south east water

Direct Procurement for Customers

PR19 Supporting Appendix 17

3 September 2018

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What does this appendix do?

This document supports the submission of South East Water's business plan for 2020-2025 and provides:

- Our approach to Direct Procurement for Customers
- our gated process to identify and assess potential DPC schemes
- how we have considered the key risks to a DPC delivery

The evidence you will find in this appendix

The following evidence is included in this document:

- The approach used to identify potential schemes
- the methodology and application of the 3 key assessment stages size, discreteness and value for money
- the financial and risk assumptions of a DPC delivery model compared to the counterfactual

The decisions we have made based on this evidence

We have made the following decisions based on this evidence:

- We have not identified any schemes due to incur costs in AMP7 suitable for a DPC delivery. A 'nil' return' has been submitted for table App21
- the assessment of potential DPC schemes is an iterative process and where further information is available to improve key assumptions and the level of uncertainty schemes will be re-evaluated

Other evidence and data that supports our decisions

You will find additional evidence in Annex C

- Copy of tables supporting the App21 assessment including baseline inputs for Broad Oak and Arlington schemes

Need further information?

Please email yourwateryoursay@southeastwater.co.uk if you require further information or wish to clarify anything in this document.

Contents

Glossary

Bps	Basis points
CAP	Competitively Appointed Provider
CPIH	Consumer Price Inflation including housing
DPC	Direct procurement for customers
DSCR	Debt service coverage ratio
DSRF	Debt service reserve facility
EA	Environment Agency
Early tender model	The project is tendered during appraisal/initial design stage
EIRR	Equity internal rate of return
IRR	Internal rate of return
Late tender model	The project is tendered after the initial design and project planning have been completed
LRA	Lifecycle reserve account
NAO	National Audit Office
NPV	Net present value
PFI	Private Finance Initiatives
PPP	Public Private Partnerships
PR19	Price review in 2019
RAB	Regulated asset base
RCV	Regulatory capital value
RV	Residual value
SEW	South East Water
Totex	Total expenditure
VfM	Value for money
WACC	Weighted average cost of capital
WAL	Weighted average life of a bond
WRMP	Water resources management plan
WRZ	Water resource zone
WTW	Water treatment works

Executive summary

For the PR19 Business Plan submission, Ofwat requires companies to identify and include projects that are expected to deliver greater value for money to customers under a DPC delivery model. Ofwat's guidance suggests companies should consider a project for DPC if it:

- meets the £100m 'whole-life totex' threshold
- is discrete from a technical and operational perspective
- provides value for customers through DPC delivery against the counterfactual RAB-based delivery model

In line with the Ofwat guidance we looked at South East Water's overall investment plan and assessed the eligibility of projects for a DPC delivery model. The assessment identified two projects, Broad Oak Reservoir and Arlington Reservoirs, where costs exceeded the £100m totex, which were thus taken forward to discreteness test and a detailed value-for-money analysis.

A summary of the results is presented below:

Broad Oak:

- Size test: pass
- Discreteness test: medium / high
- Value-for-money assessment: marginal and highly sensitive to minor changes to input assumptions

Arlington:

- Size test: mixed
- Discreteness test: medium
- Value-for-money assessment: marginal and highly sensitive to minor changes to input assumptions

Given the findings, timing and uncertainty around both projects we do not propose to put them forward for delivery under the DPC model at this time.

This is, in part, due to both projects having significant lead time with construction not expected to commence until late in AMP8. However, SEW view this as an iterative process. As greater certainty emerges around the specification and cost estimates for the projects in parallel with the DPC market evolving we would welcome the opportunity to review and reassess the appropriateness of the delivery model for the

projects under consideration in the light of customer value and innovation made possible by different delivery options.

This document sets out SEW's overall approach and assessment of eligibility for potential projects to be delivered under DPC.

The need for investment

The SEW WRMP19 details the investment plan addressing forecast shortfalls in water available for each of the eight WRZs over the period 2020-2080. SEW is facing challenges in maintaining sustainable, resilient supplies to their customers and without new investment there would be insufficient water available to maintain expected levels of service to customers. The most significant driver of deficits between 2025 and 2045 is sustainability reduction, whilst population growth and climate change influence the longer-term forecast to 2080.

We assessed project information and costings of 38 infrastructure investments over the period 2020-2080. In September 2017, from this 38 investments we initially identified nine projects, where whole life totex exceeded £100m and communicated these to Ofwat as potential candidate projects for DPC. As timing of six of these projects moved back in the revised WRMP and they are not included in the PR19 business plan any longer, they were disregarded for further DPC considerations reducing the long-list of projects to three schemes. At the same time, Bewl-Darwell transfer was included alongside the three remaining schemes, as more accurate costing information showed that the scheme exceeds the £100m totex over its economic life. Overall four projects have been identified in SEW investment plan that would incur expenditure in AMP7 as potential projects for DPC.

The long-list of four projects considered for DPC are:

i Aylesford Newsprint: water treatment works
ii Bewl to Darwell pipeline: water transfer scheme
iii Broad Oak Reservoir: Reservoir and treatment works
iv Arlington Reservoir: Reservoir and new abstraction pipeline

The project information and costs presented in this report reflect the most recent estimates, which might be subject to change in the future.

Size test

The Ofwat guidance puts the onus on companies to establish how the size test of £100m totex should be assessed. SEW has considered size using a number of metrics including the undiscounted and discounted costs over the expected period of the DPC as well as the whole life with relatively greater weight placed on the whole life assessments.

Broad Oak unambiguously passed the size test with whole life totex of greater than £100m in both undiscounted and discounted terms. One project, Arlington, has expected undiscounted totex costs of £127m but this is reduced to £83m once discounted and reflects the fact the project is not expected to commence construction until deep into AMP8. The other two projects, Aylesford newsprint and Bewl to Darwell failed the discounted whole life totex criteria by some margin due to the relatively low levels of capex involved in each of the projects (i.e., it is a long tail of opex costs that allowed both projects to meet the £100m threshold for undiscounted whole life totex).

Discreteness test

In the interest of completeness, both Broad Oak and Arlington were put forward for the qualitative discreteness test. In assessing the discreteness test for each project the main criteria considered were:

- Stakeholder interactions and statutory obligations
- interactions with network
- contributions to supply / capacity and ability to specify outputs
- asset and operational failures

On that basis, the summary of findings was:

- Broad Oak was assessed to have medium/high suitability for DPC. This was based on the project's contribution in supply as the capacity is regular and the asset usage is predictable; however, re-filling requires close coordination.
- Arlington was considered to have low suitability for DPC in relation to the level of interactions with the network as the asset would be highly integrated into the wider network with multiple input sources requiring conjunctive operation.

Value for money assessment

The Discreteness test is qualitative in nature and as such is somewhat subjective. To ensure compliance with Ofwat guidelines and despite being marginal cases in our view, both Broad Oak and Arlington projects were further assessed for value-for-money (VfM) to consumers under DPC.

To assess VfM we built a stylised model to compare the net present value (NPV) to consumers of each project under both: i) the DPC model; and ii) the RAB-based PR19 delivery model on balance sheet. The DPC model being the 'factual' and the RAB-based delivery being the 'counterfactual'.

Revenues are assumed to be cost-reflective and the total costs to customers under each model is compared in net present value terms using a social discount rate of 3.5per cent as set out in HMT's Green Book.

The VfM model is underpinned by a number of scheme-specific assumptions under both factual and counter factual scenarios. Key assumptions driving the VfM assessment include financing costs, depreciation and residual value, efficiency and innovation discussed in detail in Section 5.

The single biggest driver in the VfM analysis was the assumed financing costs which, in turn, is highly sensitive to assumptions around required equity returns and gearing levels. We have implicitly assumed there would be market appetite for relatively small equity tickets for first-of-a-kind assets which is an untested assumption.

For each project the WACC under the DPC model on a like-for-like comparison with the assumed PR19 WACC is c40 basis points lower and consequently the NPV for both projects is marginally positive toward the DPC model. However, an increase of 1.0 per cent on the required equity return (from 12.0 per cent to 13.0 per cent) combined with an additional 0.5 FTE to manage the contracts and interfaces would result in the NPV eroding to zero.

1. Introduction

1.1 Our understanding of Ofwat's DPC methodology framework

As part of its 'Water 2020' programme developed ahead of the Price Review in 2019 (PR19), Ofwat set out its expectation for appointed companies to consider the use of the direct procurement for customers (DPC) model to directly procure relatively discrete projects with a whole-life total expenditure (totex) value in excess of £100m, from third parties.

For the PR19 Business Plan submission, Ofwat requires companies to identify and include projects which are expected to deliver greater value for money to customers under a DPC delivery model. Ofwat's guidance suggests companies should consider projects for DPC if they:

- meet the £100m 'whole-life totex' threshold;
- are discrete from a technical perspective; and
- provide value for customers through DPC against the baseline delivery approach.

This document sets out SEW's overall approach to assessing the eligibility of potential projects for delivery under DPC. This approach is then applied to a selection of potential projects and the findings presented.

1.2 Approach to assessing DPC eligibility

The DPC eligibility assessment follows as closely as possible our understanding of the approach suggested by Ofwat in its Final Methodology and considers the size, discreteness and value for money potential of schemes, which are identified in the SEW investment plan, as potential investment projects for DPC.

The eligibility framework consists of three tests in cascading order

- Size test
- Discreteness test
- Value for mMoney (VfM) test

The assessment applies the size and discreteness tests as pre-filters to identify projects suitable for a detailed and robust VfM assessment.

In its Final Methodology Ofwat referenced the Five Case Model as a potential framework for assessing DPC projects. Ofwat makes it clear that appointees are not required to use this specific approach; however, whatever approach is applied it is

expected to cover similar processes. The elements of the Five Case Model are: i) strategic case; ii) economic case; iii) commercial case; iv) finance case; and v) management case. Each 'case' is effectively a gate through which a project needs to pass in sequence.

In our approach to assessing project suitability for DPC we consider that the WRMP meets the requirements of the strategic case. The size, discreteness and VfM tests along with the various assumptions and considerations of risk allocation meet the requirements of the economic, commercial and financial cases taken in combination. We have not explicitly considered the management case as no project passed the gate represented by the previous cases.

The remainder of this document is set out as follows:

- Section 2 provides an overview of the schemes considered for DPC in the first instance including a summary of why the projects are required (covering principles from the strategic case);
- Section 3 sets out the size test for the projects under consideration (covering long list of projects ;
- Section 4 presents a qualitative assessment of the discreteness test;
- Section 5 describes the approach taken to the value-for-money assessment including detailed description of the assumptions made and the supporting evidence;
- Section 6 sets out the results of the VfM assessment including the sensitivities and scenarios considered.

2. Projects considered

The SEW WRMP for PR19 details the investment plan addressing the shortfall in water available for each of the eight WRZs over the period 2020-2080. Without action, it has been shown that there would have insufficient water available to maintain expected levels of service to customers. The most significant driver of deficits between 2025 and 2045 is sustainability reduction, whilst population growth and climate change influence the longer-term forecast to 2080.

