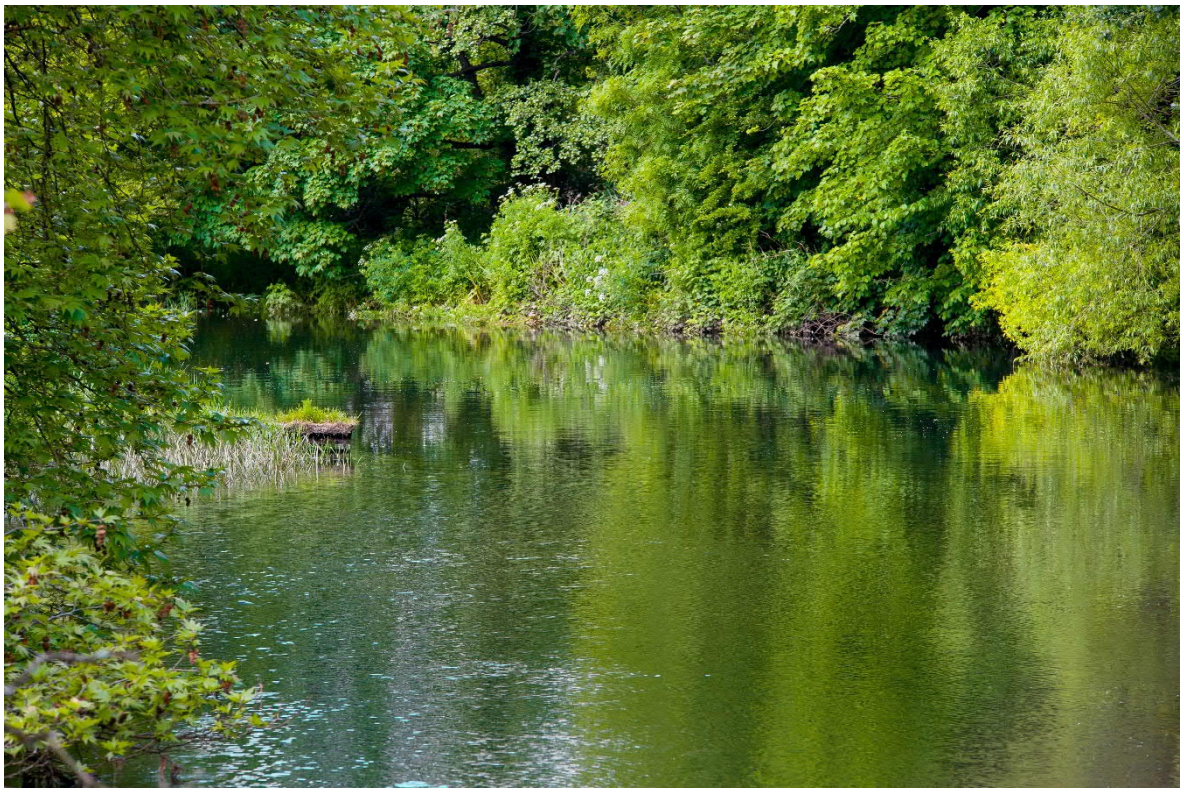
Strategic Regional Water Resource Solutions: Annex E Procurement Strategy Report

Standard Gate Two Submission for Thames to Southern Transfer (T2ST)

Date: November 2022



Thames to Southern Transfer
Procurement Strategy Report
T2ST-G2-REP-12 (Annex E)

November 2022

Notice

Position Statement

- *This document has been produced as the part of the process set out by RAPID for the development of the Strategic Resource Options (SROs). This is a regulatory gated process allowing there to be control and appropriate scrutiny on the activities that are undertaken by the water companies to investigate and develop efficient solutions on behalf of customers to meet future drought resilience challenges.*
- *This report forms part of suite of documents that make up the 'Gate 2 submission.' That submission details all the work undertaken by Thames Water and Southern Water in the ongoing development of the proposed SROs. The intention of this stage is to provide RAPID with an update on the concept design, feasibility, cost estimates and programme for the schemes, allowing decisions to be made on their progress and future funding requirements.*
- *Should a scheme be selected and confirmed in the Thames Water and Southern Water final Water Resources Management Plans, in most cases it would need to enter a separate process to gain permission to build and run the final solution. That could be through either the Town and Country Planning Act 1990 or the Planning Act 2008 development consent order process. Both options require the designs to be fully appraised, and in most cases an environmental statement to be produced. Where required that statement sets out the likely environmental impacts and what mitigation is required.*
- *Community and stakeholder engagement is crucial to the development of the SROs. Some 'high level' activity has been undertaken to date. Much more detailed community engagement and formal consultation is required on all the schemes at the appropriate point. Before applying for permission Thames Water and Southern Water will need to demonstrate that they have presented information about the proposals to the community, gathered feedback and considered the views of stakeholders. We will have regard to that feedback and, where possible, make changes to the designs as a result.*
- *The SROs are at a very early stage of development, despite some options having been considered for several years. The details set out in the Gate 2 documents are still at a formative stage and consideration should be given to that when reviewing the proposals. They are for the purposes of allocating further funding not seeking permission.*

Disclaimer

This document has been written in line with the requirements of the RAPID Gate 2 Guidance and to comply with the regulatory process pursuant to Thames Water's and Southern Water's statutory duties. The information presented relates to material or data which is still in the course of completion. Should the solution presented in this document be taken forward, Thames Water and Southern Water will be subject to the statutory duties pursuant to the necessary consenting process, including environmental assessment and consultation as required. This document should be read with those duties in mind.

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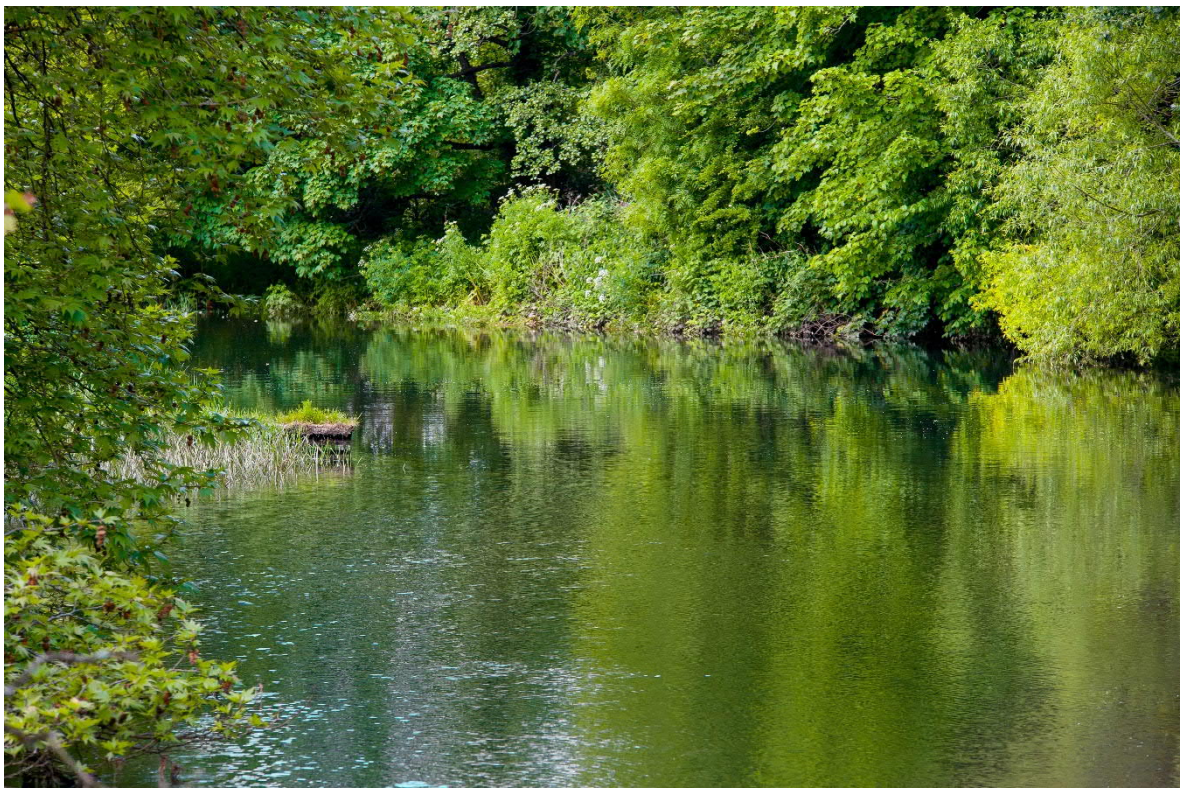


THAMES TO SOUTHERN TRANSFER (T2ST)

Annex E Procurement Strategy Report

Report Ref: T2ST-G2-REP-12 (Annex E)

November 2022

Contents

Glossary

Acronym / term	Definition
AMP7	Asset Management Plan 7 - the water sector regulatory period from 2020-2025
AONB	Area of Outstanding Natural Beauty
AWRP	Advanced Water Recycling Plant
BEIS	Department for Business, Energy and Industrial Strategy
CAP	Competitively Appointed Provider (under a DPC arrangement).
Capex	Capital Expenditure – expenditure on fixed assets
CPI-H	Consumer Prices Index including owner occupiers' housing costs (the inflation index used to determine regulated revenues in the UK water sector)
DCO	Development Consent Order
DPC	Direct Procurement for Customers
FY	Financial Year
HARP	Haweswater Aqueduct Resilience Project
IP	Infrastructure Provider (under a SIPR arrangement)
IPA	Infrastructure and Projects Authority
JV	Joint Venture
LER	London Effluent Reuse SRO scheme
MEICA	Mechanical, Electrical, Instrumentation, Control, and Automation
Ml/d	Megalitres per day
OEM	Original equipment manufacturer
OFTO	Offshore transmission owner
Opex	Operating Expenditure – expenditure on operating costs
PR19	Price Review 2019 - the regulatory price review for the AMP7 regulatory cycle in the water sector
RAB	Regulatory Asset Base
RAPID	Regulators' Alliance for the Progression of Infrastructure Development
RCV	Regulatory Capital Value
RO	Reverse osmosis
RY	Regulatory Year
SESRO	South East Strategic Reservoir Option
SIPR	Specified Infrastructure Projects Regime
SoS	Secretary of State
SRO	Strategic Resource Options
STT	River Severn to River Thames Transfer SRO scheme
T2AT	Thames to Affinity Transfer SRO scheme
T2ST	Thames to Southern Transfer SRO scheme
TLT	Thames Lee Tunnel
Totex	Total Expenditure (the sum of Operating and Capital expenditure)
TTT	Thames Tideway Tunnel
TWUL	Thames Water Utilities Limited
UK	United Kingdom
VfM	Value for money
WACC	Weighted Average Cost of Capital
WRMP	Water Resources Management Plan

Acronym / term	Definition
WRSE	Water Resources South East (an alliance of the six water companies that cover the South East region of England, that develops the Regional Plan)
WSR	Water Supply Reservoir
WTW	Water Treatment Works

1 Executive Summary

This document outlines the Gate 2 Procurement and Commercial Strategy for the Thames to Southern Transfer (T2ST) Scheme, to support the Gate 2 Report for submission to the Regulators' Alliance for Progressing Infrastructure Development (RAPID).

