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Dear Sir/Madam,

Re: Ofwat's emerging strategy: Driving transformational innovation in the sector.

Thank you for providing Yorkshire Water with the opportunity to contribute to Ofwat's emerging strategy: Driving transformational innovation in the sector. Our responses to the questions raised in the consultation are appended to this letter.

In our Long Term Strategy, we set out clearly that innovation is crucial to the delivery of our 5 Big Goals. Innovation is a core theme in our PR19 plan, and we devote significant resources to our six capitals approach to investment decisions, innovation in delivery of service outcomes for customers and transformation of our business. In our PR19 plan we detailed a number of programmes and initiatives that rely on innovative approaches and solutions. A selection of these from our investment in innovation in AMP6 are listed below:

- **Global communities that widen our knowledge base and engage passionate people.** We are committed to creating partnerships to develop better solutions. We are working in partnership with the Massachusetts Institute of Technology to further develop our Open Innovation capability, and the United Nations to learn how it has engaged worldwide business and communities to drive sustainable development goals for clean water and sanitation.
- **'Living with Water Partnership'.** We have developed a world leading partnership in Hull to solve flood risk. Because the scale of flooding is so large the partnership is continually deriving new approaches. We have developed a single integrated drainage model with the Environment Agency and our local authority partners to develop long-term solutions. The Living with Water Partnership now has closely aligned objectives for the next five years to invest and resolve flood risk. We have an integrated city planning policy has been developed for the east Yorkshire region.



- **Regeneration of coagulants from spent water treatment sludge.** Working with our supply chain partner, we evaluated the technology to achieve coagulant regeneration using super critical water oxidation. It is clear the technology requires developing further to reach commercial maturity. Rather than continuing in an area outside of our technical know-how, we are facilitating the development through in-kind support and guidance from an end client perspective.
- **Advanced Thermal Conversion Gasification (ATC).** A ten-year programme of research and development projects delivered a technical and commercial model for deployment of this transformative sludge treatment process., We are seeking commercial entities to invest capital and specific technical expertise to launch this exciting new treatment process and create long-term value for the sector.
- **Transforming Anaerobic Digestion (AD).** Supported by the Royal Society, Yorkshire Water and the University of York has established a globally leading research facility transcending lab to pilot at demonstration scale. Our aim is to understand then manipulate the biology of AD at a genetic level delivering valuable products and transforming asset efficiency and delivering significant carbon reduction. The system now established is now ready to be open for collaboration with other water companies and associated industries.

We continue to focus on innovation to help address the challenges facing the sector to deliver long term resilience and provide great customer service at prices current and future customers can afford.

The case for change

We provide views on Ofwat's proposals for interventions that aim to remove existing barriers to greater innovation across the sector, and our responses to the consultation questions are appended to this letter.

Firstly, as context we consider that regulatory regimes intended to drive significant improvements in outcomes for customers and the environment should ultimately encourage innovation in the sector. Alongside the ongoing aims for ever improving outcomes, the water sector must play its part in full to help address the national and global challenges presented by continued population growth and climate change impacts. We therefore welcome Ofwat's continued focus on how the sector as a whole can do more to foster a culture for greater innovation and do more to collaborate within and beyond the sector.

We agree with Ofwat that the case for change has been made. The range of challenges now placed upon the sector are significantly broader than may have been envisaged under the regulatory framework of a few years ago. And the voices and bodies echoing these challenges are numerous. The NIC's National Infrastructure Assessment (NIA) outlined the significant long-term challenges such as the need for government and industry to respond to an increasing risk of both drought and flooding into the future.

The water industry collectively has reaffirmed its pledge to work in the public interest and wider good, demonstrated through the public interest commitments that reflect our collective

customers wishes that we help tackle some wider social and environmental challenges at a national level. As part of the commitments, companies agree to work towards five challenging goals:

- Triple the rate of leakage reduction across the sector by 2030
- Make bills affordable as a minimum for all households with water and sewerage bills more than 5% of their disposable income by 2030 and develop a strategy to end water poverty
- Achieve net zero carbon emissions for the sector by 2030
- Prevent the equivalent of 4 billion plastic bottles ending up as waste by 2030
- Be the first sector to achieve 100% commitment to the Social Mobility Pledge

And, the Governments Industrial Strategy for the UK identifies four grand challenges, focusing on global trends which it hopes will transform our future:

- The need to put the UK at the forefront of the AI and data revolution
- Harnessing the power of innovation to meet the needs of an ageing society
- Maximising the advantages for UK industry from the shift to clean growth
- Becoming a world leader in shaping the future of mobility.

