25 May 2016

Trust in water

Water 2020: Regulatory framework for wholesale markets and the 2019 price review
Appendix 1 Securing legitimacy of future price controls - further evidence and analysis

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Contents

1. Introduction

As stated in our decision document, the following is a summary of our decision:

We will seek to change **revenue indexation** to the Consumer Price Index (CPI or CPIH) from the start of the 2019 price review (PR19) price control and to amend the licence conditions accordingly.

We will change **regulatory capital value (RCV) indexation** to CPI (or CPIH). 50% of the RCV will be indexed to the Retail Price Index (RPI) at 1 April 2020. The rest of the RCV, including all new RCV, will be linked to CPI (or CPIH) and so the proportion of RCV that is indexed to CPI (or CPIH) will increase through 2020-25.

We will confirm the final decision as to whether to use **CPI or CPIH** in the methodology for PR19. This will allow us to take account of developments in the use of CPI and CPIH including the advice of the Office for National Statistics (ONS) to the UK Statistics Authority (UKSA) on the status of CPIH as an official statistic.

We will state a **single nominal cost of capital** – stated separately as real CPI (or CPIH)-based and real RPI-based costs of capital – for the purpose of setting price limits.

We will **reconcile** for the difference between the RPI and CPI (or CPIH) forecast for setting price limits and the actual out-turn for RPI-linked cost of capital that applies to the RPI-linked part of the RCV. Together with a nominal cost of capital this will mean the change to indexation will be **net present value (NPV)-neutral** for a notionally efficient company.

We have set out the **principles** we will apply when considering the transition of the indexation of the RCV beyond 2025 to make our intentions clear and predictable.

We confirm that to the extent we use similar **cost assessment models** to PR14 at PR19, we will deflate the base cost data using the same measure of inflation we will apply for revenues.

This appendix provides further detail to the high level case and impact assessment set out in Chapter 3 of the decision document.

In our December consultation document we included an initial draft impact assessment against a range of options. The initial Impact Assessment was largely qualitative in nature, and concluded a net positive impact of our proposal. On page 50 of the draft impact assessment, we said "we consider that a move from RPI to CPI indexation, could provide a better measure of indexation, which is less volatile and more readily understood by customers. We are further explicitly proposing to transition to CPI over time, which should both smooth the short term impact on customer bills and assist companies in implementing the change. We are also proposing to allow companies to use pay as you go levers to smooth the impact of a move to CPI over time".

This impact assessment updates and builds on the initial IA, and expands it consider the range of alternative proposals put forward by stakeholders in response to our consultation. It takes account of stakeholders' views expressed in response to our consultation as well as further evidence. This includes the work we commissioned Oxera to undertake on the potential benefits and costs of different options for change. We published Oxera's report in April.

2. Approach to the impact assessment and our analysis of impacts

2.1 The options

The full range of options we have considered, including those put forward in response to our consultation, are set out below. Except for the first option, all options involve the indexation of revenues to CPI/H. The difference between the options that involve indexation of revenues to CPI/H is the proportion of RCV that is indexed to CP/H and the speed of transition to CPI/H. We discuss our assessment of these options in section 3.4 of the decision document.

1. **No change** to the existing approach.
2. **Indexing revenues by CPI and indexing RCV by RPI**: indexing revenues by CPI/H and maintaining RPI indexation for the whole RCV
3. **Linking 'new' RCV to CPI/H**: RCV in existence at the start of the PR19 price control would remain linked to RPI and would depreciate over time with companies in control of the speed of transition through the use of run-off rates, all new RCV linked to CPI/H. Anglian Water originally proposed this approach in a contribution to the Marketplace of Ideas which it further updated in response to our December consultation. It was supported by a number of respondents to our consultation.
4. **Alternative CPI/H:RPI proportions:** One suggestion regarding the indexation of the RCV was to start at PR19 with 33:67 or 25:75 for CPI/H:RPI. Another party suggested to start at PR19 with 25:75 CPI/H:RPI, and to move to RPI 50:50 for PR24, 75:25 for PR29, and 100:0 for PR34.
5. **Individual company CPI/H:RPI proportions:** One party suggested that the proportion of a company's RCV that is indexed to CPI should be proposed by each company as part of their business plan submission.
6. **Transition based on 50% of the RCV indexed to RPI at the start of the PR19 price controls**: This was stated as the preferred option in our consultation. It is based on 50% of the RCV indexed to RPI as at the start of the PR19 price control. The rest, including all new investment, is indexed to CPI/H.
7. **Transition based on 15% of the RCV indexed to RPI at the start of the PR19 price controls**: In our December consultation, we noted that we could set the proportion of the RCV to be RPI linked to be 15%, (based on PR14 assumptions of 62.5% notional gearing, multiplied by 75% embedded debt and our assumption that 33% of embedded debt was index linked - this assumes that new debt is not RPI linked).
8. All RCV indexed to CPI/H from the start of the PR19 price controls: Full and immediate switch to CPI for revenue and RCV indexation.

2.2 Approach to assessing the options

As the difference between all options relates to the speed of transition, we approach this impact assessment by considering the benefits or costs associated with a faster transition relative to a counterfactual of the status quo (ie. 'Do nothing' scenario). If a faster transition comes with greater benefits for a particular impact area, this is considered preferable to the other options (within the context of that impact area). Similarly, if for any impact area a faster transition comes with greater costs, then it is considered less preferable to the other options (within the context of that impact area).

Our assessment focuses on the impacts on companies with notional financial structures. This is consistent with our approach to price setting which is based on a notional financial structure. It is also consistent with our long-held view on capital structures, where we consider that the choice of actual capital structure is a matter for companies and their investors and that setting prices on actual finance structures has the impact of transferring risks around financing decisions to customers. However, we have also considered the impacts on actual financing structure of companies and in the distributional impacts in Section 4, we discuss the potential consequences on companies which move away from the notional structure – especially to particularly high levels of gearing.

2.3 Impact assessment framework

Following the approach set out in Appendix 6, in carrying out the impact assessment, we have considered the options in accordance with our duties in the Water Industry Act 1991 (as amended) (WIA91), and with our Water 2020 criteria.

