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ASSESSING THE IMPACT OF COVID-19 ON THE WATER SECTOR

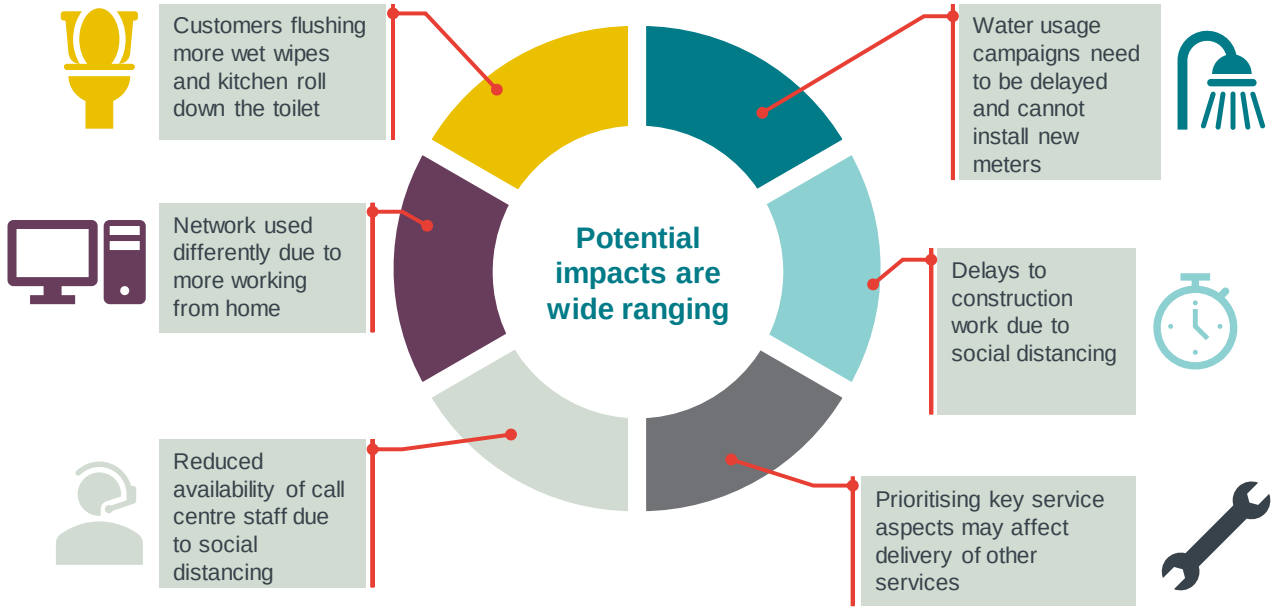
How to collect a robust evidence-base to inform the right decisions

THE IMPACTS ON THE WATER SECTOR ARE POTENTIALLY WIDE-RANGING AND COMPLEX

The COVID-19 pandemic represents an unparalleled challenge to societies and economies around the world. The policy response will be correspondingly significant. In this paper we consider the impact and implications for the water sector in England and Wales.

When Ofwat published its Final Determinations (FDs) last December, none of us could have imagined that only a few months later the UK would be facing an unprecedented challenge in fighting the COVID-19 pandemic. While there is still a lot of uncertainty about the duration of the lockdown imposed to contain the virus and the "exit" strategy, it is clear that COVID-19 has the potential to have wide-ranging impacts on the water sector.