T2ST is a multi-party asset with strategic importance for the South-East of England. The scheme has totex of approximately £578-992m[1,2], an approximate 5-year construction period, an operating life of circa 100 years[3], meaning that selecting the appropriate delivery route is important to achieving the best outcome for customers and other stakeholders.

The T2ST scheme could be delivered under a number of possible procurement models for construction and operation. This includes:

1. In-house delivery by the incumbent undertaker;
2. Competitively tendered models:
    a. The Direct Procurement for Customers (DPC) model[4]; and
    b. The Specified Infrastructure Projects Regulations (SIPR) model.

This report builds upon the Gate 1 conclusions, by undertaking a more detailed assessment of T2ST in relation to Ofwat's DPC size, discreteness and value-for-money (VfM) criteria. We have also assessed whether the scheme meets the criteria for SIPR procurement, and developed a procurement plan and commercial strategy that aligns with the wider programme and reflects the latest WRSE modelling, as required under RAPID's Gate 2 guidance. This report also considers the risks that different procurement approaches could pose to the implementation timescales set out in the draft WRSE Regional Plan.

Our conclusions are outlined in Table 1 below. In summary, this Gate 2 procurement strategy concludes that competitively tendered models such as DPC or SIPR could offer better value for money than in-house delivery in some circumstances. However, for this to be true, DPC models would need to offer significant levels of capex and opex savings (c.10-15%) and comparable finance costs to In-house delivery. Given the relatively low complexity of T2ST construction, it is unclear whether these opex and capex savings are realistic. In addition, the 'standard form' DPC model displays some characteristics (for example, no revenue during construction) that indicate that low finance costs may be challenging to achieve. We recommend that market testing, and the exploration of 'enhanced'[5] DPC models that are more likely to drive low finance costs, is undertaken post-Gate 2 to validate whether the DPC model does drive better value for money than in-house delivery for T2ST.

In relation to SIPR, whilst procuring the project under this regime, may lead to better value for money, we conclude that T2ST does not pass the current SIPR 'size or complexity'[6] test.

Table 1: Summary of Gate 2 assessment for the T2ST scheme

Criteria		Rating and commentary
DPC	Size	With capex alone of over £200m, T2ST clearly meets the DPC 'size' criteria as set out at PR19, as well as that set out in the draft guidance for PR24.
	Discreteness	T2ST passes the discreteness test, as it has well understood, relatively minor interactions with TWUL's and Southern Water's broader water systems. Risks are identified against all discreteness headings; however it is anticipated that these could be mitigated through a DPC contract. Risks are primarily around contribution to statutory obligations, interactions with the network (potable water is discharged to a service reservoir), contribution to supply capacity where the volume of contribution is unpredictable (drought related) and that the implications of operational failure could result in unwholesome water entering supply.

[1] Cost estimate range represents the lowest to highest estimates based on a range of potential scheme sizes (50Ml/d to 120Ml/d), and two different route options. Totex calculated over 25 years, based on 15% 'sweetening' flow only.
[2] All costs in this report presented in 2020/21 prices, unless noted otherwise.
[3] For the pipeline assets.
[4] Including the possible application of various Ofwat pre-defined DPC variants (Early, Late, Very Late and Split) to each scheme, or parts of each scheme. For the avoidance of doubt, this report is based on the DPC model characteristics as set out by Ofwat at PR19, which we refer to as the 'Standard Form' DPC model. Where appropriate we set out potential modifications to the Standard Form DPC model that may deliver improved VfM.
[5] Where 'standard' DPC parameters are modified with the aim of achieving better value-for-money (e.g. introducing staged payments during construction or procuring finance separately from construction/operation contracts).
[6] That the '*project is of a size or complexity that threatens the incumbent undertaker's ability to provide services for its customers*'

Criteria		Rating and commentary
	Implementation timescales	The WRSE Regional Plan indicates that T2ST does not need to be operational until 2040 at the earliest. Based on this, the earliest required date for CAP award is likely to be around 2032. This means there are approximately five years from the planned completion of Gate 3 (in 2027) to the earliest potentially required date of CAP award in 2032. Therefore, we conclude that there are no material risks relating to the development and procurement of a DPC model within the timescales required.
	Value for money	The scheme exhibits characteristics that may reduce the opportunity for the DPC model to deliver the comparable cost of finance and significant capex and opex efficiencies needed to drive a lower cost to customers than in-house delivery. Opex is less than 20% of totex over a typical DPC contract duration period (i.e. the first c.25-30 years), and less than half over the life of the scheme. Therefore, the majority of savings delivered under DPC would need to come from capex, a significant proportion of which will be difficult for the CAP to influence at the point of detailed design commencement (for example, within civils capex, pre-DPC client costs such as land acquisition, planning and early-stage design is c.12% of total capex). However, there could be opportunities to significantly reduce capex and opex by taking a different approach to scheme design (for example, reducing the pipe diameter). Further investigation, including detailed commercial risk analysis for the scheme and further market engagement to inform more detailed modelling of the likely cost-to-customers is recommended to conclusively determine whether DPC offers better value for money than in-house delivery.
SIPR	Size and complexity	The scheme is not considered large or complex enough to satisfy the SIPR eligibility test i.e. T2ST is not of a size or complexity that threatens the incumbent undertaker's ability to provide services for its customers, whether the incumbent undertaker is considered to be either TWUL or Southern Water. However, Ofwat has made a recommendation[7] to the Secretary of State for Business, Energy and Industrial Strategy (BEIS) that the 'size or complexity' test be removed from SIPR legislation, so that SIPR can be applied to a broader range of schemes where a licensed approach would offer value for money. Should this recommendation be taken forward, we recommend re-assessing SIPR's suitability for T2ST accordingly.

RAG rating definitions	
	Procurement model does not satisfy the criteria and should be dis-counted from consideration post-Gate 2.
	Procurement model satisfies the criteria based on information available at this stage, however there are some challenges to its viability that need further work to conclusively resolve.
	Procurement model satisfies the criteria.

Further detail on our conclusions is included below:

DPC

- Size: With capex alone of over £200m, T2ST clearly meets the DPC 'size' criteria as set out at PR19, as well as that set out in the draft guidance for PR24.
- Discreteness: T2ST is a relatively standalone potable water treatment and transfer asset, with well understood, relatively straightforward interactions with Southern Water's (and TWUL's) broader water supply system. As a potable water asset that supplies directly into the distribution network, T2ST does materially contribute to Southern Water's statutory obligations, however we expect these obligations to be relatively straightforward to codify and manage contractually. As such, T2ST passes the DPC 'discreteness' criteria.
- To inform our view of value for money, we have also undertaken initial modelling, using Ofwat's PR19 assumptions, which indicates that DPC has the potential to deliver lower costs to consumers than in-house delivery, *if* DPC delivery can achieve a cost-of-capital at the lower end of the assumed range (WACC of c.2.5%), or significant capex and opex efficiencies (greater than 10%).
- It is not clear how achievable these high levels of efficiency over and above the in-house delivery model are likely to be. Assuming delivery of a 'like-for-like' design, high levels of efficiency are likely to be challenging given that the approach to construction of most elements of this scheme (a new water treatment works and laying of a

[7] Competition stocktake report final (ofwat.gov.uk)

pipeline) is established and mature, and relatively typical for a large water company. On the other hand, there may be opportunities for a DPC provider to bring innovation and take a different view of whole life cost and risk trade-offs, and therefore make different design decisions than a water company would. For example, selecting an alternative design option with a smaller pipeline diameter and reduced sweetening flow volume requirement, treatment opex and capex for the pipeline, but increase pumping head and therefore costs during full flow. These opportunities should be tested as part of market engagement post-Gate 2 (recognising that some opportunities may have been explored and discounted already by TWUL and Southern Water), to determine the achievability of Ofwat's assumed 10-15% efficiencies under DPC, specifically for T2ST.

- This report also considers that enhancements to the 'standard form' DPC model (for example, allowing milestone payments during construction or procuring finance separately to construction contracts) may increase the likelihood of the DPC model driving lower finance costs, and therefore greater value for money benefits to customers.
- In summary, our assessment supports the Gate 1 conclusion, that T2ST is potentially suitable for competitive procurement through DPC, dependent on further exploration of value for money benefits. Further work (including market testing and modelling) is required to validate DPC value for money assumptions, as part of post-Gate 2 development. In particular, this will focus on engaging with the construction supply chain and investor landscape to better understand how key scheme risks are likely to be priced under DPC, how a DPC deal would be structured to attract the most competitive finance costs (including enhancements to the 'standard form DPC model as highlighted above), and the opportunity for driving greater T2ST-specific capex, opex, and whole-life-cost efficiencies. This insight will be reflected through in-depth financial modelling to understand whether DPC models are likely to drive lower costs to customers compared to the in-house delivery route, and if so, to further develop the preferred DPC model for T2ST.