We discussed the framework for the impact assessment on our approach to indexation, and the specific impact areas to be considered, at a workshop on indexation in March. We have taken account of the comments received in updating our framework. We structure the impact assessment in accordance with the following impact areas:

- Legitimacy
- Volatility of customer bills
- Operating risk / costs
- Financing costs
- Financeability and Financial levers
- Affordability and fairness
- Perception of regulatory risk

- Complexity

2.4 Summary of the impacts

As the main difference between the options is the speed of transition of the indexation of the RCV, we present the summary conclusions of our impact assessment in Table 1 based on five options that span the spectrum from 'Do Nothing' to a full transition of the RCV to CPI/H at PR19.

Table 1 Summary findings of the impact assessment for the transition to CPI/H from PR19

Colour coding: green represents no, minimal or positive impact; amber represents some negative impact; red represents a negative impact.

Impact Areas	Do nothing	Revenue and proportion of RCV indexed to CPI/H			
	Status quo	Revenue only (0% RCV)	New RCV	50% RCV as at 1 April 2020 plus new RCV	100% RCV
Legitimacy	Indexation of both revenue and RCV ultimately flow through to customer bills. RPI is losing its legitimacy: it is statistically flawed, is discredited and has been discontinued as a national statistic. In the context of legitimacy, a switch to CPI may improve forecasting on both revenue and RCV. Options that involve a faster transition away from RPI, across all elements of the price control, are therefore preferable.				
Volatility of customer bills	There is evidence that customers prefer smooth bill profiles. To the extent that CPI and CPIH tend to be less volatile than RPI, options that involve a change to revenue indexation are likely to benefit customers, although this impact is likely not to be large. Although the impact could increase in times of wider economic change, with constraints on household budgets. In terms of volatility of consumer bills, a move away from RPI for bills and revenue indexation is preferable.				
Operational risk/costs	There is no clear evidence that the industry's operational costs or risk will materially change under any of the indexation options considered, and so there is no clear cost or benefit to the industry of moving away from RPI. We consider that none of the options would lead to any costs or benefits. There is no benefit to a faster (or a slower) transition.				
Financing costs	Oxera found no material, robustly quantifiable impact on the industry's risk (and hence financing costs) under any of the options for change considered. Oxera found that inflation uncertainty drives only a small proportion of the overall volatility of the firm. Any option for change has a modest impact on volatility, and options that involve some transition for the indexation of RCV do not increase this volatility. We consider that none of the options would lead to any financing costs or benefits for the notionally financed company. There is no benefit to a faster (or a slower) transition.				
Financeability and financial levers	Any option for change that involves changes to the indexation of the RCV is likely to improve financial credit ratios in the short to medium term, since cash flows are brought forward. If offsetting changes are made (eg through PAYG or RCV run-off), at worst there will be no change to the forecast credit metrics (assuming no change to rating agency methodology). For the purposes of this impact assessment, none of the options would lead to any financeability costs or benefits. There is no benefit to a faster (or a slower) transition.				
Affordability and fairness	Given our expectation that levers can be used to smooth bill impacts (if supported by customers) to manage any impacts, and given that there is no clear-cut argument in terms of intergenerational fairness, we consider that none of the options would lead to any affordability or fairness costs or benefits. There is no benefit to a faster (or a slower) transition.				
Perceptions of regulatory risk	Options that involve changes to the indexation of the existing RCV are more likely to increase perceptions of regulatory risk among investors, which may impact on the cost of capital. However, options that represent a slower transition may introduce greater regulatory risk in the future – for example if it creates a need for less gradual change at that time. Nonetheless we recognise these perceptions, and our impact assessment assumes our commitment to the reconciliation is understood by companies and investors. The principles we have set out for future transition of the RCV provide clarity to investors in terms of our approach at future price controls at PR24 and beyond.				
Complexity	The use of both RPI and CPI/H to index the RCV in transition introduces additional complexity for us, companies and investor groups. However, all parties are well placed to consider and understand the increase in complexity as they must do with the introduction of new regulatory mechanisms at any price review. This complexity would be reduced in the case of a full switch to CPI/H for RCV indexation, although the engagement with customers on use of PAYG and RCV run off would remain with this option. All options allowing a transition of indexation of the RCV over time result in some additional complexity. We have not quantified the administrative cost to companies and investor groups associated with developing an understanding of the true-up mechanism for transitional options. However, we consider it will not be material as the work will be carried out by parties familiar with the regulatory regime.				

There are arguments for adopting a fast transition, including fully transitioning both revenue and RCV to CPI/H at PR19. A fast transition provides benefits as it secures the legitimacy of the regime and ensures customers and companies benefit sooner from a less volatile inflation index. However, a transition that fully switches the indexation of the RCV to CPI/H from 1 April 2020 may increase the perception of regulatory risk among investor groups, which could impact on financing costs and customer bills.

Our assessment includes our commitment to reconcile for the difference in the between RPI and CPI/H that is forecast in setting price limits and the actual outturn for the RPI-linked cost of capital that applies to the RPI-linked part of the RCV. Together with our commitment to set a nominal cost of capital this will mean the change to indexation is NPV neutral for a notionally efficient company. Our assessment also recognises the statement of the principles we will adopt in determining the speed of transition beyond 2025.

We note, the approach that links only ‘new’ RCV to CPI/H was endorsed by a majority of company respondents[1].

There are similarities between the approach we have adopted and the ‘new’ RCV approach, however, the approach we have proposed provides incremental benefits over the ‘new’ RCV approach. Our approach provides:

- incremental benefits associated with a faster transition from RPI as a discredited metric with inherent statistical flaws which impacts on legitimacy, this in turn maintains the credibility of the regulatory regime;
- incremental benefits associated with a potential reduction in unexpected gains or losses as a result of forecast error in RPI - due to the greater volatility of RPI - which impacts on legitimacy; and
- a reduction in the volatility of enterprise value for investors as illustrated in Table 7.2 of Oxera’s report Indexation of future price controls in the water sector.

We also set out in Figure 1 our assessment of four of the different options against our Water 2020 criteria. We provide further comment on the other approaches proposed by stakeholders in section 3.4.2 of our decision document.

[1] Anglian Water developed the detail for this approach in a contribution to the Marketplace of Ideas.