We assessed project information and costings of 38 infrastructure investments over the period 2020-2080, from which we identified four projects within our investment plan that would incur expenditure in AMP7 as potential projects for DPC. In September 2017, from the original 38 investments we initially identified nine projects, where whole life totex exceeded £100m and communicated these to Ofwat as potential candidate projects for DPC. As timing of six of these projects moved back in the revised WRMP, they are not included in the PR19 business plan and such are disregarded for further DPC considerations. At the same time Bewl-Darwell was included alongside the three remaining schemes, as more accurate costing information showed that the scheme exceeds the £100m totex over its economic life. The project information and costs presented in this report reflect the most recent estimates, which might be subject to change in the future.

A summary of the four schemes considered for DPC are detailed in Table 1 below:

Table 1 Summary of our investment schemes considered for DPC

Assets	Type	Summary	Construction period (yrs)	Asset life (years)	Timing
Aylesford Newsprint	Water treatment work	Use of existing ground water and stream licenses at Aylesford Newsprint to construct a new WTW for the treatment and supply of 20Ml/d	2	60	AMP7
Bewl to Darwell	Transfer scheme	Abstraction of 8Ml/d of raw water from Bewl Reservoir, treatment at expanded Bewl WTW and transfer to Standard Hill Service Reservoir	1.5	60	AMP7
Broad Oak Reservoir	Reservoir and treatment works	New winter storage reservoir. Raw water abstracted from the Great Stour, 12km downstream, and pumped to reservoir. New WTW for treatment of raw water from reservoir	5	80	AMP8

Assets	Type	Summary	Construction period (yrs)	Asset life (years)	Timing
Arlington Reservoir	Reservoir and new abstraction pipeline	New reservoir to north of existing Arlington reservoir, supplied by pumping via new abstraction and 15km pipeline from River Ouse.	5	80	AMP8

3. Size test

The first test of our DPC eligibility assessment focuses on the sizes of the schemes considered for DPC and assesses their value relative to the £100m whole life totex cost threshold defined by Ofwat in its Final PR19 Methodology document.

Before assessing the schemes' value against the threshold, three assumptions were established:

- Scope, i.e. level of aggregation and disaggregation of the assets;
- Duration, i.e. the period of time over which the costs are considered;
- Cost type, i.e. costs considered in the assets' totex.

We defined the scope of the DPC eligibility assessment as an investment programme consisting of multiple assets of all possible sizes located on a single site or multiple sites which are interdependent with regard to their role in the network, and have development costs in AMP7.

The economic asset life (whole life) was selected as the period of time over which we considered the schemes' costs. While other alternatives had also been examined, including a typical 20 or 25-year concession period for PFI assets of this nature, it was concluded that irrespective of the delivery model, customers would benefit more from the asset over its useful economic life. Economic asset life (whole life), therefore, represents the most appropriate basis for the cost assessment with respect to the size test.

Regarding expenditure types, we defined project costs as all expenditure related to the scheme including development costs, initial and renewal capex and opex. Financing costs were excluded on the basis that they are not considered in Ofwat's totex calculation.

To derive the value of the schemes considered for DPC, first the totex values were calculated by taking the sum of initial capex, opex and renewal capex over the whole asset life which was then discounted by the social time discount rate (3.5 per cent as per HMT Green Book) to arrive at the net present value (NPV) of the project spend.

As a cross-reference, the NPV for 25 year totex and the undiscounted values for both 25 year and whole life periods were also calculated.

Based on the approach detailed above, we applied the £100m whole life totex threshold to the whole life discounted value of all four major projects, which were identified within our investment plan, as candidates for DPC.

The results of the analysis are shown in Table 2 below:

Table 2 Results of the size test

	Type	Construction period (years)	Asset life (years)	Timing	25 year non-discounted cost (£m)	25 year discounted cost (£m)	Whole life non-discounted cost (£m)	Whole life discounted cost (£m)
Aylesford Newsprint	Water treatment work	2	60	AMP7	£70,165	£48,285	£146,069	£63,608
Bewl to Darwell	Transfer scheme	1.5	60	AMP7	£80,625	£57,201	£153,617	£71,705
Broad Oak Reservoir	Reservoir and treatment works	5	80	AMP8	£172,762	£107,599	£285,068	£127.704
Arlington Reservoir	Reservoir and new abstraction pipeline	5	80	AMP8	£118,349	£79,365	£151.492	£83.526

Aylesford Newsprint and Bewl to Darwell schemes fall clearly below the £100m threshold defined as a whole life discounted project costs with £63.6m and £71.7m respectively, while current projections suggest that the discounted costs of Broad Oak Reservoir will exceed £100m over their economic asset life.

While the whole life discounted costs for Arlington Reservoir initially falls short of the £100m totex threshold, it should be noted that the construction capex for Arlington is not due to begin until 2030. Discounting the capex and opex costs to the start of construction brings the whole life totex to £100m, which indicates that considering also the development costs the size of the project exceeds the threshold.

From these results, Broad Oak Reservoir and Arlington Reservoir met the whole life size threshold, and were therefore considered in the discreteness test to further investigate their suitability for DPC.

4. Discreteness test

Each of the assets exceeding the size threshold (Broad Oak Reservoir and Arlington Reservoir) have been evaluated against the qualitative technical 'discreteness' framework to determine technical eligibility for DPC.

The discreteness framework was developed in line with Ofwat's Final Methodology and Technical Guidance, that considered the asset's role as part of our core operations and the extent to which it was integrated as part of the network management. The discreteness framework looks at project characteristics in four areas by focusing on a set of key criteria which determines the level of discreteness of a scheme:

i. Stakeholder interactions and statutory obligations

   This criteria assesses the level, if any, of impact on our ability to meet statutory obligations. Key considerations examined focus on stakeholder interactions, the number of relevant regulators involved, the frequency of monitoring, the impact on customers, reputational risk and the level of regulatory enforcement.

   Overall, an asset is considered discrete if it has a limited impact on our ability to meet statutory obligations.

ii. Interactions with network

   This criteria assess DPC's interaction with the network through analysis of the number, type and complexity of key interfaces, the integration of the asset with our day to day operations, economies of scope and scale and whether the asset can be actively or passively managed.

   An asset is considered discrete if it has limited interactions with the wider network, economies of scale with the network are limited, and/or it is a 'passive' asset that is not actively managed by our operational team.

iii. Contributions to supply / capacity and ability to specify outputs

   Under this criteria we examined whether the asset produces a volatile output, and if so the associated impact on contracting requirements as well as what is the likelihood of changes in the asset usage or whether other alternative sources could replace this asset.

An asset is considered discrete if the contracting requirements can be easily defined and priced (for example where capacity is regularly needed), and outputs are not impacted by external factors.

iv. Asset and operational failures

This criteria assesses key asset characteristics associated with operational failure, which include complexity of the operation, the ODIs impacted, operational risk and whether the supply chain for this asset is mature and whether there are existing precedents that could be used to form mitigations for operational failures or limit the failure impact on customers.

An asset is considered discrete if the risk of operational failure is well understood, and there is a well-developed market with strong experience of similar project delivery.

This high level 'discreteness' assessment was based on the project information available to date and was informed by multiple workshops with key subject matter experts to ensure a robust view on the projects' suitability for DPC.

The results of our analysis are detailed in the table below. We highlighted results in **red** (low score) if the project did not pass the test, **amber** (medium score) if there are arguments for the project not passing the test or **green** (high score) if the project clearly passes the discreetness test. A medium/high score is shown by an amber-green colour code and indicates that the asset is not a clear pass, but could be considered discrete in some aspects.

Table 3 Results of the discreteness test

			Size Test		Discreteness Test		To be assessed in VfM test
Projects	Type	Timing	Project cost	Size test	Test	Rationale	
Aylesford Newsprint	WTW	AMP7	£63.608	X	Not applicable		X
Bewl to Darwell	Transfer scheme	AMP7	£71.705	X	Not applicable		X
Broad Oak Reservoir	Reservoir and TW	AMP8	£127.704	✓		Simple operation with limited interfaces, capacity regular and asset usage predictable, large number of stakeholders involved in the project with limited impact on SEW's statutory obligations, operational failure risk well understood	✓
Arlington Reservoir	Reservoir and pipe	AMP8	£83.526	✓		Asset is highly integrated into the wider network with multiple input sources requiring conjunctive operation, irregular usage with high drought risk, large number of stakeholders involved in the project with limited impact on SEW's statutory obligations, operational failure risk well understood	✓

The technical assessment revealed that both Broad Oak Reservoir and Arlington Reservoir can be considered discrete enough to offer net benefit for customers under a DPC delivery model and are suggested to be assessed in a detailed VfM test.

The discreetness test resulted in a medium/high score for Broad Oak Reservoir based on following considerations:

- **Stakeholder interactions and statutory obligations**
  We scored it as medium suitability for DPC as we expect a large number of stakeholders involved in the project and attracting a high degree of interests from the community with limited impact on our statutory obligations. The project will require a licence from EA and face strict monitoring requirements from regulatory bodies.
- **Interactions with network**
  Broad Oak has a high suitability for DPC in relation to the level of interactions with the network as the asset is expected to have limited interfaces (one upstream connection and connection to a new WTW) with simple operation, but will require regular coordination with the wider network.
- **Contributions to supply / capacity and ability to specify outputs**
  Broad Oak has a medium/high suitability for DPC's contribution in supply as the need for capacity is regular. The asset usage pattern is well understood and predictable, the asset is designed to deliver 22Ml/d which will be fully required by year 2; however, re-filling requires close coordination.
- **Asset and operational failures**
  Broad Oak has a medium/high suitability for DPC in relation to the asset and operational failures as the operational failure risk is well understood. Mitigations are also established, but we expect these processes to take time. In case of asset failure we would rely on additional water from WRZs and increased pumping from Bewl reservoir.

The discreetness test resulted in a medium score for Arlington Reservoir based on following considerations:

- **Stakeholder interactions and statutory obligations**
  We scored it as medium suitability for DPC as we expect a large number of stakeholders involved in the project with limited impact on our statutory obligations. The project will require a licence from EA and face strict monitoring requirements from regulatory bodies.
- **Interactions with network**
  Arlington has a low suitability for DPC in relation to the level of interactions with the network as the asset would be highly integrated into the wider network with multiple input sources requiring conjunctive operation. As water will be abstracted from three different sources and feed into existing WTW connected to an existing reservoir central operation management across the entire network will be needed with balancing reservoirs and pumping stations

in a coordinated manner and requiring production and asset teams to coordinate asset output on daily basis.

- **Contributions to supply / capacity and ability to specify outputs**
  Arlington has a medium/low suitability for DPC in relation to the contribution to supply given usage of asset is irregular; however, pattern is well understood and as a result of the high drought risk, which impacts the security of supply and therefore requires close coordination.
- **Asset and operational failures**
  Arlington has a medium/high suitability for DPC in relation to the asset and operational failures as the operational failure risk is well understood. Mitigations are also established, but we expect these processes to take time as we would rely on excess from 3 WRZs and Arlington for alternate service if failure occurs.

5. Value for money assessment framework

This section provides an overview of the value for money analysis for which we engaged KPMG to support SEW in the analysis. In this section we present our financial analysis completed to assess whether delivery of Broad Oak and Arlington under a DPC delivery model could provide better value for money for customers. It covers the employed approach, methodology, base case assumptions, examined scenarios and sensitivities and market and industry precedents for the key input assumptions. The results and key findings of the base case and examined scenarios are presented in section 3 of this report.

5.1 Approach

The projects that have been identified as exceeding the size threshold and have been considered potentially discrete enough to have the ability to deliver value for money for customers in the technical assessment are assessed through a detailed value for money (VfM) analysis to understand their suitability for DPC.

