



**Circling the
square:
Rethinking
utilities regulation
for a disrupted
world**

**Discussion Paper
March 2019**

Sustainability
first

Contents

3	Executive summary
8	An overview of utilities regulation
10	The purpose of utilities regulation
12	Current and potential future challenges
14	Options for reform
18	Roadmap and criteria
20	Annex: Case studies to help in the consideration of future regulatory arrangements
24	About Sustainability First

This discussion paper is an input into the debate about the future of utilities regulation. It has been written by Dr Martin Hurst, Sharon Darcy and Judith Ward with support from Sustainability First Associates. We would welcome feedback. If you have any comments - or would like to discuss Sustainability First's Fair for the Future project further - please contact Sustainability First's Director, Sharon Darcy at: sharon.darcy@sustainabilityfirst.org.uk

Photos on cover by Pierre Châtel-Innocenti and [Andrew Haimerl](#) on [Unsplash](#) and Design by Madideas



Executive summary

This discussion paper is an input to the welcome debate about the future of utilities regulation. The National Infrastructure Commissionⁱ and HM Treasuryⁱⁱ are currently looking in particular at regulation for communications, water and energy. There is also a parallel review of rail by Department for Transport [DfT].

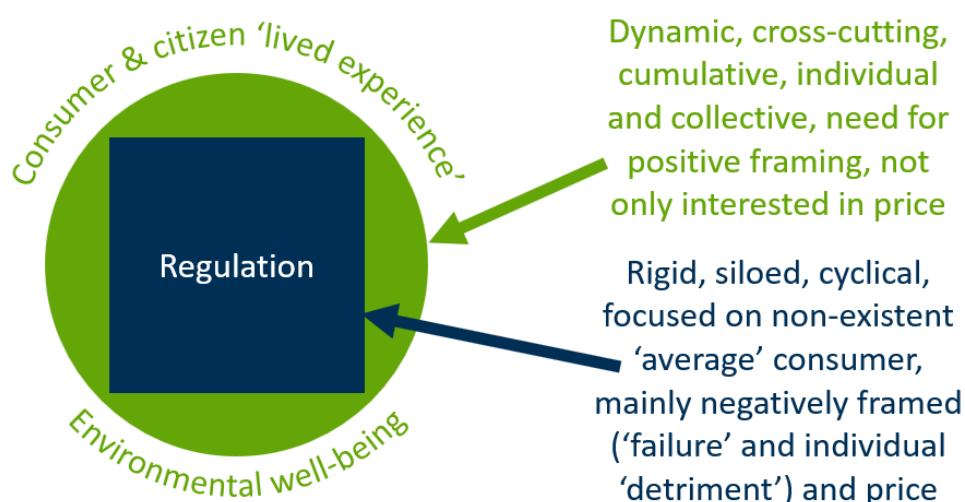
The focus of Sustainability First in this paper is the essential nature of many utility services for consumers, and the need for these services to remain affordable and fair, set against the implications of how those services are provided for the environment. This focus is not just at this point in time, but into the long-run (including for future consumers) and in the face of deep-seated ongoing change.

The basic arrangements for UK utilities regulation remain little changed since privatisation. What change there has been – whether initiated by government or by the regulators – can best be characterised as incremental and one-off. There has been little step-back on where the entire structure has got to (for example a stock-take against a coherent regulatory model) or full consideration of the challenges that regulated sectors will face in coming decades. **Utilities regulation, in our view, is therefore well overdue an overhaul.**ⁱⁱⁱ

We consider that any review of utilities regulation needs to take on board two fundamental points. Firstly, **despite regulation often being framed in terms of delivering a series of economic, social and environmental goals, in practice, one or other of these goals tends to come to the fore at a particular moment in time** (e.g. see case study on RIIO-2).^{iv} In our view, short term affordability is frequently given precedence over environmental goals – even when the rhetoric may be different. This tendency is partly down to regulatory structures (separate environmental regulators) but also due to the way that regulatory duties around environmental/resilience/future consumer issues are prioritised, framed and interpreted. Much of the commentary around ‘future regulation’ can exacerbate this approach by concentrating on the pursuit of just one goal.

Secondly, in our disrupted world, **utility regulation risks being fundamentally out of step with consumer/citizen ‘lived experience’ across the board and environmental well-being ‘on the ground’**. As Diagram 1 illustrates, in many ways it is a square peg in a round hole. Whereas consumer, citizen and environmental issues are dynamic, subject to multiple feedback loops, cross-sectoral and cumulative, regulation tends to be rigid, sector-based and focused on relatively short-term cycles.

Diagram 1: Circling the square – the interaction between regulation and ‘lived experience’ and well-being



Source: Sustainability First



Strong drivers for reform of arrangements for utilities regulation sit behind these fundamental points:

- **Short-termism** – the paradigm at privatisation that regulation should concentrate on a single (or at least a principal) ‘market failure’ of excessive pricing – be this associated with failures in competition or in monopoly supply – has increasingly looked over-simplistic. **Undue focus on price** has in some areas led to short-termism, **cumulative capital under-investment, poor maintenance and insufficient R&D**. Even the ‘conventional’ economic regulators have started to move to address issues around innovation, company governance and financial structures. And they have significantly upped their game around approaches to greater consumer engagement. But there is still a way to go before regulatory strategy is really framed in terms of the delivery of long-term ‘public interest’ and social outcomes – as opposed to outcomes which are more narrowly economic and technical.
- **Climate change and wider resilience** – this seems to us an increasing game-changer for regulators and utility companies – both mitigation and adaptation. There is also a serious ongoing deterioration in the natural environment (particularly in terms of chronic pollution and its impact on biodiversity). A voice for nature (and for future generations) is often not clearly heard. Government, regulators and consumer groups can each show a short-term bias towards putting off price increases at the expense of the long term (with the exception of renewable energy, where there has been genuine political leadership). Regulators can struggle to keep up with the pace of change or show sufficient ‘flex’ to adapt to emerging social/scientific evidence. The systemic risks and inter-dependencies that environmental and climate issues bring will require greater cross-sector and inter-company co-operation and collaboration than today. In this regard, recent moves by government in water to develop a 25-year national framework – plus regional groups for water resources – could,

potentially, begin to address the need for greater long-termism in that sector.

- **Technology** - in some utilities (communications, energy) technology is already a game changer. In others (water) this is likely to be only a matter of time. Examples include rapid developments in automated control, AI and blockchain, plus ‘hard’ technologies such as robotics, 3-D printing and satellite-based approaches. This seems to us to demand a far more agile, risk-based and anticipatory regulatory approach: regulation which is consistent across sectors where appropriate – and with clear reasons for difference in sector-specific approaches.
- **Legitimacy** - narrow economic regulation is increasingly at odds with the underlying politics. Debates about ownership and nationalisation and increased intervention by traditionally non-interventionist players are symptomatic. A side-effect is that the demarcation between government and regulators has become less clear, as all sides struggle to navigate through disruptive change. But sub-regional government, including powerful city mayors and local authorities, can still seem to lack an ‘entry point’. Some argue that the utility regulators and the sectors that they regulate embody a democratic and deliberative deficit.
- **Social compacts** - we contend that there are wider failures in narrow economic utility regulation which stem from a lack of consensus on a social compact needed to address both social and environmental challenges and associated distributional issues of ‘fairness’. Such a compact would also help to address other basic concerns as to the wider accountability and transparency of approaches to utilities regulation.

There is no single response to how utilities regulation needs to change given deeply disruptive technological, environmental and societal change. But, it may be helpful to think in terms of two basic choices: (1) an evolutionary approach or (2) more radical structural reform.