Figure 1: Assessment of options against W2020 criteria

	1 Do nothing / Revenue only	2 Revenue and New RCV only CPI/H	3 Preferred Option	4 Revenue and all RCV CPI/H
Achieving our objectives	No or limited action to secure long-term legitimacy of price control.	Takes some action to secure long-term legitimacy of price control, but less targeted as transition would occur over the very long term.	Takes action whilst recognising complexity and sensitivity of full and immediate change, and acknowledging perceptions of risk (proportionate and targeted, flexible and responsive). Specific actions to address transparency and predictability.	Fastest transition away from flawed measure of indexation, but stakeholder perceptions of risk is high. Less flexible.
Addressing known problems	No or limited action to address a known issue and implement Johnson Review recommendation.	Starts to address known issue but over long timeperiod with a strong (and partially unpredictable) dependency on future levels of RPI and RCV run-off rate	Starts to address known issue with significant initial transition on RCV indexation, applied equally to all companies.	Full move away from flawed measure of indexation.
Practicality	Revenue only introduces additional complexity (no complexity for do nothing)	Introduces complexity during transition period	Introduces complexity during transition period	Avoids introducing additional complexity

3. Assessment by impact area

3.1 Legitimacy

Inflation indexation is a key driver of changes in nominal prices experienced by customers, under our price control methodology for wholesale controls. For price controls to be legitimate, the measure of inflation used must also be legitimate. This means the measure of inflation used needs to be recognised and accepted by customers and their representatives. It means that the measure of inflation used must be statistically robust to maintain the credibility of the regulatory regime.

RPI is calculated using a statistically flawed method, is upwardly biased due to the calculation method used, and has been discontinued as a 'national statistic' (further comprehensive evidence is set out in Chapter 4 of the Oxera report).

Section 3.3.3 of our decision document includes references to further recent developments, including the National Statistician's letter to the UK Statistics Authority (UKSA) sent in March this year which sets out a minded-to position to move towards CPIH as the main measure of inflation.

Oxera's analysis of the legitimacy of RPI, CPI and CPIH shows that RPI scores lower than the other two indices across most qualitative criteria used. This is indicated in Table 2 below:

Table 2 Assessment of the legitimacy of inflation indices

	RPI	CPI	CPIH	Comments
Availability	✓	✓	✓	All measures are regularly produced by the ONS.
Consistent with government	×	✓	×	CPI is the government's official statistic, and is comparable to measures of other countries.
Statistical robustness	×	✓	–	RPI uses the Carli technique, which has recognised statistical failings. CPIH is subject to ongoing work by ONS to regain National Statistics status.
Predictability	–	✓	×	While difficult to forecast, a range of independent forecasts are available for RPI and CPI. The Bank of England having an explicit target for CPI may suggest that CPI's

	RPI	CPI	CPIH	Comments
				uncertainty is currently more bounded than that of the other measures.
Volatility	×	–	✓	Over the last ten years, CPIH has been the least volatile measure, followed by the CPI. RPI is affected by the Bank of England adjusting the base rate.
Likely future use	×	✓	✓	The Johnson report recommended that the government should move to CPIH as its primary measure of inflation. Whether the government will adopt this recommendation, or continue to use CPI is not currently known.

Adapted from Oxera (2016), 'Indexation of future price controls in the water sector'

RPI is increasingly falling out of use. CPI is used as the inflation target by the Bank of England. The media usually refers to CPI when reporting inflation movements and CPI is increasingly used as the inflation measure in the pensions sector. For example:

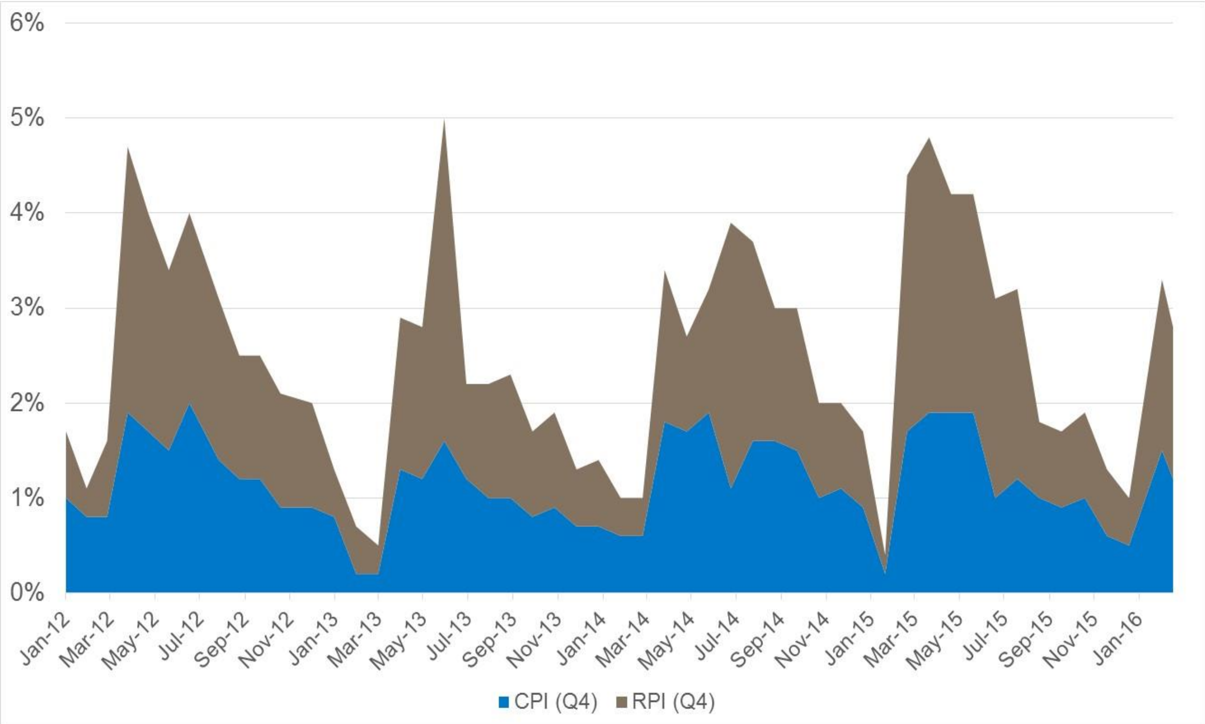
- under the current system the basic State Pension is uprated by the average percentage growth in wages (in Great Britain), the percentage growth in prices in the UK as measured by CPI, or 2.5% – whichever is highest (the 'triple lock').
- revaluation of Pension Protection Fund (PPF) compensation started to be calculated in line with CPI as of March 2011.
- private pension schemes are increasingly indexing benefits to CPI. For example, in its October 2013 'Long-Term Funding Strategy Update', the Pension Protection Fund substantially increased its estimates of schemes that would move to CPI. For post-retirement schemes it increased its estimates from 10% to 30%. For pre-retirement schemes it increased its estimates from 25% to 80%.
- Moody's has noted[2] that the Pension Protection Fund's own £20-25 billion post-1997 liabilities are entirely linked to CPI and has noted had told the Debt Management Office that "the growth of CPI linkage within the pension industry was increasing the case for the launch of CPI-linked Gilts in the future … it was likely that the case for their introduction would increase with the passage of time".