SIPR

- Despite T2ST's scale, we do not consider that it is large or complex enough to satisfy the SIPR criteria that requires schemes to be of a 'size or complexity that threatens the incumbent undertaker's ability to provide services for its customers'.
- T2ST assets are located in both TWUL's and Southern Water's regions, meaning that it is unclear which company would be the 'incumbent undertaker' in the SIPR model. We have therefore considered the 'worst-case' scenario in which the scheme is delivered in its entirety by either TWUL or Southern Water. We conclude that either TWUL or Southern Water could deliver T2ST without putting existing services at risk. Our analysis indicates that T2ST would potentially be financeable by either company, particularly given the timescales for preparation, and while large, T2ST is significantly smaller by comparison than the Thames Tideway Tunnel[8] project (for example, T2ST's value represents c.16% of Southern Water's AMP7 closing RCV, and c.6% of TWUL's AMP7 closing RCV, in comparison to the Thames Tideway Tunnel which represented 30% of TWUL's RCV). Further, T2ST does not display the same magnitude of construction, management or regulatory risks used to justify SIPR for the Thames Tideway Tunnel.
- Therefore, under current legislation, we do not consider T2ST to be applicable for SIPR specification and we do not recommend considering SIPR further beyond Gate 2, given current regulations. However, Ofwat has made a recommendation[9] to the Secretary of State for Business, Energy and Industrial Strategy (BEIS) that the 'size or complexity' test be removed from SIPR legislation, so that SIPR can be applied to a broader range of schemes where a licensed approach would offer value for money. Should these recommendations be accepted and SIPR legislation modified accordingly, we recommend a reassessment of T2ST against the revised applicability criteria.
- Finally, as one of the later SRO schemes (the current WRSE Regional Plan indicates that T2ST does not need to be operational until approximately early-2049 in the 'most likely' scenario), T2ST will have the advantage of being able to apply lessons from what should be a relatively mature DPC (and potentially SIPR) market by the time it is procured. As time progresses, we recommend that the preferred procurement model for T2ST should be re-assessed to reflect any lessons-learnt, so that value for money opportunities are maximised.

Promoter assessment

- As Southern Water customers are the main water resource beneficiaries of the T2ST scheme, we recommend that Southern Water takes the lead role in T2ST Promotion post-Gate 2, and continues to consult with TWUL (and other relevant stakeholders) throughout the ongoing development of the scheme, particularly alongside the development of the South East Strategic Reservoir Option (SESRO) and the Severn Thames Transfer (STT) as potential sources for T2ST.

Operating and commercial arrangements

- The key driver for T2ST is to provide water supply resilience for Southern Water customers in times of drought. It is anticipated to deliver a maximum volume of 120 Ml/day at full flow during drought conditions (expected to be approximately 2-3 months every 2-3 years), and operate a 'sweetening' flow of approximately 15% of this volume for the rest of the time. Therefore, its operational requirement is driven by Southern Water – including both

[8] Thames Tideway Tunnel is the only scheme specified under SIPR to date.
[9] Competition stocktake report final (ofwat.gov.uk)

regular, 'business-as-usual' flow and additional flow during drought conditions. Therefore, we recommend that under all but the most extreme conditions, the operation of the scheme is defined and controlled by Southern Water.

- The water source for T2ST is expected to be either the SESRO or STT schemes, or a combination of both. The capacity of these schemes will be shared with TWUL and Affinity Water. Operating arrangements for SESRO and STT are set out in the SESRO and STT Gate 2 Procurement Strategy Reports respectively. During extreme conditions (for example, a more severe than 1 in 500 year drought), there may be a need for the SESRO operator to manage flow through T2ST to ensure that water resources are most appropriately shared between Southern Water, Affinity Water and TWUL.
- Commercial arrangements for T2ST can be broken down into two main elements – arrangements covering the supply and payment for raw water (supplied from SESRO and/or STT), and arrangements covering the T2ST assets themselves. Commercial arrangements covering the supply and payment for raw water from SESRO and/or STT are likely to include a capacity charge element and a volumetric charge element, with the capacity charge element being divided between TWUL, Affinity Water and Southern Water based mainly on the relative resilience benefits provided to each company. Details of indicative SESRO and STT commercial arrangements are set out in the SESRO and STT Gate 2 Procurement Strategy Reports respectively.
- Commercial arrangements covering the T2ST assets themselves are relatively straightforward – these assets are created for the benefit of, and as such will be funded solely by, Southern Water customers.

Risk allocation

- Under a DPC model, we expect the risk allocation to broadly align to the indicative allocation set out in Ofwat's *Direct Procurement for Customers: Technical Review* report. However, as T2ST comprises relatively typical water industry assets and therefore represents relatively low technical risk during construction and operation, which the CAP supply chain should be well-placed and capable of managing, we recommend transferring these technical risks to the CAP as much as feasible. On the other hand, the location of the pipeline (through the North Wessex Downs Area of Outstanding Natural Beauty) introduces delay/cost risks relating to location-specific challenges (for example, archaeological finds during construction). These risks would be difficult for the CAP to control and therefore should be shared with customers to avoid the CAP building in excessive risk costs into their price.
- As outlined above, T2ST will have the advantage of being able to apply lessons from what should be a relatively mature DPC (and potentially SIPR) market by the time it is procured – we recommend that particular emphasis is placed on lessons relating to risk transfer.

Procurement risks

- Under a DPC model, one major risk is that the DPC procurement does not result in prices (particularly finance costs) that achieve better value for customers than in-house delivery. This can be mitigated through further detailed financial modelling of likely scheme costs under DPC, informed by market engagement (as set out in the 'Forward Plan' section below), and using the outputs of this to make changes to the procurement model to ensure best value. Further, as set out above, by the time T2ST is procured, there should be a relatively mature market for DPC (and potentially SIPR), and therefore the likely results of the DPC procurement will be more predictable.
- The main risks associated with T2ST procurement are those associated with any major procurement activity, for example, a lack of supplier interest or delays in procurement activity. These can be mitigated through robust market engagement and rigorous planning and preparation for the procurement exercise, as set out in the 'Forward Plan' section below.

Forward plan

- We have set out our plan for developing these proposals further through Gate 3, including the Ofwat Control Points B and C.
- We also recommend that market engagement with investors and the construction supply chain takes place before Gate 3, to further understand key commercial risks (including how they would be treated and priced under different models) and gain further insight into the potential structure of the DPC model. This would include details of how investors might structure a 'standard form' DPC model (such as gearing), as well as potential enhancements to the standard form DPC (such as offering milestone payments during construction) that might offer improved value-for-money. This should be used to inform more detailed financial modelling to provide robust evidence for the updated value for money assessment required at Control Point C, which would confirm the preferred procurement model and associated plan.

2 Introduction

Ofwat/RAPID requires water companies to consider whether large, discrete water and wastewater projects could deliver better value for money for customers by appointing a third party to deliver these projects through a competitive tendering process. The available procurement models for appointment of a third party to design, build, finance and operate (or a subset of those activities) each of these projects are the:

1. Direct Procurement for Customers (DPC) model[10]; and
2. Specified Infrastructure Projects Regulations (SIPR) model.

To assist companies in deciding the appropriate procurement route to adopt, Ofwat/RAPID has issued guidance to water companies to follow when evaluating whether individual projects should be competitively tendered or not. This guidance sets out a multi-step process, whereby projects proceed through a series of "gates" to determine whether to competitively appoint a third party and the appropriate route for procuring that third party.

T2ST aims to transfer water from TWUL to Southern Water's Hampshire area. Under the preferred option for the scheme, raw water will be abstracted and fed by gravity (via an intake and new pipeline) direct from SESRO and/or STT, to a new water treatment works located on the SESRO site. The characteristics of this scheme are critical to the decision whether to adopt DPC or SIPR, or to proceed with in-house delivery.

For Gate 2, several size options for the scheme are being explored, ranging from 50 Ml/d to 120 Ml/d, as well as two potential route options (as set out in Section 4.1). The conclusions of our assessment remain the same for all options, therefore for simplicity we have based this report on the option with the highest potential value (120 Ml/d, route Option C), as this represents the 'worst case' particularly for the SIPR assessment.

Table 2 presents key details on the estimated construction timeline (based on the earliest in-service date from the WRSE draft Regional Plan) and costs associated with this option.

Table 2: Construction timeline[11] and project cost estimates for the T2ST scheme

Scheme	Capital expenditure	Fixed opex (per annum)	Variable opex (per annum)	Start detailed design	Begin construction	End construction	Start of operations
T2ST	£877m	£2.4m	£2.2m	2032	2034	2039	2040

Opex is based on the 15% "sweetening flow rate" which represents the operating regime for the majority of the time. For information, if operating continuously at full flow annual opex (fixed and variable) is £16.9m. However, this is not the value used in the modelling or other assessment, given that the plant is anticipated to only operate at full flow for c.2-3 months every 2-3 years. We have therefore based our assessment on the 'business-as-usual' operating regime, assuming the sweetening flow only.

Background: Gate 1 Assessment

At Gate 1, the T2ST scheme was assessed using the criteria set out by Ofwat for the assessment of DPC suitability (size, 'discreteness' and value-for-money), and using value-for-money and commercial feasibility for alternative models adapted where necessary to assess other models considered. To provide some insight into the value-for-money of different models, a high-level commercial risk and pricing assessment was used.

The assessment against the criteria was then consolidated to provide an overall RAG-rating of the suitability of different models for the T2ST scheme. The summary of the Gate 1 assessment, outlined in Table 3 below, shows that Late/Very Late DPC models were considered suitable for T2ST, while Early and Split models were considered less suitable due to the significance of planning risks, and that transferring these risks to a third-party provider would be unlikely to offer improved value for money. Given the relatively low complexity of the scheme, In-house models (including typical current models and a collaborative JV between TWUL and Southern Water) were also considered suitable, while SIPR models were considered unlikely to be applicable.