Evolutionary change

There are a number of ‘no’ or ‘limited’ regrets actions which in our view can be taken in an **evolutionary way**, including:

- more explicit and consistent government guidance such as Strategic Policy Statements – with a non-interference pledge once this guidance is tabled;
- clearer and more transparent alignment of economic, social and environmental goals *within* regulatory decision making – and reporting on regulatory progress against a balanced scorecard/‘basket’ of public interest outcomes and metrics. Sustainability First’s New Energy and Water Public Interest Network (‘New-Pin’) project developed a Dashboard of long-term public interest outcomes for the energy and water sectors, as illustrated in Diagram 2;^v
- maintain the current basic structures of separate utility regulators – but achieve greater consistency and collaboration where appropriate via
 - augmented cross-regulator arrangements (possibly a collaboration duty and by giving the current UK Regulators’ Network [UKRN] a greater and more formal and *strategic* remit, improved resourcing and ‘permanency’ of leadership);
- reform of regulatory and company boards and respective governance approaches (e.g. future consumer/environmental and employee champions on boards and/or elected representatives (national/local);
- moves away from full comparative competition (something even the Competition and Markets Authority [CMA] have hinted at) towards more collaboration and co-invention;
- a clearer role for Parliament/Select Committees in holding both government and regulators to account on delivery of strategic goals of utility regulation; and
- the adoption of more principles based/ethical approaches to regulation.

Diagram 2: Dashboard of desirable long-term public interest outcomes



Source: Sustainability First, New-Pin, Looking to the Long-term: hearing the public interest voice in energy and water, February 2018



A further evolutionary step would be for regulated utility companies to adopt some form of **‘Sustainable Licence to Operate’**. Together with a number of water and energy companies and the sector regulators, Sustainability First is currently developing such an approach through its Fair for the Future project.^{vi} The aim is to provide an enabling mechanism to facilitate companies, investors, consumers, citizens and other stakeholders to demonstrate leadership and ‘do the right thing.’

Many of these more evolutionary changes are the subject of current discussion, but, often on a **sector by sector** basis, in an **incremental fashion** and, at times, as a **‘defensive play’**. There is limited focus on the **full range of desirable public interest outcomes** and how these may be best delivered in a coherent, integrated and where appropriate, cross-sectoral way. We consider that the options outlined in the bullet point list should be more proactively considered, trialled where necessary and introduced in a more strategic fashion to take account of cross-sector risk, opportunity and inter-dependency.

More radical structural change

There is also a potential case for far more **radical structural change**:

- to introduce negotiated agreements with consumers and other stakeholders;
- to merge utility regulators into some form of ‘super’ multi-utility regulator or a reformed CMA;
- to de-merge regulators into specific functional or geographic roles;
- to significantly reduce or even remove the role of economic regulators as currently constituted and replace this with systems regulators;^{vii} and
- to think far more radically about the structure of government departments and the role of officials.

Radical change, however, also **risks** new rigidities and further failure for the utility regulatory landscape, for example: increasing uncertainty and reducing investment; inadvertently reducing consumer protections; or dampening the innovation in new products, services and business models that is needed

to deliver public interest outcomes in the disrupted world. Apart from the first suggestion, the others are focused on structural mechanics – and not promoting different company behaviours and greater overall consumer welfare or environmental well-being. And of course, the costs of disruption, in terms of loss of key staff and knowledge, also need to be taken account of.

For all these reasons, **Sustainability First does not support radical change of regulatory structures at the current time**. We consider that although many of the proposals for regulatory redesign may in time have real merit, it may be premature to introduce them now. Instead, alongside adopting the evolutionary changes already outlined, we think it is vital that regulatory reform starts with a **high-level vision** of what the utility sectors need to deliver, and the future pressures they face. In our view, regulation needs to be more closely aligned with the associated metrics and targets from relevant government plans (e.g. the Industrial Strategy and UK delivery of the UN Sustainable Development Goals) and the advice of bodies such as the Committee on Climate Change and the National Infrastructure Commission. **A road-map to 2030 is needed as a matter of urgency** which sets out how this can be done – with appropriate interim targets so that all sides can track progress and prioritise key actions.

Alongside this step, we are calling for an agreed set of basic **criteria and principles** that will underpin any assessment of more fundamental future options for change. Perhaps the most important is that change is focused on the full range of **public interest outcomes**. It is only by taking this wider perspective that distributional issues within and between generations can be dealt with in a fair way. Absent this wider view, political uncertainty and risk are likely to increase, paralysing decision making, undermining trust and deterring vital investment and innovation. Finally, it is also vital that any regulatory redesign has sufficient **agility and flexibility** to endure. Major change now which is not future-proofed against different scenarios for technology, climate / environmental or societal change, seems to us a potentially dangerous distraction from the very real issues in hand.



The rest of this paper:

- starts with a very brief overview of the current regulatory landscape;
- recaps the purpose of regulation;
- sets out the current challenges and the potential future challenges;
- identifies some options, concentrating on those which are to some extent future proof; and
- proposes some criteria for assessing options.

The Annex sets out some very brief case studies which may help people consider future regulatory arrangements.



An overview of utilities regulation

This paper concentrates on those economic utilities regulators which are core members of the UKRN^{viii} - Ofwat, Ofgem, Ofcom, the Office of Rail and Road [ORR], the Civil Aviation Authority [CAA] and the Utility Regulator Northern Ireland and Water Industry Commission for Scotland. It therefore largely covers monopoly (or at least not fully contestable) supply/networks and retail markets in:

- Water: both water resources and treatment and waste water;
- Energy: electricity and gas, (excluding upstream production and certain local supply such as community heat);
- Some aspects of communications;
- Airports;
- The rail network (although the granting of franchises/regulation of pricing in rail operators is undertaken in DfT).

Most of the analysis in the paper is drawn from the **energy and water sectors** as these are sectors where Sustainability First has the deepest knowledge. It is for others to assess how relevant this thinking is to other utility sectors. Nor do we discuss in depth the place of environmental or safety regulation vis-à-vis economic regulation.

It is immediately apparent that the current regulatory landscape is very **complex** and not a unique demarcation. Most utility regulators also have functions outside pure economic regulation – for example, ORR also oversee the VFM of the roads services provided by Highways England, and other not fully contestable services are regulated outside these regulators, in some cases by government.

The companies under utilities regulation are predominantly private companies, created by the privatisation of state entities. But even this is not universally true: water-only companies were always outside central government, Scottish Water and Welsh Water have different arrangements and Network Rail is now classified on the government balance sheet.

Equally, a number of previously nationalised industries are not in any way monopolies and are outside economic regulation (e.g. BP) and some of the regulated companies operate in what could be argued to be near-fully contestable markets (e.g. retail energy).

More importantly, the **duties** of the utilities regulators, even with regard to economic regulation, are not standardised; some but not all have duties on resilience, and despite adoption of incentive-based approaches to regulation (e.g. Ofgem's RIIO framework – see case study in the Annex), coverage of innovation is variable as is consumer protection and treatment of consumers and 'future consumers'. Beyond simply combatting monopoly pricing, some have a prudential role while others do not, and special administrator regimes have wider coverage in some areas than others (e.g. a full role in water, no role in airports). This is partly as a result of incremental legislation and government (more or less statutory) guidance to the regulators led by different government departments.

Although social and environmental duties have increasingly been added to the remits of most regulators, the **relative priority given to different duties and the way that these are 'framed' can be significant**. For example, when Ofgem makes decisions about electricity, it needs to think in the best interests of electricity consumers which can preclude some whole systems approaches. The way that consumer 'detriment' has often been interpreted (on an individual and short-term basis) can also have an impact on decisions.