The aim of the VfM analysis is to establish a robust view of whether there is a significant benefit to customers from procuring the investment scheme under a DPC model rather than delivering it in-house under the PR19 framework.

5.1.1 Comparison of PR19 delivery versus DPC delivery

In the frame of our VfM assessment we used a stylised model which compares the delivery of a scheme under (1) the DPC model (factual), and (2) the in-house PR19 model on balance sheet (counter factual) from a value for money for customers' perspective.

The total costs to customers under the factual and counter factual scenarios are compared in present value terms using the social discount rate as set out in HMT Green Book (3.5 per cent (real) for the first 30 years, 3.0 per cent for up to 75 years and 2.5 per cent beyond 76 years).

As the VfM analysis assumes a late tender model with a tender award after consents have been obtained, development costs are disregarded as the assessment focuses on costs incurred from the construction start.

The VfM model looks at the costs over the entire economic life of the asset from the start of construction.

The VfM model is underpinned by a number of scheme specific assumptions under both factual and counter factual scenarios, such as financing costs, depreciation and efficiency savings discussed in detail in section 2.2.

5.1.2 Approach to assessing DPC project delivery (factual)

The value provided to customers under a DPC project delivery is derived from a realistic project finance model, which is most likely to be used by potential bidders. Customers will pay an annual revenue stream indexed by inflation to the DPC provider as per their bid submission set, based on a target equity IRR of the DPC investors.

In line with Ofwat's Final Methodology, revenue to the DPC provider will be paid during the concession period starting when the asset is commissioned.

At the end of the concession period, any undepreciated asset value (residual value) will be transferred to us at its book value and customers will pay for it under the PR19 framework over its remaining asset life. The costs incurred by customers beyond the concession period consist of an annual depreciation charge and an annual return on the average non-depreciated asset value and are referred to as revenue from residual value in the analysis.

Inflation assumption is set at 2 per cent CPIH based on Ofwat's Final Methodology.

5.1.3 Approach to assessing PR19 project delivery (counter factual)

Costs to customers under the counter factual are established based on Ofwat's building block approach for revenue allowances, assuming that the PR19 framework will follow Ofwat's Final Methodology.

The revenue allowance under the PR19 model is indexed by CPIH and consists of opex representing a pass through costs for customers. The depreciation charge and the return are calculated on the average RCV.

In line with PR19 arrangements, and unlike under the DPC model, revenue under the counter factual starts when costs are incurred and customers pay for the asset during the construction period despite not benefitting from it.

5.2 Assumptions

5.2.1 Counterfactual PR19 delivery model

Expenditure profile

In the PR19 model we are assuming that the marginal PAYG ratio of the project will be used to calculate fast and slow money for revenue allowances. Opex is treated as a pass through costs and is paid for by customers in the year when they are incurred, while capex is capitalised and recovered in the form of depreciation and return on RCV throughout the asset's useful life.

Cost of capital

Return on average RCV is calculated by using the weighted average appointee WACC of 340 bps in real terms (547 bps in nominal terms) using the 60 per cent notional gearing assumption and an estimate of the cost of raising new debt over the period 2020-2025 and the cost of embedded debt at 31 March 2020 as set out in Ofwat's Final Methodology.

Depreciation

In line with Ofwat's Final Methodology the asset is straight-line depreciated over its useful economic life.

Efficiency

The PR19 SEW Business Plan assumes a capex efficiency of 6.3 per cent and an opex efficiency of 3.3 per cent relative to AMP6 performance. The consequence of this is that for Broad Oak forecasted capex is £92m and forecasted opex is £32m, and for Arlington forecasted capex is £91m and forecasted opex is £8m.

5.2.2 DPC base case model assumptions

Concession period

Under the DPC model we are assuming a concession period of 20 years based on PFI/PPP/OFTO precedents and typical investment horizons for comparable projects. The concession period starts upon the asset completion and it is at the start of the operation, while the contract is awarded before the start of the construction.

Depreciation

The effective rate of depreciation determines the residual value at the end of the contract period which will be transferred to us and paid for by customers under the PR19 framework through its remaining asset life.

While common practice in PFI/PPP deals as well as precedents in OFTOs suggest depreciating the entire asset during the concession period, in its Final Methodology, Ofwat recommended to depreciate the asset under a DPC model over its useful live aligned to PR19 regulatory regime. To strike a balance between risks to investors and impact on customers' bills and affordability we depreciate 50per cent of the asset value under our base case scenario, whilst testing alternative approaches in our sensitivity analysis.

Cost of debt

We assume that any projects under the DPC framework will be delivered under the late tender model. We have reviewed existing Greenfield precedents, focusing on the Public Private Partnerships (PPP) and renewable Contract for Difference (CfD) projects that share similar risk profiles to DPC. We observed that the cost of financing differs throughout the project life cycle, due to varying investor risk profiles where the financing cost for the construction phase is higher than the operational phase financing due to higher uncertainty and additional construction related risk exposure incurred by the investors. Detailed information collected on the precedents is listed in the Annexes.

In order to reflect this variability in the financing structure, we have assumed a dual phase financing approach as we expect that the DPC provider would restructure its financing solution at the end of the construction phase in order to take advantage of more competitive pricing under the operational phase.

<u>Construction period</u>

The two most typical financing solutions are bank debt and private or public bond issuances. In general, bank debt solutions are regarded as firmer as they provide investors with fixed financing terms compared to a bond solution, where the actual costs will be determined only at the issuance in the closing phase of the tender.

For the construction period we have selected a bank debt financing with a tenor equivalent to the construction period.

Bank debt solutions are typically referenced to Libor, however, it is expected that the PPP contractor would also hold an interest rate swap to secure a fixed rate of borrowing. This financial instrument swaps the floating rate of the Libor to a fixed interest rate. As the rate is swapped at the time of agreeing the bank debt, the interest rate for the bank debt will not be the floating Libor rate, but the swapped fixed rate.

Taking into consideration the forecasted Broad Oak construction timeline and PR19 cost assumptions, we have selected a two year forward of a six month Libor swap with a tenor of five years as the appropriate proxy to assess what would be the cost of financing during the construction period for Broad Oak under the DPC delivery framework compared to PR19.

Following a similar approach and taking into account the forecast Arlington construction timeline and PR19 cost assumptions, we have selected a four year forward of a six month Libor swap with a tenor of five years for the Arlington reservoir.

Based on the current forward market swap rate data extracted from Thomson Reuters Eikon on 31 May 2018, the expected base lending rate for Broad Oak is equal to 1.51 per cent and for Arlington is equal to 1.67 per cent.

For the additional cost of securing a bank loan we assumed a construction margin of 2.4 per cent, bank arrangement fee of 2.0 per cent and 35 per cent commitment fee on the construction margin based on the observed primary PPP financing precedents. Detailed information collected on the precedents is listed in the Annexes.

Operations period

The preferred financing solution for the operations period will ultimately depend on where the market is when the financing competition takes place and financial close is achieved. At present, both bond and bank financing solutions are competitive and as seen in the OFTO market where for near identical projects in terms of scale and risk profile both bond and bank finance is used depending the preference project sponsors.

For the purposes the VfM modelling we have assumed a bond based solution for the operational period in part due to the availability of market data on spreads and pricing on public bonds. Post construction, a bullet bond can be issued by the DPC with the principal bond value matching the residual value (RV) assumed at the end of the

contract period. Since the RV bond is a bullet bond it means that no debt principal is paid until the end of the operating period at year 20.

For Broad Oak, the RV bond all in costs are assumed to equal 3.27 per cent based on the long term forward Gilt rates of 1.97 per cent and a margin of 1.30 per cent based on the present rates in the capital markets extracted from Thomson Reuters Eikon.

For Arlington, the RV bond all in costs are equal to 3.20 per cent based on the long term forward Gilt rates of 1.90 per cent and a margin of 1.30 per cent based on the present rates in the capital markets.

The remaining financing requirements during the operation period will be financed with an amortised bond of a 12 year tenor based on the weighted average life (WAL) of the bond. The WAL indicates how many years it will take to repay half of the outstanding bond amount based on the size of the principal payments. We use a forward long term Gilt rate in order to estimate potential amortising bond yield rates.

The overall cost of the bond solution will primarily depend on the interest and appetite of bond investors. The spread over the benchmark level could significantly drop in cases where the bond is significantly oversubscribed, or the cost increases if some material risks unexpectedly arise due to failures in similar projects. However, since the DPC capital market is new and there are no existing DPC bond precedents demonstrating investors risk appetite for this asset class, we applied a spread of 125 bps on top of the amortising bond rate based on observed precedents for similar infrastructure assets.

Based on the current forward Gilt market data extracted from Thomson Reuters Eikon on 31 May 2018, the expected amortising bond rates including margin spreads for Broad Oak are equal to 3.31 per cent and for Arlington are equal to 3.26 per cent.

For the additional cost of securing a bond financing we assumed a new issuance premium of 10 bps for the bond arrangers, which are embedded in the RV and amortising bond spreads.

Broad Oak	Start date	Type of instrument	Base rate	Margin	Total rate
Construction	January 2028	2 year forward Libor 6m swap with a tenor of 5 years	1.51%	2.40%	**3.91%**
Operation:	January 2033				
RV bond		7 year forward Gilt with a tenor of 20 years	1.97%	1.30%	**3.27%**

Broad Oak	Start date	Type of instrument	Base rate	Margin	Total rate
Amortising bond		7 year forward Gilt with a tenor of 12 years	2.06%	1.25%	**3.31%**

Arlington	Start date	Type of instrument	Base rate	Margin	Total rate
Construction	January 2030	4 year forward Libor 6m swap with a tenor of 5 years	1.67%	2.40%	**4.07%**
Operation:	January 2035				
RV bond		9 year forward Gilt with a tenor of 20 years	1.90%	1.30%	**3.20%**
Amortising bond		9 year forward Gilt with a tenor of 12 years	2.01%	1.25%	**3.26%**

SEW analysis; Thomson Reuters Eikon

Depending on the prevailing conditions in the market at the time of asset tender, investors may select a bank solution over bond financing, however, we expect that cost of debt would be broadly similar under both scenarios and this would not impact the cost of debt assumptions in our VfM assessment and the value to customers offered by a DPC model.

Cost of equity

The equity return expectations built into the VfM assessment reflect the high level risk profile of the projects considered and are based on precedents observed in comparable infrastructure projects.

The National Audit Office (NAO) reported that recent OFTO tender rounds have seen the internal rate of return (IRR) dropping to around 8 to 9 per cent. This return is consistent with reported secondary market rates of return in PFI projects (reported in Table 17 Financing costs observed in primary waste to energy PPP projects) and is considered to reflect a similar risk profile to DPC for the operational phase. The base case cost of equity level at 12 per cent reflects additional costs and risks allocation relating to the construction and operations periods that we assume is similar for both Broad Oak and Arlington reservoirs.

Gearing

Typical project finance is characterised with high levels of gearing ranging from 80 per cent to 90 per cent.

The assumed gearing level for Broad Oak and Arlington is determined based on the target debt target cover ratio (DSCR) of 1.18x. Under the base case assumptions the DPC provider could gear up the project to 89.9 per cent for both Broad Oak and Arlington by still meeting the target cover ratio.

Reserve accounts/facilities

An additional reserve account/facilities to service debt are assumed in order to provide sufficient liquidity during the events of unexpected cash flow volatility or interruptions in the operational phase.