[10] Including the possible application of various Ofwat pre-defined DPC variants (Early, Late, Very Late and Split) to each scheme, or parts of each scheme

[11] Construction and design milestones are based on the earliest in-service date (2040) from the WRSE Regional Plan.

Table 3: Summary of the Gate 1 procurement model assessment for T2ST

Procurement Models	Assessment of Procurement Models (at Gate 1)	Rating (Gate 1)
Typical current models	T2ST is an estimated capital investment significantly more than £100m. This value is unlikely to introduce significant balance sheet impacts for either TWUL or Southern Water. It is foreseeable that the function of the pipelines may introduce some challenge in developing the inter-company regulatory, operational, and commercial arrangements to enable the supply of water from TWUL to Southern Water, however, these arrangements are likely to be achievable.	
Early DPC	There would need to be significant early involvement from water companies in the early stages of developing this project to enable planning consent. This would be particularly important for overcoming early stakeholder objections, land access/rights, environmental impacts, potential for public enquiry, early design feasibility, and managing public perceptions. Transferring planning risk to a CAP is likely to result in a significant risk premium, reducing value-for-money. It is unclear whether any better capability that the supply chain has over water companies at managing delivery and operational risks for a pipeline will be sufficient to offset the additional planning risk premium.	
Late/Very Late DPC	This scheme favours a late DPC approach as this would mitigate many of the early planning challenges around such a project. Construction of new pipelines is recognised as a frequent event and well understood process, with a mature supply chain.	
Split DPC	Similar to the early DPC model, the split DPC model would require planning risk to be transferred to the CAP, which is likely to result in a significant risk premium, reducing value-for-money.	
Collaboration JV	Collaboration between water companies through the creation of a Special Purpose Vehicle could 'compartmentalise' scheme risk investment risk. It will also enable capability of both water companies to be cooperatively applied, and the flexibility to involve the supply chain where appropriate, through the project life-cycle to overcome the early planning risks through to construction. Note that as scheme development progresses, these benefits would need to be tested against the added complexity and cost of setting up a JV.	
SIPR Model	This would require a licenced service provider which, through the size of the scheme, would need regulatory endorsement. At the time of the Gate 1 report, it was considered unlikely that T2ST would satisfy the SIPR criteria, and therefore this model was not considered feasible.	

RAG rating definitions	
	Major challenges to the viability of the procurement model without obvious, straightforward solutions at this stage
	Minor challenges to the viability of the procurement model without obvious, straightforward solutions at this stage
	No significant challenges to the viability of the procurement model at this stage, or straightforward solutions to challenges are obvious

Our approach and structure of this report

Since Gate 1, it has emerged that HM Government is considering whether the SIPR regime should potentially be modified so that it could be applied to a wider range of projects. Accordingly, while it was ruled out at Gate 1, for Gate

2 we have again assessed T2ST's suitability for procurement under SIPR, and whether T2ST meets the criteria for 'specification' set out in current legislation.

Specifically, to support TWUL's and Southern Water's Gate 2 application, Jacobs/PA Consulting have been commissioned to undertake the Gate 2 procurement and commercial assessment through the following:

- Expanding upon the overarching scheme assessment at Gate 1 by undertaking a specific assessment of the T2ST SRO option against In-house, DPC and SIPR models;
- Undertaking a qualitative value-for-money analysis supported by high-level quantitative modelling, to assess potential value-for-money of the DPC and SIPR models;
- Adding further granularity to the viability assessment of different models by evaluating additional criteria including 'Implementation Timescales' and 'Financeability' and dividing 'value-for-money' into two dimensions – 'cost-to-customers' and 'value-to-customers'.

Jacobs/PA Consulting have been asked to simplify the assessment and provide a more focused comparison between in-house delivery and competed delivery models by considering both the 'typical current models' and 'collaboration JV' models considered at Gate 1 within a single 'In-House delivery' model.

To address this scope of work, the remainder of this report is structured as follows:

- **Section 3 – Framework for assessing eligibility for DPC and SIPR:** Describes the criteria against which the T2ST scheme is assessed to decide whether to adopt DPC or SIPR, or to maintain in-house delivery, and the assessment framework and methodology we have used.
- **Section 4 – Assessment of procurement models**: Discusses our assessment of whether the T2ST scheme satisfies the criteria for DPC and SIPR and recommends whether to proceed to Gate 3 or not.
- **Section 5 – Scheme promoter options and operating and commercial arrangements:** Outlines the preferred promoter approach for the scheme, and indicative operating and commercial arrangements.
- **Section 6 – Risk allocation:** setting out the high-level indicative allocation of risks between the undertaker and the contractor for the scheme under its preferred procurement approach.
- **Section 7 – Procurement risks, plan and market engagement:** Key actions to be taken forward beyond Gate 2, including responding to revisions of the WRSE demand requirements, operational constraints, further development of the VfM assessment, and additional market engagement.

3 Framework for assessing eligibility for DPC and SIPR

The eligibility criteria for DPC and SIPR recommended by RAPID is summarised below:

- **Size:** the scheme must be at least £100m totex (based on PR19 guidance – Ofwat's draft PR24 methodology sets the size threshold at £200m totex).
- **Discreteness:** the scheme should be sufficiently discrete from the wider network to support the CAP delivering the contracted outcomes.
- **Value for Money:** DPC should offer the potential to deliver a lower cost to customers (informed by Ofwat's specified assumptions, set out at PR19).

There are four Ofwat pre-defined tender models for DPC: Early, Late, Very Late and Split. Given the substantial work on planning undertaken by TWUL and Southern Water to date, and the potential for this to be perceived as a high-risk activity by a DPC CAP (and therefore potential to increase cost under DPC), we conclude that there is little benefit in transferring planning responsibility at this stage. This effectively rules out the Early and Split DPC variants for the T2ST scheme. We will, however, consider the benefits of the Late and (where appropriate) Very Late DPC variants in this section.

SIPR model assessment criteria

The criteria for specifying a project under SIPR are set out in The Water Industry (Specified Infrastructure Projects) (English Undertakers) Regulations 2013, as follows:

- *The Secretary of State or the Authority may exercise the power …… if the Secretary of State or the Authority respectively is of the opinion that:*
  - *i. the infrastructure project is of a **size or complexity** that **threatens the incumbent undertaker's ability to provide services for its customers**; and*
  - *ii. specifying the infrastructure project is likely to result in better **value for money** than would be the case if the infrastructure project were not specified, including taking into account:*
    - *i. the charges fixed or likely to be fixed under Chapter 1 of Part 5 of the Act(9) (financial provisions, charges); and*
    - *ii. the powers of the Secretary of State under section 154B of the Act(10) (financial assistance for major works).*

We have used these criteria to assess whether the T2ST scheme is eligible for SIPR specification under current legislation.

We set out below how we have approached assessing whether this scheme meets these criteria or not.

3.1 Size, discreteness, and complexity

Whether a project meets the size criteria for DPC requires calculation of the present value of whole life capex and opex to see if that value exceeds £100m threshold (PR19). We have also considered schemes in relation to the higher £200m threshold set out in draft PR24 guidance.

Whether a project meets the discreteness criteria for DPC requires a more qualitative assessment of various factors, set out in KPMG / Ofwat's 'Direct Procurement for Customers: Technical Review' report[12], including:

1. Stakeholder interactions and statutory obligations;
2. Interactions with the network;
3. Contributions to supply/ capacity and ability to specify outputs; and
4. How well asset and operational failures of the scheme are understood.

We have considered these features when assessing the discreteness of the T2ST scheme.

Whether a project meets the size or complexity criteria for SIPR depends on whether the project "*threatens the incumbent undertaker's ability to provide services for its customers*". We use a similar risk-based approach to that applied for the Thames Tideway Tunnel (TTT) to compare each project's 'size or complexity' to that of TTT, the only scheme specified under SIPR to-date. This includes a specific focus on 'scale risk', including an assessment of whether the financeability of the incumbent undertaker (for T2ST, either TWUL or Southern Water) would be endangered by undertaking the project itself. To address this issue, we have held discussions with the relevant teams

[12] https://www.ofwat.gov.uk/wp-content/uploads/2017/12/DPC-A-technical-review-FINAL_08.12.17.pdf

from TWUL and Southern Water about the impact of delivering the project in-house on forecast financeability, and undertaken a desktop exercise to assess each scheme's impact on typical financeability metrics.

3.2 Implementation timescales

We have also considered whether there is sufficient time to implement either DPC or SIPR before the scheme's projected in-service date as determined by the draft WRSE Regional Plan. It takes time to set up and run a DPC or SIPR procurement process, so if a scheme is urgently required, a competitive tendering process may put the delivery timescales at risk. To inform our assessment of implementation timescales, we consider the time taken to implement the T2ST scheme under each potential procurement model. Based on experience with models similar to DPC, and insight from the Thames Tideway Tunnel and United Utilities' HARP scheme, we assumed a minimum duration of approximately three years to reach CAP award from this point under a DPC model, and approximately three to five years to reach IP award under a SIPR model, starting from confirmation of the preferred procurement model at Gate 3.

3.3 Value for Money

We have assessed VfM through two 'lenses':

- Assessing the 'cost to customers': i.e. the potential impact on customer bills, and
- Water resilience/resource value and broader value: the resilience/resource benefits customers receive from the water asset being able to produce sufficient additional water when required.

To assess the cost to customers, at this stage of scheme development, we have considered how much higher or lower the financing, capex and opex costs would be under DPC and SIPR compared to in-house delivery. We discuss potential opex and capex savings based on an assessment of potential savings for various sub-categories of costs. Our assessment of financing costs is based on high level assumptions, in line with our scope of work. We have not spoken to prospective DPC or SIPR bidders to inform our work at this early stage, so our work is based on desktop analysis, research and discussions with TWUL and its other advisers, and Southern Water.

To assess water resilience/resource value, we have examined the benefits of the scheme to customers through the provision of drought resilience and ongoing water resource supply, and assessed whether there would be a material difference in these benefits under different procurement models.