Figure 1 Potential impacts of COVID-19 on the water sector



Source: Frontier Economics

The figure above is not exhaustive, but it demonstrates the multiple, complex ways in which the virus will affect the water sector. In particular:

- **The net impact on total expenditure (totex) is not clear** – Some costs are likely to increase (e.g. to protect staff and vulnerable customers, changes to working patterns), but in some areas they will fall in the short term (e.g. reduced costs of installing new meters). So the overall impact is not clear.
- **The combined impact on totex and Performance Commitments (PCs)/Outcome Delivery Incentives (ODIs) is not clear** – In some areas costs may be lower but the likelihood of penalties higher (e.g. in respect of metering and per capita consumption, PCC). But in some cases the reverse might be true. Or companies may have to spend more to meet their targets (e.g. sewer flooding as customers flush more kitchen roll because of a shortage of toilet paper).
- **The timing of the impacts over the whole price control period is not clear** – Short-term and long-term effects both need to be taken into account. Some may cancel each other out; others are likely to be exacerbated over the life of the price control. These include delays to service quality investments that affect the ability to deliver PCs later on in the price control period. More immediate issues include a potential decrease in cash flow as households and businesses fail to pay their bills.

HOW TO DETERMINE THE MOST APPROPRIATE REGULATORY RESPONSE

Given the complexity of the impacts, it is challenging for water companies and Ofwat to determine the most appropriate response to the crisis.

On the one hand, we could argue that Ofwat needs to act quickly and decisively as COVID-19 is a national crisis that is affecting the economy, customer behaviour and business continuity in an unprecedented way. Tens of thousands of restaurants, cafes and bars, shops, cinemas and other leisure businesses are closed. For most, if not all, the lockdown reflects a risk that they would not have planned for. Without help, many will not have the financial resources to survive for more than a few weeks. There will be a large knock-on effect on suppliers to these businesses.

An increase of 850,000 in the number of applications for Universal Credit in the last two weeks of March, and the OBR's reference scenario that GDP could plunge 35% if the lockdown lasts through the second quarter[1] of 2020 show how serious this crisis is. The scale of the Treasury's support for the economy demonstrates that none of the usual rules apply. We need to think creatively to minimise the impact of the virus. As a result, we could conclude that Ofwat needs to signal that water companies will be supported with a broad set of measures. These could include suspension of some PCs, scope to pass-on increases in totex needed to

[1] OBR, 2020, Commentary on OBR Coronavirus Reference Scenario, Available: https://cdn.obr.uk/Coronavirus_reference_scenario_commentary.pdf

maintain minimum services, and allowing wholesalers to recover increased bad debt from all customers in the long run.

On the other hand, we could ask why there is a need for Ofwat to intervene at all, or at least whether it should go that far. There are a few points to consider here:

- It is unclear how long the crisis will last. A six-week lockdown will have a very different impact from one that lasts for several months. Given this uncertainty, Ofwat needs to balance the interests of investors and the ability of water companies to finance themselves against the risk of customers potentially paying over the odds for unnecessary additional protection for companies.
- We need to recognise that investors in the water sector take on the risk of unforeseen events and are compensated for doing so as part of the cost of capital determined by Ofwat. Even if we consider that the impact of the pandemic is greater than what could reasonably have been expected to occur, the secondary question is whether investors are reasonably compensated, relative to their opportunity cost of investing elsewhere.
- If the impact of COVID-19 goes beyond the risks we would expect investors to bear, the final consideration is whether the regulatory system already has a mechanism to account for this eventuality. We note that there is already a mechanism for dealing with significant changes in circumstances, as companies can apply to Ofwat for a substantial effect interim determination. They would have to demonstrate that the impact passes a materiality threshold, namely at least 20% of turnover in net present value terms.[2] If this criterion is met, companies can apply for an interim determination and Ofwat can make changes on the basis of the evidence submitted. Companies would need to make individual submissions. This may work reasonably well as the impact is unlikely to be entirely uniform across the sector. When making any such assessment, Ofwat could also take into consideration whether companies have taken up any of the government's support schemes and to what extent these have mitigated the impact of the crisis.

Regardless of whether we think Ofwat needs to act now or wait for applications for interim determinations, there is one clear message: any regulatory response needs to be based on good quality evidence. A robust evidence-base is needed to justify short-run sector-wide changes that are implemented quickly *and* for longer-term applications for interim determinations. This is because it is important that any change is based on isolating the impact of the crisis and maintaining appropriate incentives to deliver efficient services.