One of the assumed reserve account instruments is a debt service reserve facility (DSRF) with a minimum average coverage ratio of 1.18x. The cost of obtaining the DSRF, including the interest rate and commitment fee is assumed to be in line with the amortising bond costs for the operation period.

For Broad Oak, the required facility size is circa £5.1m under the base case scenario with a cost of servicing the DSRF equal to 1.77 per cent bank base rate and a margin of 1.25 per cent based on the latest capital markets data.

For Arlington, the required facility size is circa £5.1m under the base case scenario with a cost of servicing the DSRF equal to 1.75 per cent bank base rate and a margin of 1.25 per cent based on the latest capital markets data.

As in the case of DSRF, a lifecycle reserve account (LRA) is intended to fund the project liquidity volatility with cash in order to meet the minimum cash reserve account targets. We are assuming that the cost of obtaining a LRA for both Broad Oak and Arlington will be in line with the forecasted DSRF costs.

Broad Oak	Operation start date	Type of instrument	Base rate	Margin	Total rate
Broad Oak reserve accounts	January 2033	7 year forward Libor 6m swap with a tenor of 12 years	1.77%	1.25%	**3.02%**
Arlington reserve accounts	January 2035	9 year forward Libor 6m swap with a tenor of 12 years	1.75%	1.25%	**3.00%**

SEW analysis; Thomson Reuters Eikon

Efficiency and innovation

The underlying efficiency assumptions for PR19 are set out in section 5.2.1. For the purposes of modelling DPC it has been assumed that a further 3per cent capex efficiency might be achieved due to competitive tension and innovation in the supply

chain. Similarly, the modelling assumption for opex is a further 3per cent efficiency on top of the PR19 assumptions.

We note that actual cost efficiencies will ultimately be driven by the level of competition in the market and the ability of the supply chain to evidence the deliverability of its innovation. The assumed efficiency assumptions are based on a review of existing precedents demonstrating capex and opex efficiencies delivered under the competitive schemes compared to a project delivery by the public sector or incumbent market participants.

DPC additional costs

Under a DPC delivery model, the DPC provider will incur some additional costs related to participating in the tender, which would not occur under the counter factual. We assume that the DPC provider will include its bidding costs in its revenue requirement over the concession period representing additional expenditure for customers on top of the expected scheme costs under the counter factual.

In its Final Methodology, Ofwat has stated that it considers 2 per cent of the project value to be a reasonable estimate for bidder costs and we used this assumption in our base case scenario. Based on comparable infrastructure PPP or PFI deals we have seen bidder costs in the range of 2.5 per cent of the project value. We have tested it in one of our sensitivity analysis in order to examine what is the impact on the outcomes.

One could argue that there may be some incremental costs under the DPC delivery model driven by the existence of additional interfaces, and potential for loss of synergies in construction and operation of the asset (e.g. increased cost of sampling, insurance, labour), as well as increased headroom expected by investors to compensate for risk related to performance penalties.

We expect these issues can be addressed by an efficient risk allocation and a clear project specification of the requirements when the DPC is procured and a transparent pre-defined payment mechanism with incentives and penalties over the concession period. For that reason we did not include any additional costs over our baseline cost estimates under a DPC delivery model beyond the bidding costs set out above.

Additional costs to SEW and Ofwat

Procurement and contract management costs are additional costs for us which would not be incurred under the counter factual and thus represent a negative value to customers. In its Final Methodology Ofwat has suggested procurement costs should equal 1 per cent of the project value and contract management costs of £150,000 per year per project under a DPC delivery model. While Ofwat's contract management cost estimates are broadly in line with experiences in the OFTOs, typical project

finance procurements of infrastructure assets suggest procurement costs in the range of 1.5 per cent of the project value. In our base case we used Ofwat's estimates which we tested through different sensitivity analyses.

In its Final Methodology Ofwat has stated that to provide oversight for a procurement exercise of this type, an estimate of £500,000 was plausible, spread across approximately 3 years. We used Ofwat's estimate in our assumption for additional costs incurred by Ofwat under a DPC delivery model.

Tax considerations

Given the early stage of the project development we disregarded tax implications in our VfM assessment. At the same time we acknowledge that tax is an important and complex issue and needs to be carefully considered as we develop the project further. There are various taxes, such as SDLT, VAT, corporation tax and capital allowances that may have an impact on the value delivered to customers under a DPC model and which we will thoroughly assess with tax experts when more clarity is available around the structure of the transaction and scope of the contractual arrangements.

5.3 Summary of sensitivities considered

Given that construction is not planned until 2028, assumptions for the assessment are characterised by great uncertainty. It is therefore critical to test base case assumptions and form a view how sensitive the outcome of the VfM test is to key assumptions and value drivers.

The key drivers of customer value under a DPC delivery model when compared to the in-house PR19 delivery under the counter factual scenario have been identified as:

- **Financing costs:** DPC has the potential to achieve lower financing costs compared with PR19 framework resulting from differences in cost of capital.
- **Depreciation profile:** Accelerating depreciation under DPC in line with general PPP/PFI practice shifts the profile of cost to customers and thus impacts the present value of the delivery route.
- **Efficiencies:** Cost efficiencies that might be expected from market competition coming from improved productivity and innovative approaches can create greater value to customers under a DPC delivery model.
- **Additional costs:** Costs occurring from one-off and ongoing management of new contractual interfaces vs existing arrangements represent additional

costs which offset some of the benefits realised under the DPC delivery model.

In the table below we set out the sensitivities we considered for Broad Oak in order to understand how the customer value changes with different assumptions for key value drivers.

Low Case has been defined as a pessimistic scenario where market appetite for the asset turns out to be lower, with higher return expectations from equity provider; the asset will be fully depreciated over the concession period. There will be limited potential to deliver cost savings beyond the efficient level of costs assumed under PR19 and additional costs of running and participating in the procurement will be higher than expected, which will all lead to lower customer value under DPC when compared to the Base case outcome.

High Case has been defined as an optimistic scenario where market appetite for the asset turns out to be greater, with lower return expectations from equity provider; the asset will be depreciated over its economic life leaving significant residual value at the end of the contract period. There will be significant potential to deliver cost savings beyond the efficient level of costs assumed under PR19 and additional costs of running and participating in the procurement will be lower than expected, which will all lead to greater customer value under DPC when compared to the Base case outcome.

Table 4 Summary of sensitivities

Assumptions	Low Case	Base Case	High Case
Financing costs: EIRR	14%	12%	10%
Depreciation: Residual value	Zero	50% of the asset	As under PR19
Efficiency	0%	3% capex, 3.5% opex	6% capex, 7% opex
Additional costs			
To DPC – Bidder costs	2.5% of project value	2% of project value	1.75% of project value
To SEW: Procurement costs	1.5% of project value	1% of project value	0.75% of project value

SEW analysis

We tested the impact of each parameter on the results of the VfM assessment separately by keeping the other variables constant with our Base case assumptions and also ran the high and low cases on an aggregated level to understand the best and worst case outcomes we could expect under a DPC delivery in order to allow us to form a robust and informed view regarding which delivery route would provide the best value to our customers for Broad Oak.

6. Results of the Value for money assessment

6.1 Overview of the results under the base case

This section outlines key assumptions, and project and model outputs under the DPC model and RAB framework including project IRR, revenue stream to DPC /us over the concession period, costs to customers resulting from any residual value and additional costs to us and Ofwat under the DPC model for Broad Oak and Arlington separately.

6.1.1 Broad Oak

Specific assumptions with regards to the Broad Oak project include but are not limited to:

- Initial capex of £98m excluding our capex efficiency assumption for AMP7 and £92m with the capex efficiency applied
- renewal capex of £494k during the contract period excluding our efficiency assumption
- opex of £34m without our efficiency assumptions and £32m with our opex AMP7 efficiency applied
- construction start date in 2028
- contract period of 20 years
- starting gearing level: 89.9per cent

Key Broad Oak model outputs are presented in the table below.

Table 5 Broad Oak base case model outputs in 2018 prices

	DPC	PR19
Project IRR (nominal, pre-tax)	5.06%	5.47%
PV of Total cost to customers	£57.8m	£60.3m
PV of Revenue stream during concession	£55.0m	£52.2m
PV of Differential residual value	-	£8.1m
PV of Additional costs to SEW	£2.8m	-

SEW analysis

6.1.2 Arlington

Specific assumptions with regards to the Arlington project include but are not limited to:

- Total capex of £97m excluding our capex efficiency assumption for AMP7
- total capex used for the VfM including our capex efficiency is equal to £91m
- renewal capex of £544k during the contract period excluding our efficiency assumption
- opex of £8m with our efficiency assumptions
- construction start date in 2030
- contract period of 20 years
- starting gearing level: 89.9per cent

Key Arlington model outputs are presented in the table below.

Table 6 Arlington base case model outputs in 2018 prices

	DPC	PR19
Project IRR (nominal, pre-tax)	5.04%	5.47%
PV of Total cost to customers	£44.2m	£46.3m
PV of Revenue stream during concession	£41.5m	£38.7m
PV of Differential residual value	-	£7.5m
PV of Additional costs to SEW	£2.6m	-

SEW analysis

6.2 Key value drivers under the base case

This section identifies the key value drivers of overall costs to customer under the factual (DPC) for the base case scenario compared to the counter factual (RAB framework) and provides accompanying commentary.

We have identified seven different value drivers that demonstrate greater benefits in using the DPC model or in using the counterfactual RAB model.

Concession period profile

The concession period profile indicates whether there are greater benefits or losses under the DPC model if the revenue flow starts at the beginning of the operating period, compared to the counterfactual model's revenue flow commencing during the construction period.

Financing cost

The movements in the cost of financing demonstrate what are the benefits or losses of higher gearing available under the DPC compared to the notional gearing level set in Ofwat's PR19 guidance.

Depreciation period

The depreciation period illustrates what are the benefits or losses from depreciating 50 per cent of the asset value over the contract compared to a full asset depreciation over the asset life under the counter factual model.

Capex efficiency

The movements in the total costs are also impacted by the assumed capex efficiencies under the DPC model compared to the counter factual model. We assume that the DPC could deliver 3.0 per cent greater capex efficiencies compared to our PR19 assumptions.

Opex efficiency

The assumed opex efficiencies under the DPC model can drive greater benefits or losses compared to the counterfactual model. We assume that the DPC could deliver 3.5 per cent greater opex efficiencies compared to our PR19 assumptions.

DPC additional costs

We assessed what is the overall negative impact on the total costs of additional DPC costs relating to participation in the tender that otherwise would not occur under the counter factual model.