3.4 Evaluation framework

We have undertaken high level financial modelling of the T2ST scheme to inform our assessment of eligibility for DPC and SIPR, but many of the criteria discussed above can only be assessed qualitatively. For those criteria we have undertaken a Red-Amber-Green style evaluation, using the definitions below:

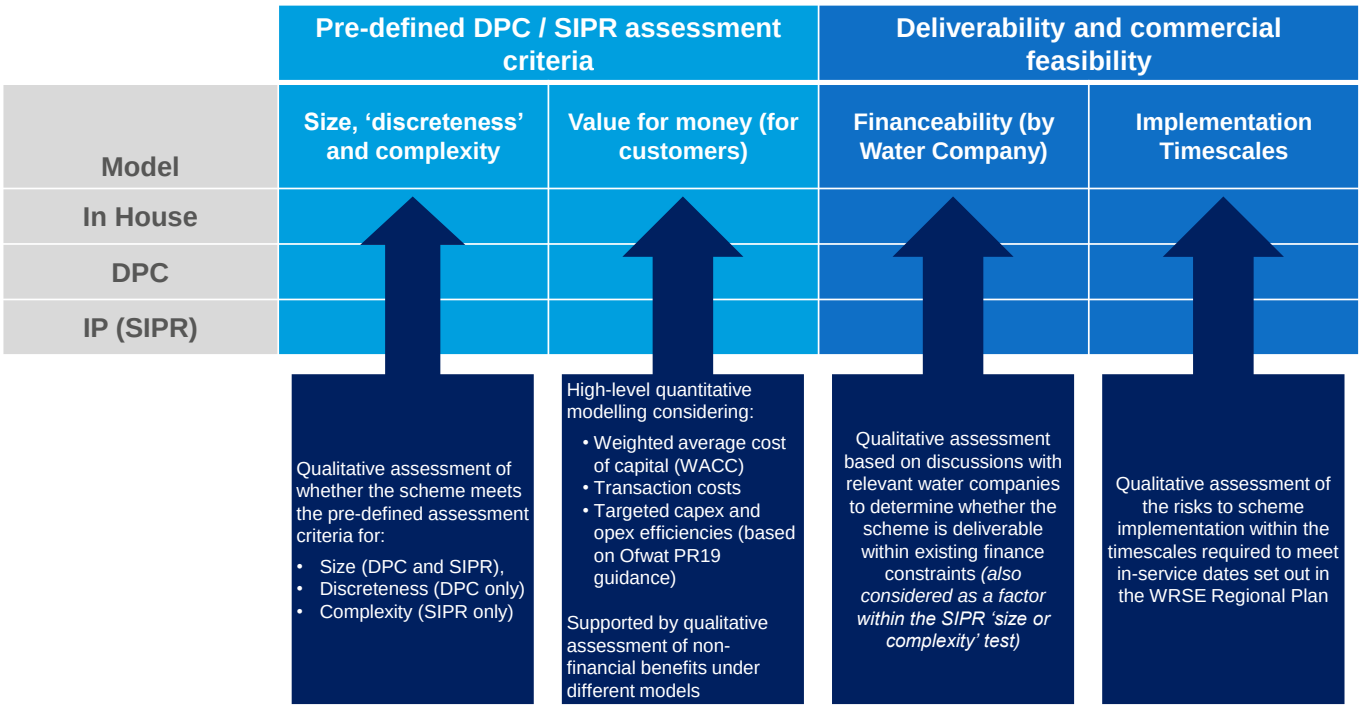
- Red: Procurement model does not satisfy the criteria and should be dis-counted from consideration post-Gate 2.
- Amber: Procurement model satisfies the criteria based on information available at this stage, however there are some challenges to its viability that need further work to conclusively resolve.
- Green: Procurement model satisfies the criteria.

Figure 1 below, which integrates pre-defined assessment criteria for both the DPC[13] and SIPR[14] models with our own defined criteria for deliverability and commercial feasibility, summarises our assessment framework and methodology.

In the following chapters we discuss whether T2ST satisfies the eligibility criteria for DPC and SIPR outlined above using our assessment framework.

[13] As set out in Ofwat's 'Direct Procurement for Customers: Technical Review' report
[14] As defined in the Water Industry (Specified Infrastructure Projects) (English Undertakers) Regulations 2013

Figure 1: Assessment framework for commercial models



4 Assessment of procurement models

In this section we set our assessment of whether the T2ST scheme is eligible for DPC and/or SIPR.

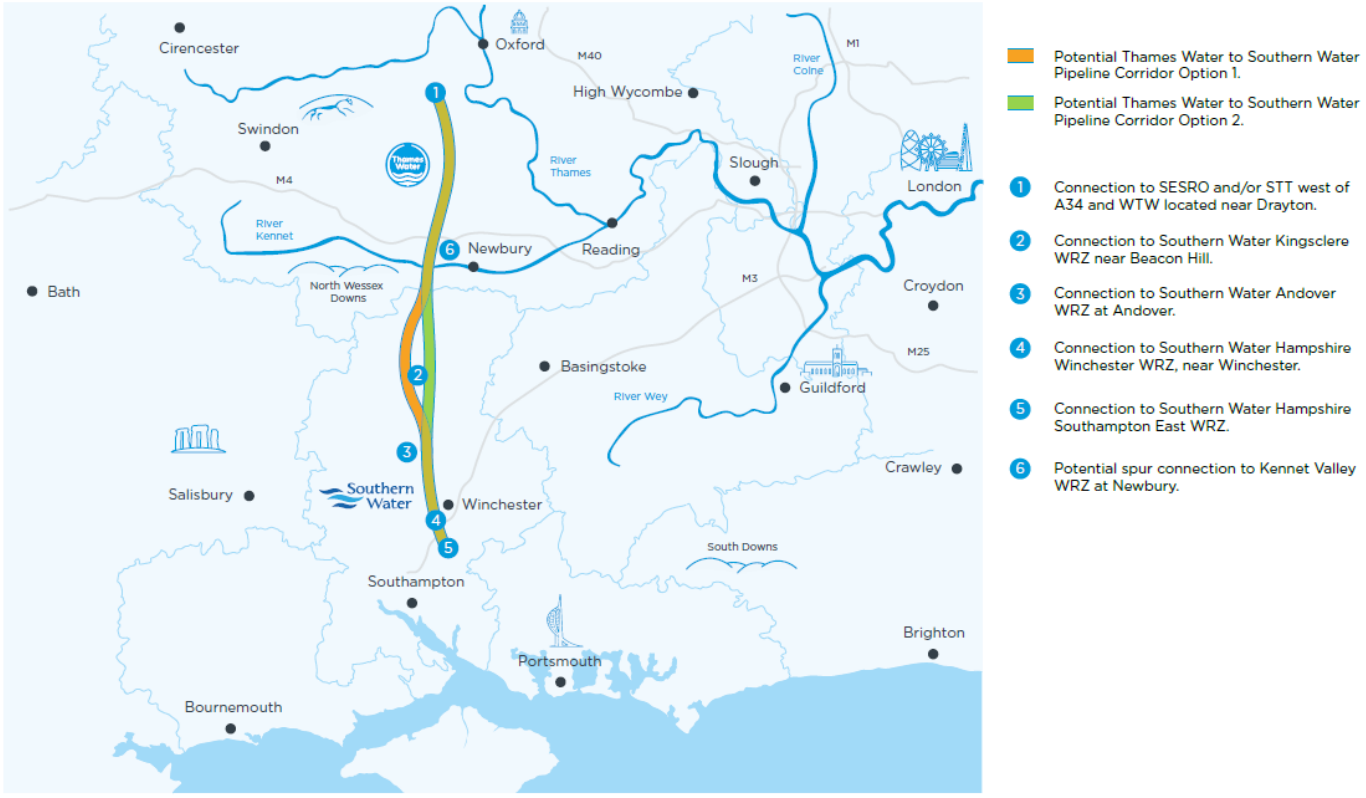
4.1 Thames to Southern Transfer (T2ST) scheme overview

T2ST aims to transfer water from TWUL to Southern Water's Hampshire area. Under the preferred option for the scheme, raw water will be abstracted and fed by gravity (via an intake and new pipeline) direct from SESRO or from the STT scheme to a new water treatment works located on the SESRO site. Potable water will then be transferred by a pumped system of c.80km of pipeline to several connections within Southern Water's distribution network. T2ST is anticipated to deliver a maximum volume of 120 Ml/day at full flow during drought conditions and operate a 'sweetening' flow of approximately 15% of this volume for the rest of the time.

As there is not currently a surplus of supply within the Thames Water Resource Zone, the transfer is dependent on the prior development and commissioning of an additional resource option – STT and/or SESRO. The T2ST scheme has substantial benefits to consumers, creating a new source of water that will reduce the impact of ground water abstraction on the Southern Water area's chalk streams.

Figure 2 provides a schematic of this scheme.

Figure 2: T2ST schematic



Key elements of this scheme are:

- Abstraction from SESRO or STT pipeline west of Culham
- New water treatment works on the SESRO site
- 76km pipeline (circa 900 -1100mm diameter) from the treatment works to existing service reservoirs north of existing Southern Water Otterbourne water treatment works[15]
- 5Ml/d offtake spur to Southern Water's Beacon Hill reservoir near Highclere (not Kingsclere)
- 45Ml/d offtake spur to Micheldever (20Ml/d to supply Andover and 25Ml/d to reverse flow to Crabwood along the Southern Water's 'Water for Life Hampshire' Crabwood to Micheldever pipeline)

[15] Two slightly different route options remain under consideration from a technical and planning perspective – the difference in costs for these options is not material for this early stage procurement strategy, and therefore we have not considered these options separately for this report.

4.2 Size, discreteness, and complexity

4.2.1 DPC assessment

In this section we assess this scheme against the key areas outlined in Ofwat's definition of project size and discreteness as set out in their 'Direct Procurement for Customers: Technical Review' report. This assessment covers: i) size; ii) stakeholder interactions and statutory obligations; iii) interactions with the network; iv) contributions to supply / capacity and ability to specify outputs; and v) asset and operational failures. Our assessment is summarised in the table below.