[2] Redefining real: adoption of CPI will transform index-linked debt market, raise risks for regulated sectors', Moody's, 2016.

Issues that affect the predictability could raise particular questions in respect of the credibility of the regulatory regime. In its report on the economic regulation of the water sector, the NAO referred to Paul Johnson's review of indexation. The NAO said "The higher volatility of the Retail Prices Index means that customer bills may fluctuate more than overall household prices. It may also make it harder for Ofwat to forecast inflation accurately. Whichever index is used, if inflation is higher than Ofwat expects at the time of a price review (as was the case between 2010 and 2015), companies could make unexpected gains, while they could make unexpected losses if inflation is lower than Ofwat expects."

Oxera present evidence - based on forecasting ranges by the Treasury - that CPI[3] may be easier to forecast than RPI. Analysis of the data within HM Treasury's March 2016 publication of independent forecasts shows that the forecast range of RPI consistently exceeds that of CPI. This can be seen in Figure 2 below.

Figure 2: Range in forecasts for RPI and CPI based on analysis of HM Treasury data March 2016



Adopting an index that is easier to forecast could therefore benefit the credibility of the regulatory regime, in turn benefitting customers and companies alike, as it could

[3] Similar data does not exist for CPIH.

limit the range of any unexpected gains or losses (to companies or to customers) of a forecast error. This is important to secure trust and confidence in the sector.

As the indexation of RCV flows through company revenues and customer bills (through both depreciation and returns), the choice of inflation measure for the RCV has a direct impact on customer bills. There is a strong case for applying the change of indexation to RCV to maintain the legitimacy and credibility of the regulatory regime, which should not be disregarded because indexation of the RCV is less visible to customers than indexation of revenues. In this context, legitimacy of the price controls is greatest where more of the RCV that is linked to CPI/H.

3.1.1 Summary assessment - Legitimacy

Indexation of both revenue and RCV ultimately flow through to customer bills. RPI is losing its legitimacy: it is statistically flawed, is discredited and has been discontinued as a national statistic. In the context of legitimacy, a switch to CPI may improve forecasting on both revenue and RCV. Options that involve a faster transition away from RPI, across all elements of the price control, are therefore preferable.

3.2 Volatility of consumer bills

In our consultation we noted that, over the period 1998-2015, the standard deviation for CPI has been 1.1% compared to 1.4% for RPI. Further analysis carried out by Oxera has shown that, over the period 2006-2015, the standard deviation for RPI, CPI and CPIH has been 1.7%, 1.2% and 1.0% respectively (Table 3); CPIH has been the least volatile metric and RPI the most volatile.

In figure 3 we show the difference in RPI and CPI over time, and the components which make up this difference.

Table 3: Historical volatility of inflation measures 2006–2015

	RPI	CPI	CPIH
Standard deviation	1.7%	1.2%	1.0%
Standard deviation / mean	0.57	0.49	0.43
Range	7.2%	5.4%	4.5%
Range / mean	2.33	2.14	1.92

Source – Oxera – Indexation of future price controls in the water sector

Figure 3: RPI/CPI difference

Source – Oxera – Indexation of future price controls in the water sector

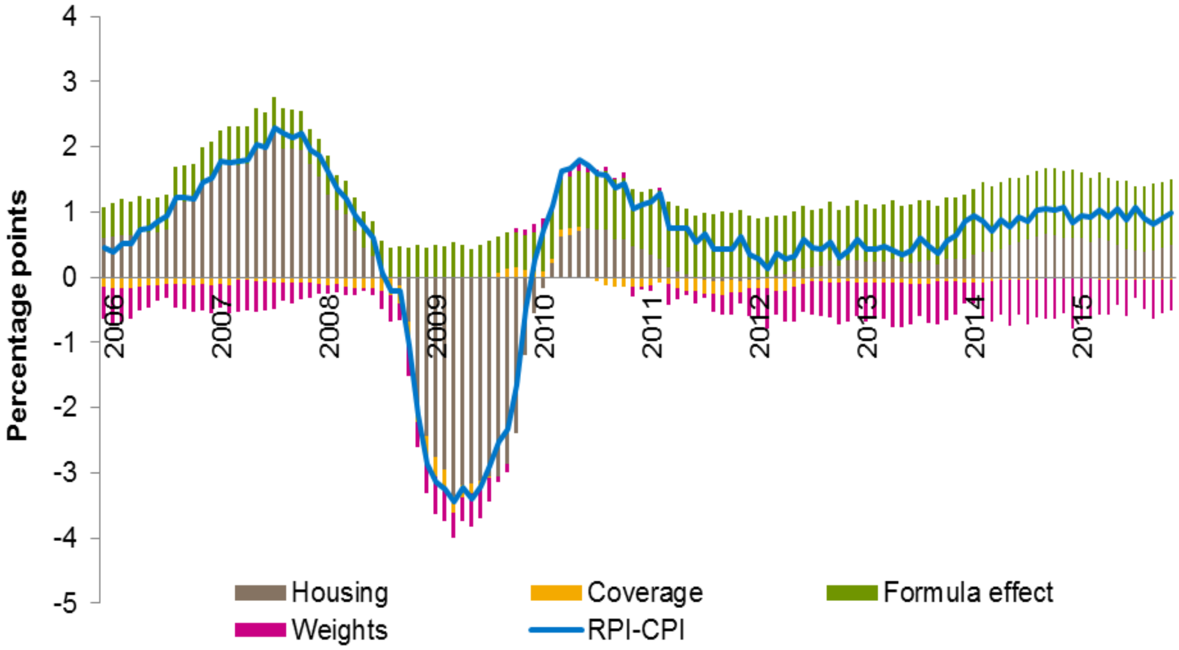


Figure 3 shows that as RPI is more exposed to movements in interest rates, it is likely that RPI will continue to be the metric with greatest volatility.