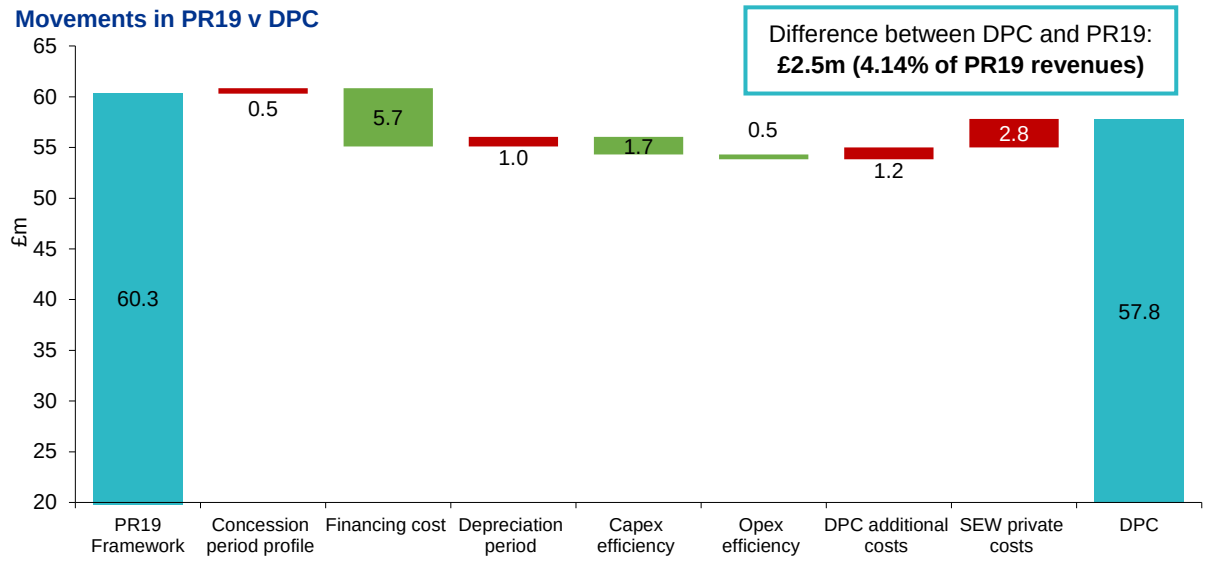
SEW private costs

Procurement and contract management costs are additional costs for us which would not be incurred under the counter factual and thus represent a negative value to customers if we would proceed with the DPC delivery model.

The figures in section 6.2.1 and 6.2.2 demonstrate the movements in the key value drivers for the Broad Oak and Arlington base case models. Positive movements making DPC more beneficial compared to the counter factual model are highlighted in green, whereas negative movements making DPC more costly are highlighted in red.

6.2.1 Broad Oak

Figure 1 Broad Oak base case movements in PR19 compared to DPC at 2018 prices



SEW analysis

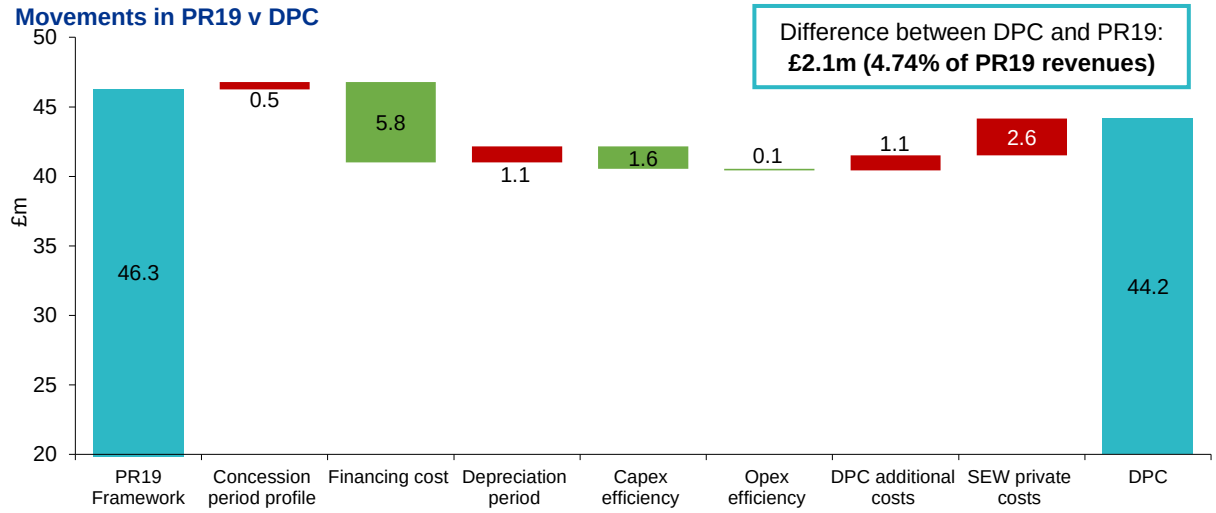
Overall, the VfM assessment demonstrates DPC provides lower overall costs to customers compared to the PR19 framework for the given assumptions. The key drivers for this are: i) assumed capex and opex cost efficiencies; and ii) assumed lower cost of financing.

The lower cost of financing is driven by the combination of assumed higher gearing level and slightly lower cost of debt compared to the PR19 notional assumptions. We note that the gearing assumption for DPC delivery is 90% which is significantly above the gearing levels for which Ofwat has expressed concerns in its recent consultation, “Putting the sector back in balance”. Achieving high gearing levels is a core feature of project financing and how the lower financing costs are unlocked. If the gearing level under DPC were to be reduced to a level consistent with PR19, it can be expected that the financing costs would increase which together with the additional costs of project financing (that is, procurement, contract management, transaction costs etc) would likely erode any benefits.

To the extent there are benefits achieved under the DPC model cost benefits are offset to some degree by the negative impact of additional costs for the DPC and SEW driven by the bid procurement cost and procurement running costs respectively. The depreciation period is assumed to be 40 years under the DPC delivery model, which is significantly shorter compared to PR19 framework base line leading to higher depreciation costs under the DPC approach.

6.2.2 Arlington

Figure 2 Arlington base case movements in PR19 compared to DPC at 2018 prices



SEW analysis

Figure 2 Arlington base case movements in PR19 compared to DPC at 2018 prices demonstrates that similar movements between PR19 and DPC delivery models can be observed for Arlington as for Broad Oak. The key drivers making the DPC delivery model for Arlington more attractive are capex efficiencies and financing costs assumptions.

We note that the benefits driven from the cost efficiencies are as large as the benefits from cheaper financing costs compared to the PR19 assumptions. This is primarily driven by the project timing assumptions and selected gearing level impacting the underlying rates used for deriving Arlington's cost of debt.

6.2.3 Conclusion

The analysis illustrates the identified key value drivers work in a similar way in the case of both assets. The results for the Broad Oak and Arlington base cases highlight that the primary potential benefit to customers under DPC is through cheaper financing costs, followed by incremental efficiency savings. t. Some of the value created by cheaper financing costs and incremental efficiency savings are offset by the additional costs associated with running a DPC procurement (including procurement and bid costs and contract management costs) as well as by the accelerated depreciation profile assumed under the DPC model.

For the given assumptions the analysis indicates DPC can achieve a positive VfM for each of Broad Oak and Arlington. When comparing the NPV of the total cost to customers of DPC delivery versus PR19 the analysis implies the following savings:

- Broad Oak: 4.14 per cent; and

- Arlington: 4.74 per cent

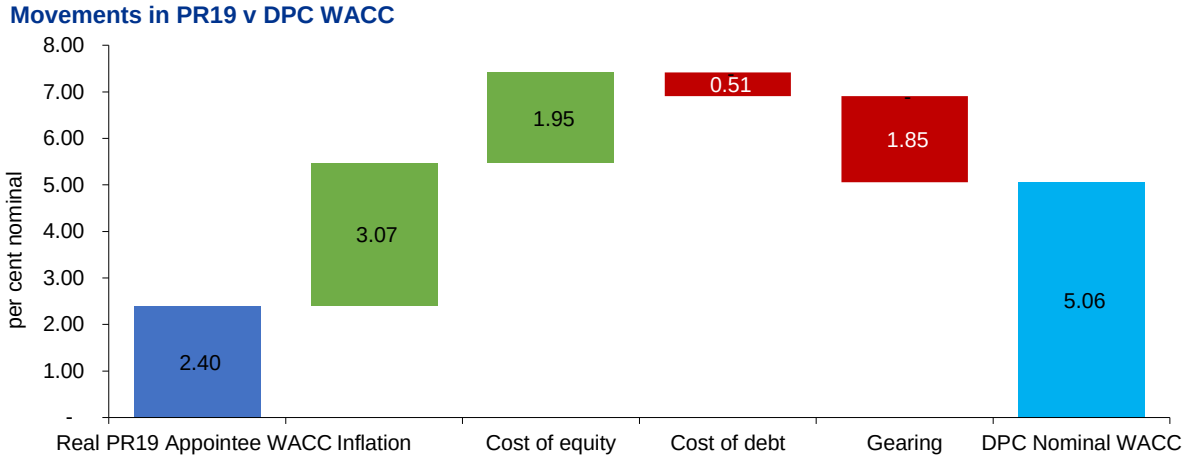
However, as these results are very much dependent on the specific assumptions, further sensitivity analysis will be required at a time closer to the required Final Investment Decision (FID) in order to conclude on the schemes' suitability for the DPC delivery model.

6.3 Movements in cost of capital assumptions

This section identifies the key value drivers in cost of capital changes for the base case scenario under the factual (DPC) compared to the counter factual (RAB framework) and provides accompanying commentary.

6.3.1 Broad Oak

Figure 3 Broad Oak base case movements in cost of capital



SEW analysis

The cost of capital under the DPC is primarily lower due to the higher gearing level leveraging the benefits of cheaper debt financing arrangements which on their own contribute to a decrease in the cost of capital of 51 bps compared to the PR19 framework. Most of the benefits achieved are through the higher level of gearing and lower cost of debt are counterbalanced by the increased cost of EIRR that reflects the risk profile of the project including the construction stage that investors are expected to take into account based on PFI/PPP experience.

Table 7 Difference between PR19 appointee and DPC nominal WACC

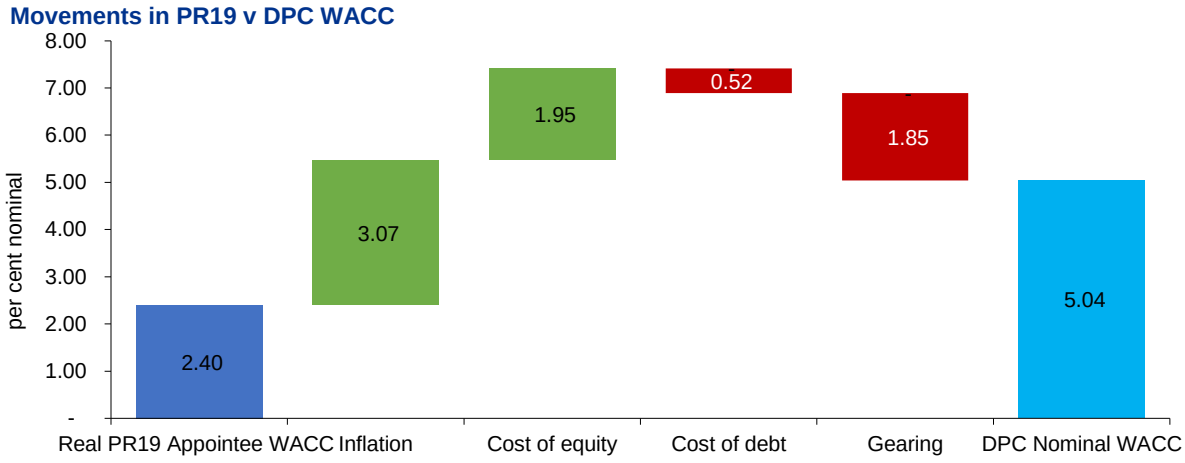
Nominal	Real PR19 Appointee WACC	Nominal PR19 WACC	Broad Oak DPC Nominal WACC	Difference
Cost of equity	4.01	7.13	12.00	4.87
Cost of debt	1.33	4.36	3.51	-0.85
Gearing	60%	60%	88.90%	28.90%

WACC	**2.40**	**5.47**	**4.45**	**- 1.02**
Project IRR			**5.06**	

SEW analysis

6.3.2 Arlington

Figure 4 Arlington base case movements in cost of capital



SEW analysis

The results for Arlington base case are similar to Broad Oak base case, except for slightly higher cost of debt benefit. The cost of debt for Arlington differs from the cost of debt for Broad Oak as it reflects a later project start date commencing in 2030.

