy, water and telecoms sectors will be recovered predominantly from consumers through their bills (although, where services are not commercially viable, costs may also fall to taxpayers). Consumers should have confidence that their money is being spent on the projects that will benefit them over the long-term.

However, there is a lack of public confidence in the regulatory system's ability to deliver its services in an efficient and fair way. The Commission's social research showed that consumers were particularly dissatisfied with water, energy and broadband companies' value for money, customer service, and support for customers to understand and reduce their energy and water usage.<sup>67</sup>

Low levels of public trust in these sectors creates political risk; government is far more likely to intervene to protect consumers. This uncertainty presents a barrier to investment in the system. Public confidence must be restored, and political consensus around the regulatory system boosted, if the high levels of investment needed over the coming decades are to be secured.

Consumers need to be confident they are receiving a value for money service:

- risk and reward should be balanced between investors and consumers
- retail markets should work for consumers
- government and regulators should ensure that regulation acts fairly for all groups of consumers
- coordination between the regulators should be improved.

## 2.1 Balancing risk and reward between investors and consumers

To support public and political confidence, the benefits of regulation must be shared fairly between consumers and investors. Regulators should be responsible for mediating the financial risks that infrastructure providers are taking, and ensure that consumers, who are also taking on some of this risk, are sharing the benefits.

### Concerns raised on behalf of consumers

#### Weighted average cost of capital

For regulated monopoly networks in the energy and water sectors, new infrastructure investment is added to the Regulated Asset Base (RAB).<sup>68</sup> Price controls factor in a weighted average cost of capital (WACC) that companies are allowed to earn to finance the RAB, making these networks a relatively low risk investment. However, regulators must estimate the WACC in advance for each price control, so there is a possibility that their prior assessment of the WACC is too high or too low. Utility companies also receive total expenditure allowances for activities such as maintenance and enhancement of the network, which again are determined in advance, and may be too high or too low. Setting these factors at the start of price controls gives companies an incentive to improve efficiency, since they can keep the benefits of outperformance. In some price controls, outperformance benefits have been shared with consumers.

#### **Box 5: The weighted average cost of capital (WACC)**

Regulators set price controls for network companies that specify how much they can earn from their networks. One of the most important inputs to this decision is how much the company needs to compensate lenders and investors to persuade them to finance the company's investment, known as the weighted average cost of capital.

Regulators don't know exactly how large a return companies will need to offer investors to persuade them to invest. Even the companies themselves will find it difficult to predict their cost of financing years in advance as required by a price control. Given this uncertainty, companies have an incentive to put forward evidence in favour of a higher cost of capital, whereas consumer groups will often argue for a lower cost of capital to limit the impact on bills. However, companies generally have better information than regulators and consumers on their expected cost of capital, and more resources than consumer groups to lobby regulators. This known information asymmetry makes it more difficult for regulators to set the allowed cost of capital at an efficient level, making it more likely that the level set is biased towards companies.<sup>69</sup>

If the allowed WACC is set consistently higher than the true WACC, then consumers are likely to pay more than necessary to finance investment. The regulator's decision on the WACC is significant for consumers because of the substantial value of the regulated assets, currently worth around £144 billion across the energy and water networks.<sup>70</sup> This means that just a 0.5 percentage point increase in cost of capital for energy and water would raise the amount of revenue that needs to be recovered from consumers by around £720 million a year.

There is some evidence that regulators may have been setting the WACC too high in past price controls, allowing companies to earn higher returns than necessary to compensate investors, at a cost to consumers. None of this evidence is definitive, and the Commission has not carried out further research, as this was unlikely to bring further clarity. Nevertheless, the evidence indicates why a systematic bias may occur in determining the WACC, and how this could be avoided.

Firstly, incumbent companies investing in new projects may have been receiving a higher return from monopoly RABs than if the project was tendered competitively in an open market. When major infrastructure projects have been put out to competition, investors have typically invested in these projects at much lower rates of return than the WACC on the incumbent network RAB.<sup>71</sup> The specific risks and costs of each project means that they cannot be used to directly assess the appropriate WACC for existing infrastructure. But some critics have suggested that these lower rates of return accepted by investors in competitively tendered projects imply that regulators have overestimated the WACC required to finance incumbent networks.<sup>72</sup>

The factors determining the WACC over the course of a future price control are uncertain, so regulators usually take a judgement based on a range of estimates. But choosing a WACC that is too low could deter investors, so regulators have sometimes selected a WACC at the upper end of the range of estimates.<sup>73,74</sup> Ensuring that the regulated WACC accounts for an efficient return which favours neither investor nor consumer could help to redress this imbalance.

In general, if the market expected regulators to set the WACC at the market rate, the value of a regulated company should, on average, be equivalent to the value of its RAB, because the RAB is the asset that generates its future revenues. However, some water and energy companies have sold for significantly more than their regulated value. According to PwC analysis of takeovers of utility companies between 1998 and 2012, the average premium of the sale value over the RAB was 16 per cent to 24 per cent.<sup>75</sup> This suggests that investors expected the companies would be able to generate higher returns than indicated by the value of the RAB, possibly due to generous price determinations by regulators.

The RAB model means that investment returns from monopoly companies are significantly less volatile than companies that are subject to competition. Some critics have claimed that the parameters regulators use to set allowed returns do not reflect these lower levels of volatility.<sup>76</sup> For instance, a recent report for Ofgem reviewed the methods used for estimating 'equity betas' in the utilities sectors. Equity betas measure the volatility of returns relative to the whole market. The review found that methods used by regulators to calculate 'equity beta' are complex, inconsistently applied and sensitive to data inputs; and that regulators have used beta values in energy and water which are higher than is justified by the evidence.<sup>77</sup>

There are also concerns that companies may have received total expenditure allowances that were higher than needed. For example, many energy network companies have significantly underspent their total expenditure allowances, contributing to financial outperformance.<sup>78</sup> In part, this may simply reflect the incentives for greater efficiency that the regulatory system is intended to provide. But it may also reflect an overly conservative approach in setting initial allowances.