This evidence suggests a move away from RPI, as a more volatile indexation metric, could be of benefit to consumers. However, we expect that the impact of this difference on an average annual water bill is unlikely to be large – especially so for households and in a low inflation environment. It could however increase at a time of rising mortgage interest rates, although the higher volatility of RPI for example in times of economic shocks means that the difference between RPI and CPI/H can be much larger than the average difference over time, as seen in 2009.

3.2.1 Evidence on consumers' preference for bill stability and predictability

A range of evidence supports the view consumers value bill stability and predictability. Table 4 highlights evidence reviewed from the Water, Energy and Credit sectors.

Table 4 – Evidence of customer support for smooth bill movements in the water and wastewater, energy and credit sectors

Water and wastewater
Consumer research in the water sector shows that customers prefer stable bills and that if any changes to bills need to be made, they would prefer that this is done gradually.
WICS – Consultation Paper Consumer research carried out indicated that consumers wanted stability and foresight in prices. Nominal price increases were set at 1.6% for the first 3 years with a CPI-1.8% price cap over the full 6 year period. This gave customers stability at the start of the period and ensured below inflation increases over the period.
CC Water – Consumer Research from PR09 The majority of customers (over eight in every ten) would prefer to see "bills change steadily every year throughout the period, so that customers do not see big changes from year to year" rather than bills that fluctuate every year, or has one big step-up and then stays at that level. This is in line with the views of customers during the previous periodic review.
Company 1 – Consumer Research from PR14 Respondents were clear that they wanted bills to be kept as low as possible in the short-term and to avoid any sharp bill increases in the longer term The majority (72%) gave a preference for bills to be set low in 2015 to 2020, but set at a level that avoids a sharp increase in bills in 2021 Reasons given for this preference were that it is a more balanced approach and would make budgeting personal finances easier
Company 2 – Consumer Research from PR14 Respondents were shown a household bill which moved up and down year on year and a household bill which stayed the same year on year The vast majority of respondents (94%) stated a preference for a stable bill Respondents were then asked to imagine that a company offered to temporarily lower their bill for a number of years, on the condition that after that period, their bill would increase for a number of years to make up for the lower bill The majority of respondents (84%) would react negatively to this billing profile Many felt this would be unpredictable and were concerned that they would not be able to cope with payments in the long run
Southern Water – Consumer Research from PR14 ‘Gradual change’ in bill levels would suit the vast majority 84% of respondents stated that, if a bill increase had to take place, they would prefer it to be gradual over the course of a price review
Energy sector

Consumer research in the energy sector shows that consumers have a strong preference for predictable and accurate bills.
Ofgem – Smart meters and how they help billing performance More accurate bills are considered by consumers to be one of the most important opportunities offered by smart meters in the context of billing. Even a relatively low value "shock bill" can cause difficulties for a household's finances, particularly for the more financially vulnerable. Age UK highlighted this issue as especially bad for the older generation, as there is serious worries about inaccurate bills and unexpected cost.
Ofgem – Consumer Research Consumers don't like billing surprises - i.e. unexpectedly high bills or payment being taken on a date that they aren't expecting for direct debit. Many Panellists prefer making fixed payments each month where possible. That way, they know what to expect and are able to manage and balance their monthly finances more easily.
Citizen Advice - "Lost Decade" Direct Debit is typically the cheapest payment method for energy, and includes other advantages such as stability of budgeting and ease of account management Overall, tolerance for back-billing is reduced in a smart meter world. Nearly all Panellists feel that with smart meter technology, back-billing should never happen.
Credit sector
Evidence that consumers prefer stable payments but do not want to be tied into a long term contract.
FCA – Call for input Although consumers switching mortgage products were most focused on securing a 'good deal', this research provided anecdotal evidence of all types of mortgage borrowers exhibiting certain behaviours, including consumers expressing concerns about 'being locked in' to longer term fixed rates and 'missing out on better deals'.
FCA – Understanding consumer expectations of the mortgage sales process At first glance, consumer priorities can appear to be contradictory. Many express a desire for stability in their mortgage, and therefore a preference for fixed-rate products, but go on to choose a two-year deal in order to achieve a cheaper monthly repayment amount. FCA take the view that consumers do not always fully understand the trade-offs they have decided to make to achieve their target monthly repayment figure, and the potential future implications of these decisions. For example, the implications of taking a longer mortgage term in order to achieve a target monthly repayment amount are not always fully discussed with the adviser.

3.2.2 Summary assessment – Volatility of consumer bills

There is evidence that customers prefer smooth bill profiles. To the extent that CPI and CPIH tend to be less volatile than RPI, options that involve a change to revenue indexation are likely to benefit customers, although this impact is likely not to be large. Although the impact could increase in times of wider economic change, with constraints on household budgets.

In terms of volatility of consumer bills, a move away from RPI for bills and revenue indexation is preferable.

3.3 Operating risks/costs

Oxera carried out a top-down and a bottom-up analysis of the correlation between historical movements in RPI, CPI and CPIH and water companies' costs. The top-down analysis ran a regression analysis between: (i) changes in water and sewerage CAPEX (ie. measured by capital maintenance expenditure) with RPI and CPI and (ii) between the changes in operating costs (OPEX) and the three measures of inflation.

Full details can be found in Chapter 6 of Oxera's report. Oxera concluded that: "Overall, there is no clear evidence that the industry's operational risk will materially change under any of the indexation options considered. Given that there is no stronger link between RPI and companies' cost movements compared with the other indices (CPI or CPIH), there is no clear cost or benefit to the industry/consumers from moving away from RPI."