The purpose of this paper is therefore to provide guidance on how to build this evidence-base so that the industry can make timely decisions in an informed way.

[2] It is not clear whether government restrictions and social distancing guidelines could be interpreted as a relevant change in circumstances. In this case the threshold for an application for an interim determination drops to 10% of company turnover.

DO WE NEED TO MAKE FUNDAMENTAL CHANGES TO THE REGULATORY APPROACH AS A RESULT OF COVID-19?

The focus of this paper is on the evidence base to inform the regulatory changes within the current framework of PR19 price determinations. However, the pandemic raises a number of wider questions that we do not discuss in detail but still consider important:

- How to reward innovation and efficiency during the crisis – Finding innovative ways of dealing with unprecedented challenges is in the interest of customers, but the current framework does not include any explicit incentives.
- To what extent do water companies need to play a role in helping kick-start the economy – This could include bringing forward significant capital projects or investments in long-term resilience.
- To what extent has COVID-19 changed customer preferences and behaviours and how do we best reflect these changes – we may look back at Covid-19 as an extraordinary natural experiment that helps us learn about customer behaviour. We need to make sure the water sector captures these lessons. Customer preferences may have changed significantly, particularly with regard to resilience. People may now think differently about how to deal with low probability, high impact events. Should the industry wait for PR24 to reflect any shifts in attitudes?

HOW TO BUILD A ROBUST EVIDENCE-BASE FOR TIMELY DECISION-MAKING

It is important that any decisions on the regulatory response are based on robust evidence. This means that we need be clear on:

- What is the appropriate counterfactual?
- What data sources and analysis should we use?
- What timeframe do we need to cover and how often does the evidence-base need to be updated?

This section discusses these questions and illustrates the challenges with quantifying specific impacts.

What is the appropriate counterfactual?

As the COVID-19 pandemic broke out only a few months after the PR19 FD, it may be tempting to use the FD as a starting point. However, comparing it to the position each company now finds itself in would be misleading, as it does not reflect the appropriate “delta” or difference that we need to assess. Instead, the evidence-base must reflect the difference between the companies’ position at the start of Asset Management Plan 7 (AMP7) with and without COVID-19.

Figure 2 What is the appropriate counterfactual?

For example, if the FD allowed expenditure of £100 for the first year and the current projection is £150 as a result of COVID-19, the impact of the pandemic is not necessarily £50. The key question is what the projected expenditure would have been in the absence of the virus. If it had been £120 and is now £150, the impact of the pandemic is £30. In practice, companies will need to provide additional evidence to Ofwat on what their projected expenditure was in the absence of COVID-19. PR19 business plan forecasts may be used as an input, but companies are likely to have updated those forecasts after the FD was published. This is an important distinction, as any evidence-base that takes the FD but ignores the firms' actual position has limited credibility. It is possible that a company's current position and the FD are identical, but this would need to be demonstrated. Given that there is information asymmetry and an accurate counterfactual is needed to effectively assess the impact, the company's updated position will need to be clearly demonstrated with a robust evidence-base.

What data sources and analysis should we use?

Bad debt

To estimate the impact of COVID-19 on water company revenue and bad debt, the analysis needs to evolve over time. For household customers, it is important to establish the projected level of bad debt with and without COVID-19. To do this a number of challenges need to be overcome:

- **How can we be sure which households are not paying their bills as a result of COVID-19 (and not for other reasons)?** Our advice is to first use publicly available data on employment, income and benefit applications and to analyse these figures by water company. Appropriate data include NOMIS labour market statistics by output area for claimant counts and workforce jobs.[3] The ONS has published additional statistics on the impact of the novel coronavirus on deaths and the effects on business as well as a population map showing where the people most at risk live.[4] Analysis of publicly available data should be able to show the changes in income and employment status of a water company's customers. It is important to use datasets that are updated on a fortnightly, monthly or quarterly basis as annual data is not helpful in pointing