Recommendation four sets out that future major strategic investments should be opened to competition as the preferred route. This should result in an efficient cost of capital which is set by the market. However, for incremental investments, or other investments remaining on the RAB of incumbent providers, regulators should take direct account of the known information bias in favour of

companies. The regulatory system was designed to ensure that companies would have to reveal their information advantage in order to benefit from it. Outperformance in one price control period could be factored in, as a tougher efficiency assumption, in the next period. However, the true cost of capital is never fully revealed<sup>79</sup> and with rapid technological change, new information asymmetries can arise faster than regulators can offset them with the traditional approach.<sup>80</sup>

Price controls already underway should go ahead as planned. However, in future price controls, regulators should seek to take direct account of the fact that their best estimate of costs, based on the information available to them, is likely to be biased in the interests of companies. In setting a fair, mid-range cost of capital and total expenditure allowances, regulators may need to 'aim off' in order to take the known information bias into account. This will enable the regulators to allow investors to make a fair return compared to alternative investments, whilst protecting consumer bills and rewarding genuine efficiency.

### **Financial structures**

Guaranteeing future returns on the RAB reduces the risk of revenue volatility, which can reduce costs for consumers, but may encourage more financial risk-taking by companies, such as the use of high gearing levels. Concerns have been raised about gearing ratios, particularly in the water sector. The gearing ratio is the company's debt obligation as a proportion of its RAB.<sup>81</sup> Higher gearing means that the company's debt-related risk is increased, which may make it more susceptible to defaulting on loan repayments. Borrowing money to make long-term investments in infrastructure assets for the benefit of customers is not inherently bad, especially when debt is cheap; but excessively high gearing reduces companies' resilience to risks such as cost overruns.<sup>82</sup>

Overall gearing in the water sector has increased incrementally since privatisation, reaching 70 per cent in 2008.<sup>83</sup> This can be partially attributed to the water industry having been privatised with no debt; increased gearing was required to facilitate investment at efficient cost. Prior to the most recent price review (PR19), Ofwat's response has been to incrementally increase its notional gearing assumption, despite unclear evidence that higher leveraging increases efficiency.<sup>84</sup> In 2018, 14 out of the 17 water companies had higher gearing than the level of 62.5 per cent assumed by Ofwat in their 2014 price control determination, and eight had gearing ratios in excess of 70 per cent.<sup>85,86</sup> A quarter (six out of 23) electricity and gas distribution and transmission licensees have gearing levels higher than Ofgem's notional gearing assumption.<sup>87</sup>

There are two main potential impacts on consumers from high gearing levels increasing the risk of company failure in the water and energy sectors. Firstly, regulators are aware of the risk that companies may go bust. So it is possible that they may, even if unconsciously, be more inclined to make generous price determinations to reduce the likelihood of failure of utility companies that have taken on large amounts of debt. However, these higher price determinations will raise consumers bills, meaning consumers are taking on some of this risk. Despite the fact that consumers are taking on some of the risk of high gearing, reports by the National Audit Office and Ofwat indicate that the benefits of higher gearing in reducing companies' overall cost of finance have not been shared with consumers.<sup>88,89</sup> Ofwat has sought to address these issues through its PR19 methodology by introducing a benefit sharing mechanism to ensure companies with gearing levels higher than 70 per cent share financing outperformance from these financial structures with billpayers.<sup>90</sup> Regulators should ensure that where gearing levels are high, the benefits of outperformance are also shared with consumers.

A second potential impact on consumers is if a company were to fail. There is a special administration regime in place to deal with this eventuality.<sup>91</sup> However, the costs of company failure and special administration would still fall to consumers through bills, and potentially impose a cost to taxpayers (as well as equity holders losing their money), until a buyer could be found or the company could be returned to profitability.<sup>92</sup> This raises the case for considering an overall cap on gearing, in order to constrain the level of risk companies take on.

### **Executive remuneration**

Executive remuneration packages remain a cause for concern. Under normal circumstances, in a competitive market, it would be expected that companies' successes would tend to be linked with delivering consumer outcomes. However, despite high executive remuneration packages, consumer satisfaction in these three sectors could be improved.<sup>93,94</sup> In companies with a natural monopoly, which receive a guaranteed return and where consumers have no choice of alternative provider, remuneration should be clearly linked to outcomes for consumers and the public.<sup>95,96</sup>

As part of their duty to customers, regulators should take a more proactive role in ensuring that company management incentives are as closely aligned with public and consumer outcomes as they are to investor interests. For instance, in the banking sector the Financial Conduct Authority has remuneration codes which set rules around the remuneration policy applied to employees classified as material risk takers.<sup>97</sup> This helps to align management incentives with the public interest, by seeking to curtail excessive risk taking.

Utility companies are not the same as banks; they serve a different public purpose and face their own set of challenges. Regulators should not be responsible for setting executive pay. But regulators of monopoly companies should develop their own guidelines to ensure that remuneration policies are linked to outcomes for consumers and the public, not just the interests of shareholders. Ofwat has already committed to assessing the transparency of executive remuneration and how this is linked to performance in the interest of consumers.<sup>98</sup> Ofgem and Ofwat should be provided with similar powers of enforcement as the Financial Conduct Authority has in the banking sector; for instance by making compliance with their remuneration policy guidelines part of the license conditions for utility companies.

### **Rebalancing risk**

Changes have been made in the water sector already to try and address these and similar concerns. Ofwat has made a range of changes to its corporate governance principles to address the balance of risk between investors and consumers, which form part of water companies' licence conditions (see box 6).

## Box 6: Ofwat's corporate governance principles

In January 2019, Ofwat updated its board leadership, transparency and governance principles.<sup>99</sup> The principles set out a range of objectives related to:

- the role of the board in setting the purpose, values and culture of the regulated company
- ensuring that the board of the regulated company has full accountability for setting the regulated company's strategy, independent of any parent company
- reporting on corporate matters around group structure and risk management, and executive pay
- board structure, including ensuring that the board has the appropriate mix of skills, experience and sectoral knowledge to enable effective decision-making.