We note that:

- there is a relationship between pension costs and RPI due to historical arrangements where pension scheme benefits are linked to RPI. While companies are responsible for these arrangements, including any move to CPI in respect of future defined benefit scheme benefits, legacy defined benefit obligations may, unless agreed by scheme trustees and beneficiaries, remain linked to RPI for the foreseeable future. However, Oxera noted cash pension contribution costs were a relatively small proportion of total allowed costs based on its assessment of PR14 costs (around 2.5% of totex in total).
- There might be a circularity between regulator's choice of indexation metric and how costs move over time. For example, if the regulator switches to CPI indexation this might give companies an incentive to transfer any existing RPI linked cost contracts to CPI linked ones over time.
- over time other externally imposed costs (eg local authority rates) may move away from RPI (eg it was announced in the 2016 Budget that business rates would be indexed to CPI rather than RPI). We estimate business rates to amount to around 7% of totex at PR14.

Over time, we might expect that costs may be more likely to be aligned to CPI or possibly CPIH, but as Oxera find, these impacts are likely to be outweighed by other influences on cost and therefore do not provide a basis for differentiating between options for the purposes of this Impact Assessment.

In Section 3.4.1 of the decision document, we note that switching revenues and new investment to CPI/H could impact on our cost assessment and we confirm that we would deflate base cost data using the same measure of inflation we will apply for revenues. We do not consider this introduces any greater complexity or concern for companies. For example, companies have indicated to us that they develop their business plan forecasts in nominal terms using a variety of cost inflation forecasts. Business plan costs would then be deflated to real terms using forecasts of the inflation index that is used for the purposes of revenue inflation.

3.3.1 Summary assessment – Operating costs/risk

There is no clear evidence that the industry's operational costs or risk will materially change under any of the indexation options considered, and so there is no clear cost or benefit to the industry of moving away from RPI.

We consider that none of the options would lead to any costs or benefits. There is no benefit to a faster (or a slower) transition.

3.4 Financing costs

We set out the detailed arguments around financing impacts in Section 3.4.2 of the decision document. The key issues are summarised below.

- Oxera found that inflation uncertainty drives only a small proportion of the overall volatility of firm value. Any option for change that involves some transition for the indexation of the RCV does not increase this volatility (see Table 5)
- Oxera found that for companies with large proportions of RPI-linked liabilities, there is a mismatch between revenue that is CPI/H-linked and the portion of RCV that is linked to RPI. This will act to offset the benefit of the reduction in volatility introduced by CPI/H indexation which is more closely matched to nominal debt. However, Oxera found that unless the proportion of RPI-linked liabilities is very material (ie. as high as 62.5% of the RCV) and all of the RCV indexation is switched to CPI, the net impact is still a reduction in risk, even accounting for the mismatch. Even in cases with very high proportions of RCV linked to RPI, such

as for highly geared companies with high proportions of debt linked to RPI, the impact on firm volatility from full switch to CPI is modest.

- Oxera note there is no assumption that existing RPI linked debt needs to be refinanced as a result of any change in reaching their conclusions on risk. Since there is no material change in the volatility of firm value, there is unlikely to be any change to the firm's ability to service existing RPI-linked liabilities – hence, there is no obvious rationale for refinancing these liabilities early.
- In our proposed option, there is no assumption of a prerequisite for an (deep and liquid) CPI/H debt market.

Table 5 sets out the findings of Oxera's assessment of the impacts on enterprise value.

Table 5: Annual volatility of the enterprise value (based on Monte Carlo modelling carried out by Oxera)

Volatility, measured as standard deviation (%)	Option 1: no change	Option 2: CPI indexation of revenues only	Option 3: full switch to CPI	Option 5: Water 2020 proposal	Option 7: transition based on new RCV only
50% existing debt is RPI-linked	1.3%	1.0%	1.1%	1.0%	1.0%
100% existing debt is RPI-linked	0.9%	0.7%	1.0%	0.8%	0.7%

Source: Oxera analysis (2016)

Oxera concluded that there is unlikely to be a material, robustly quantifiable impact on the industry's risk (and hence financing costs) under any of the transition options considered. Oxera said that "from a pure operational and financial risk perspective, for the industry on average, there is no strong rationale for taking a phased approach to transitioning the indexation of the RCV away from RPI to a different metric such as CPI."

Given that there is no prerequisite of a pre-existing (deep and liquid) CPI/H debt market, consistent with the view set out by Oxera, we also consider that any development of such a market could be considered a net benefit for any option that involves greater indexation of the RCV to CPI/H.

There are a number of indicators that suggest a growing demand for CPI-linked instruments which could drive the development of a CPI market. For example Oxera note that "demand for inflation-linked products is likely to continue to outstrip supply. According to a 2011 survey, less than 20% of defined benefit pension schemes had at least 50% of their inflation-linked pensions backed with inflation-linked assets (such as index-linked gilts). The need to hedge their inflation exposure will continue to fuel demand for inflation-linked assets". Moody's (2016)[4] suggest that there is significantly unfulfilled demand for CPI-linked assets and that markets for CPI swaps could emerge. Moody's said 80% of pension plans now have at least some link to CPI, and the resulting demand for CPI-linked gilts has been proven on a small scale by recent issuance.

Moody's also noted that while in 2011, following a formal consultation on issuing CPI-linked gilts, the Treasury's Debt Management Office (DMO) decided against a change to CPI based on several considerations. Moody's considered that some of the concerns raised in 2011 may now be less significant so that there are reasons for the DMO to start to review its position. For example, Moody's said "the treatment of housing costs in CPI is now clarified and the ONS consultation is likely to resolve, by early 2016, whether CPI or CPIH should be the main measure of inflation".

These are important considerations, but as we cannot predict such developments with certainty, we do not differentiate between options on the basis of such potential future benefits for the purposes of this Impact Assessment.

We also acknowledge that stakeholders have expressed views about the uncertainty regarding the longer-term approach to transition of the RCV from PR24 and beyond and the potential impact on financing costs. We have set out the principles we will apply for the future transition to CPI/H in section 3.5 of the decision document. We said we will consult on the future transition that will apply at PR24 and beyond and companies will be able to challenge price determinations to the CMA.