[3] ONS, NOMIS, Official Labour Market Statistics, Available : https://www.nomisweb.co.uk/sources/census_2011_qsuk

[4] ONS, Latest data and analysis on COVID-19 in the UK and its effect on the economy and society, at: https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases

out rapid shifts.[5] The NOMIS and ONS datasets represent a good starting point. Second, we suggest trying to identify those customers who have a history of paying their bills on time but have now stopped and asking them why. The proportion who cite COVID-19 will be an important data point. This could be done by call centre staff or via a separate representative survey. Using both of the data sources together should provide a clear picture of the range of the virus's impact. We expect that this is best summarised in a range of impacts.

- **How do we reflect economic uncertainty in our projections?** As a part of the workforce has been furloughed, with the government paying 80% of their wages (up to a cap), the full effects of COVID-19 are likely to evolve over time. We therefore suggest that companies estimate future bad debt risk based on a range of economic recovery scenarios. These need to include assumptions on the duration of social distancing measures and the trajectory of the economic recovery. For example:
  - "Best case" – V-shaped recovery with social distancing measures lifted by end of May;
  - "Medium case" – U-shaped recovery with social distancing measures lifted by mid-June;
  - "Worst case" – L-shaped, slow recovery with social distancing measures lifted in the autumn.

  These three scenarios do not cover all possibilities (e.g. a second wave of infections) but they are a reasonable starting point and can be mapped to the relevant economic indicators that influence bad debt. For example, in the best case incomes and employment quickly return to pre-COVID-19 levels, so there is a short-term rise in late payments but no significant impact on bad debt. In the worst-case scenario, incomes and employment are depressed for 18 months and bad debt increases substantially.
- **How much evidence of mitigation actions do companies need to include?** In addition to the scenarios discussed above, we suggest developing estimates of the impact of the virus "with mitigation options" and "without mitigation options". It is important for companies to clearly record how they are managing the evolving impact of COVID-19 and to what extent their actions are cushioning the blow. On bad debt, measures will include payment plans, payment holidays, applications for social tariffs, etc. This is a critical contribution to the credibility of the evidence base.
- **How often do we need to update our projections?** The situation is fast-moving and hard to forecast. To inform the most appropriate regulatory response, actual outturns and projections need to be updated once a month so that the industry can track the impact of the pandemic and make sure it intervenes at the right time.

[5] If changes in customer behaviour are being analysed over a longer period of time, the "Living Costs and Food Survey" includes weekly household spending on water and miscellaneous services by region, output area classification groups and income deciles. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/expenditure/bulletins/familyspendingintheuk/april2018tomarch2019

- **To what extent can companies benchmark their responses?** Where possible, companies should compare their responses and identify how they have adopted best practice or have shared best practice.

For non-household customers served by retailers, Ofwat has already made some arrangements to protect retailers. We suggest a similar approach to that for household customers, involving the close tracking of how actual payments stack up against projections.

Totex

This is a complex issue, as COVID-19 will have both a short-term and a longer-term impact on water companies' totex, with some factors offsetting each other. We therefore suggest a bottom-up approach that tracks:

- Changes in **capital expenditure (capex) spending projections** – An overview of investment projects that have been:
  - **Delayed -** These are schemes that will have to be started later than scheduled, so we need to record when the costs are projected to be incurred and whether the delay will affect the cost estimate. This exercise will have to take account of direct costs as well as the costs the project was intended to avoid. For example, a delay may mean a more expensive water source has to be used for longer. To link to ODIs, we also need to record how any delays affect companies' ability to improve service levels and the likelihood of achieving PCs and incurring penalties.
  - **Paused -** These are projects that are currently under way but cannot continue because of social distancing measures or disruptions to the supply chain (e.g. there are some delays to receiving imported goods). Some of these projects may have substantial ongoing costs, depending on how pandemics are covered in contracts. We need to record these costs, as they are clearly "additional" outlays caused by COVID-19. At the same time, companies need to identify what actions can mitigate the impact. As some of the social distancing guidelines are not legal requirements, firms will need to demonstrate how they have approached compliance and why. In addition, they have to record how the virus has affected their ability to meet agreed service levels.