As of August 2019, it is part of the water companies' licence conditions to meet Ofwat's objectives of the principles. The companies are required to explain how they are meeting the objectives ("apply and explain") with reference to detailed provisions. Companies may be given leeway in their application of the provisions, provided they are able to explain how Ofwat's overarching objectives are being satisfied through other company policies.

As well as government and regulators, the utility companies have a key role in supporting and rebuilding public trust. This is clearly in their own long-term interests. Increasingly, businesses are looking at their purpose. For example, the US Business Roundtable recently issued a statement replacing shareholder primacy with a broader statement of corporate purpose.<sup>100</sup> Ofwat require the largest water companies' boards to set a purpose which recognises the interests of all of its stakeholders and to drive a culture to achieve this,<sup>101</sup> and water companies have issued a Public Interest Commitment with specific 2030 commitments on carbon, leakage, plastics, social mobility and water poverty.<sup>102</sup>

An emphasis on public purpose by company boards could be an important contribution to greater public trust. But it will be important that this goes beyond superficial activities and leads to genuine change.

Further change to the regulatory system, including addressing the approach to retail markets, will be required to balance the regulatory system fairly between investors and consumers and to sustain the levels of public confidence in regulation required over the long-term to ensure certainty for investors. The recommendations in the rest of this chapter are all designed to build public confidence in the regulatory system to enable stable long-term investment.

**Recommendation 5: Regulators should be more proactive in addressing financial risk and corporate governance, to ensure that rewards reflect performance and risks that are genuinely taken by investors:**

- In future price controls, regulators should take direct account of information asymmetries in assessing the weighted average cost of capital and total expenditure allowances, ‘aiming off’ to ensure a fair outcome for consumers and investors
- In future price controls, regulators should introduce outperformance sharing mechanisms to allow consumers to share in the benefits that equity investors achieve from high gearing, where companies have gearing levels which significantly exceed the level assumed by the regulators
- For natural monopoly companies, regulators should evaluate the case for an absolute cap on gearing
- For firms with a natural monopoly, regulators should ensure executive salaries are demonstrably linked to long-term performance for consumers and the public.

## 2.2 Making retail markets work for consumers

Regulation should ensure that markets in energy, water and telecoms do not lead to consumers overpaying or being exploited. ‘In the market’ competition, where companies compete on an ongoing basis to provide a service to a consumer, and consumers can choose their provider directly, has played a strong role in the regulatory system in energy and telecoms. Domestic gas and electricity prices are below and around the European average respectively.<sup>103</sup>

But these markets are not working for all customers, especially in energy.<sup>104</sup> Competing to provide a better service to consumers at lower prices drives better outcomes for consumers. But companies are exploiting consumer disengagement, including by making decisions too difficult and not making pricing structures clear, thus avoiding having to compete on price and quality.<sup>105</sup> The regulators need to address this consumer detriment now to avoid losing consumer confidence and potentially damaging long-term investment. A failure to do so would risk further political interventions, undermining the predictable regulation environment for investors.

### Price discrimination in utilities markets

The Centre for Competition Policy provides the following definition of price discrimination: “typically we think of different prices to different people where the cost of supplying these people do not differ to such an extent that the difference in price can be justified. However, price discrimination equally arises where the price is the same to all but the cost of supply differs across consumers or consumer groups.”<sup>106</sup> Some markets do not facilitate price discrimination. Usually, in a newsagent, for example, prices are completely transparent and are the same for everyone.

In some cases, there may be an overall benefit to consumers from price discrimination. For example, in telecoms, some consumers may choose to pay more for better contracts, ultimately funding the development of the network e.g. for 5G or full fibre. In energy, consumers could be charged less to charge their vehicles overnight when demand on the grid is lower. Differences in prices as a result of

introductory offers could also be beneficial to consumers in markets where they are unsure of the benefits of switching; these are separate from ‘price walking’ practices where consumers are penalised for not moving at the end of a contract.<sup>107</sup>

## Telecoms

In the market for telecoms services, different prices are charged for a variety of different products and packages for broadband, landline and mobile services. Generally, this model has worked effectively: in 2018, 83 per cent of broadband customers, 86 per cent of landline customers, and 93 per cent of mobile customers were satisfied with their overall service, while 79 per cent of landline customers, 87 per cent of mobile customers, and 76 per cent of broadband customers were satisfied with the value for money provided by their service.<sup>108</sup> Furthermore, it is now possible to switch mobile network by sending a text to your current provider.<sup>109</sup> Ofcom announced new rules in May 2019 requiring mobile companies to tell customers when their contract is coming to an end, addressing concerns that some consumers may be overpaying at the end of the contract,<sup>110</sup> and their review of pricing practices in fixed broadband has led to new commitments on price by companies including BT and Sky.<sup>111</sup> Since 2012, average broadband speeds have more than quadrupled and average mobile data use is over nine times higher.<sup>112</sup> But average household spending on telecoms is little changed over the same period meaning the value for money of mobile and telecoms has been growing steadily over the past years.<sup>113</sup>

## Energy

In the retail energy market, customers choose an energy provider that provides the same energy as any other provider. Switching provider can be complicated, and it is not immediately obvious that consumers could be getting a better deal.<sup>114</sup> This means there are high levels of disengagement in this market: only 20 per cent of people switch energy providers on an annual basis.<sup>115</sup> Consumers often stick with an expensive contract, and prices often go up at the end of a contract if customers do not switch providers or renegotiate their contract (known as the ‘loyalty penalty’).<sup>116</sup> There are two temporary price caps for the domestic retail market (see box 7), however many energy consumers may remain in contracts that are not giving them the best deal; Ofgem estimate consumers could save £408 a year if they switched to the cheapest tariff.<sup>117</sup>

## Water

There is no competition in the household market for water, but competition was introduced in April 2017 for companies wholly or mainly in England. Since then, there has been continual progress in levels of switching and cumulative savings. However, there are concerns about market frictions such as data quality, and an overall concern over whether small and micro businesses are gaining as much from the market as large firms.<sup>118</sup> There are not yet concerns about price discrimination as there is currently a default tariff (price cap) for businesses that have not switched providers.<sup>119</sup>

## Price discrimination has damaged the perception of these markets

Price discrimination in these markets has therefore led to very different outcomes for consumers, and different perceptions of the fairness of these markets. However, it is not clear that consumers have always benefitted from price discrimination in these markets; while there have been some bargains to be had, consumers have also been exploited, particularly in the energy market.