There are differing views and opinions on how innovation and competition work in unison or conflict in markets that are monopolistic in nature. Conventional wisdom may suggest that where price competition is strong, innovation competition will grow as companies increase innovative activities as the key tool to find further efficiencies or differentiate to compete.

However, there is research testing how market competition affects the intensity and breadth of innovation, that shows a stronger shift towards innovation competition when price competition weakens. The implication is that financial constraints, or a company's ability to innovate, and the industry growth rate, or the incentive to innovate, are important mechanisms to consider when understanding the trade-offs between price competition and innovation growth. In a similar way to the hypothesis of Schumpeter, that a certain amount of market power can promote innovation, fundamentally providing companies with the resources and predictability for innovative activities.

As Ofwat itself notes, the single regulatory price review period may not be conducive to create the conditions where commercial benefits are predictable or secure for those that drive innovation themselves, or those that adopt the innovative solutions of others. The sector challenges, as noted above, are wide ranging and persistent. Addressing them will require the consistent focus and application of significant resources to be invested over the long-term, and importantly greater collaboration within and beyond the sector.

We agree that investment and resources should be identified and applied, working to augment the PR19 approach and the PR24 regulatory framework that follows. We have some observations and thoughts about how that is best achieved and exploited.

Similar to Ofwat's latest proposals, in our response to HM Treasury Innovation consultation from October 2018, we too identified options to form a defined structure around funding for

innovation, through either the introduction of a centrally managed innovation competition fund similar to the Electricity Network Innovation Competition, or ring-fencing funding within each company's determinations for innovation projects that would share outputs with the sector.

Having reviewed Ofwat's proposals we believe for the AMP7 period, that incentivising companies to innovate and collaborate more widely is preferable to a customer funded centrally governed innovation competition. Ofwat has identified several companies that have demonstrated real ambition in creating the culture and capability to innovate and has evidenced many examples of genuinely innovative initiatives and solutions being deployed across the sector. We believe that Ofwat should allow company's innovation strategies to further develop and deliver positive outcomes for customers and the environment, augmented by an incentive regime targeted at the key sectoral challenges and evidenced collaborative working.

Observations on funding innovation interventions

We believe, as Ofwat has suggested, that funding could also be directed to setting up sector wide joint innovation strategies and an innovation in water centre of excellence. We believe that this would encourage greater positive cross-sector collaboration than a competitive approach would. It may be prudent to allow greater evidence to come forward from the energy sector on the benefits achieved from its innovation competition regime. We note the estimated future net benefits from the 2010-15 LCNF are between £1.1Bn and 1.7Bn, representing a 4 to 6-fold net gain, but that benefits as reported at the end of the price review period, in 2016, represented a third of the innovation investment made. This is not surprising as the types of projects selected and delivered were looking to help solve key strategic challenges that may take many years to deploy and embed with further investment required. We should consider the profile of such strategic innovation projects and recognise they have uncertain outcomes and often long periods before all net benefits can be realised.

We note the proposal for overall funding from customers represents Ofwat's current view of a maximum contribution across AMP7 and would in practice be supplemented by investment from companies and their partners (also customers indirectly). We have no specific customer research that indicates whether our customers would be supportive or otherwise of bills increasing to fund innovation projects delivered across England and Wales, but possibly not in Yorkshire. The customer perception may be that such funding is opaque in nature with the potential benefit being available only for future generations. If it proceeds with the proposals as outlined, Ofwat should consider how to alleviate the impact on more vulnerable customers who would likely struggle to afford the additional cost.

Next steps

We find Ofwat's proposal very interesting and would like to be involved in how these are further designed towards an implementation, including how the incentives or competition is governed. To that end we confirm our interest in attending workshops or stakeholder events to further explore the options outlined in the consultation.

We trust you find our responses appended helpful, should you wish to discuss any parts of our submission in more detail, please contact me on the email address above.

Yours faithfully,



Colin Fraser
Regulatory Strategy Manager,
Yorkshire Water

Annex: Driving transformational innovation in the sector – Yorkshire Water response

Q1 – What are the main barriers to Innovation.

We have enjoyed recent success in developing our world-leading ‘Living with Water’ partnership in Hull, through which we are addressing long-term sewer capacity issues with blue/green infrastructure, increasing resilience to flooding and providing social and environmental benefits. Working in partnership with local and national agencies, we aim to keep the cost to our customers down while achieving shared goals.

One challenge we have experienced first-hand with our Living with Water partnership is the limited ability to jointly fund projects that reduce flood risk overall for the community where the investment drivers which we are funded for are not aligned within the regulatory framework.

We believe that partnership and collaborative business models are often the best approach to efficiently deliver the outcomes that matter to customers, so attention must be given to ensuring partnership creation and operation can be made as frictionless as possible in practice.