Nominal	Real PR19 Appointee WACC	Nominal PR19 WACC	Arlington DPC Nominal WACC	Difference
Cost of equity	4.01	7.13	12.00	4.87
Cost of debt	1.33	4.36	3.49	-0.87
Gearing	60%	60%	89.90%	29.90%
WACC	**2.40**	**5.47**	**4.35**	**- 1.12**
Project IRR			**5.04**	

SEW analysis

6.4 Sensitivity analysis

The results from the low and high case sensitivities are presented in the form of the present value of overall costs to customers under the DPC model and RAB framework and compared to the base case outputs.

The assumptions under the low and high cases compared to the base case are summarised in the table below.

Table 8 High and low case sensitivity assumptions

Assumptions	Low Case	Base Case	High Case
Financing costs: EIRR	14%	12%	10%
Depreciation: Residual value	Zero	50% of the asset	As under PR19
Efficiency	0%	3% capex, 3.5% opex	6% capex, 7% opex
Additional costs			
To DPC: Bidder costs	2.5% of project value	2% of project value	1.75% of project value
To SEW: Procurement costs	1.5% of project value	1% of project value	0.75% of project value

SEW analysis

6.4.1 Broad Oak sensitivity results

The table below presents sensitivity results for Broad Oak. The results present what is the difference in terms of the total costs for consumers between PR19 and DPC delivery models.

Results are highlighted in the following approach:

- Results highlighted in '***light green***' indicate that the DPC model delivers greater value to consumers compared to the PR19 framework, however, these lower than under the base case.
- Results highlighted in '***dark green***' indicate that the DPC model delivers greater value to consumers compared to the PR19 framework and these are greater than under the base case.
- Results highlighted in '***orange***' indicate that the PR19 framework delivers greater value to customers compared to the DPC model.

Table 9 Broad Oak sensitivity results

% difference between DPC and PR19	Low Case	Base Case	High Case
EIRR	1%	-4%	-6%
Depreciation	-2%		-6%
Cost efficiency	-0.4%		-8%
Additional costs	-3%		-5%

SEW analysis

Table 9 Broad Oak sensitivity results demonstrate that the total benefits of assumptions under the High Case are significantly greater than the benefits delivered by DPC under the base case scenario. Whereas the Low Case scenario produces significantly greater costs for consumers under the DPC delivery model. While the majority of the results tested individually under the Low Case scenario produce more advantageous results for DPC delivery model, assuming the worst case scenario for each value driver, makes the DPC model more costly to customers compared to the PR19 framework.

6.4.2 Arlington sensitivity results

The table below presents sensitivity results for Arlington.

Table 10 Arlington sensitivity results

% difference between DPC and PR19	Low Case	Base Case	High Case
EIRR	2%	-5%	-10%
Depreciation	-4.5%		-16%
Cost efficiency	1%		-8%
Additional costs	-4%		-5%

SEW analysis

Similar to the VfM sensitivity results for Broad Oak, the High Case scenario generates significantly greater benefits for customers compared to the base case while the Low Case is more costly than the PR19 delivery framework in the case of Arlington.

Overall, the same High Case assumptions as for Broad Oak generate significantly greater differences between the two delivery models under Arlington's High Case

scenario. We note that under the High Case, depreciation generates the greatest benefits when assessed individually compared to other model assumptions.

6.4.3 Conclusion

The sensitivity analysis confirms the results for both Broad Oak and Arlington base case models are heavily dependent on the key assumptions.

Running the VfM model with lower EIRR, increased efficiencies and smaller additional costs, increases the benefits to customers delivered under the DPC model. Similarly, assuming the same depreciation profile under the DPC model as under the PR19 framework, results in a greater value for customers.

At the same time, by adopting a more conservative approach for key input assumptions, we see the value created by the DPC under the base case becoming only marginally better than the PR19 framework or even non-existent. If, for example, investors required an EIRR of 13% instead of the 12% assumed under the base case, then customers would no longer benefit from a DPC delivery and instead they would be better off if both Arlington and Broad Oak were delivered in-house under the PR19 framework.

Given the results of the sensitivity analysis, we will need to carefully consider how a potential DPC market may evolve in the future and how different scenarios may impact the value proposition of a DPC model to customers for Broad Oak and Arlington reservoirs.

6.5 Scenario analysis

As a DPC contract for Broad and Arlington reservoirs would be awarded in eight and ten years respectively, there is a high level of uncertainty around the assumptions. It is therefore important that we assess what scenarios could evolve in the future and understand their implications for Broad Oak's and Arlington's eligibility for a DPC delivery from a customer value perspective.

6.5.1 Potential scenarios and events considered

Given the timing of Broad and Arlington reservoirs, we expect that prior to the commencement of a DPC procurement for these schemes, there will be existing precedents of both procured and operational DPC projects that can inform key project assumptions.

Based on the identified list of key value drivers, we assessed how different future events could impact the outcomes of our base case models and the customer value delivered under a DPC model for both Broad Oak and Arlington reservoirs at a high level. The table below presents an overview of the results with arrows indicating

potential high level changes in the costs to customers under DPC versus the base case with more details on each event set out below the table.

Table 11 Movements in the costs to customers based on the identified set of potential scenarios

Event	Financing costs	Cost efficiencies	Procurement and bidding costs
1. Brexit	⇧	⇧	
2. Development of a successful DPC market	⇩	⇩	⇩
3. Challenges with early DPC projects	⇧	⇧ —	⇧
4. More stringent water quality standards	⇧	⇧ —	
5. Less liquid capital markets	⇧		

SEW analysis

Brexit

It has been reported that Brexit is already driving up the cost of developing waste to energy facilities in the UK due to a number of factors including higher exchange rates and higher specialised construction labour costs. Movements in exchange rates impact project costs where key components are delivered from outside of the UK.

Depending on the outcome of the Brexit negotiations, there is a chance that this trend could continue in the future and apply to the delivery of DPC projects, which would face higher costs than expected under the base case offsetting cost efficiencies assumed under a DPC delivery as a result.

Brexit may also create further political, economic, legislative and market uncertainty leading to short-term volatility and increased investment risks in the UK in the medium term. Under such a scenario we expect that the financing costs would increase under a project finance delivery model compared to our base case scenario, leaving customers with lower value, in case the assets were tendered competitively.

Development of a successful DPC market

Under one of the potential scenarios we assessed, there would be an established DPC market with a set of standard contractual features for DPC assets and a streamlined procurement process universally adopted across the water industry with a clear regulatory framework and oversight by the time we would need to procure a DPC contract for Broad Oak or Arlington. As a result, we would expect that both additional costs incurred by us and the DPC provider related to the procurement process could turn out to be lower than assumed under the base case.

A harmonised approach to risk allocation would help both equity investors and debt providers understand the investment proposition resulting in lower financing costs and greater market appetite for our schemes. We expect to see this increased level of competition translate into greater financing benefits for customers as well as greater efficiency in savings delivered via innovative approaches.

Experience in similar markets, for example OFTOs, suggests that as the market matures and becomes more established, bids submitted by investors become more and more competitive, driving greater customer value under an established DPC delivery model when compared with the counter factual in-house delivery.

Challenges with early DPC projects

At the same time there could be a case where some early DPC projects were awarded in lengthy and costly procurement processes characterised by high level of uncertainty around future risk allocation between the incumbent water company, customers and CAP, with contracts negotiated individually. Inefficient procurement with bespoke approaches across the sector could result in a lower market appetite for future DPC projects from potential investors.

Similarly, if early DPC projects experienced significant cost and time overruns in the construction phase, we would expect bidders to be more cautious with their cost assumptions and price in the increased risk profile of a DPC project with higher return expectations.

Also, any failures in the operational phase of an early DPC project would increase the risk profile of future projects and lead to higher return requirements from both equity and debt providers, as well as increased insurance costs and a lower probability of efficiency savings under a DPC delivery.

More stringent water quality standards

Given the important environmental and public health implications of the service provided we can imagine a scenario where Defra, EA or DWI introduces stricter water quality standards for water and wastewater infrastructure projects in the future, which impacted the regulatory risk profile of a DPC project. We would expect to see the increased project risks to translate into higher financing costs and lower customer value under a DPC delivery. Also, one could argue that more stringent environmental regulations would leave smaller scope for innovation and outperformance when compared with base case results.

Less liquid capital markets

Under a scenario where capital markets become less liquid, future DPC projects would face increased competition for financing. As a result we would expect to see

increased financing costs and lower value to customers under a DPC delivery. Challenges to secure debt financing could reduce market appetite for our assets and the spectrum of investors participating in the project.

6.5.2 Scenario analysis

In order to ensure that the DPC model delivers the best value for customers, we considered a set of scenarios examining what would the DPC market look like at the time when we would be competitively tendering the delivery of the Broad Oak and Arlington reservoirs. We assessed how the overall cost to customers could change under the factual model when compared with the base case DPC assumptions.

For the scenario analysis, we are assuming that at the time we go to the market to procure the Broad Oak and Arlington reservoirs under a DPC model, the market will have seen a number of previous DPC tender rounds. However, we expect that the new and immature market characteristics will have an impact on investors' confidence for the early DPC projects leading to increased EIRR requirements, and cooled down financing cost and efficiency assumptions under the DPC model.

At the same time, we expect that with more experience, the CAP should realise efficiency savings from the base line cost levels. We also expect that the procurement and bidding costs assumed under our base case scenario could potentially be underestimated for the early DPC projects.

Broad Oak scenario analysis

We have developed two scenarios that we compared with the Broad Oak's base case scenario.

For the Broad Oak reservoir, we assessed how the value delivered in the Scenario 1 differs from the base case, where investors expect a slightly higher equity return of 13 per cent versus 12 per cent under the base case and capex cost savings limited to 1.41 per cent of the total capex compared to 3.0 per cent under the base case.

The second scenario assumes that investors will require a higher equity return of 13 per cent and the efficiency targets will remain at the same level as in the base case, but our procurement costs would be greater than expected under the base case totalling to 2.24 per cent of the project value. A summary of our assumptions for Broad Oak's scenario assumptions are shown below.

Table 12 Assumptions under the scenario analysis compared to base case for Broad Oak

Assumptions	Base Case	Scenario 1	Scenario 2
Financing costs: EIRR	12%	13%	13%
Depreciation: Residual value	50% of the asset	50% of the asset	50% of the asset
Efficiency	3% capex, 3.5% opex	1.41% capex, 3.5% opex	3% capex, 3.5% opex
Additional costs To DPC – Bidder costs To SEW: Procurement costs	 2% of project value 1% of project value	 2% of project value 1% of project value	 2% of project value 2.24% of project value

SEW analysis

We ran the VfM model with the updated input assumptions in order to estimate what would be the impact on the costs to customers compared to the base case scenario under the DPC model. The results are summarised in the table below.