Furthermore, customers in energy markets have been charged for their loyalty (staying in contracts after they end), which seems less fair than giving discounts to students, for example.<sup>120</sup> According to economic theory, consumers should shop around for the best deal. But companies and consumers do not necessarily behave like this in the energy sector, with some vulnerable consumers choosing to ration their energy use in order to reduce the amount they spend on energy rather than directly engaging with the market.<sup>121</sup> Participants in workshops as part of the Commission's social research felt they needed to haggle to get the best deals in the energy and telecoms sectors, and this was seen at best as a hassle and at worst as unfair.<sup>122</sup> There is no reason why consumers should have to regularly switch energy provider to avoid being ripped off, when they will not get a different product from another provider. This seems particularly unfair if it disproportionately affects vulnerable consumers. The market should be structured to avoid this in the first place.

Although these concerns have been raised primarily in the energy market in response to price increases, they have led to a significant loss of trust and confidence in the ability of competitive markets in all the utilities to deliver for customers, and this has further eroded political confidence in the overall regulatory model. This loss of confidence has created political concerns, with the Business, Energy and Industrial Strategy Select Committee commenting that "the energy market 'is not working for all consumers' and is yet to demonstrate effective competition and fairness... in a truly competitive market that works for all consumers and is fair, the differential between the highest and lowest comparable tariffs should be smaller."<sup>123</sup> The Chair of the Competition and Markets Authority recently wrote to the Secretary of State for Business, Energy and Industrial Strategy stating that "there are increasing signs that the public doubt whether markets work for their benefit."<sup>124</sup> And the Competition and Markets Authority have also stated that "customers rightly feel ripped off, let down and frustrated. They should not have to be constantly 'on guard' or spend hours negotiating to get a good deal. This erodes people's trust in markets and the system as a whole."<sup>125</sup>

These concerns have led to interventions from government and regulators in this space (see box 7), which have led to uncertainty in the market, acted as a barrier to investment and reduced competitive pressure; regulatory independence is highly valued by investors.<sup>126</sup> It is important to rebuild this trust as developments in technology, such as smart meters and time of use tariffs, will lead to new potential benefits from consumers participating in energy markets.<sup>127</sup>

## Box 7: Interventions to support consumers in energy retail markets

Ofgem have attempted several interventions to support consumers in energy retail markets. In 2011, Ofgem limited the number of variable tariffs energy companies could offer to consumers to four.<sup>128</sup> This intervention was designed to address the lack of consumer engagement in the market, and the number and complexity of the tariffs. The result of this was that retail companies chose to keep their most popular and profitable tariffs and remove the more niche tariffs.<sup>129</sup> It also reduced competition in the market through reducing the number of tariffs available that were offered by external organisations, such as supermarkets. This intervention was removed following the Competition and Markets Authority's investigation of the energy market in 2016.<sup>130</sup>

There are two temporary price caps for the domestic retail market. The first applies to customers who pay for their energy through prepayment meters.<sup>131</sup> This came into force on 1 April 2017 as one of the remedies from the Competition and Markets Authority's investigation into the energy market<sup>132</sup> and is due to run until the end of 2020.

The second covers customers on default or standard variable tariffs.<sup>133</sup> These tariffs are the most expensive on the market and adversely affect consumers who do not engage with the market to identify a cheaper deal. Following government legislation<sup>134</sup> Ofgem established this price cap in January 2019 and initially estimated this could save customers on these tariffs between £76 and £120 a year.<sup>135</sup> This price cap is guaranteed to run until the end of 2020 when the government will decide whether to extend the cap, potentially up to the end of 2023. Ofgem have just started the consultation process to establish the conditions and framework they will use to assess whether the conditions are in place for effective competition in the market and whether the price cap should be removed.<sup>136</sup>

## Regulators must support consumers

Competition can provide a high quality, value for money service. It allows new companies to enter the market and encourages innovation. But competition needs to work well for consumers. Companies should compete on quality and price; in this case it appears that companies are competing through relying on customer disengagement, including by making the choices consumers face too complicated.

The design of energy markets must be updated to reflect that it is normal for customers to be disengaged with utility markets, and that they are not likely to shop around for a better deal. While customers do not shop around but feel they are being charged too high a price, the competitive model is not at its most effective, and this presents a problem for the regulators and government.

While the issue of price discrimination has primarily drawn attention in the energy sector, there are potential issues around price discrimination both in the telecoms market, and in the commercial water market. Therefore, approaches to addressing price discrimination could apply across all these sectors, addressing existing problems in the energy market and acting as a preventative measure against possible future problems in the water and telecoms markets. Addressing price discrimination will not

mean everyone gets the lowest prices all the time; addressing high prices in one area is likely to push up prices elsewhere so that companies can restore their profits. However, pricing structures should be determined in a transparent and fair way.

## Principles for preventing price discrimination

Regulators are best placed to address the issue of customers being overcharged through price discrimination. To address the issue of price discrimination being applied opaquely, regulators should require companies to set out clearly the prices customers are paying by customer group (as defined by the regulator), to ensure that particular groups are not being systematically exploited. Regulators should also require companies to demonstrate why the companies are using price discrimination where it is being used. This greater transparency alone may encourage companies to behave better, as seen through Ofcom's review of pricing practices in fixed broadband, which led to new commitments on price by companies including BT and Sky.<sup>137</sup>

This greater transparency may be enough to support better practices around price discrimination. However, regulators should also have clear powers to constrain companies' abilities to charge different customers different prices where this price discrimination cannot be demonstrated to provide an overall benefit to consumers. These powers should encourage regulators to consider the fact that consumers do not behave according to economic theory: consumers are often disengaged, and they should not have to do extra work just to avoid being ripped off by utility companies. As a priority, the regulators should issue a code of conduct for how they want retailers to behave. Where applicable, the regulators should look to put these into the licences of market participants.