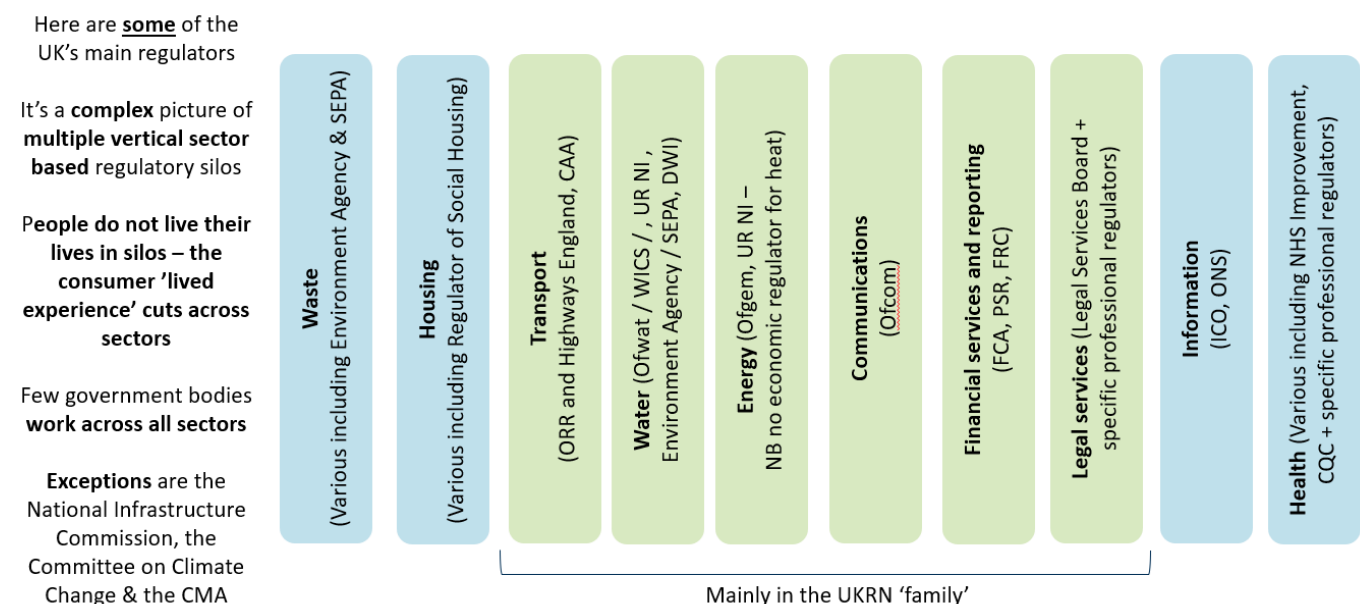
The overall complex regulatory picture does not include some of the sectors that consumers and the public may think of as providing essential services to the **'foundational economy'** such as waste, housing and health – although in some ways it could be stretching it a bit far to call these 'utilities'. Diagram 3 indicates the broader regulatory landscape in which the sectoral utility regulators operate. There are also a wider set of other regulators which impact on the utility companies



– including but not exclusively, **environmental bodies** such as the Environment Agency and Scottish Environment Protection Agency, health bodies such as the Drinking Water Inspectorate and general regulators

such as the Health and Safety Executive and local authorities.

Diagram 3: The broader regulatory landscape that is relevant to consumer/citizen ‘lived experience’ of essential services



Source: Sustainability First

It is important to note that whilst utilities regulation has been designed around **vertical sector-specific silos**, this is clearly not how people live their lives – whether this is as consumers, citizens or communities. The consumer/citizen ‘lived experience’ is cross-cutting and inter-sectional. This can pose a real challenge for utility regulators who may rightly say that certain social issues are outside their remit and vires. Similarly, ensuring environmental well-being is a shifting and dynamic process which is the responsibility of a range of regulatory bodies.

Relatively **few bodies** are able to take a view of issues such as **vulnerability, environmental risk and technological change** that span utility sectors and reality ‘on the ground’. This can lead to inconsistent approaches and missed opportunities. Perhaps the most influential cross sector view is from the **CMA** which sits over the economic regulators, and in many cases is the route of appeal against regulatory judgement, and the arbiter of utility mergers. But even here the relationship and appeal route is not

standardised. For energy, appeals against an economic regulatory judgement can be on a ‘focused’ basis – i.e. any single aspect of the judgement can be appealed (and can be triggered by a third-party) – whereas for water the appeal route is ‘unfocused’ – i.e. on the whole regulatory judgement. In some ways, narrow appeals are a ‘one-way bet’ for a company (except when questioning costs) whereas broad appeals as in water can lead to the company ending up worse off. Other cross sector bodies which advise government – and therefore to some extent frame the broader context for utilities regulation and the utilities – include the **National Infrastructure Commission** and, for some, the **Committee on Climate Change**.

Finally, the clear separation of **independent utility regulators from government**, envisaged in the original legislation, has become blurred in some areas. This may in part reflect discomfort at certain points by government about some aspects of regulatory direction. It has also given rise to a degree of second guessing among both regulators and utility companies.



The purpose of utilities regulation

Regulatory frameworks and the regulators themselves tend to see their role in classic market failure terms: monopolies and imperfectly competitive markets will typically set **excessive prices**. The ideal solution is to introduce more competition (so for example, Ofwat have expended a huge amount of effort in introducing competition into the business customer retail water market, despite its being a very small share of overall margins), but where there is a genuine natural monopoly, economic regulation is needed to ensure that prices do not rise above the level which would operate should competition exist.

This is far from straightforward: the **principal agent problem**, among others, means that some of the regulators have resorted to extremely complex and data hungry econometric approaches to '**comparative competition**'. There is an active debate about this approach – see for example recent CMA judgements on water cases. It can certainly give rise to suboptimal 'gaming' behaviour in the companies under regulation. And with the growth in **real time and granular data**, the way that regulators (and other actors) get assurance on issues like costs is starting to change.

Even allowing for a purist economic approach it can be argued that the regulators have until recently underplayed another market failure associated with monopoly: a tendency in some cases to **underinvest in long term research and in innovation**. Low levels of R&D can be another unintended consequence of price controls. That said, both Ofgem and Ofwat have accepted the need to press/incentivise companies to innovate, although the approaches are very different and in the case of Ofwat at least the definition of innovation seems to us excessively short to medium term.

Regulation has been more silent on three further issues where a market failure argument still potentially exists:

- **Distributional issues – cross subsidies, cost-reflectivity and the non-existent 'average' consumer.** In most of the utilities there are very

considerable cross subsidies or grandfathered rights – e.g. between rural and urban consumers, from non-switchers to switchers in energy (at least pre the price cap) and between water customers with cheap local sources, who still pay the same as customers with expensive long-distance pumping. Many of these cross-subsidies have been consciously introduced as commitments to 'postage stamp pricing' / to avoid 'post-code lotteries' in price. With the need to send sharper price signals to change behaviour in some sectors (e.g. in energy for demand-side response to avoid peak usage), there are now in places competing objectives in terms of price. A new vision is needed to balance these objectives. Whilst this is starting to be addressed in energy, for example, often this is in the depth of detailed technical charging reviews etc. and can be difficult for the public to engage with. This picture is complicated by the fact that regulatory duties around vulnerability are not all the same and, until relatively recently, this was treated as an 'add-on' after thought. Thinking on vulnerability has not always been proactively embedded into regulatory work plans in a strategic and cross-sector way (thus in effect missing that vulnerability can be dynamic and cumulative over time and between sectors).

- **Intergenerational issues** – we know that many industries will typically underinvest for the long term, but this can be exacerbated by some funding structures – high gearing, private equity – which have become prevalent in utilities. Both regulators (and governments) have typically seen their primary duty being to today's customers and to affordable short-term prices.
- **Environmental externalities** – if these are not addressed by taxation/carbon pricing etc., they need to be actively considered by regulators.