  Companies need to combine both of the detailed assessments into an overall evaluation of its net position over the AMP. This should incorporate any industry-wide impact. For example, if all companies try to ramp up investment at the same time, this could affect deliverability and costs. We suggest using analysis that is consistent with the economic scenarios discussed under bad debt that describe how long social distancing measures may be in place.
- Changes in **operating expenditure** can be divided into a number of categories:
  - **Cost increases as a result of reduced staff** - Companies need to record the percentage of their workforce that is unavailable as a result of COVID-19. This includes staff in self-isolation or off sick and those who have caring responsibilities, alongside figures on how costs may have been affected. Ideally, it should be possible to distinguish employee shortages specifically due to COVID-19 from the "natural" rate of absence. Companies may have

implemented various measures in response to having fewer staff. These need to be documented with a clear rationale and cost estimate.

- **Cost increases as a result of social distancing** – Social distancing rules can have an impact on the way services are delivered and therefore on costs, e.g. buying monitors and desks for home working or the extra time needed to do a job because people may not work together in close proximity. The rules may also lower productivity if some vital IT software cannot be accessed from home. Companies need to document any resulting cost increases and reflect the mitigation steps they have taken.
- **Cost increases as a result of prioritising some services** – Companies may have decided to respond to COVID-19 by increasing service levels in particular areas. For example, engineers may be doing more overtime to fix supply interruptions given that hand-washing is essential to lower the risk of infection. In such cases, companies need to document the changes they have made and provide a clear rationale and cost estimate. Ideally, they will include evidence of customer support, perhaps from a customer panel discussion. Companies also need to take into account that customers are already paying for about half of totex overspend and that prioritising some service aspects may generate ODI outperformance payments. It is therefore important to present the full picture.
- **Cost increases as a result of changes in customer behaviour** – Life under lockdown is having a significant impact on the way people go about daily life. Many will be using more water because they are washing their hands more frequently and doing more gardening and cleaning. Given the shortage of toilet paper, more wet wipes and kitchen roll are being flushed. Companies may face increased costs due to such changes in behaviour, for example if more sewers have to be unblocked. Firms need to document such responses and estimate the costs, keeping in mind that they need to demonstrate the change in behaviour against the counterfactual.
- **Any areas where costs decrease –** A robust evidence-base needs to consider if any costs have fallen. For instance, travel times are shorter and fewer water pipes may burst under the weight of passing traffic. And with fewer people moving house during the crisis, there is less work changing customer accounts. There may also be changes in customer behaviour that reduce costs. We suggest recording and estimating their impact, particularly if social distancing measures are in place for an extended time.

The assessment of the impact of COVID-19 on totex requires companies to demonstrate that they have spent money efficiently. However, some of the responses to the virus have necessitated rapid decision-making. With hindsight not all decisions may be considered optimal. It is important to assess efficiency in the context of the information, time-frame and options that were available at the time the decision was made. We should be careful about penalising companies for acting quickly and decisively. The test of whether expenditure was efficient should therefore be based on whether the company acted reasonably given the circumstances and information at the time.

PCs/ODIs

The analysis of PCs and ODIs also needs to follow a bottom-up evaluation of each service area and has to be linked closely to the totex assessment. The case study below shows how complex the interaction between totex and PCs can be.