Regulators should be alert to companies not following the principles, taking swift licence enforcement where necessary (including fines and revocation of licences where companies have been particularly poor). There is some precedent for this type of approach in light of Ofgem's 'fairness' licence conditions, which were updated after the Competition and Markets Authority's energy market investigation.

Regulators should ensure any future interventions to address price discrimination are based on a clear evidence base. Regulators should consider conducting trials, where feasible, to test the arrangements before rolling them out to all consumers. When implementing a change, regulators should demonstrate they have considered any potential unintended consequences of the solutions to avoid detrimental impacts on consumers. The consequences of the changes should also be reviewed in retrospect.

The ability of regulators to act quickly to address customer detriment is only as good as the tools at their disposal. At present, the regulators' ability to take action under the current court-based consumer enforcement regime is considered to be ineffective as it is arduous and time consuming.<sup>138</sup> The Department for Business, Energy and Industrial Strategy (BEIS) is currently considering making changes to the Competition and Markets Authority's remit to enable an administrative compliance and enforcement model for consumer protection.<sup>139</sup> In a letter to the Secretary of State for BEIS, the Chair of the Competition and Markets Authority stated that "the central challenge is that, despite relatively recent legislative changes, the UK has an analogue system of competition and consumer law in a digital age. The ability of the Authority to act quickly to prevent harm to consumers in fast-moving markets

is impeded by a complex web of interacting pieces of legislation that have accumulated on the statute book over many decades.”<sup>140</sup> This reads across to the water, energy and telecoms sector, which must also address consumer complaints through the court-based consumer enforcement regime.

Following a similar approach in the energy, water and telecoms sectors would strengthen the hand of the regulators to address consumer detriment, as this could be done through consumer law as well as through their regulatory powers. Enforcement will also support companies who are already aiming to act in good faith towards consumers; cracking down on companies who are exploiting consumers will mean that other companies will be able to continue doing the right thing without fear of losing their share of the market to those who are less scrupulous.

**Recommendation 6: Regulators should be able to prevent companies from engaging in price discrimination that does not provide an overall benefit to consumers:**

- **Regulators should require companies to report annually on which groups of customers are paying more for the same service; companies should be required to publicly justify their price discrimination policies or rectify them**
- **Regulators should be able to require companies to change their price structures where price discrimination cannot be justified by benefits to consumers**
- **Government should introduce legislation, by 2021, to replace the current court-based enforcement of consumer law with an administrative compliance and enforcement model, subject to appropriate scrutiny by the courts.**

## 2.3 Ensuring regulation acts fairly

Ministers, as elected representatives, need to take responsibility for political decisions that affect the energy, water and telecoms sectors. However, some difficult policy decisions are currently being left to the regulators without guidance from government. This has the potential to decrease public trust in the regulatory system. Regulators are not elected, and so are only accountable to the public indirectly via Parliament (through the National Audit Office and Public Accounts Committee).

Difficult policy decisions on regulatory matters can be hard for government to make without the expertise and the understanding of the context that regulators can provide. A new mechanism is needed that combines the expertise of the regulators and the democratic legitimacy of government to ensure the best decisions are made for consumers.

### Roles of government and the regulators

Regulators act independently from government and this independence is crucial for ensuring continued investment in the regulated sectors. But while the detailed application of regulation should be carried out independently of government by the regulators, setting policy direction and making politically sensitive trade offs with distributional impacts (different impacts on different groups of people) should be the role of government.

This division of roles has been set out many times, including in the 2011 Principles for Economic Regulation, which states that “high level decisions that involve political judgement are taken by Government and day-to-day regulatory decisions are undertaken by regulators.”<sup>141</sup> The 2011 principles were intended to reinforce the regulatory system’s foundations and ensure it provided clarity and certainty for the future. The six principles set out were: accountability, focus, predictability, coherence, adaptability and efficiency. The Commission is not proposing to change the 2011 principles or the division of responsibilities between government and regulators. However, the government also set out eight accompanying commitments to ensure the principles were embedded in government policy making. These were: clear division of political and regulatory decisions; independence of economic regulators; a commitment to put in place strategic policy statements; reinforcing accountability; clarity and focus of regulators’ objectives; efficient and proportionate regulation; cross-sector working; and embedding the principles.

It is difficult to quantify how government has performed with respect to these commitments, however this report raises issues with respect to the implementation of four of them: clear division of political and regulatory decisions; a commitment to put in place strategic policy statements; clarity and focus of regulators’ objectives and embedding the principles. Currently, government does not always provide the necessary guidance to regulators, the government has still not issued a statement for the energy sector to set more detailed strategic guidance and the regulators’ duties are high level. It is unclear how successful the published statement for the water sector has been, whilst the telecoms statement is yet to be designated.

Government has been able to take political judgements in some areas: in 2014, Ofwat was given an additional duty to promote resilience, which was followed by a strategic policy statement setting out further guidance; and the Department for Digital, Culture, Media and Sport are working with Ofcom to deliver full fibre, as set out in the Future Telecoms Infrastructure Review.<sup>142</sup> But government does not always set policy direction and make the politically sensitive trade offs that it needs to, particularly where the decisions might be more controversial.

## Distributional impacts

It is inevitable that some regulatory choices, such as encouraging time of use tariffs, will lead to a particular group losing out (see box 8).

### Box 8: Time of use tariffs

In the energy market, there is more demand for energy at peak times, such as before and after work when people tend to be at home using appliances. Introducing time of use tariffs would allow energy companies to charge consumers more to use energy at peak times.

Time of use tariffs would even out energy demand, meaning less energy generation and storage capacity would be needed overall than if they were not introduced, making it easier to transition to low carbon energy, providing an overall benefit for the general public. However, time of use tariffs could cause rises in bills for those who find it hard to use energy at off peak times, such as families with children who need to use most of their energy between the end of school and bedtime.<sup>143</sup>

If the government or regulators were to encourage the use of time of use tariffs for their efficiency benefit, that could mean some households would have to pay more for their energy bills. Regulators need to consider how to mitigate potential impacts such as these that arise from their regulatory choices.