Underpinning all this has been an initial tenet of utility regulation: the **independence of economic regulators from government**. This, to some extent, has become

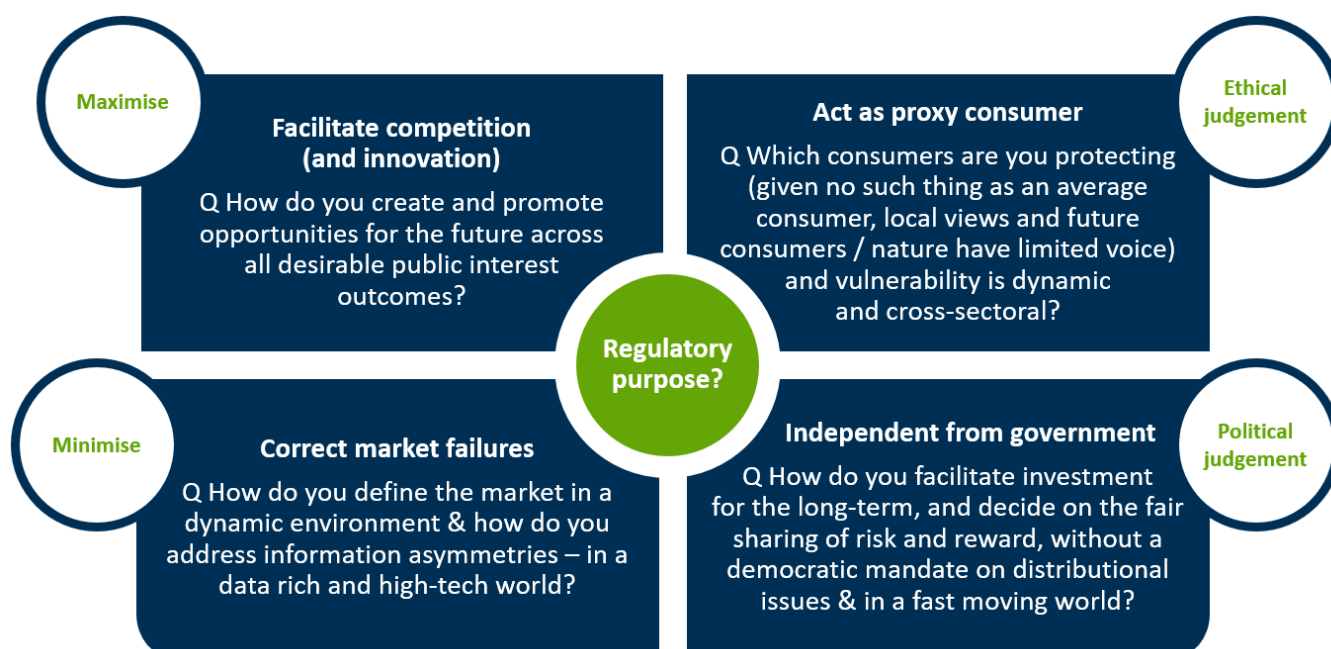
eroded. While the introduction of contestable approaches and the operation of comparative competition remains very much the role of the regulators, increasingly either government has intervened – e.g. the energy price cap, statutory guidance – or the regulator has read the runes of political pressure and has chosen to ‘own’ the issues – e.g. Ofwat and gearing/ownership models.

Finally, there is an open question as to the actual force of competition regulation and whether this (or

perceptions of what companies can and cannot do under competition law) can excessively limit the **inter-company and sector co-operation** that may be needed to address systemic risks and unleash transformative innovation.

Diagram 4 provides an overview of some of the key aspects of regulatory purpose and highlights associated questions for each one in the disrupted world.

Diagram 4: In the face of uncertainty and complexity, need to ask what was regulation originally set up to do?





Current and potential future challenges

It is apparent to us and is a central theme of our Fair for the Future project that the utilities, and utilities regulation, are under more pressure than has been seen since privatisation.

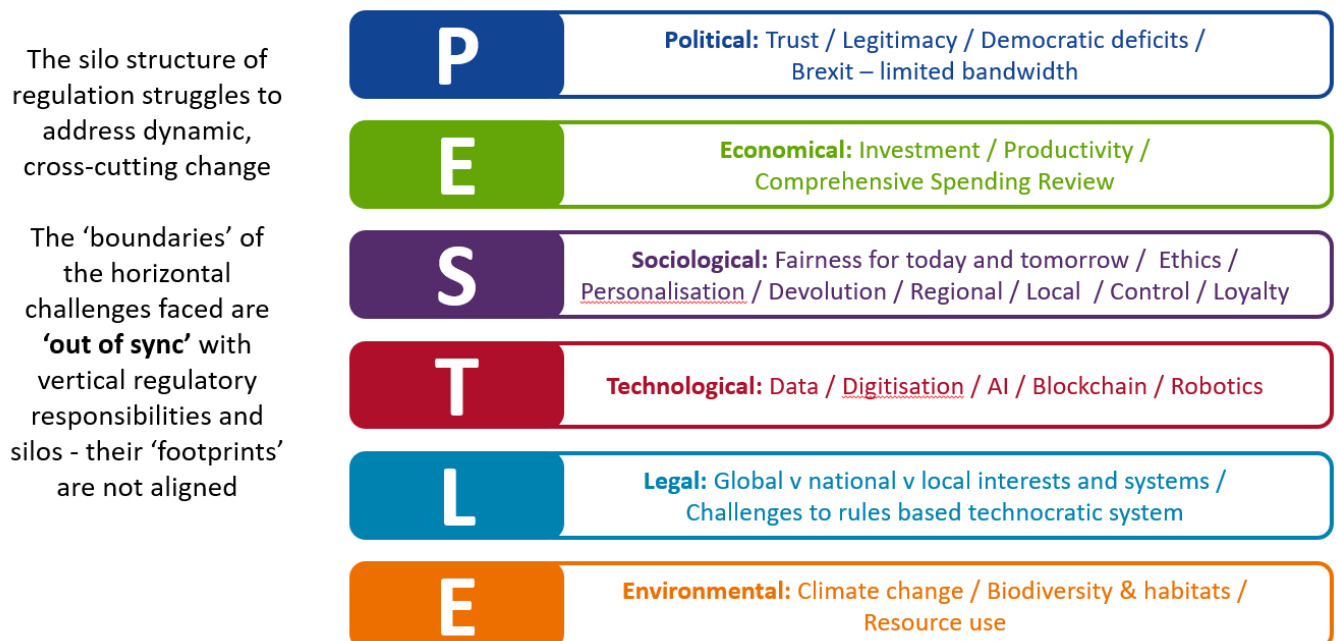
This is in some part due to the fact that social media, big data and other changes in technology have empowered and given voice to consumers, citizens and communities (including civil society and single-issue pressure groups) and has generated an immediacy to problems which previously could have been resolved before public opinion and the media became too concerned.^{ix} The pressure on utilities is compounded by the general pace of technological change: the impact of AI on customer interfaces; growing analytical capacity around big data and telemetry; potential implications of blockchain for retail intermediation; wider applications for robotics, satellite imagery, etc. In many cases these give rise to some quite fundamental questions about the appropriate level of inter- and intra-industry collaboration.

The 'PESTLE' analysis (political, economical, sociological, technological, legal and environmental) in Diagram 5 provides an overview of some of the challenges for delivering the public interest in the sectors. It is important to note that whilst utilities regulation is designed around vertical and often rigid silos, many of these challenges are horizontal, cross-cutting and dynamic. Some of the specific challenges (many of which are related) within these factors include:

- the medium-term decline in real incomes for significant parts of the population, with government budgetary pressure to reduce real benefits leading to pressure to cut utility etc.;
- low productivity growth across the economy, linked to concerns – exacerbated by Brexit – about underinvestment in infrastructure as one of the factors holding back UK competitiveness;
- a wider reduction in trust in political process and growth in populism, coupled with changing democratic structures: e.g. devolved government, elected mayors. This is linked to a growing movement (and not just in the UK; see recent speeches by leading democrats in the US) pressing for societal values to be reflected in company behaviour;
- a number of high-profile delivery failures: e.g. the water companies' response to the Beast from the East/the big freeze, 'contagion' from problems in rail franchising and wider contracting-out and out-sourcing (e.g. Carillion); this, coupled with increasing focus on offshore financial structures, excessive senior pay, etc.
- current Labour and other thinking on nationalisation and utility ownership for rail, water and energy networks;
- a significantly increasing profile for and urgency surrounding policy and actions on climate change (both mitigation and adaptation), and wider environmental issues (e.g. plastics, habitat and species loss).
- related to the above, increased concern about and pressure for resilience – as a result of population, climate and environmental pressures.