CASE STUDY: IMPACT OF COVID-19 ON PCC

PCC is one of the areas where the impact of COVID-19 is complex:

- First, PCC may increase as more people wash their hands for longer and more regularly and spend more time in their garden. However, there may be offsetting changes in behaviour, such as people exercising less because gyms and sports fields are closed. So it is unclear whether PCC will go up or down.
- Second, COVID-19 affects the ability of companies to influence PCC. Metering and behavioural change programmes are the two main ways of addressing PCC. Installing new meters cannot be done due to social distancing, and possibly more importantly campaigns to get people to change their habits need to be revised or delayed so their messages are not confused with hand-washing guidance (also customers are unlikely to be motivated to change their ways during a lockdown). The upshot is that companies' ability to reduce PCC is lower during lockdown.
- Third, while this saves costs in the short run, it may increase costs in the longer term if companies try to catch up on installing new meters, e.g. by paying for overtime.
- Fourth, any out- or under-performance payment would be based on the "natural" change in PCC because water companies have limited abilities to address PCC right now. This raises the question of whether the ODIs on PCC should be suspended until companies can restart their programmes.

  The net outcome over the AMP could be an increase in costs and a greater likelihood of penalties, but this needs to be tracked over time.

The ability of companies to fulfil their PCs needs to be assessed as following:

- **Step 1: Use the appropriate counterfactual** - As discussed above, the appropriate counterfactual is important. Depending on the companies' position, it may not be realistic to assume that without COVID-19 all PCs would have been achieved.
- **Step 2: Assess whether the PC can be met in the context of the totex assessment (short-run and long-run)** - This step, in turn, needs to be linked to the assessment of totex discussed above. In the short-run companies may have put measures in place that ensure service is maintained or even improved, and any cost impact must be documented. In the long-run the impact of delayed or paused capex presents another challenge. There is likely to be a trade-off between service and costs, and companies need to be clear about their position. In addition, companies need to be clear about the mitigation actions they have taken to ensure that service continues to improve.
- **Step 3: Assess areas where PCs are more/less difficult to achieve regardless of costs** – These include:

- Customer behaviour – The case study above illustrates that, even if companies were ready to spend more, installing new meters to address PCC is not feasible because of social distancing guidelines.
- Workforce limitations that cannot be addressed by overtime/contractors – Companies might not be able to provide the usual level of service because of staff shortages. This may apply to the customer measure of experience (C-Mex) if call centre operators are unable to work from home and the capacity of the call centre has to be reduced to safeguard employees. In other areas of the business, workers may be unavailable due to caring responsibilities and it may be challenging to find replacements in the short-run.
- Direct impact of social distancing measures – Some bespoke PCs, such as the number of children educated about water efficiency cannot be met, because schools are closed. PCs around partnership working or catchment management may also be affected.