A barrier that exists to cross-sector business models is a lack of socialisation across sectors concerning key shared problems and opportunities. Identifying a shared view of customer value and behaviour may speed up the realisation of cross-sector innovation and allow for optimised customer benefits.

Innovation has been seen until relatively recently simply as a function within a company and not necessarily seen as an ‘innovation culture’ that should be described and nurtured across the company.

Over recent years and reinforced through Ofwat’s PR19 methodology, companies have started to develop their own unique innovation strategies and undertaken substantial change. We believe this focussed approach is delivering improved benefits already, as evidenced by the examples of good practice Ofwat details.

We also believe that the development of the bidding market for water resources, demand management and leakage services, should in time open the sector to additional innovative solutions for companies to build into their future plans. This emergent market does have a number of complexities to resolve and should be allowed to develop and prove its potential for delivering tangible and sustained results for customers and the environment.

The five-year price review cycle is a barrier to innovation. The focus on price competition and service convergence can drive companies to focus innovation more towards short-term cost to serve and/or incremental service improvements. Some theory suggests a certain level of market power is more likely to provide the financial resources and predictability of returns for innovative activities. Of course, this is not universal in practice and there may be many reasons why this theory does not hold true. For example, where there is a level of entrepreneurial enthusiasm from companies and their Boards to innovate with a longer-term focus or within specific strategic agendas.

The proposals from Ofwat to ring-fence a level of investment for innovation appears to recognise the constraints that strong price competition achieved through repeated price

reviews can place on the market participants. Also, it allows challenges and issues that have a longer-term focus to be given more attention than may have been the case to date.

We would like to understand Ofwat's thoughts about whether its proposed mechanisms would endure beyond AMP7, subject to them being confirmed as effective in increasing the level of innovative activity across the sector, and not simply displacing activity already within companies plans, or likely to be in future plans.

We believe that should Ofwat progress with the proposal for the customer funded innovation competition that access to funding on an annual basis may present a barrier if benefits are to be achieved within the period.

We feel that companies should be given time to allow their present or emerging innovation strategies developed with their stakeholders and customers to deliver. There is a risk that the move to a well-funded central competition diverts companies current R&D/innovation resources and expertise from their own innovation pipeline. Yorkshire Water has a transformational innovation programme which is now showing significant progress.

Q2 – Do you think that the financial support cited in section three is required to stimulate innovation in the sector? If so, what do you believe is the appropriate amount of funding and why?

New sources of funding dedicated to innovation are welcomed. However, we feel that external funding sources are already available that do not place additional burden on customer via their water bills. For example, Research Councils, Innovate UK, and direct Government support for in the form of Strength in Places and Infrastructure Development. Although some of these external funds are complex to access, some largely led by universities and consultants, we believe mechanisms already exist. Where Government can enable easier access to such schemes for water companies and their supply chains, that would be welcomed. A water sector innovation fund may limit water companies' abilities to successfully access existing funding schemes.

We also consider that the proposed customer funded innovation competition should set out with a smaller fund size initially in order to minimise the impact on customers. Companies are already doing more with less across their PR19 plans and striving to lower bills where they can. It may give customers mixed messages for a noticeable uplift was now factored in to invest in innovation at a sector level under the same price review period. The future potential benefits derived from the customers near present funding cannot currently be stated and can certainly not be claimed to benefit the specific customers concerned.

We would suggest a fund value of circa £50 million for the AMP7 period may be appropriate, given awards to successful projects may not take place until 2021-22.

A different approach could be taken in relation to an end-of-period reward for companies that demonstrate effective and collaborative innovation, with evidence of benefits to be achieved and demonstrable sharing of knowledge and solutions. There is less linkage between 2020-21 bill reductions for customers and a future re-investment of an end-of-period reward in the following period. Also, evidence can be given to customers of benefits achieved and expected to be achieved.

Q3 Do you agree that our proposed draft principles for additional financial support will effectively safeguard the interests of customers.

We agree that the interests of customers must be safeguarded. We agree that the draft principles could be the foundation for a set of final principles that would provide such protection. The principles could be refined once the governance and co-funding arrangements are designed and understood.

We believe that the administration of a future competition fund should be as efficient as possible, whilst ensuring governance to the principles is upheld. We note for the LCNF the costs of administration and governance by Ofgem equated to about 1% of the total costs of the fund. We should look to use existing bodies with experience to manage and run the competition or scrutinise innovation delivery in relation to an end of AMP incentive scheme to keep administration costs to a minimum, such as UKWIR. There will be a cost to companies for developing competition bids and we note in energy the uplift in commercial staff brought into innovation teams to develop comprehensive innovation bids.