We also note that all future options have some degree of uncertainty around future indexation of the RCV, as the approach could be changed by Ofwat in future price reviews. We do not consider, therefore, there will be a material difference between the options in the impact on financing costs from any uncertainty about the future transition of indexation. .

[4] Moody's (2016), 'Transition to CPI creates risks for water and energy networks', 13 January

3.4.1 Summary assessment – Financing costs

Oxera found no material, robustly quantifiable impact on the industry's risk (and hence financing costs) under any of the options for change considered. Oxera found that inflation uncertainty drives only a small proportion of the overall volatility of the firm. Any option for change has a modest impact on volatility, and options that involve some transition for the indexation of RCV do not increase this volatility.

We consider that none of the options would lead to any financing costs or benefits for the notionally financed company. There is no benefit to a faster (or a slower) transition.

3.5 Financeability and financial levers

As set out in section 3.4.2 of the decision document, in the absence of any action to smooth bill profile impacts, transitioning the RCV to CPI/H has the effect of bringing cash flow forward. This alters the balance of bills between current and future customers (which we discuss in section 3.6) and could have the effect of improving financial credit ratios in the short- to medium-term.

We expect companies to engage with their customers on the potential to smooth the bill impact of moving to CPI/H indexation through the use of the PAYG or RCV run-off financial levers. Any bill profile smoothing would counter in part or in full the cash flow benefit to the short to medium term credit metrics.

The use of the financial levers in this way should not adversely impact on credit ratings, as the impact is either neutral or results in the bringing forward of cash. This conclusion was supported by Oxera, who said assuming the NPV-neutrality is preserved, the proposed options for change should not negatively affect credit quality. Indeed, in discussing our December proposals, Moody's[5] stated that higher current returns could be credit positive, but they would not regard credit quality as being improved if financial levers are used to offset the higher real return.

[5] Moody's Report: GB Water and Energy Networks: Transition to CPI creates risks for water and energy networks (Moody's, 2016)

3.5.1 Summary assessment – Financeability and financial levers

Any option for change that involves changes to the indexation of the RCV is likely to improve financial credit ratios in the short to medium term, since cash flows are brought forward. If offsetting changes are made (eg through PAYG or RCV run-off), at worst there will be no change to the forecast credit metrics (assuming no change to rating agency methodology).

For the purposes of this impact assessment, none of the options would lead to any financeability costs or benefits. There is no benefit to a faster (or a slower) transition.

3.6 Affordability and fairness

As set out in section 3.4.2 of the decision document, in the absence of any mitigation action to smooth bill profiles, bills would increase in the short term, which would be offset by lower bills in the long term. The effect is more pronounced for options that lead to a faster transition of the RCV. In this context, we expect companies - if supported by customers - to propose the use of RCV run-off or pay as you go (PAYG) as a way of smoothing such bill profile impacts.

The changes will apply equally and evenly across all customers. There is no distributional impact whereby some customer segments are impacted differently by any of the changes. A change away from RPI for revenue indexation will result in all consumers having their annual bill adjustments linked to CPI/H.

Oxera also consider the question of indexation from a fairness perspective. They note that “on the one hand, current levels of water and wastewater bills have been established as reasonable over time and therefore might be perceived to be fair. On the other hand, if some indexation options imply a change to the level and profile of bills that helps to improve the cost-reflectivity of tariffs, such change could bring bills closer to their fair level”

3.6.1 Summary assessment – Affordability and fairness

Given our expectation that levers can be used to smooth bill impacts (if supported by customers) to manage any impacts, and given that there is no clear-cut argument in terms of intergenerational fairness, we consider that none of the options would lead to any affordability or fairness costs or benefits (relative to Do Nothing scenario or to each other). There is no benefit to a faster (or a slower) transition.

3.7 Perceptions of regulatory risk

RPI indexation of price controls has been in place since privatisation. However, the regulatory regime and the way in which price controls have been set has evolved over time. Such evolution introduces uncertainty. This must be managed in line with our vision of trust and confidence in water and waste water services to maintain investor confidence as the sector will continue to require significant investment to deliver resilient services.

We do not consider any option that involves a transition of the RCV introduces any greater or lower risk to companies associated with any downward pressure Ofwat would apply in its decisions on the cost of capital. Our proposed transparency around stating the real cost of capital in RPI and CPI/H linked terms will provide clarity on our views on inflation and enable stakeholders to understand impact on the allowed cost of capital. We will continue to make price determinations in accordance with our duties, taking account of our available evidence and companies will continue to be able to refer their price determination to the Competition and Markets Authority.

In respect of perceptions of regulatory risk associated with interventions to the use of PAYG and RCV run-off rates. We acknowledge that we intervened in small number of instances in PR14 to challenge companies' use of PAYG and RCV run off rates, particularly, where these measures were used to bring forward cash in their revised business plan and where there was insufficient engagement with customers. We have confirmed that we expect companies to consider the use of PAYG and RCV run-off rates to manage bill impacts and that they should do on basis of benefits to customers and evidence of support from customers.

There is a perception of risk among investors associated with uncertainty over the longer term approach and the future transition to CPI/H for PR24 and beyond. But uncertainty about future regulation is inherent under any option. For example, if indexation of the full RCV by RPI were to remain at PR19, there may be a need for a faster or immediate switch to CPI/H at PR24.

In assessing the impacts, we have taken account of the steps we have taken to mitigate perceptions of regulatory risk associated with the preferred option and provide clarity and transparency to stakeholders. These actions include to:

- ensure the long-term legitimacy of the regime by moving away from RPI (which in turn leads to a more predictable regulatory environment over the longer term)
- demonstrate our commitment to NPV neutrality through the use of illustrative models

- provide context and set principles for future decision making on the transition of the RCV.

Retaining RPI indexation, or adopting too slow a transition, could in future impact on the perceptions of the credibility of the regulatory regime. This in turn could increase the expose the sector to increased regulatory risk and impact on investors, particularly where there is the potential for greater windfall gains and losses associated with the use of RPI as a discredited index.