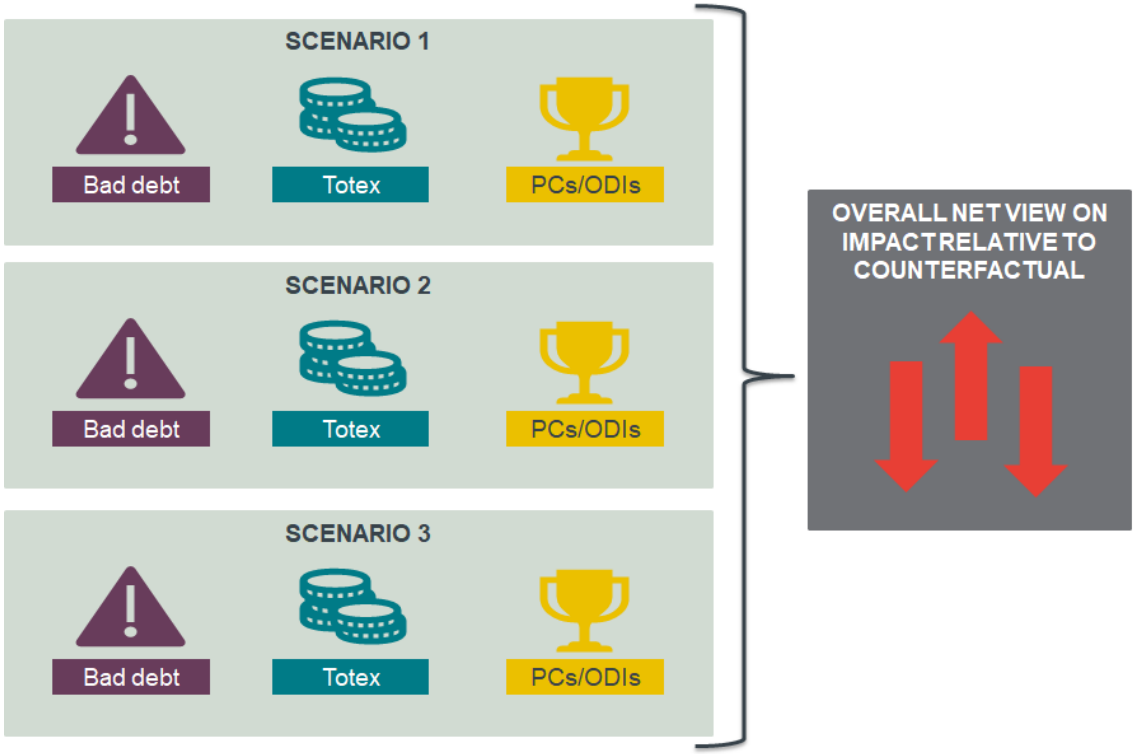
- **Step 4: Estimate impact on ODIs** – For each PC companies need to develop a clear narrative that discusses the impact of COVID-19 and isolates its effect on costs and performance. The narrative needs to include mitigation actions, outturn performance and projections for future performance. It should then be used to develop ODI projections for each PC. It is particularly important that companies use the appropriate counterfactual so the results of the analysis are credible.
- **Step 5: Update analysis once a month** – To ensure timely decision-making we suggest updating this analysis once a month with the latest data, actions and costs.

Overall analysis of the net position

Once the evidence-base on bad debt, totex and PCs and ODIs has been assembled, we need to analyse the overall net position in the short-run and the and long-run. This final step is important because the net effect in the short-term might be neutral (or close to neutral) but the longer-term impacts may be more severe. We would expect the final summary to be structured as illustrated in Figure 3 below.

The summary output needs to be supported by a clear narrative that details the bottom-up approach described above, includes mitigation actions and clearly links COVID-19 to the net position.

Figure 3 Overview of net position under different scenarios – Difference from counterfactual