If there are a range of potential distributional impacts from a regulatory decision, and a choice must be made, this is the type of politically sensitive decision that should be for government to provide guidance on. It can be politically difficult for government to provide this guidance in advance. This can be made easier with context on the distributional impacts provided by the regulators.

In economic theory, regulators can take their decisions entirely based on economic efficiency, and government can fix any unfair distributional impacts through policy decisions.<sup>144</sup> This would mean regulators could take independent, economically efficient decisions, without having to consider political issues like fairness, knowing that government can address the distributional consequences. However, this approach does not work in practice, for two reasons.

Firstly, this approach assumes that government has the right tools available to fix very specific impacts on different groups of people. But government does not know exactly who has gained or lost through regulatory decisions; regulators do not always know this either. Even if government could accurately identify the winners and losers, it would not be able to alleviate the distributional impacts so specifically. It would be impossible to add a benefit to the welfare system that was granted to one very specific group every time a regulatory decision had a distributional impact; even identifying broad groups such as single parents is very difficult for government. Furthermore, changes to tax and welfare often have unintended consequences, as they change people's incentives. These unintended consequences might even outweigh the benefits of the changes to regulation. Therefore, government cannot simply offset the distributional impacts of regulatory choices.

Secondly, this approach assumes that it is fine if some groups of people face rises to their water or energy bills, as long as they then receive an equivalent amount of money from government to offset it. But utilities such as energy and water are generally seen by the public as essential utilities that everyone should have access to. People's ability to access water or energy should not be dependent on receiving benefits to fund it.

Therefore, the reality of who needs to consider the distributional impacts of regulatory decisions is much more complicated. There are clearly overlaps between regulatory decisions and political decisions. Regulators do need to consider the distributional impacts of their regulatory choices and make attempts to mitigate them. This could be done through methods such as providing exemptions to some charges for utilities for those likely to struggle to pay, or setting service allowances for consumers charged at a lower rate.<sup>145</sup> But ultimately government remains responsible for making politically sensitive judgements like this.

As this is not currently accepted, in the absence of political guidance from government regulators often take a 'do nothing' approach when they face difficult distributional decisions. The 'do nothing' approach may be the right one in some cases but doing nothing is still a decision. There was widespread consensus in responses to the Commission's Call for Evidence on the subject that government should provide stronger strategic policy direction for the regulators to help guide these choices.<sup>146</sup>

### **Government should publish strategic policy guidance to regulators**

On some issues, it should be straightforward for government to provide strategic policy guidance to the regulators. Even if the regulators' duties were updated as recommended in section 1.3, regulators would still need to make difficult decisions that required balancing some of their duties against others; duties are not flexible enough to provide the full government guidance that regulators need.

Issuing strategic policy statements would help to provide this necessary strategic guidance. As set out in section 1.1, these should be issued regularly for all three sectors, in the first year of every Parliament, to support lasting plans and stable funding.<sup>147</sup>

### **There should be a mechanism for regulators to seek government guidance**

On other issues, such as distributional impacts, government may not always be comfortable providing guidance to the regulator through duties or strategic policy statements without the regulator providing information on the context and potential impacts of different choices. For these, there should be a mechanism for regulators to ask for guidance from government where this has not been provided.

Government tends not to give guidance to the regulators on tough distributional choices. It is natural that government might be reluctant to provide this kind of guidance, especially in an independently regulated sector where it is not immediately obvious that they should intervene. But these distributional choices are for government to make, and regulators should be able to ask them to make them.

In some of these issues, government may also refrain from giving guidance as they do not have sufficient information. Government may not have the expertise, or the understanding of the context, to make an informed decision on these kinds of issues. Government takes decisions on climate change targets based on independent expert advice provided by the Committee on Climate Change. The

National Infrastructure Commission itself was established to provide expert advice to government on long-term infrastructure strategy. The regulators are also experts; they should have a role to guide government on these politically sensitive decisions, while government should ultimately be responsible for making them.

To address this, where a regulator finds that government is not actively taking these politically sensitive decisions, the board of the regulator could seek government guidance. However, rather than just asking government to make a judgement, the regulator should use their own expertise to develop a set of options, with detailed impact assessments including options to mitigate these impacts where appropriate. The regulators should then put these options to the government, who would then be responsible for choosing one of the presented options, within three months. The regulators should present a preferred, default option; if the government did not give guidance by the end of the three-month period, the regulator could take this as assent to carry out the preferred option.

Particular attention could be paid to the impact on customers in vulnerable circumstances. This approach would not jeopardise the independence of the regulators; any government guidance would be at a strategic level rather than on day-to-day decision making, with the board of the regulator taking the decision on when to request this guidance.

**Recommendation 7: Government and regulators cannot rely on a flawed assumption that market design and distributional consequences can be separated. For future regulatory proposals with significant distributional consequences:**

- **Regulators should publish an analysis of the distributional consequences for consumers and businesses of their proposals, and of the impact of possible mitigations for significant adverse effects**
- **Regulators' boards should be given the power, by 2021, to seek explicit guidance from ministers on strategic policy direction and distributional choices, against a menu of feasible options provided by the regulator and within a fixed three-month period.**

## 2.4 Improved coordination of the regulators

To achieve the best outcomes for consumers, regulators need to work together on common issues and to be held to account to ensure that they are performing to a high standard. There needs to be stronger coordination across regulators to fill gaps where potentially useful coordination has failed to arise, and greater monitoring and accountability to improve standards and highlight best practice. This can be achieved by giving the regulators a duty to collaborate, and strengthening existing processes, such as the coordination facilitated by the UK Regulators Network, and the challenge provided by consumer advocates, the National Audit Office and parliamentary select committees. All this will support improvements in regulators' performance and demonstrate their ability to deliver in the interests of consumers, improving public confidence and providing certainty to enable long-term investment.