Table 13 Scenarios analysis results compared to base case for Broad Oak in 2018 prices

	Base Case	Scenario Case 1	Scenario Case 1
DPC			
Project IRR (nominal, pre-tax)	5.06%	5.25%	5.25%
NPV of Total cost to customers	£57.8m	£60.0m	£60.3m
NPV of Revenue stream during concession	£55.0m	£57.2m	£56.5m
NPV of Differential residual value	-	-	-
NPV of Additional costs to SEW	£2.8m	£2.8m	£3.8m
Difference between DPC and PR19			
Saving of costs to customers under DPC	**£2.50m**	**£0.00m**	**£0.00m**
As a percentage of costs to customers under the counter factual	**-4.14%**	**0.00%**	**0.00%**

SEW analysis

Even a small increase in the EIRR expected by investors and a reduction in the forecasted capex savings realised under a DPC or increased procurement costs, would make the DPC delivery model NPV neutral from the customers' perspective.

Arlington scenario analysis

We have developed two scenarios that we compared with the Arlington's base case scenario.

For the Arlington reservoir, we assessed how the value delivered in the Scenario 1 differs from the base case, where investors expect a slightly higher equity return of 13 per cent versus 12 per cent under the base case and capex cost savings limited to 1.86 per cent of the total capex compared to 3.0 per cent under the base case.

The second scenario assumes that investors will require a higher equity return of 13 per cent and the efficiency targets will remain at the same level as in the base case, but our procurement costs would be greater than expected under the base case totalling to 1.85 per cent of the project value. A summary of our assumptions for Broad Oak's scenario assumptions are shown below.

Table 14 Assumptions under the scenario analysis compared to Arlington

Assumptions	Base Case	Scenario 1	Scenario 2
Financing costs: EIRR	12%	13%	13%
Depreciation: Residual value	50% of the asset	50% of the asset	50% of the asset
Efficiency	3% capex, 3.5% opex	1.86% capex, 3.5% opex	3% capex, 3.5% opex
Additional costs To DPC – Bidder costs To SEW: Procurement costs	 2% of project value 1% of project value	 2% of project value 1% of project value	 2% of project value 1.85% of project value

SEW analysis

The results for Arlington demonstrate strong similarities to the Broad Oak scenario results. A one per cent increase in the EIRR, less than two per cent reduction in the forecasted capex savings realised under a DPC model and less than one per cent increase in the procurement costs can result in the DPC model delivering a NPV neutral benefits for customers.

Table 15 Scenarios analysis results compared to base case for Arlington in 2018 prices

	Base Case	Scenario 1	Scenario 2
DPC			
Project IRR (nominal, pre-tax)	5.04%	5.24%	5.25%
NPV of Total cost to customers	£44.1m	£46.1m	£46.2m
NPV of Revenue stream during concession	£41.2m	£43.4m	£43.0m
NPV of Differential residual value	-	-	-
NPV of Additional costs to SEW	£2.6m	£2.6m	£3.3m
Difference between DPC and PR19			
Saving of costs to customers under DPC	**£2.1m**	**£0.00m**	**£0.00m**
As a percentage of costs to customers under the counter factual	**-4.52%**	**0.00%**	**0.00%**

SEW analysis

6.5.3 Conclusions

There is a high level of uncertainty around how the market may evolve given that the DPC contracts for Broad Oak and Arlington reservoirs would be awarded in eight and ten years' time respectively. Overall, different future scenarios may have different implications for the value that could be delivered to customers under a DPC model.

Looking at potential future scenarios we found that a slightly higher EIRR expectation from investors combined with a lower efficiency potential or increased procurement costs could erase the benefits of a DPC model making the decision between a competitive tender and an in-house delivery model NPV neutral from the customers' perspective.

Taking into account the potential changes in the risk profile as well as any residual risk left with SEW, both of which are not factored into the VfM assessment, it is difficult to conclude at this point in time which delivery model would ensure a greater value for customers in the case of Arlington and Broad Oak reservoirs.

7. Conclusion

The investment plan presented in our WRMP for PR19, identifies a set of projects that could potentially be delivery under the DPC model, only the WRMP creates projects that trigger any thresholds i.e. no projects under any other investment driver of maintenance, quality etc trigger any of the requirements for DPC assessment. Initially, we identified nine projects where the whole life totex value exceeded £100m in September 2018 and we proposed these to Ofwat as potential candidates.

In order to further establish whether these projects are eligible and suitable for the DPC scheme, we completed a detailed review of the economic case, focusing on conducting the size and discreetness tests, Value for Money assessment and risk allocation review.

The first test of our DPC eligibility assessment focused on the project size and compared it to the £100m whole life totex threshold defined by Ofwat in the Final PR19 methodology document. Based on the size test results, we identified that only Broad Oak Reservoir and Arlington Reservoir all exceed the £100m whole life size threshold.

The projects identified to exceed the size threshold were then further examined against the technical discreetness test and value for money assessment to understand their suitability for the DPC and establish a robust view of whether there is a significant benefit for customers from procuring these investment schemes under the DPC model rather than in-house.

The technical assessment concluded, that based on the medium/high score, the Broad Oak reservoir can be considered discrete enough to be operate efficiently under the DPC model and thus was taken forward to a detailed VfM analysis to understand the value for money benefits offered under a DPC model.

The discreetness test resulted in a medium score for the Arlington reservoir. The medium suitability score reflects the level of interactions with the network as the asset would be highly integrated into the wider network with multiple input sources requiring conjunctive operation. Overall, we concluded that there are significant uncertainties around Arlington project's characteristics and further VfM assessment could provide more certainty whether Arlington could deliver benefits for the customers under a DPC model.

We have therefore completed a detailed VfM analysis for both Broad Oak and Arlington Reservoirs in order to further understand their suitability for the DPC scheme.

The single biggest driver in the VfM analysis was the assumed financing costs which, in turn, is highly sensitive to assumptions around required equity returns and gearing levels. We have implicitly assumed there would be market appetite for relatively small equity tickets for first-of-a-kind assets which is an untested assumption.

For each project the WACC under the DPC model on a like-for-like comparison with the assumed PR19 WACC is c40 basis points lower and consequently the NPV for both projects is marginally positive toward the DPC model. However, an increase of 1.0per cent on the required equity return (from 12.0per cent to 13.0per cent) combined with an additional 0.5 FTE to manage the contracts and interfaces would result in the NPV eroding to zero.

On balance our assessment for each project is:

Broad Oak

- Size test: pass
- Discreteness test: medium / high
- Value-for-money assessment: marginal and highly sensitive to minor changes to input assumptions

Arlington:

- Size test: mixed
- Discreteness test: medium
- Value-for-money assessment: marginal and highly sensitive to minor changes to input assumptions

Given the findings, timing and uncertainty around both projects we do not propose to put them forward for delivery under the DPC model at this time.

This is, in part, due to both projects having significant lead time with construction not expected to commence until late in AMP8. However, SEW view this as an iterative process. As greater certainty emerges around the specification and cost estimates for the projects in parallel with the DPC market evolving we would welcome the opportunity to review and reassess the appropriateness of the delivery model for the projects under consideration in the light of customer value and innovation made possible by different delivery options.

8. Risk analysis

We have identified and reviewed the key project risks and carried out a high level risk assessment. At this early stage of project development we have not attempted to fully specify and allocate the risk. The allocation of risk will ultimately depend on who is best placed to bear the risk and what allocation delivers best value for money to consumers.

For example, if the supply chain is asked to provide warranties for extended period this will increase the price at they bid for the construction. This may or may not deliver value for money depending on the likelihood of the risk materialising and the incremental cost of asking suppliers to bear the risk. Consumers may well be better placed to bear the risk.

We will further develop the risk analysis and specification as greater certainty emerges around the identified schemes and active engagement with supply chain takes place.

In general, risks can be addressed in three ways in a competitive tender process with investors

- De-risking the project either by requesting warranties and guaranties from supply chain which will have an impact on project costs (i.e., if the supply chain is to bear the risk they will price this in), or by allocating risk to customers who may be better placed to bear them
- aiming high on the project costs to create a contingency buffer; or
- pricing the risk into the required equity IRR

Risk transfer is a main driver of the revenue stream requested by investors and thus the costs to customers under a DPC model. This section sets out our approach, key considerations and results of our risk analysis.

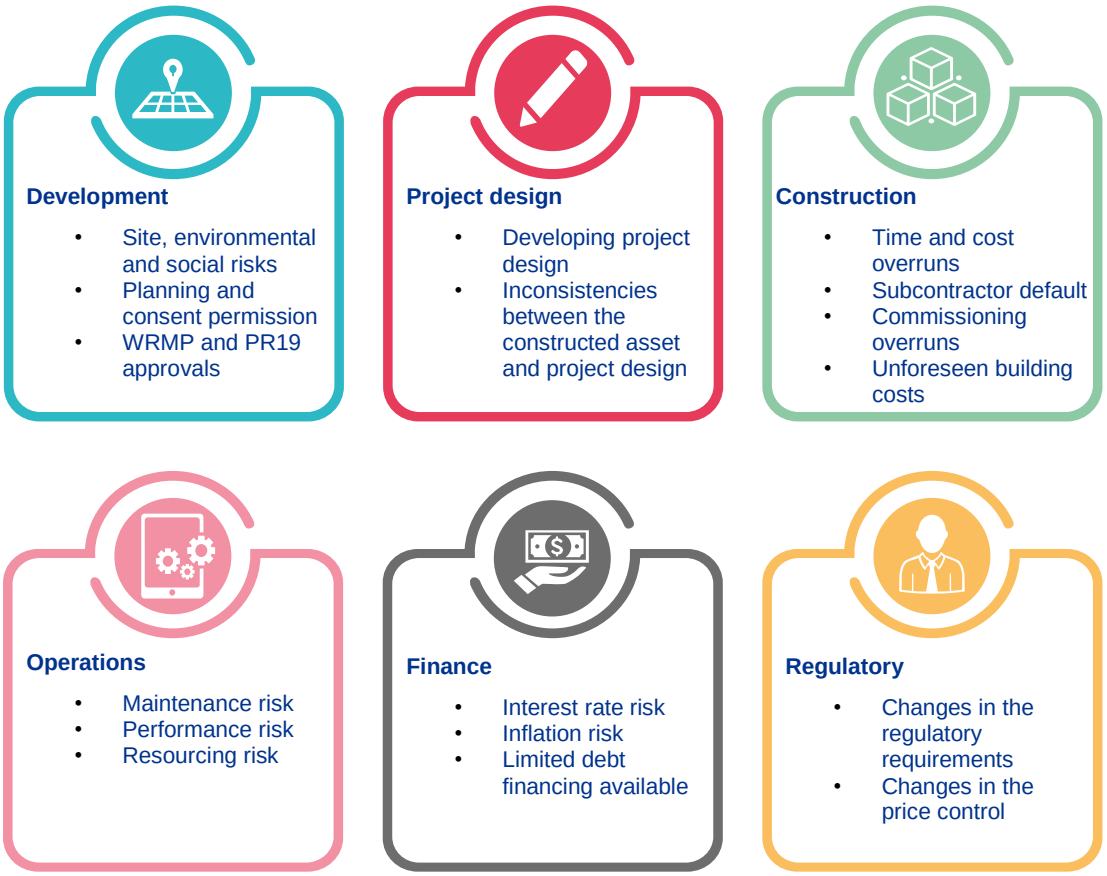
8.1 Identifying project risks

The approach in assessing potential DPC risk is based on comparing how the current risk profiles would change if the asset would be delivered under the DPC model.