Diagram 5: PESTLE analysis for the utilities sectors



Source: Sustainability First

Notably, parts of the investor community are also waking up to some of these challenges (particularly institutional/universal investors such as pension schemes and in perpetuity investors). There is a growing focus on **Environmental, Social and Governance ('ESG') factors**, calls for a 'just transition'^x and the need to 'reinvigorate' the fiduciary duty. Whilst in some ways this is a challenge to regulation, it can also potentially be complementary (for example, the Financial Reporting Council work in this area).

There is a growing recognition that these issues interact and cannot be dealt with in isolation. There are significant inter-dependencies between them and how sectors and regulators may need to individually and

collectively deal with these. However, the **synergies** that may exist in terms of service delivery between utility sectors, and the extent to which they face common risks and opportunities, varies.

The Intergovernmental Panel on Climate Change [IPCC] and others point to the need to develop **integrated and systems thinking** to tackle these challenges and to avoid potential single-point and cascade failures that may spread risk between sectors and to maximise the opportunities for more transformative change. Rigid regulatory silos that primarily focus on delivering solutions within sectors rather than exploring opportunities between them can get in the way of this.



Options for reform

There are many ideas for reform and development of the role of the regulators. We have split these into two categories: **evolutionary changes** to the existing system, and wider, **more wholesale and radical reform**.

In forming any decisions or recommendations on the future of utilities regulation we would stress that this should be conducted against a clear statement of, and agreement on, the problems which any change is designed to address (with associated timescales). There will also be a need to ‘future proof’ any change against the considerable uncertainties we identify above, most notably climate/environmental impacts and future technology developments.

Evolutionary change (which may also well require more co-ordination between government ‘sector owners’) could include:

- Making more explicit the relations between government and regulators through stronger and more consistent statutory guidance and Strategic Policy Statements;
- Clearer and more formal regulator alignment to the *external* advice of the Committee on Climate Change (mitigation and adaptation) and the National Infrastructure Commission, including, where necessary, common and joint guidance;
- Clearer and more transparent alignment of economic, social and environmental goals *within* regulatory decision making – and reporting on regulatory progress against a balanced scorecard/‘basket’ of public interest metrics;
- Bolstering the role of UKRN – e.g. this could include introducing a new collaboration duty requiring regulators to work more formally and *strategically* together on issues such as cost of capital, data protocols, vulnerability, systemic resilience etc. – with more learning from the best-in-class regulators on particular issues; plus, increasing resource and ensuring more ‘permanent’ leadership, governance and staffing arrangements;

- Better use of data to provide more timely feedback loops as to actual consumer/citizen ‘lived experience’ and environmental well-being *across* the utilities sectors (rather than this being restricted to regulatory silos);
- Changes to both regulator and company boards – e.g. consideration of future consumer/environmental, employee and national/local elected representation;
- Combining consumer organisations and ombudsman services to get a more joined up approach to consumer problems;
- Moving away from full comparative competition (something even the CMA have hinted at) towards more collaboration and co-invention – possibly around ‘missions’ or ‘grand challenges’ – and to a consistent basis for CMA appeal against regulatory decisions on utility price controls;
- The adoption of more principles based/ethical approaches to regulation; and
- The adoption of a ‘**Sustainable Licence to Operate**’ by utility companies which then leads regulators to reassess the types of assurance they rely on to ensure that companies are effectively delivering on public interest outcomes.

Some of these incremental changes get into areas of judgement. Given our disrupted and dynamic environment, there are fundamental questions here as to **who should hold the ring and make which judgement calls about what**. As Diagram 6 shows, the regulator is not the only actor in this space. Innovations around engagement, changes in corporate governance, differences in devolved approaches, pressure from social media, civil society etc. are all challenging the regulators’ traditional role as the ‘proxy consumer.’ At the same time, increased government intervention is challenging regulatory independence. These different factors need to be seen in the round, and their associated risks, opportunities and potential understood, as basic regulatory frameworks and approaches are redrawn.

Diagram 6: Who should hold the ring and make which judgement calls?



Source: Sustainability First

Given the fundamental change faced by all utility sectors, we consider that these questions need to be tackled with **consistency** across the board for all utility regulators – and not just for those sectors that face rising real costs or are currently under the legitimacy/environmental 'spotlight.' Instead of a defensive response to the evolutionary changes outlined above, utility regulators could embrace these evolutionary options for change now. They also need to engage in a more open public debate about how best to respond both collectively and individually. Although evolutionary change may not be as 'exciting' as more radical options, we consider that it is possible to go a long way in delivering public interest outcomes by taking this approach.

Sustainability First is not convinced that more radical structural change is needed at the current time.

Others, however, may consider that more fundamental changes are necessary to: remove regulatory barriers to new business models; prevent incumbents from shaping future business and regulatory models (e.g. Dieter Helm's conclusion on the move to a systems regulation model); or to 'normalise' utility regulation (e.g. Laura Sandys et al.).^{xi}