Table 4: Detail of the T2ST project size and discreteness criteria as measured against Ofwat's 'Direct Procurement for Customers: Technical Review' report

Size		• Scheme exceeds £100m totex, and therefore meets this requirement
Discreteness	**Stakeholder interactions and statutory obligations**	• T2ST js a resilience asset that provides potable water to Southern Water customers[16] through a continuous 'sweetening flow', with the ability to increase flow during drought conditions to alleviate water supply deficits. Therefore it '*materially contributes towards the appointee meeting statutory obligations*', where the 'appointee' is taken to mean Southern Water, as it directly impacts Southern Water's obligations to provide wholesome potable water into the network. For clarity, the scheme involves treatment of water at the upstream end, then transfer of potable water directly into service reservoirs at the downstream end. • These water quality and volume obligations are expected to be written into contractual arrangements between TWUL, Southern Water and the CAP. • Therefore, these obligations are not a 'blocker' for DPC, but will need to be mitigated through the DPC contract.
	Interactions with the network	• As noted above, potable water will be discharged directly from T2ST into service reservoirs at the downstream end of the transfer. Therefore, operations between T2ST and the downstream distribution network will need to be coordinated to manage distribution reservoir levels. • Therefore, T2ST has '*Simple or limited, well understood and manageable interactions with the appointees' network*'
	Contributions to supply/ capacity and ability to specify outputs	• T2ST is a resilience asset, meaning that full capacity will be needed intermittently, and the exact timing of need is uncertain. Current estimates indicate full capacity will be required 2-3 months every 2-3 years.
		• However, ongoing WSRE water resource modelling will improve the understanding of the demand profile for T2ST, and the operational 'triggers' for its use (for example, water supply shortages) should be relatively straightforward to define and price. • Further, the requirement for ongoing sweetening flows (15%) mitigates the intermittent, irregular nature of asset need, and creates a predictable 'baseload' to make contract requirements easier to define and price.
	Asset and operational failures	• T2ST involves the construction and operation of a new water treatment works, transfer pipeline and associated pumping assets. These are typical water industry assets, for which the operational failure risk is well understood and mitigations are well established. • Further, there is a well-developed market and technical supply chains with strong experience of similar project delivery, both in the UK and overseas. This includes delivery of similar assets under DBFOM arrangements (similar to DPC). • In summary – there are no significant asset or operational failure risks inherent in transferring this scheme to a DPC CAP.
		• Operational failure would expose Southern Water to water stress (especially during drought conditions), however water supply networks typically have the capability to be rezoned to supply customers from multiple sources, thereby mitigating the risk of temporary T2ST operational failure. Furthermore T2ST discharges to a reservoir which provides a time and supply buffer for mitigation actions should T2ST fail.
Discreteness summary		There are some risks to discreteness against multiple headings, in particular relating to the fact that T2ST provides potable water directly into supply, the detailed demand profile

[16] Thames Water customers are not expected to benefit from this scheme.

	will be challenging to define, and failure would result in water stress. However, these risks are manageable and typical for the water sector, and able to be mitigated through a DPC contract. Therefore, **we conclude that T2ST passes the discreteness test.**

4.2.2 SIPR assessment

As set out in Section 3, a key criteria for a scheme to be specified under SIPR legislation is that it is of '***size or complexity*** *that* ***threatens the incumbent undertaker's ability to provide services for its customers***'. T2ST crosses water company boundaries, with approximately half of the scheme's assets located in the Thames Water region, and half in Southern Water's region. Because of this, it is not clear which company would be the 'incumbent undertaker' as referred to in the SIPR legislation. Therefore, for the purposes of this report, we assess the impact of the 'worst case' scenario in which the T2ST scheme is delivered in its entirety by either TWUL or Southern Water.

We have used a similar risk-based approach to that applied for the Thames Tideway Tunnel (TTT)[17] to compare the T2ST's 'size or complexity' to that of TTT, the only scheme specified under SIPR to-date. The specification of TTT under SIPR considered four risks – 'scale risk', 'construction risk', 'management risk' and 'regulatory risk'. In addition to this, we have also undertaken an assessment of whether delivering the scheme in-house would impact TWUL's or Southern Water's financeability to the extent that it would endanger the ability of the company to deliver services for its customers. We address each of these aspects below.

- Scale risk – for TWUL to deliver in-house, T2ST is much smaller than TTT – its maximum £877m capex cost would amount to c.6% of TWUL's AMP7 closing RCV, as compared to TTT which represented 30% of TWUL's RCV. By contrast, the Thames Tideway Tunnel project specification reasons notice cited the Lee Tunnel as a project that was delivered in-house by TWUL, which represented 6% of TWUL's RCV at the time – i.e. relatively similar in scale to T2ST.

  For Southern Water to deliver in-house, T2ST would represent c.16% of Southern Water's AMP7 closing RCV. This is large, but still relatively significantly smaller than TTT.

- Construction risk – TTT's construction risk was assessed to be significantly higher than TWUL's 'normal construction works' and the previously delivered Lee Tunnel, due to the requirement to tunnel c.25km under central London, where the impact of any failure would be extraordinarily costly. In comparison, while T2ST is a large-scale scheme and does involve risk, construction risks are expected to be more manageable than TTT. T2ST involves typical pipeline construction techniques rather than large-scale tunnelling, and therefore does not have the inherent uncertainty of tunnelling. Further, for T2ST the impact of any issues is likely to be limited to delay and abortive work, as opposed to the potential for catastrophic damage to significant third-party assets as in TTT. Therefore, T2ST's construction risk is not considered comparable to that of TTT, and it is unlikely that this could be used as a reason for specification under SIPR.

- Management risk – TTT was considered to entail significant management risk, as its size would require such management and governance capacity that it could potentially "*pose an increased risk to TWUL's ability to manage its business to a satisfactory standard*". While T2ST is not as large as TTT, it is of sufficient scale to require dedicated management and governance capacity within either TWUL or Southern Water. Therefore, the 'management risk' highlighted for TTT does apply, albeit at a much lesser scale.

- Regulatory risk – TTT's construction duration of more than one regulatory period was assessed to impose regulatory risk to TWUL, as "*unless adaptations to the regulatory regime were made, TWUL would need to commit to a substantial proportion of the investment without knowing what return it could expect."* T2ST construction is expected to last only five years, which is relatively typical for large capital projects delivered by water companies. Therefore, this 'regulatory risk' is not considered a material consideration for T2ST.

To assess whether delivering the T2ST scheme in-house would impact either TWUL's or Southern Water's financeability to the extent that it would call into question the ability of the company to deliver services for its customers, we have held discussions with relevant Treasury and/or Finance Teams from TWUL and Southern Water, and undertaken a desktop exercise to assess each scheme's impact on typical financeability metrics.

Based on our discussions with TWUL and Southern Water, both companies view the T2ST scheme as potentially financeable through in-house delivery on a stand-alone basis[18]. To cross check these views provided to us by TWUL, we have considered what the impact of adding the project's capex to both net debt (assuming the project was 100%

[17] As set out in the *Thames Tideway Tunnel project specification reasons notice*, part of the *Thames Tideway Tunnel: project specification and preparatory work notices*, Department for Environment, Food & Rural Affairs, June 2014 Thames Tideway Tunnel: project specification and preparatory work notices - GOV.UK (www.gov.uk)

[18] TWUL indicated that consideration would be required of the cumulative impact of financing this scheme under a DPC model in combination with SROs that are not detailed in this report (for example, SESRO, the Thames to Affinity Transfer and London Reuse).

debt financed) and to RCV (assuming the project would be added to the RCV) on TWUL's gearing. The analyses for TWUL[19] and Southern Water[20] support the view that delivering the scheme in-house would not on its own represent an unmanageable impact to either company's financeability.

The actual impacts on TWUL's and/or Southern Water's financing will be confirmed as cost estimates and corresponding financing, commercial and contractual structures for T2ST are further developed at Gate 3 and beyond (as set out in Section 6).

Based on this analysis, this scheme does not appear to be of the size or complexity that threatens the incumbent undertaker's ability to provide services for its customers.

'Size or complexity' test summary

In summary, based on this analysis, T2ST could be financed in-house by either TWUL or Southern Water. Further, while T2ST is a sizable scheme, its scale and construction risks are significantly smaller relative to the Thames Tideway Tunnel, which is the only scheme specified under SIPR to-date. Therefore, we do not consider that T2ST satisfies the 'size or complexity' criteria required under current SIPR legislation.

That said, Ofwat has made a recommendation[21] to the Secretary of State for Business, Energy and Industrial Strategy (BEIS) that the 'size or complexity' test be removed from SIPR legislation, so that SIPR can be applied to a broader range of schemes where a licensed approach would offer value for money. Further, as set out in the 'Value for Money' assessment below, there may be potential to achieve better value for money under the SIPR model. In addition, we note that as T2ST does not need to be in service for more than 20 years (based on the 'most likely' required in-service date indicated in the WRSE Regional Plan), there is a high likelihood that any changes to SIPR legislation will be in place before a firm decision on the preferred procurement model for T2ST needs to be made.

In conclusion, we recommend that SIPR is not considered in further detail for T2ST beyond Gate 2, as T2ST does not satisfy the current SIPR 'size or complexity' criteria. However, should the applicability of SIPR be broadened, particularly by modifying the 'size or complexity' test, we recommend re-assessing T2ST's applicability as appropriate.

4.3 Implementation timescales

The WRSE Regional Plan indicates that T2ST does not need to be operational until 2040 at the earliest. Based on this, the earliest required date for CAP award is likely to be around 2032, allowing some time for programme risk.

As shown in our procurement plan in Section 7, there are approximately four to five years from the planned completion of Gate 3 (in mid-2027) to the earliest potentially required date of CAP award in 2032[22]. This provides sufficient time to establish a DPC model (requiring a minimum of approximately 3 years) or a SIPR model (requiring approximately 3-5 years minimum).