## Maintaining separate regulators

One way to address the issue of coordination would be to move to one regulator carrying out the functions of Ofgem, Ofcom and Ofwat. The Commission received evidence both for and against the idea of a multi-utility regulator.<sup>148</sup> A multi-utility regulator could: reduce administrative costs through sharing some functions; share ideas and expertise; provide greater consistency on some decisions; and better regulate cross-sectoral issues.

However, a cross-sectoral approach might not account for key differences between sectors, such as the more developed role of competition in mobile and broadband. Nor would it account for differences in the important relationships with other stakeholders; for example, overlaps between Ofwat, the Environment Agency and the Drinking Water Inspectorate are stronger than those between Ofwat and Ofcom. Some respondents were concerned that a multi-utility regulator would not be able to manage the full range of issues across the three sectors, leading some areas to be deprioritised. And a loss of competition between regulators might reduce the pressure to innovate and improve. It is not clear which government department would sponsor any multi-utility regulator, but there would be a risk of competing departments creating conflicting signals.

Creating a multi-utility regulator would also be highly disruptive at a time when long-term decisions need to be made, especially to achieve the government's net zero target. Without a compelling case for change, this cost is hard to justify.

## Collaboration duty

There is currently no specific duty on any of the regulators to collaborate. By contrast, in the financial sector, the Bank of England, Financial Conduct Authority, Prudential Regulation Authority and Payment Services Regulator have a duty to coordinate; they must consult with each other when they act in a way that could have a material adverse effect on the advancement of another regulator's objectives, or would concern matters of common regulatory interest.<sup>149</sup>

As in the financial sector, the regulators of economic infrastructure are facing similar challenges and have overlapping objectives with cross-cutting impacts. They also serve the same consumers. Although there is some coordination, for example through the UK Regulators Network, there is room for improvement: a voluntary organisation like the regulators network will never be able to entirely ensure collaboration when collaboration is not unanimously in the best interests of all its members. A secondary duty to collaborate with each other, and with all relevant regulators on matters of common regulatory interest, would support the regulators to work together to assess impacts on consumers across all the sectors, ensure that planning for new housing developments is joined up with all the utilities, and share knowledge and information.

## Coordination through the UK Regulators Network

Currently, the UK Regulators Network works to coordinate across 13 regulators.<sup>150</sup> The network is an agreement between regulators to coordinate, but it has no legal status or formal powers.

Through a public letter,<sup>151</sup> the regulators network has signalled intent to do more to address the issues raised by the Public Accounts Committee's Consumer Protection Report, which included the different approaches used for tackling common consumer issues, and providing joined-up support to consumers.<sup>152</sup> The regulators network is acting with the members referenced in the report (the

Financial Conduct Authority, Ofcom, Ofgem and Ofwat) to address these. This demonstrates that, whilst the UK Regulators Network represents 13 members it is possible for them to act on behalf of sub groups where coordination is required to address pressing issues. The regulators network has started to make progress on cost of capital work, vulnerable consumers and data sharing.<sup>153154</sup>

However, the regulators network could be more impactful if it had an independent chair, supporting a forward workplan to:

- enable data sharing to ensure regulators can develop a ‘whole customer view’
- support the regulators to develop joint data sets to enable whole customer analysis
- support collaboration between Ofgem, Ofcom and Ofwat
- identify regulatory best practice and challenge regulators to report performance in a thorough and consistent way.

### **An independent chair for a strengthened UK Regulators Network**

An independent chair of the UK Regulators Network would help challenge regulators to expand the ambition of their coordination, and to identify best practice for other members to emulate. As it is a network of regulators rather than a formal government body, the regulators network itself could appoint an independent chair with the advice of an independent panel consisting of representatives of the key stakeholders impacted by regulation – consumers, investors and government – to reduce the risk of the chair having a vested interest in any regulator. An independent chair could seek to enable greater coordination across all the regulators, and would have more capacity to work on UK Regulators Network issues than in the existing model.

The UK Regulators Network sets out its forward workplan on an annual basis to address a select number of projects. A better resourced regulators network with an independent chair would be able to set out an increased workload, including: supporting the regulators to develop joint data sets to enable whole customer analysis; support data and knowledge sharing, including supporting the regulators to improve their data management capability; support collaboration on the achievement of common goals; and support coordination to avoid contradictory regulation and inefficiency.

### **Consumers**

There is no overall assessment of the combined impact of interventions in the three sectors on consumers; there may be examples where interventions cost more in one sector but create savings in others. Understanding the combined impacts of policies could make a policy that is potentially unpopular in one sector, but beneficial overall, more achievable. There may also be customers who are losing out across all three sectors; this should be identified. Furthermore, although each sector identifies vulnerable customers, this knowledge is not yet systematically compiled across the three sectors. There are likely to be significant overlaps and coordinating policy through the UK Regulators Network could be more efficient and better support vulnerable customers across all three sectors.

The Competition and Markets Authority have been working with the regulators on generating data to be able to understand consumers across all sectors, and have concluded that this is feasible, although there are some data sharing challenges which need further consideration and potential legislative changes. The regulators network could work with the Competition and Markets Authority and the

regulators to further develop this work. The creation of the consumer forum bringing together government departments, economic regulators and competition authorities is a positive step towards greater coordination and could provide support to the regulators network's work in this area.<sup>155</sup>

The government should review data gathering and sharing powers by regulators to ensure that it is possible for them to develop a 'whole customer view', taking account of privacy, security and commercial sensitivity concerns.

### **Data sharing**

Increased information and knowledge sharing across the sectors could support better decision making. Sharing knowledge on specific challenges that affect all three sectors, such as resilience, could support better capability across the regulators in addressing these. Having greater insight into the range of costs that investors and companies face would inform more accurate regulation and in turn would help reduce costs for consumers. Sharing capability on technical issues such as data management would also likely create economies of scale and benefits for all three regulators.