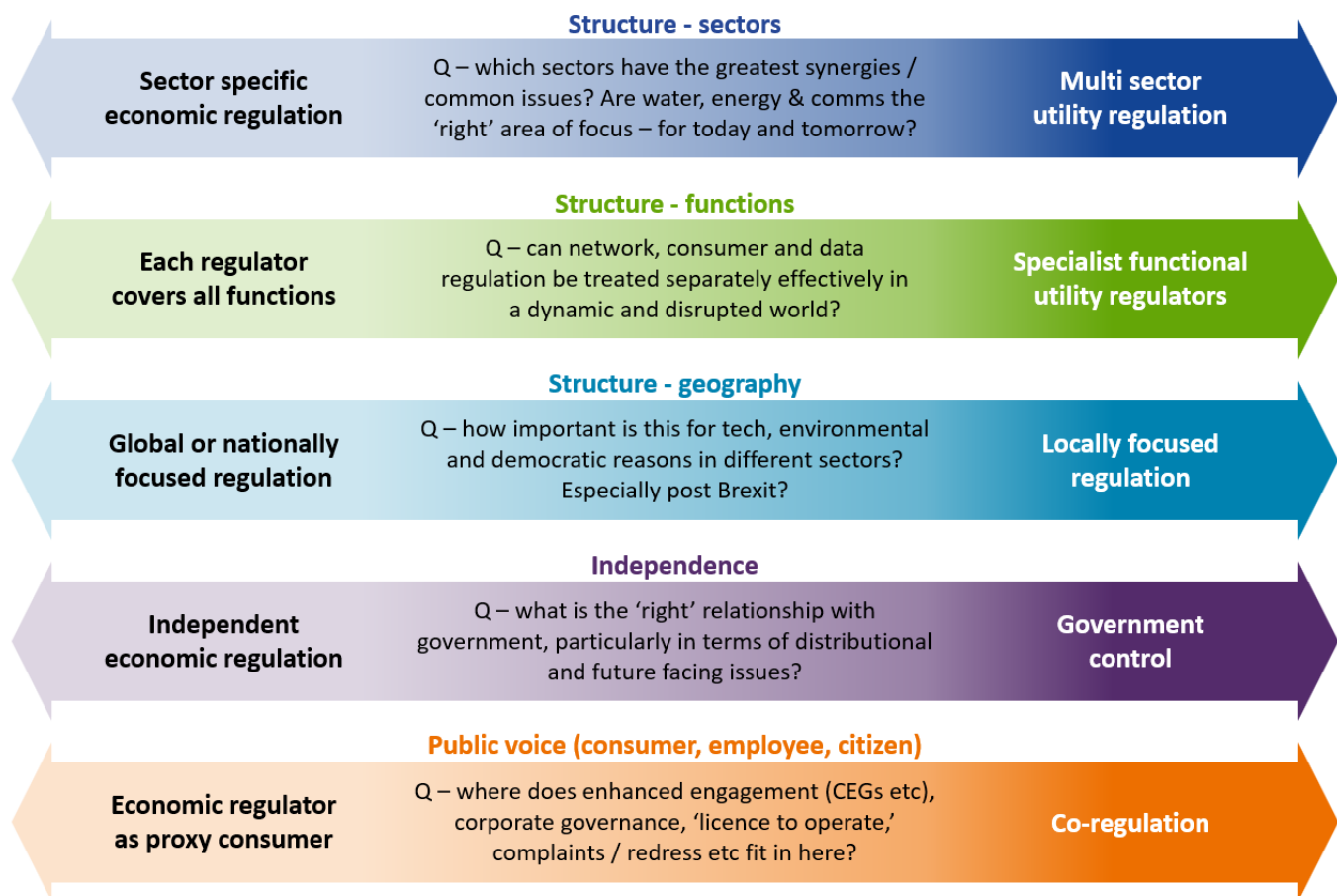


To aid more radical and structural thinking, we have identified five key questions which need debate. A ‘spectrum’ of possible solutions is possible for each; these are summarised in Diagram 7.

- 1) How robust is the current vertical and sector-specific regulatory approach? Are there arguments for **multi-sector approaches** – particularly given the cross-cutting challenges of digital/AI/ and blockchain and the environment/climate change – plus the volume of statutory and regulatory change likely to follow Brexit? Which sectors face the most issues in common – and if structural reform takes place, which issues might it be appropriate to brigade together (e.g. transport regulators may face some similar challenges to water regulators and energy networks regulators in terms of resilience and place-based solutions)? How would you overcome the challenge that even integrated organisations may sometimes struggle to take an integrated approach (e.g. gas and electricity in Ofgem)? And how would you ensure that in a multi-sector body, the focus doesn’t just stay on the high-profile areas (e.g. post getting relatively little attention in Ofcom)?
- 2) Should economic regulators continue to cover all **functions** (e.g. network regulation, consumer champion, data regulation)? Or, are some of these sufficiently specialised as to be hived off? How would any resulting specialist *functional* regulators work together (e.g. the consumer champion would want to have a say on data regulation and ‘bundling’, network regulation may increasingly rely on consumer demand-side actions/flexibility etc.)? We note that separating functions out in this way could be very difficult in a dynamic market.
- 3) Do we need to move away from/complement existing national regulation with more **local approaches**? Are there governance solutions (e.g. the regional flood and coastal committees – see case study) which can bring together local authorities across a region to provide more democratic oversight of decisions? Would more locally focused regulation help in the delivery of co-benefits/layer benefits/stackable benefits (e.g. energy efficiency and natural infrastructure schemes – or the facilitation of local economic growth, health and well-being, etc.)?
- 4) Given increasing government interest, should certain elements of regulation move more explicitly into the **public sector/government**? For example, how might systems operators best be regulated and by whom? Would systems regulators focused on security of supply and Universal Service Obligations enable the delivery of the full range of desirable public interest outcomes in essential services? How would systems operators ensure that contracts didn’t just prioritise lower costs/VFM above all else^{xiii} and that delivery bodies on time limited contracts had the right enduring relationships in place with consumers to enable a flourishing demand side?
- 5) Do we need to create a modern restatement of the **government/regulator separation** and respective roles?
- 6) How far can regulators legitimately act as **consumer proxies**, with input from committed but ultimately not fully representative customer challenge/engagement groups? Are there alternative models for co-regulation such as deliberative fora (e.g. citizens juries) and negotiated settlements (see case study on water in Scotland)?



Diagram 7: Future regulatory arrangements – 5 possible dimensions



Source: Sustainability First

We would argue that much evolutionary change is possible within the existing structures and arrangements for utility regulation. Further, it may actually represent quite radical change for some ('my evolution is your revolution'). We also note that if agility and the need to respond to a very complex and fast-moving environment is considered important (particularly in the face of some challenging 2030 social and environmental targets), changing 'hard' structures without sufficiently future-proofing these may actually introduce new rigidities and inadvertently create new problems. Furthermore, any changes introduced in the near-term must endure beyond changes in personnel, political cycles, etc.



Roadmap and criteria

This paper does not set out to propose an ‘answer’ to the question of where UK utility regulation should land for the long-term. Given the amount of change and uncertainty (political, unknown impacts of climate change, speed and impact of technology change) this may not be the right time for highly radical and structural reform. However, **change in utilities regulation is very definitely needed – both near and long-term.**

So, **for the immediate term** we are advocating:

1. The adoption of a range of the **evolutionary ‘no’ or ‘low’ regrets changes** outlined on page 14.
2. **A high-level vision of regulation for the Twenty First Century** and an accompanying **roadmap** to set-out possible pathways to a far more strategic future regulatory system – re-shaped around long-term public interest outcomes and our major societal challenges (e.g. the Industrial Strategy, UK implementation of the UN’s Sustainable Development Goals and the IPCC’s 1.5 degree requirements). This road-map will point towards how best to reform today’s piecemeal arrangements – the product of repeated tactical change in the face of short-term consumer pressures – and what the timing might be.
3. We wish to see a rational, non-ideological and inclusive debate on the future of UK utilities regulation. This should start with **clear and publicly agreed success criteria**. Table 1 sets out nine possible criteria for assessing future regulatory options. This builds on the four principles identified in Greg Clark’s ‘After the trilemma’ speech,^{xiii} some of the principles outlined by Laura Sandys et al. and the government’s own principles for economic regulation^{xiv} – but with a strong people-centred focus. These **criteria could form the basis of an options appraisal of (1) the evolutionary and (2) the more radical options** outlined in this paper.
4. **Development of a ‘Sustainable Licence to Operate’ for the utilities sectors.** Companies cannot wait for the changes outlined in this paper to happen. They need to demonstrate leadership now by embracing change and ‘walking the talk’ around their social and environmental commitments. We see this as a necessary – but on its own not sufficient – step to prepare for a disrupted future. **This iterative process should highlight where more radical changes to regulatory structures may be needed in the medium to long term and the scale, scope and sequencing of any changes.** Sustainability First’s Fair for the Future Project is helping to spearhead work in this area.