Ofwat acknowledge that innovation projects will not always deliver a successful and expected outcome. However, further understanding as to how Ofwat will consider a 'claw-back' mechanism for some or all of the funding is welcome.

A clear funding and competition framework is required to be developed ahead of 2020-21 and implemented across the first year of AMP7. We have concerns that the timelines required to develop a robust framework within which to manage the competition option could be difficult to deliver.

We believe the end of period innovation reward mechanism would be easier and more cost effective to administer protecting customers interests. It could be managed by Ofwat in a similar same way as current end of period incentives are administered with companies seeking determinations and providing robust evidence of performance.

Q4 What are your views on the collectively funded innovation competition model which we describe in section three? What other key considerations not highlighted should we take into account in designing/implementation the competition.

As we have already mentioned a fund of the scale proposed needs a robust structure and diligent administration and governance. The cost of administering the process needs to be fully understood, including expectations upon bidding companies.

In regard to how all water companies' customers are to contribute into the fund, consideration needs to be taken of the challenges each regional company faces. For example, companies who are already investing significantly in innovation in PR19 aligned to their customers priorities and shaped by wider stakeholder engagement (and these are part of final determinations) may believe they should contribute less, especially if they are not anticipating being part of projects bid into the competition.

Q5 What are your views on the end-of-period innovation roll-out reward we describe in section three. What other key considerations not highlighted (e.g. whether it should be collectively funded or individually funded) should we take into account in designing/implementing the reward?

We are supportive of an end of period innovation roll-out reward. The issue of an innovation project or scheme not yielding a return within an AMP cycle, but rather into the future is an obstacle that will require addressing. The approach must be underpinned with clear definitions about what is considered transformational innovation and what is the baseline case. We feel that poorly worded and understood rules will not drive customer and environmental benefit, just poor behaviours from all concerned. Clear rules need to be published as to what would constitute successful delivery. Would it be full, partial implementation demonstrated at a particular scale? If companies hurry to meet deadlines this will drive problems, missing a tight deadline could undermine the whole business case for change, for example. We continue to have a concern that in AMP delivery will limit the proposals and scale of proposals.

For clarity, Yorkshire Water supports end-of-period innovation roll-out reward in conjunction with sustained investment in an innovation in water centre of excellence.

Q6 What other potential alternative mechanisms for funding/rewarding innovation not discussed do you think we should be considering?

As Ofwat has stated in this consultation there are several companies that have demonstrated real ambition in creating the culture and capability of innovation along, with good examples of genuinely innovative approach across the sector. We feel that Ofwat should allow company's various innovation strategies to develop and mature before considering a purely competitive approach. However other options that could be considered are:

- Continue to allow companies to manage their innovation. However, prescribe a percentage of turnover be focussed on innovation and that the measurement of return must account for a six capitals type of mechanism (we have described our six-capital approach in chapter 10 of our PR19 plan published in September 2018).
- Standardise return of investment dashboards for all water companies. This would promote the collaborative platforms that already exist and could thrive but in a competitive culture.
- Water companies and supply chains could collaborate in a focussed not forced environment with truly common issues.
- Joint venture partnerships and a commercial market. Yorkshire Water has held conversations with the Environment Agency in relation to this.

Introducing an unnecessarily bureaucratic process will not help smooth transformational innovation.

Q7 Do you think that the potential industry activities discussed in section four could help drive innovation? Are there other activities not identified which you think the industry should be considering?

Yorkshire Water feel that any proposed funding would be better placed in setting up, as Ofwat has suggested, sector wide joint innovation strategies and/or an innovation in water centre of excellence. We believe that this would encourage more sector collaboration rather than a competition approach.

We are supportive of sector-wide joint innovation strategy and innovation in water centre of excellence. However, we believe that a water centre of excellence is currently in planning. Time needs to be given to determine the success of this initiative. We are looking to progress a commercially funded option at Esholt in Bradford. This could be linked to other centres which are emerging in other companies to provide a national excellence network.

As we are demonstrating in our partnership with the University of York and associated commercial entities, that focussed, practical research leading to demonstration and implementation, can be relatively rapid. Releasing the learning to all to make efficiencies and deliver exogenous benefits.

Q8 Do you think the proposals in section five will help drive innovation? Are there other activities not identified which you think Ofwat should be considering?

We feel that increased co-ordination across regulators in the sector will not only benefit innovation but benefit the water industry as a whole. We believe water companies should form part of this co-ordination. We would welcome discussion with Ofwat on where regulation itself may be putting in place barriers to long-term innovation investment.