Therefore, we conclude that there are no significant time-related risks to implementing a DPC model (or a SIPR model, should SIPR regulations be modified to become applicable to T2ST in the future) by the time T2ST needs to be constructed.

4.4 Value for Money

Consideration of different DPC variants

There are four Ofwat pre-defined variants of DPC: Early, Late, Very Late and Split. The Early and Split variants involve planning activity being transferred to the CAP. In the case of T2ST, significant work has been undertaken by TWUL and Southern Water already as part of the early RAPID gated process. Further, TWUL and Southern Water have existing relationships with key stakeholders in the planning process (for example local authorities and customer

[19] Delivering the scheme in house and financing it entirely with debt would increase TWUL's actual gearing above 81%, which is slightly higher than the current but in line with TWUL's historical gearing. TWUL's Baa2 rating takes into account the covenant and security package as agreed by the company, with the terms and conditions of its financing arrangements allowing TWUL to increase its indebtedness (on the basis of net debt/ RCV) up to 85% before distribution lock-ups come into effect. Failure to maintain a level of adjusted interest cover of at least 1.1x in any single year (or 1.2x on a three-year rolling average) would also trigger the dividend lock-up mechanism (Moody's Credit Opinion, TWUL, 2020/21). This suggests that delivering T2ST in-house is feasible given TWUL's relatively high RCV compared to the size of this scheme. In practice, equity is likely to form a portion within the financing structure, and this would need to be raised to sustain appropriate gearing levels and credit metrics both on notional and actual basis.

[20] Delivering the scheme in house and financing it entirely with debt would increase Southern Water's actual gearing above 75% (current net debt value used for our analysis taken from Table 4H in 'Southern Water Annual Performance Report 2020–21'). Southern Water's credit ratings outlook for Standard and Poor's and Fitch are Negative, and the outlook for Moody's is Stable. The covenanted lock-up level/trigger level refers to debt covenants where payment of dividends by Southern Water is not permitted. These structural buffers aim to protect against default, and for Southern Water the covenanted default net debt to RCV level is 95% (Southern Water Annual Report and Financial Statements 2020–21). This suggests that delivering T2ST in-house is feasible given Southern Water's relatively high RCV compared to the size of this scheme. In practice, equity is likely to form a portion within the financing structure, and this would need to be raised to sustain appropriate gearing levels and credit metrics both on notional and actual basis.

[21] Competition stocktake report final (ofwat.gov.uk)

[22] Including a 1-year allowance for programme risk.

groups) through their business-as-usual interactions. Conversely, a CAP delivering the scheme would need to build these relationships, spend time and effort developing an understanding of key planning issues identified by TWUL and Southern Water to-date, and place significant trust in the work undertaken by TWUL/Southern Water to date. Based on this, we conclude that the CAP is likely to be less capable of managing planning risks than TWUL/Southern Water, and therefore there is unlikely to be significant benefit in transferring planning responsibility to a CAP. This effectively rules out the Early and Split DPC variants for T2ST.

The Late DPC model involves the transfer of the scheme to the CAP before the detailed design and construction stage, while Very Late DPC involves the transfer of a completed scheme once it is commissioned and ready for operation. The Very Late DPC model may offer reduced finance costs as the CAP would not have to bear any construction risk, however the Late DPC model offers the greatest opportunity for the CAP to drive improved capex and opex efficiencies. The value for money discussion below focuses on the Late DPC model, as this offers the greatest scope for discussion of different aspects of the DPC model that may influence overall value for money. Should the Late model not offer significant opportunity for improved value for money, the Very Late model could be retained as an option and explored during the procurement and construction phase, and implemented post-construction should it be shown to offer value for money benefits.

4.4.1 Assessing cost to customers

Financing costs

Whether financing costs are higher or lower under DPC, SIPR or in-house will be an important factor in which delivery model delivers best value for money for customers. Financing costs encapsulates the returns to equity investors and the interest and principal repayments to debt investors. It also includes transaction costs (including bid costs) and various other costs such as liquidity costs and the cost of carry.

The costs of debt and equity depend on the risk of the project, which may be higher or lower depending on the delivery route, and on the way in which the project is financed e.g. the gearing, the type and tenor of debt financing the returns required by equity investors (which may differ depending on the risk profile of the investment). It is outside our scope of work to undertake a detailed assessment of these costs for Gate 2. Instead, simplified assumptions have been made for the purposes of this work – these are shown in Table 6 below. We have also undertaken high-level modelling of the financing costs under different models, as shown in Figure 3. Financing costs are discussed in further detail alongside modelling outputs at the end of this section.

Potential finance lease liability

We also note that the DPC arrangements could give rise to a finance lease liability on TWUL's and/or Southern Water's respective balance sheets (via IFRS 16[23]). In particular, the finance lease liability could be recognised on company's balance sheet once the related asset has been commissioned. This would represent an unsecured liability and impact gearing and interest cover ratios[24]. However, all this will be driven by commercial arrangements, and the impact cannot be concluded upon at this time. Further detailed accounting analysis (i.e., interpretation and opinion from auditor of IFRS 16 condition) will be required in due course to clarify these presumptions.

Efficiency improvements

Scheme specific capex and opex efficiency could enable the DPC model to deliver a lower cost to customers compared to in-house delivery. The capex and opex (fixed and variable opex) for this scheme are shown in Table 5.

Table 5: Project cost estimates for the T2ST scheme

Scheme	Capital expenditure	Opex, per annum (incl. fixed and variable)	25-year totex
T2ST	£877m	£4.6m	£992m

Opex is based on the 15% "sweetening flow rate" which represents the operating regime for the majority of the time. For awareness, annual opex if operating continuously at full flow is £16.9m however this is not a realistic value to use for any modelling or other assessment given that the plant is anticipated to only operate at full flow for 2-3 months every 2-3 years. We have therefore based our assessment on the 'business-as-usual' operating regime, assuming the sweetening flow only.

Ofwat's DPC guidance indicates that water companies should assume efficiency savings of 10-15% on both capex and opex compared to an in-house delivery model, with innovation a significant contributor to achieving this greater level of efficiency. However, these assumptions need to be tested and evaluated in the context of the specific scheme under consideration.

[23] https://www.ifrs.org/issued-standards/list-of-standards/ifrs-16-leases/

[24] TWUL's and/or Southern Water's gearing ratio would deteriorate through net debt increasing while RCV denominator remains the same, and for Adjusted Interest Cover ratio the negative impact will be channelled through an increase in debt interest payable, the denominator, without any offsetting increase in the numerator as TWUL's and/or Southern Water's revenues would not increase as a result of recognising the finance lease.

In present value terms over 25 years (a typical CAP period), capex will account for approximately 88% of the totex for this scheme, so the potential to achieve capex efficiencies will be a key determinant of whether DPC will deliver better value for money for consumers. To test the potential construction savings through DPC we have examined different categories of capex spend individually. We note that for this scheme capex is made up of approximately 87% civils construction (primarily large diameter and other pipework, service crossings, civils for the water treatment and pumping plant, buildings and roads) and 13% mechanical, electrical, instrumentation, control and automation (MEICA) works (water treatment and pumping plant, power and control systems and associated ancillaries).

With respect to the capex for civils construction work, pipeline construction, including “no dig” techniques, is a mature construction technique deliverable through a large and established supply chain. Moreover, both Thames and Southern Water has experience of procuring pipeline construction activity within their capital programme and as such are likely to be at a high level of efficiency. In summary whilst this project is large, it is not uniquely complex and consequently it may be difficult for DPC to achieve additional efficiency savings above that achievable through in-house delivery, of the magnitude Ofwat has assumed.

Furthermore, within civils capex, pre-DPC client costs such as land acquisition, planning and early-stage design is c.12% of total capex. The CAP would be unable to drive efficiency in this area, putting additional pressure on the other aspects of construction in order to achieve the overall efficiency target.

With respect to the capex for mechanical and electrical plant work, the pumping and treatment plant is likely to be procured through a package offering by a specialist Original Equipment Manufacturer (OEM). The plant is likely to be pre-designed / modular with existing manufacturing in place. The plant is then integrated on site. As a result, the opportunity to innovate around the design and manufacture of the package plant will be limited given that this sits within the OEM provider’s control.

Overall, 10-15% capex efficiency appears to be an ambitious target.

The opex proportion of totex for this scheme is relatively small, and relates to power costs (74%) and chemicals (11%) with the balance spread across maintenance and operations. Power is clearly dominant and the CAP would need to procure power from electricity markets, just as the operating water company would if it developed the project in-house. The opportunities for the CAP to procure electricity more cheaply would only arise through innovative procurement or hedging practices, as the power price is determined by exogenous factors outside of the control of either the water company or the CAP. Water companies routinely procure electricity from the market and are experienced at doing so, plus Ofwat has benchmarked electricity costs as part of its efficiency assessments at PR19 and prior price reviews, so it is not immediately obvious that the CAP would be able to identify a new way of procuring electricity compared to the water company. Hedging strategy may be one opportunity for the CAP to achieve savings, but this would come with the trade off of either higher or lower risk exposure, with the ultimate impact on value for money for customers depending on whether power prices increased or decreased more than expected.

Other routes to significantly impacting costs could be through design or operation of the plant. For example, by taking a different view of the balance between ‘business-as-usual’ opex of the sweetening flow and the increased opex during increased flow conditions, a DPC CAP could adopt a pipeline design that uses a smaller diameter than currently proposed. This would reduce the sweetening flow opex by reducing the required volume of sweetening water and thereby reducing the required treatment and pumping capacity. The counter to this is that pumping costs during periods of higher flow (i.e. when pumping requirements would be higher to overcome the increased frictional head created by the smaller diameter pipeline). This would therefore be a careful balance based on anticipated usage of the asset, which as we have seen above is difficult to predict in the long term. It should also be noted that this approach would require an alternative design for the water treatment plant to enable it to operate with a reduced ongoing sweetening flow, which may not be feasible. In this example there would be a capex saving associated with the pipeline, however as a high proportion of capex is linked to securing the pipeline corridor and other non-related civils costs, it would be unlikely to be a significant saving in the context of overall totex.