Possible criteria for assessing future regulatory options

	Criteria	Approach	Focus
1	Public interest outcomes focused (VFM, quality service, 'clean' and healthy environment, resilience, place based – as identified in Sustainability First's New-Pin Project)	Recognition of need to deliver full range of public interest outcomes and associated role utilities play in enabling national competitiveness	Focus on delivering practical real-world impacts for people and planet – consumers, citizens and the environment
2	Anticipatory (Proactive and timely decisions)	Courage to deal with issues in a future facing way – to 'open up the future' – and identify gaps	Focused on tomorrow's problems not today's – taking account of insurance principle and optionality
3	Agile (Organisational and institutional flexibility, where appropriate through facilitating competition)	Iterative and adaptable approach, and ability to pre-empt change in a dynamic and complex environment	Focus on people, skills, values and behaviours and markets – not just structures
4	Fair (Distributive and procedural fairness, dynamic and cross-sector – within and between generations)	Bravery to deal with difficult judgement calls and willingness to 'call out' emerging boundary issues outside remit	Focus on leadership to have difficult conversations about ethics/judgements and how to embed no 'free-riders' principle
5	Risk-based (Recognising some sectors are more litigious)	Proportionate approach – including regulating things which haven't had to be regulated before	Focus on key established and emerging risks, not on detailed processes
6	Consistent (Between sectors and systems)	Consistency and coherence where appropriate and learning from diversity where needed – to ensure predictability	Focus on common approaches – and explaining any differences
7	Enabling (Using theories of change etc. to understand different requirements)	Facilitating companies, consumers, citizens and stakeholders to do 'the right thing'	Focus on understanding where others are coming from and addressing any barriers
8	Collaborative	Where possible, working with other regulators and stakeholders to maximise impact	Focus on partnership work and visibly flagging when there are gaps in approach
9	Transparent and accountable (Regulation and political guidance/steer)	Clear and simple decision-making processes, lines of accountability and explanations	Focus on opening up regulatory process to increase legitimacy and ensure roles/responsibilities lead to meaningful accountability



Annex – Case studies

1. Regional flood and coastal committees [RFCCs]

Most spend on flood defences in England is provided out of a c.£800m p.a. capital and resource grant in aid settlement from HMT, through the Department for Environment, Food and Rural Affairs [Defra] to the Environment Agency [EA]. The EA is an independent non-departmental public body – in the case of its flood responsibilities this was a conscious choice, even though it did not fully pass the ‘three tests’ for independence set out by Francis Maude, to ensure that decisions on funding could be made impartially, and without continual pressure from local interests, MPs, etc. Only the largest schemes (£50-100m or greater) need to be cleared with central government.

There is however recognition that such independence could lead to a perceived democratic deficit. The RFCCs’ role – established in the 2010 Floods and Water Act – is in large part to address this deficit, but to do so on a catchment scale which recognises the interconnectivity of decisions. A majority of the membership of the RFCCs takes the form of elected councillors from each of the counties and unitaries in the region (with in some cases two or three counties/unitaries joining up to send a single representative). These are complemented by a smaller number of unpaid independent members, usually with particular expertise, e.g. coastal issues or natural environment. The formal role of the RFCCs is:

- To approve or otherwise the EA’s flood spend budget and programme in the region for the next year;
- To agree a small ‘levy’ on participating local authorities;
- To oversee bids for spending out of this money and to formally allocate levy spend to projects.

The RFCCs also play a very useful role in:

- Co-ordinating between local authorities, who both contribute to flood defence spending and who deliver some flood projects, and the EA;

- Through the chair, enabling regional issues to be represented in the centre of government and with the EA board.
- Co-ordinating with other relevant bodies in the region, most notably the water companies – who typically attend RFCC meetings – and the LEs.

2. The Water Industry Commission for Scotland [WICS] and Scottish Water

The water industry in Scotland is characterised by one principal supply company (Scottish Water) and a single regulator (WICS). This gives opportunities which might be harder to achieve in a wider market, although it also means the opportunity for certain tools such as comparative competition is severely limited.

WICS have been actively exploring approaches to ethical regulation. But perhaps the main innovation is the extent to which they have promoted and facilitated what is in effect a negotiated agreement between Scottish Water and its customers, with a well-financed consumer forum, with real political buy in agreeing the company’s business plan, and without much ongoing regulator intervention. As set out in their most recent price review methodology:

‘For this Strategic Review of Charges, the Commission will again decide appropriate ranges for key variables that impact customer charges, such as capital investment levels, operating expenditure allowances and service levels. It will meet regularly with both Scottish Water and the Customer Forum. The Commission has asked the Forum to seek to agree Scottish Water’s draft Business Plan within these ranges and has made it clear that, should the Forum be successful in doing so, the Commission would be minded to accept this agreement as its Draft Determination. The Commission has also asked the Customer Forum to work closely with Scottish Water to engage with different communities across Scotland. We are determined to make this our most customer-centric price review yet.’

It is important to ask how far these arrangements are only possible due to the facts that: Scottish Water is publicly owned (reducing concerns around excess profits); it is possible to get all of the actors ‘in the same



room’ in Scotland and to build deeper relationships (something more challenging in the English water context); and WICS has given the Customer Forum a strong steer on technical issues (such as cost of capital).

3. The RIIO Framework in energy. Regulating for outputs and incentives – treatment of low-carbon

In 2008, Ofgem reviewed its twenty-year old RPI-X framework for regulation of gas and electricity networks. The result was the RIIO model. RIIO continues the focus on control over allowable costs and value for money through a totex approach^{xv} – but also introduced explicit incentives and outputs designed to stimulate greater innovation by network owners and managements (smart, automation, etc.) to support future-looking sustainable energy networks.

RIIO-1 price controls allow ~£96bn of network revenues over an eight-year period. The controls first took effect in 2013 and run to 2021 (electricity and gas transmission, gas distribution), and thereafter electricity distribution (2015-23). Efficiency gains within the price-control period can be retained by the company in that period – and then ‘shared’ with the customer at the next control period (subject to mid-term reviews/uncertainty mechanisms). From a consumer and innovation perspective, early verdicts on RIIO-1 out-turns are arguably mixed. Ofgem RIIO-1 annual reports^{xvi} broadly suggest that companies have under-spent against business plan commitments (and of which only some underspend can be attributed to efficiency) and have not necessarily driven their innovation approaches into business-as-usual – but have generally delivered well against some of the specified incentives and outputs, especially those which are use and consumer-facing (engagement, satisfaction, vulnerability). Citizens Advice draw similar conclusions.

In 2018, Sustainability First reviewed Ofgem’s design of RIIO-1 price control incentives and outputs with respect to low-carbon facilitation. Across the four network sectors (electricity and gas transmission, gas and electricity distribution), the **RIIO-1 framework** includes a mix of incentives for better outcomes on the environment and sustainability, including on low-

carbon. Together, these formed a fragmented patchwork which:

- Fail to give a strong signal overall to the companies or wider stakeholders – in particular on low-carbon facilitation.
- Give too little attention to overall reporting on environmental outcomes. Across the RIIO-1 period there is inconsistent reporting on network contribution to green-house gas reduction – and insufficient coordination and visibility of that information.
- Give generous incentives for stakeholder engagement and satisfaction. These have enabled over-reward of outreach activity which arguably should be ‘business-as-usual’.

For RIIO-2, Sustainability First urged Ofgem to tackle these shortcomings,^{xvii} in particular via more consistency and coherence on outputs and incentives, stronger messaging, and more ambition and visibility for low-carbon outcomes, plus more demanding reporting requirements. In its draft methodology published in December 2018^{xviii} Ofgem identifies three over-arching outcomes for the RIIO-2 price control period for transmission and gas distribution:

- To deliver a high quality and reliable service to all network users and consumer, including those in vulnerable situations;
- To deliver a safe and resilient network that is efficient and responsive to change;
- To enable the transition towards a smart, flexible, low-cost and low-carbon energy system for all consumers and network users.

These are each critical outcomes for network regulation for the next five years and beyond.

Nevertheless, across the ~1000-page detail of the RIIO-2 documents (strategy, framework, draft sector methodologies) there is no explicit or ‘in principle’ consideration by Ofgem as to how the design of the RIIO-2 price control – including the approach on incentives and outputs – is expected to assure delivery of Outcome 3. The RIIO-2 methodology omits any high-level statement of principle as to how a ‘right balance’ of licence conditions, price-control deliverables and explicit incentives and outputs will be expected to facilitate green-house gas reduction by the network



companies across the board. In this sense, the RIIO-2 methodology risks compounding the short-comings on low-carbon facilitation noted for RIIO-1.