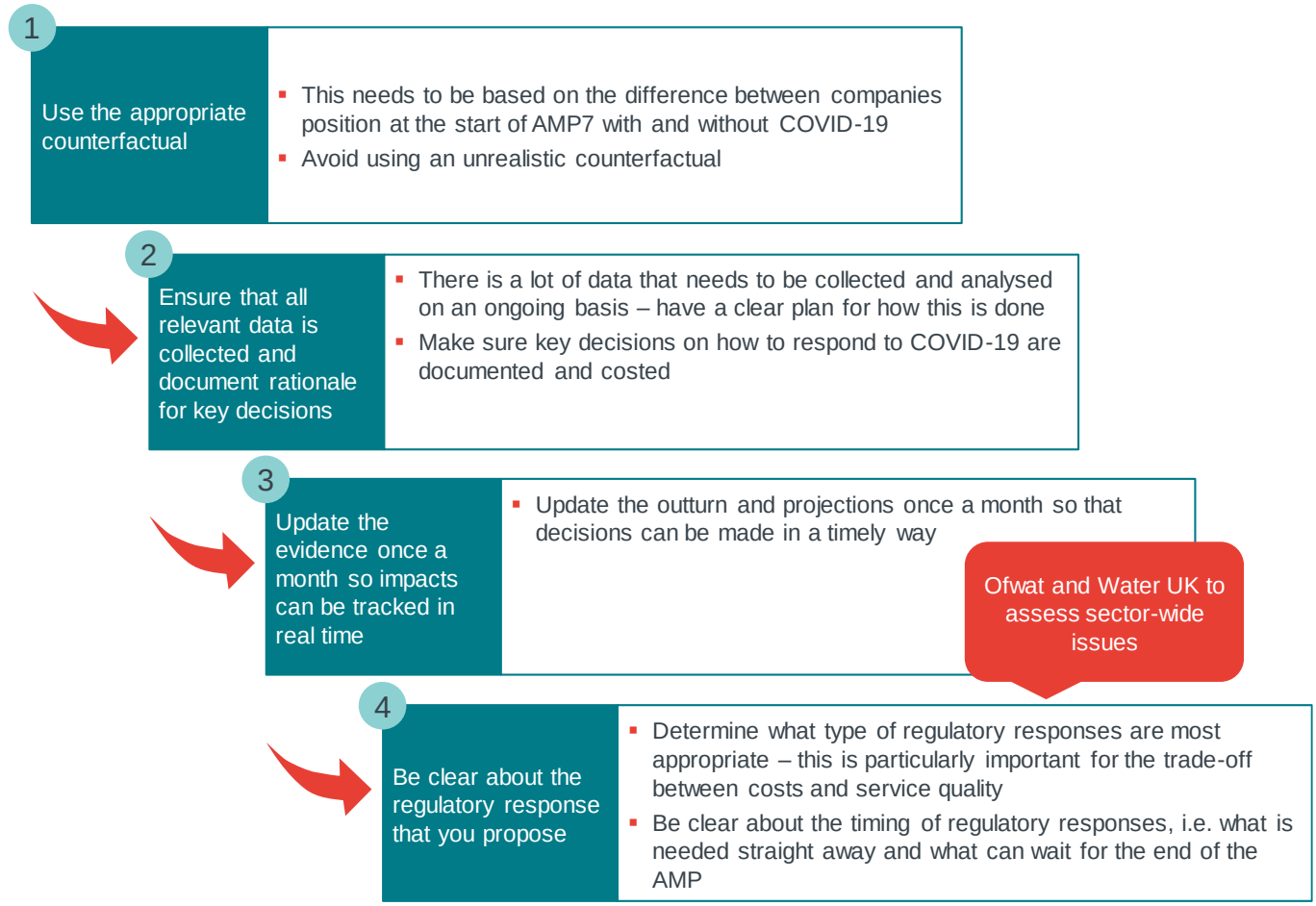
Source: Frontier Economics

SO WHAT?

COVID-19 is an unprecedented international crisis that could have a wide-ranging impact on the water sector. Regardless of whether we think Ofwat needs to act now or wait for companies to apply for interim determinations, there is one clear message: any regulatory response must be based on good quality evidence. That is why this paper has provided an in-depth discussion of how the evidence needs to be developed. In our view the evidence needs to be updated once a month as the situation is evolving rapidly. With every passing week we will have a better understanding of the potential and actual impact of COVID-19.

One final question is what the sector needs to do with the evidence-base. We think companies have to be clear about the regulatory response they are looking for. This is particularly important given that totex and PCs/ODIs can sometimes be traded off. Lessons from PR19 suggest that proposing a clear way forward will be more constructive. We also think that Ofwat should assess the evidence provided by each company and consider to what extent sector-wide changes are merited. Water UK could play a similar role for companies and develop a view on behalf of the sector as a whole. This is of the essence because the most appropriate regulatory response is likely to include a mix of measures, with some immediate sector-wide changes (e.g. suspension of PCC ODIs) and some impacts of COVID-19 left for applications for interim determinations.

Figure 4 Summary of how to determine the most appropriate regulatory response



Source: Frontier Economics