The regulators network has made progress in this area as demonstrated in the report *Infrastructure Data Sharing*.<sup>156</sup> However, there are legal and institutional barriers to sharing data which persist, including the requirements of the EU's General Data Protection Regulation. Work on vulnerable customers could be progressed further if the regulators were able to request certain types of data and share amongst themselves, within an environment of trust, to create joint data sets. Greater coordination is also required with the Information Commissioners Office to ensure that consistent messages on data use and data sharing are conveyed to industry, as some companies identified inconsistencies in this area during the consultation period of this study.

The Furman Review outlined recommendations for addressing the deficit of regulation in digital markets, specifically of the digital platforms.<sup>157</sup> The review recommended that a digital markets unit be set up to regulate the digital platforms and further work is underway to identify the regulatory functions and appropriate institutional structure. Should the digital markets unit or equivalent digital and data regulator be set up, Ofcom, Ofgem and Ofwat will need to collaborate and work closely with them to ensure that innovation is promoted whilst consumers are protected.

### **Cross-sector interactions**

As well as the above, the three regulators have work overlapping in many areas. A strengthened regulators network would need to develop a business plan setting out how it would: support collaboration on the achievement of common goals relevant to the fulfilment of the regulators' duties; support coordination to avoid contradictory regulation and inefficiency; and address the issues of data sharing and performance reporting outlined above. This would support the delivery of cross cutting projects, such as working with local authorities to ensure new housing and commercial developments have the utility requirements they need. The parent department to each of Ofgem, Ofcom and Ofwat could direct each regulator to fulfil its duty to collaborate through the UK Regulators Network.

## Performance measures for improved monitoring

Regulators are held to account for their performance against their duties by Parliament, through select committees such as the Public Accounts Committee and bodies such as the National Audit Office. However, regulators do not generally report objectives and performance in a way that makes it easy for them to be held to account by these bodies and other third parties such as consumer advocates. To be held to account effectively, regulators need to:

- set clear, timed and measurable objectives with impact assessments that outcomes can be easily compared against
- provide regular, transparent performance measures on both their own performance and on industry and consumer outcomes for their sector; a consistent approach to data reporting is needed so that outcomes can be easily tracked over time
- evaluate the impact of their past policies and regulatory decisions to the best of their ability.

However, the regulators for energy, water and telecoms are not doing enough to meet these requirements. The Public Accounts Committee's Consumer Protection Report recommended that regulators should improve their standards for objectives, monitoring and evaluation. This finding was supported by evidence from the National Audit Office, which recommended that regulators should "do more to translate their high-level consumer outcomes into what this means in practical terms... underpinned by detailed indicators or targets... that can be used to measure performance in protecting the interests of consumers."<sup>158</sup>

The Commission supports these recommendations. Regulators should take greater ownership for monitoring and reporting on not only their own performance, but on industry and consumer outcomes in their sectors. This should be supported by a framework of performance measures covering investment, quality, environment, resilience, prices and financial performance, which are easy for stakeholders to access and interpret.

Regulators should do more to transparently evaluate the impact of their past regulatory decisions and the accuracy of the assumptions that fed into those decisions, for example the forecasts that inform the allowed returns set at price controls (see section 2.1). The Commission would also welcome more regular monitoring reports from the National Audit Office, to ensure that their previous recommendations to regulators are being met.

Examples of good practice do exist: for example, Ofcom's website and the Financial Conduct Authority's ex post impact evaluation framework were both highlighted by the Public Accounts Committee as demonstrating best practice.<sup>159</sup> A stronger regulators network could play a greater role in identifying best practice and supporting regulators to report performance in a thorough and consistent way. A common framework for setting objectives, measuring performance and evaluating impacts would support better decision making, and help to improve outcomes for consumers through greater transparency and accountability. An independent chair would be able to monitor the impact of this framework in improving regulatory performance, identifying where regulators need to do more.

**Recommendation 8:** The UK Regulators Network should have a stronger role, supported by an independent chair:

- By the end of 2020, the UK Regulators Network should appoint an independent chair
- By the end of 2020, the government should review data sharing powers by regulators to ensure they can develop a ‘whole customer view’
- By the end of 2021, regulators, with the support of the UK Regulators Network, should develop joint data sets to enable whole customer analysis
- By July 2021, the independent chair of the UK Regulators Network should publish a business plan setting out how the network will support:
  - collaboration on the achievement of common goals
  - coordination to avoid contradictory regulation and inefficiency
  - data and knowledge sharing, including supporting the regulators to improve their data management capability
  - improved performance reporting by regulators.

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Centrica

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CityFibre Holdings Ltd

Clear Business Water

Competition and Markets Authority

Consumer Council for Water

Cornwall Insight

Corsair Capital

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Department for Environment, Food & Rural Affairs

Department for Digital, Culture, Media & Sport

DRAX

Economic Insight

EDF

EDP Renewables

EIC

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Faraday Grid	Ombudsman Services
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Innogy	Scottish Government
Institute of Customer Service	Scottish Infrastructure Commission
Institution of Engineering and Technology	Scottish Power
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London First	SGN
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Mind Foundry	Smartest Energy
Mobile UK	Southern Water
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National Grid ESO	Storengy
National Grid Ventures	Sustainability First
Northern Powergrid	Talk Talk
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npower	Thames Water
Octopus Energy	The Infrastructure Forum
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Ofgem	Tideway
Ofwat	UK Power Networks

UK Regulators network

UK Water Industry Research

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Water Resources South East

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# Endnotes

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- <sup>3</sup> Infrastructure powers that sit with the devolved nations are not in the Commission's remit. The Commission's role is to advise the UK government, but the Commission works with both the UK government and the devolved administrations where responsibilities interact.
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- <sup>20</sup> Commission analysis of data from Ofgem and Offer
- <sup>21</sup> In these historic estimates of Gross Fixed Capital Formation, waste is bundled with water supply and sewerage in the SIC 2007 classification Section E; and telecommunications is not classified separately to the Information and Communication Section J. In more recent estimates that separate out these sectors, waste is a minority of investment in Section E, but telecommunications are only half of investment in Section J, so waste is included in this chart but telecommunications are excluded.
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