As a first step, we have identified key project risks across the asset life that could potentially have a material impact on the cost of capital, and regulatory and operational costs under a DPC model with potential implications for the customer value delivered under a DPC model.

We identified six high level risk areas that are relevant for potential DPC projects. Each risk area corresponds to a different project stage. The diagram below provides a high level overview of the different risks considered across each area in our risk assessment.

Figure 5 High level risk areas



8.2 Key risk considerations

The table below presents an overview of the key risks identified with regard to the project delivery and how they are shared between SEW and customers under PR19 as compared to DPC

Table 16 Overview of the risk allocation

Key: ✓*indicating the party bearing the specific risk*

	PR19		DPC model		
Key risks	**SEW**	**Customers**	**CAP**	**SEW**	**Customers**
Development risks					
Site, environmental and social risks	✓	✓		✓	✓

	PR19		DPC model		
Key risks	**SEW**	**Customers**	**CAP**	**SEW**	**Customers**
Planning and consent permission	✓	✓		✓	✓
WRMP and PR19 approvals	✓	✓		✓	✓
Project design risks					
Developing project design	✓	✓		✓	✓
Inconsistencies between the constructed asset and project design	✓	✓		✓	✓
Construction risks					
Time and cost overruns	✓	✓	✓		✓
Subcontractor default	✓	✓	✓		
Commissioning overruns	✓	✓	✓		✓
Unforeseen building costs	✓	✓	✓		
Operations risks					
Maintenance risk	✓	✓	✓		✓
Performance risk	✓	✓	✓	✓	
Resourcing risk	✓	✓	✓		✓
Finance risks					
Interest rate risk	✓		✓		
Inflation risk		✓	✓		✓
Limited debt financing available	✓		✓		
Regulatory risks					
Changes in the regulatory requirements	✓	✓		✓	✓
Changes in the price control	✓	✓		✓	✓

SEW analysis

Development risks

Potential risks under the development stage relate to a failure or a potential delay to securing relevant planning approvals, risk of not being able to secure consent from key stakeholders as for example Ofwat and DEFRA, unexpected costs of acquiring land and local stakeholders opposing to the project.

Under the current risk allocation, these risks are shared between us and the customers.

Under the DPC delivery model, we expect that investors will not be willing to take on these risks as we will be responsible ultimately for processing the project through the development phase and therefore the development risks will remain with us.

Project design risks

Project design risks relate to events where the project owner fails to develop an appropriate project design addressing specific requirements, including network and environmental factors that could potentially lead to increased design costs and/or operational and maintenance costs due to inadequate asset specification.

Under the current risk allocation, these risks are shared between us and the customers. Any risk related to over and underperformance within certain boundaries is shared with consumers under the totex menu. IDoK allows us to re-open our price control settlement and share some of the risk with consumers.

Under the DPC delivery model, we expect that as the CAP will be responsible for the detailed design of the asset, design risk will be transferred to the investors. As the asset will be part of our wider network, there will be residual risk sitting with us related to higher running costs due to poor design post contract period.

Construction risks

Potential construction risks should reflect the cost of significant changes to the estimated costs, severe delays in meeting the delivery deadlines and requirements as well as failure by a company to commission the asset.

Under the current risk allocation, these risks are shared between us and the customers. Any risk related to over and underperformance within certain boundaries is shared with consumers under the totex menu. IDoK allows us to re-open our price control settlement and share some of the risk with consumers.

Under the DPC delivery model, we expect that the construction risk will be transferred to the DPC. This means that only the DPC would be exposed to any risks materialising as there will be a fixed price agreement between SEW and DPC. Where build process is less understood and is characterised by a high level of complexity investors might expect some form of risk sharing with regard to cost overruns and delays in the construction phase.

Operations risks

Operations risks can be separated into a) increases in unexpected operating costs due to process changes or price pressures b) not meeting quality or availability targets c) unexpected changes in the demand over the asset life

Under the current risk allocation, these risks are shared between us and the customers. Service performance and bed debt risks sit with us, while resource and input risk, demand risk and maintenance risks are shared between us and the customers under the totex menu and IDoK.

Under the DPC delivery model, we expect that the operations risk will be partially or fully transferred to the DPC, as it is common to transfer this risk to the delivery party under the PPP delivery framework, however it could also have implications on higher costs under the fixed price agreement between SEW and DPC. Given our legal obligations set out in our licence certain service risk would remain with us as failure to meet statutory obligations are more severe than contractual penalties could allow. Significant service penalties could translate into higher revenue requirements from investors and impact the customer value proposition under the DPC model.

Also, a DPC model introduces two new risks which are non-existent under the current model: interoperability risk and transfer risk.

- As the asset would be delivered by a 3rd party there is a risk introduced by the DPC model related to the interoperability of the asset with the wider network. Given that we would remain the responsible party for network operation we expect the interoperability risk to be borne by us in the form of residual risk over the contract life, but could potentially be managed through a project and interface agreement with the CAP.
- Given the asset will be transferred back from the CAP to us at the end of the contract, we face a significant new risk related to the condition of the asset at the handover and any future costs associated with it. While there are asset performance requirements that can help mitigate the risk of poor asset condition, we expect that not all risk can be transferred to the CAP and that there will be some residual risk remaining with us which is not priced into the DPC delivery.

Finance risks

The finance risks could include any impacts of the market finance liquidity and DPC's ability to secure long-term financing as well as indexation profiles not aligned to the revenue profile or the extent that the DPC could re-finance their debt financing post construction.

Under the current risk allocation, these risks are shared between us and the customers with interest rate and insurance risks born by us and inflation risk borne by customers.

Under the DPC delivery model, we expect that the finance risk will be fully transferred to the DPC.

Regulatory risks

Potential regulatory risks could consist of potential changes in the regulatory requirements or changes in the price control regime.

Under the current risk allocation, these risks are shared between us and the customers.

Under the DPC delivery model, we expect that the regulatory risk will remain mainly with us and the customers, however some risks can be transferred to the DPC through internal checks and control systems as well as incentive performance framework to penalise DPC for not meeting availability or quality targets.

Annex A Precedents for CBA model financing assumptions

In selecting comparators we have identified a set of projects delivered under project financing where construction risks are included and a similar risk profile with regards to complexity and technology is borne by the CAP. This includes waste-to-energy projects (at basis waste to energy projects appeared as the most appropriate comparators (as opposed to, for example, OFTOs or student accommodation).

The table below presents a summary of financing costs in the observed primary waste to energy PPP projects with similar characteristics to DPC projects.

Table 17 Financing costs observed in primary waste to energy PPP projects

Project	Construction date	PPP contract period (years)	Gearing	Cost of debt (nominal pre tax)	Cost of debt (nominal post tax)	Levered blended equity IRR (nominal pre tax)	Levered blended equity IRR (nominal post tax)
Project A	December 2013	27.25	80%	8.84%	7.07%	13.23%	11.38%
Project B	October 2014	25	74%	4.03%	3.22%	13.70%	12.00%
Project C	July 2016	35	70%	5.99%	4.79%	17.02%	15.91%
Project D	September 2017	30	55%	8.28%	6.62%	17.86%	16.57%
Project E	March 2018	30	62%	7.38%	5.90%	16.10%	14.90%

KPMG analysis

The equity IRR range reported for the above waste to energy projects is between 13 to 18 per cent, which reflects significantly higher levels of associated demand and construction risks compared to DPC projects. For DPC, we assumed a lower range between 10 to 14 per cent to reflect project risk more towards the water industry risk profile.

Majority of waste to energy projects have medium term duration for the contact period, based on which we decided that a shorter medium term contract of 20 years will be most suitable for both the Broad Oak and Arlington projects.

Annex B Base case model term sheet

Area and Dimension	Factual: DPC delivery	Counterfactual: RAB model
Revenue indexation	CPIH	CPIH
Model horizon	Useful economic life of the asset	Useful economic life of the asset
Discount rate to calculate for PV of costs to customers	Social discount rate decreasing profile from 3.5% to 2.5% nominal	Social discount rate decreasing profile from 3.5% to 2.5% nominal
Cost to customers profile: Value	This includes the bid revenue profile of DPC (where DPC's revenue requirement is derived as the balancing item to reach target equity IRR) and private costs to SEW, fees from residual value	Based on allowed revenue under PR19 framework (allowances for opex, deprecation, and return)
Cost to customers: Timing	Customers start paying for the asset upon completion	Customers start paying at the start of construction as expenditure is incurred
Expenditure profile in real terms	Annual capex and opex during concession period	Annual capex and opex during concession period (marginal PAYG of the project)
Timing: Construction period	5 years	5 years
Timing: Asset Life	80 years	80 years
Depreciation:	Straight line with a residual value of 50% at the end of the contract period	Straight line over economic asset life
Financing costs: Cost of debt Broad Oak	**Construction** (5 years starting in 2028): • Total of 391 bps = 151 bps base rate +240 bps margin • Bank arrangement fee of around 200 bsp and around 35 bsp commitment fee **Operations** (20 years) <u>Long term bullet bond:</u> • Total of 327 bps = 197 bps base rate +130 bps margin. <u>Amortised bond:</u> • Total of 331 bps = 206 bps base rate + 125 bps spread. <u>Reserve facility:</u> • Total of 302 bps = 177 bps base rate + 125 bps spread.	Appointed company WACC for PR19: 5.47% in nominal terms and 3.40% in real terms assuming 2% inflation (CPIH) average for AMP 7
Cost of debt Arlington	**Construction** (5 years starting in 2030): • Total of 407 bps = 167 bps base rate +240 bps margin	

Area and Dimension	Factual: DPC delivery	Counterfactual: RAB model
	• Bank arrangement fee of around 200 bsp and around 35 bsp commitment fee. **Operations** (20 years) Long term bullet bond: • Total of 320 bps = 190 bps base rate +130 bps margin. Amortised bond: • Total of 326 bps = 201 bps base rate + 125 bps spread. Reserve facility: • Total of 300 bps = 175 bps base rate + 125 bps spread.	
Financing costs: Cost of equity	10-14% (base case: 12%)	
Financing costs: Gearing	Optimised in a way that target cover ratio (DSCR of 1.18) is reached	
Costs savings: Ofwat's challenge	0	0
Costs savings: Opex	0- 7% of total opex base case: 3.5%	0
Costs savings: Capex	0- 6% of total opex base case: 3.0%	0
Additional costs to SEW (procurement costs)	Range of 0.75- 1.5% of project value Base case: 1.0%	0
Additional costs: Contract mgmt. costs of SEW	£150,000 per year	0
Additional costs to DPC	Range of 1.75- 2.5% of project value Base case: 2.0%	0
Additional costs to Ofwat	£500,000	0
Tax	Not assumed tax at the moment, but the model has a very high-level, approximate tax calculation. The taxable income is calculated from the Revenues, Opex & Interest payments, taking the accounting depreciation as the allowed capital allowances.	NA

SEW analysis

Annex C Tables supporting the App21 assessment

This is a standalone annex that includes tables supporting the ‘nil return' assessment submitted in Table App21 including baseline inputs for Broad Oak and Arlington schemes.

south east water

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