In summary, the non-strategic approach taken by Ofgem in its draft RIIO-2 price control methodology on low carbon reveals a disconnect in Ofgem thinking – and poor alignment – with government policy on its Clean Growth Strategy, on National Planning Policy Framework approaches to sustainable development, and above all on the trajectory implied by the fourth and fifth carbon budgets. This misalignment risks being reinforced by the inconsistent approach taken by Ofgem in its different expectations on environmental impact reporting for each network sector. A consistent approach by Ofgem to annual environmental impact reporting – including on direct and indirect emissions – should form an essential building-block of an effective ‘whole systems’ approach.

4. RIIO-2 – green-gas, low-carbon heat and community energy

Gas network ‘futures’ may be uncertain beyond RIIO-2 timeframes, and a case for future-facing Gas Distribution Network [GDN] investment needs to be demonstrated. Nevertheless, there are ‘least regrets’ steps within RIIO-2 gas distribution business plans – on both the investment and operations-side – which could serve to promote reduced green-house gas emissions and low-carbon facilitation. Such steps need not entail significant new or additional spend, nor place efficiency at risk. The RIIO-2 methodology fails to make clear that gas distribution **network-wide or sector-wide initiatives to promote lower carbon solutions overall could be incentivised either via business plan outputs or explicit incentives.**^{xix} For example, **least regrets steps** on:

- **Biomethane:** to promote and facilitate the right conditions for more bio-methane connections (which may be relevant given that the stakeholder element of the Gas Discretionary Reward Scheme is to end). The downgrade of biomethane connections – to no longer being a formal RIIO output – sends a wrong signal to GDNs about the importance of being proactive on bio-methane. A focus on the bio-methane volumes injected –

rather than simply the number of connections – would help to send a more appropriate signal.^{xx} A focus on injected volumes might also prompt GDNs to consider the environmental trade-offs between additional compressor installation against bio-methane flaring.

- **Heat decarbonisation:** despite highlighting heat decarbonisation as a key challenge, **the GD methodology reflects a very low-key and cautious message overall on Ofgem expectations on GDNs’ role in RIIO-2 time-frames in facilitating or accelerating development of low-carbon heat.**

The Committee on Climate Change^{xxi} identified a number of ‘low regrets’ approaches across different decarbonisation pathways: energy efficiency across UK building stock, low-carbon heat networks in heat dense areas, low-carbon new buildings and biomethane injection into the gas-grid. The Committee on Climate Change also identifies heat decarbonisation as a main gap in meeting the fourth and fifth carbon budgets.^{xxii} Low regrets approaches on heat decarbonisation are also necessary to deliver on the government’s Clean Growth Strategy.

The GD methodology allows for ‘Low and no regrets’ heat decarbonisation projects to be proposed via business plans, which is welcome (e.g. mechanical isolation valves installed to support future hydrogen conversion and/or phased decommissioning). More widely, the GDN methodology points to innovation funds, uncertainty mechanisms (e.g. with regards to new heat-network development) or a possible re-opener once government heat policy is clarified. However, Sustainability First considers that the **GD methodology should display a greater ambition for heat decarbonisation in RIIO-2. This might include a potential business plan requirement for GDNs to consider low and no regrets heat decarbonisation projects.**

The GD environment methodology on heat decarbonisation also fails to link across to two other relevant RIIO-2 elements on **energy efficiency and the Fuel Poor Network Extension Scheme.** A clearer link between RIIO-2 approaches on heat decarbonisation



and these elements is needed which clearly signals that well-justified proposals on low-carbon heat development (e.g. district heating) can be treated as business plan deliverables and outputs, and in particular where these are well-targeted to serve customers in vulnerable circumstances or those in greatest need.

On **energy efficiency in general**, Ofgem should clarify that while they do not consider an 'Eco-type' obligation to be on the agenda, that non-pipe and wire alternatives can nevertheless be on the table where network reinforcement can demonstrably be avoided.



About Sustainability First

Sustainability First is a think tank and charity that promotes practical, sustainable solutions to improve environmental, economic and social wellbeing. We are a trusted convenor on energy and water issues and have a strong track record of bringing stakeholders together in multi-party projects in the public interest.

Find out more about our work here:

<http://www.sustainabilityfirst.org.uk>

Sustainability First's **Fair for the Future Project** is helping the energy and water sectors to better address the politics of fairness and the environment. It has two workstreams: developing a 'Sustainable Licence to Operate'; and mapping political and regulatory uncertainty and risk as this relates to fairness and the environment.

ⁱ The National Infrastructure Commission, [The Future of Regulation Study Call for Evidence](#), February 2019.

ⁱⁱ HMT issued a [consultation on innovation and regulated utilities](#) in 2018, to which Sustainability First published a [response](#).

ⁱⁱⁱ Note in passing there is no unique coverage of this work across utilities. Some issues are perhaps mainly concentrated on water, energy and to some extent rail and airports. Others have wider relevance, e.g. to telecoms, financial services and even road.

^{iv} 'RIIO': Revenue = Incentives+Innovation+Outputs.

^v Sustainability First, [Looking to the long-term: hearing the public interest voice in energy and water. Eight agendas for change](#), 2018, page 10.

^{vi} See Sustainability First, [Fair for the Future: Framing a 'Sustainable Licence to Operate' for the water and energy sectors, Strawman – Framework and issues](#), October 2018.

^{vii} Dieter Helm, [The Systems Regulation Model](#), February 2019.

^{viii} UKRN members also include the Financial Conduct Authority, Financial Reporting Council, Single Source Regulations Office, Legal Services Board and Payment Systems Regulator, but these are not economic utility regulators.

^{ix} The Fair for the Future Project risk workstream is exploring these issues in more detail. In October 2018 we published a [discussion paper on conventional approaches to risk and uncertainty](#). We are now examining how these things are changing in the 'disrupted world.' In February 2019 we published a [working note on risk and civil society](#) and are shortly going to publish companion pieces on risk and the media and changes in the consumer/citizen 'lived experience'.

^x This term has been used in various contexts: e.g. The Grantham Institute at the LSE's report, [Climate change and the just transition: a guide for investor action](#),

December 2018; and the Just Transition Commission set up by the Scottish Government in 2018 which potentially has a more social/economic well-being focus.

^{xi} E.g. Laura Sandys, Dr. Jeff Hardy, Dr. Aidan Rhodes and Professor Richard Green, [Redesigning regulation: Powering from the future](#), December 2018. This report

proposed creating one essential services consumer regulator and ombudsman along with the potential rationalisation of economically regulated monopolies with the development of a new multi-utility infrastructure regulator.

^{xii} See Sustainability First, *Fair for the Future: Framing a 'Sustainable Licence to Operate'*, page 51.

^{xiii} Greg Clark, [After the trilemma – 4 principles for the power sector](#), 15 November 2018.

^{xiv} The National Infrastructure Commission, *The Future of Regulation Study Call for Evidence*.

^{xv} The totex approach (combined total expenditure – capex+opex) seeks to address bias towards capital expenditure in asset-heavy monopolies dependent on returns from their regulated asset base.

^{xvi} <https://www.ofgem.gov.uk/network-regulation-riio-model/current-network-price-controls-riio-1/network-performance-under-riio>

^{xvii} Sustainability First, [A low carbon incentive in RIIO-2](#), May 2018.

^{xviii} https://www.ofgem.gov.uk/system/files/docs/2019/01/riio-2_sector_methodology_0.pdf - para 4.46

^{xix} So, not bespoke incentives.

^{xx} And would also draw on ED1 lessons, where renewable generation is connected but then constrained off.

^{xxi} Committee on Climate Change, [Next steps for UK heat policy](#), October 2016.

^{xxii} Committee on Climate Change, [The Fourth Carbon Budget: reducing emissions through the 2020s](#), December 2010; and [The Fifth Carbon Budget: the next step towards a low-carbon economy](#), November 2015.