There could, therefore, be merits in pursuing a faster transition than proposed in our consultation and a faster transition could be seen to deliver benefits sooner given the actions we are taking to mitigate the perception of risk. Nonetheless, we recognise that we must balance the potential for increased perceptions of regulatory risk, which could impact the cost of capital, as well as to manage the potential bill impacts associated with fully switching the RCV to CPI/H indexation, against the need to transition the RCV to CPI/H as soon as is practicable.

3.7.1 Summary assessment – Perceptions of regulatory risk

Options that involve changes to the indexation of the existing RCV are more likely to increase perceptions of regulatory risk among investors, which may impact on the cost of capital. However options that represent a slower transition may introduce greater regulatory risk in the future - for example if it creates a need for less gradual change at that time. Nonetheless we recognise these perceptions, and our impact assessment assumes our commitment to the reconciliation is understood by companies and investors. The principles we have set out for future transition of the RCV provide clarity to investors in terms of our approach at future price controls at PR24 and beyond.

3.8 Complexity

Introducing different inflation indices to different elements of the price controls exposes companies and their investors to a wedge between those different indices. It exposes companies to a potential risk that the actual difference between the indices is different to that which was forecast. While such exposure can be addressed through regulatory mechanisms, this make the regulatory regime more complex. This complexity is removed under the Do Nothing scenario or if switching immediately and fully to CPI/H.

There is a level of increased complexity associated with customer engagement on the use of financial levers to smooth bill profile impacts. However, there already exists a wide range of issues which companies engage with their customers on, many of which cover complex issues and require careful weighing of interests of current and future customers. We do not consider any of the options represent a material increase in complexity in this context when compared with one another.

The option that involves companies selecting their own proportions of RCV that is linked to CPI/H, would imply different levels of real cost of capital for each company, reflecting the different proportion of RCV linked to CPI/H. This may reduce comparability between companies and increase complexity for stakeholders.

3.8.1 Summary assessment – Complexity

The use of both RPI and CPI/H to index the RCV in transition introduces additional complexity for us, companies and investor groups. However, all parties are well placed to consider and understand the increase in complexity as they must do with the introduction of new regulatory mechanisms at any price review. This complexity would be reduced in the case of a full switch to CPI/H for RCV indexation, although the engagement with customers on use of PAYG and RCV run off would remain with this option. All options allowing a transition of indexation of the RCV over time result in some additional complexity.

We have not quantified the administrative cost to companies and investor groups associated with developing an understanding of the true-up mechanism for transitional options. However we consider it will not be material as the work will be carried out by parties familiar with the regulatory regime.

4. Distributional Impacts

We have considered the distributional impacts that our approach may have on different stakeholders.

4.1 Current and future consumers

From a consumer perspective, the changes will apply equally and evenly across all consumers. A change away from RPI for revenue indexation will result in all consumers having their annual bill adjustments linked to CPI/H. However there could be a distributional impact between current and future customers. While the balance of water and wastewater bills between current and future customers might be perceived to be fair, introducing CPI/H implies a change to the profile of bills over time. However this is just one of many pressures that can lead to movements in bills.

The impact on the profile of bills can be mitigated through the use of the PAYG or RCV run-off financial levers. We have confirmed that companies should consider smoothing the impact of a move to CPI/H indexation on customer bill profiles using the financial levers, with evidence of customer benefits and support of customers.

4.2 Impact on companies

We consider there are no costs (or increase in risk or the cost of capital) to a notional company resulting from the introduction of these changes. We acknowledge there are circumstances where companies have adopted highly-geared structures with large proportions of RPI-linked liabilities. However, capital structure is a matter for each company and its investors; our policy decision should be driven by the capital structure choices of highly geared companies. Further, the Oxera analysis shows from an assessment of the volatility of enterprise value[6], that impact of our proposed approach on companies with high proportions of RCV linked to RPI is modest and the proportion of existing debt linked to RPI has relatively little impact on risk exposure of companies. Furthermore, Oxera's analysis concluded, that for the transition option we have adopted, the impact of the change will be beneficial

[6] See section 7.1 of the Oxera report, Indexation of future price controls in the water sector

regardless of the proportion of debt that is index linked (as set out in table 5 above).

For companies with a large proportion of index-linked debt, cash interest costs will be lower than if it were financed using our notional assumptions. This mitigates cash flow risk in the short-term. Moody's[7] also noted that since most companies have more nominal than RPI-linked debt, the relationship between revenues and total interest expense could improve, reducing the volatility of the funds from operations and earnings financial measures. The use of the PAYG or RCV run-off levers to manage the effect of bill increases will help companies manage any impact on gearing from the change.

4.3 Impact on investors

We recognise that perceptions of regulatory risk may vary by stakeholder group, including by investor type. Oxera note that is not obvious that a large group of equity investors specifically prefer RPI to another inflation measure and it appears there are many equity investors that have no obvious preference for one measure over another. And as set out in section 3.4.2 of the decision document, there is no evidence to suggest that the notional equity portion of the RCV should remain indexed to RPI.

It is important to reiterate that the transition does not require a notionally efficient company to refinance any existing debt. Similarly, in reaching its conclusions on risk, Oxera stated there was no assumption that existing RPI-linked debt needs to be refinanced as a result of any change.

4.4 Impact across England and Wales

The changes are expected to impact all customers in England and in Wales in the same way.

The impacts will be the same for companies in England and in Wales as we set price limits by reference to a notional capital structure and companies under both jurisdictions raise debt finance in the same markets.

[7] 'Transition to CPI creates risks for water and energy networks', Moody's, 2016

4.5 Application to Thames Tideway

There is a question as to what implications, if any, from the transition of wholesale price controls to CPI/H means for the indexation mechanism for Tideway. The Tideway project licence was awarded through a competitive process, determined by reference to a single, real, vanilla cost of capital, fixed until 2030. As RPI was embedded within the indexation mechanism in the project licence, it underpins the assumptions on which the bid cost of capital was based. For this reason we do not propose to transition the Tideway licence to CPI/H before 2030. However, Tideway will, as stated in the guidance published in August 2015 be regulated in accordance with the prevailing regulatory regime for wholesale activities in the operational phase. We propose to consider transitioning Tideway to CPI/H in accordance with the approach adopted for wholesale activities beyond 2030.