Through operation, the CAP may be able to reduce ongoing opex by meeting drought demand through a “cold start” of the plant rather than running a continuous sweetening flow. This would require the CAP to take a different view of the trade-off between ongoing opex and availability risk – while day-to-day power costs would be reduced significantly during periods when full-flow is not required, this approach comes with added availability risk, in that the plant may not come online as planned when required. Further, additional costs such as labour, water quality testing and pipe flushing would also need to be taken into account, and the importance of the sweetening flow’s contribution to Southern Water’s overall water balance needs consideration.

We also understand that TWUL and Southern Water have explored and discounted some of these kinds of opportunities through ongoing design development and optioneering of the scheme – however, a DPC CAP, by bringing innovation and a different approach to risk, may make alternative design decisions that reduce overall cost but potentially increase risk.

Overall, 10-15% opex efficiency appears to be an ambitious target without increasing risk to an unacceptable level, and even then with opex being such a small component of totex it would have a small contribution to any improved VfM calculation.

In summary, while there are opportunities for a CAP to drive capex and opex efficiencies relative to an in-house delivery model, it is unclear if the CAP could achieve 10-15% capex and opex efficiency savings or not. Based on the above, we recommend talking to prospective DPC bidders between Gates 2 and 3 to understand the level of efficiency they believe would be achievable. Involving contracting organisations in those discussions would help to get the detailed level of information required to carry out VfM modelling for DPC.

Current regional water resource modelling indicates T2ST is not required until 2048, and it should be recognised that key elements of this project could change in that period. This should be taken into consideration when timing that engagement with supply chain to ensure that insight gained is based on the most up-to-date scheme information available.

Construction risk

As set out above, T2ST comprises relatively typical water sector assets and construction techniques, so there are no specific, particularly significant construction risks associated with this scheme. At an early stage like this there will be risks that are yet to be fully mitigated (for example pipeline crossings along the route). While these risks would be similarly felt by an in-house or a DPC delivery route, project risks would form part of a wider portfolio of risk held by the water company across their capital programme, whereas a CAP would need to manage that risk across this single project. This may result in a higher risk profile for the CAP which would be reflected in costs to customers.

We recommend that as part of the engagement with prospective DPC bidders, contracting organisations are engaged in detail between Gates 2 and 3 to understand how these risks would be managed to enable that to be included in the detailed VfM analysis.

Overall assessment of cost to customers

The overall assessment of whether DPC and SIPR would deliver value for money for customers depends on the combination of financing costs, capex and opex under the DPC, SIPR and in-house delivery models. To combine these elements we have undertaken some high level financial modelling of the NPV of the cost to customers of the scheme under the different delivery models. Some of the key assumptions used include:

- Using simplistic discounted cash flow analysis for DPC delivery route;
- Using RAB based models for SIPR & In House delivery;
- Using 80-year recovery period, post-construction

Below we detail the key modelling input assumptions used in each scheme's value for money assessment, showing the relative ranges of cost to customer for the in-house, DPC and SIPR models.

Table 6: Detailed modelling parameters

Parameter	Low Case	High Case	Sources	DPC Range	SIPR Range	In-house Range
Weighted Avg. Cost of Capital (CPI-H deflated, standard form)	2.5%	3.8%	Bottom range is based on the TTT project. Upper range on OFTOs 2017/18 WACC. [25]	2.5% to 3.8% Based on TTT WACC/STPR 76-125 years rate to OFTOs 17/18 WACC.	2.5% to 3% Based on TTT WACC and Ofwat's PR19 WACC.	2.5% to 3% Based on TTT WACC and Ofwat's PR19 WACC.
Transaction Costs*	0.10% (incl. in reg. WACC)	5% capital spend, additional bidder & transaction costs.	Bottom range is part of Ofwat's WACC. Upper range is sum of Ofwat's bidder and procurement costs within Table A.	2% to 5% of capex	2% to 5% of capex	0.1% (incl in WACC) to 1% of total capital spend (assumed by PA)
capex Efficiency Savings *(Sensitivity)*	-10%	-15%	-10 to -15% saving based on Ofwat's Vfm DPC guidance.	-10% to -15%	-10% to -15%	0%
opex Efficiency Savings *(Sensitivity)*	-10%	-15%	-10 to -15% saving based on Ofwat's Vfm DPC guidance.[26]	-10% to -15%	-10% to -15%	0%
Modelling Mechanics	• DPC contract duration is assumed to be 20 years post-construction after which it enters TWUL's and/or Southern Water's RCV. • SIPR and in-house models assume recovery starts when assets begin to be constructed, with an 80-year recovery period post-construction • Under all models assets are assumed to fully depreciate by end of the recovery period.					

[25] PA's calculation based on CEPA's Evaluation of OFTO Tender Round 2 and 3 benefits. Source: Table 4.1 of '*Review of cost of capital ranges for new assets for Ofgem's Networks Division*', Ofgem, 2018 (cepareport_newassets_23jan2018.pdf (ofgem.gov.uk)) (values adjusted for inflation (CPI-H) and to exclude tax)

[26] See for example Table A published by Ofwat for detailed assumptions.

The results of the modelling are shown in Figure 3 below. The modelling compares the indicative annuitized cost of the scheme under each delivery model. It should be noted that for each model there are three bars, which are an accumulation of the costs to customer (expressed in annuitized terms) layering in the key variables one by one:

- The light blue bar reflects the weighted average cost of capital (WACC) impact only;
- The green bar is the light blue bar with the addition of transaction costs; and
- The dark blue bar is the green bar with the addition of opex and capex efficiency savings.

To indicate scale, the vertical arrow shows that the highest value of the indicative annualised cost to customers for DPC is 5% greater than the highest value for in-house delivery.

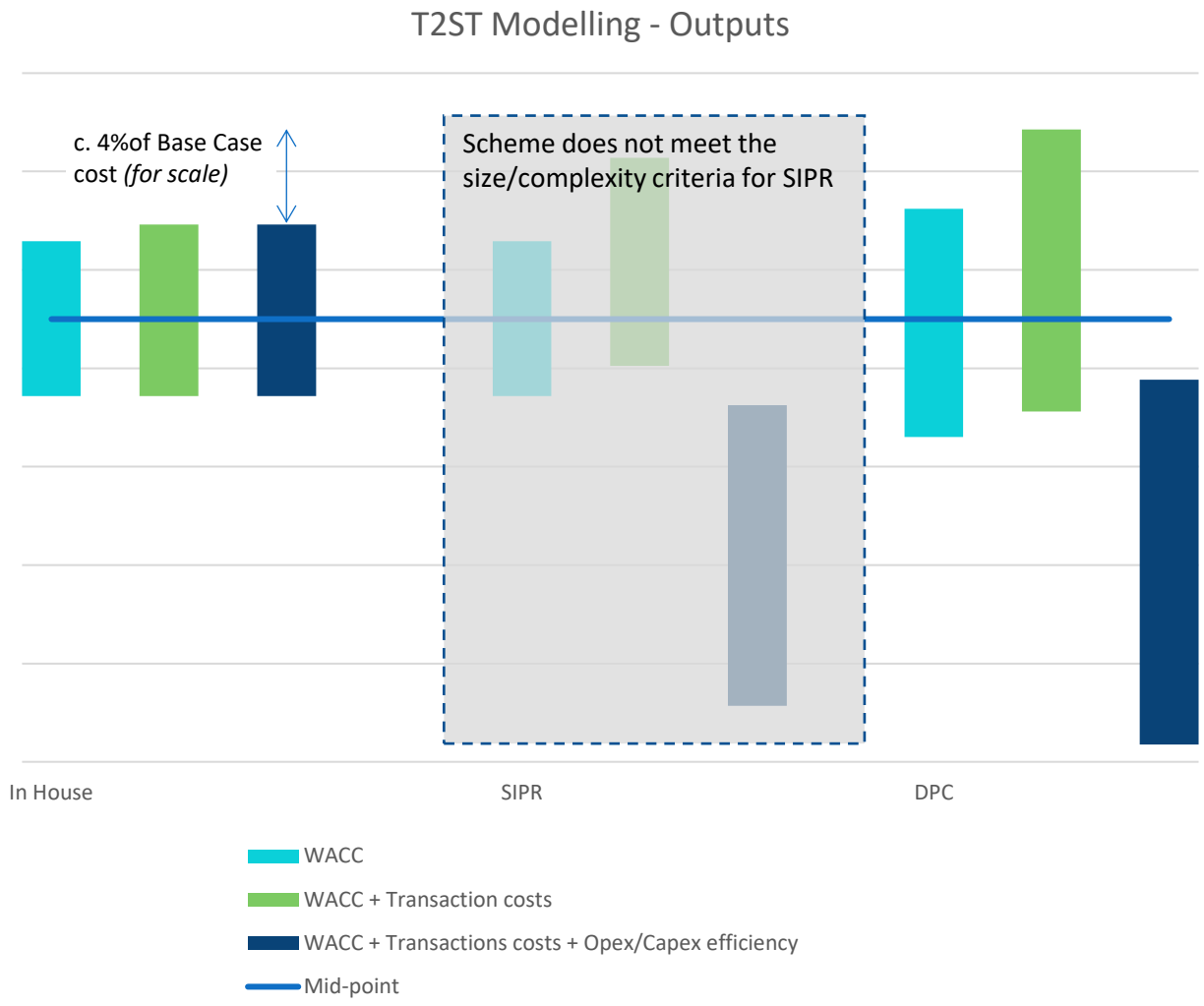


Figure 3: T2ST scheme – High Level Modelling Outputs

Modelling outputs indicate that the DPC model could offer the lowest cost to customers if it achieves the same WACC as in-house delivery or SIPR (even if it does not achieve any capex/opex savings). This is due to the fact that the modelling assumes that after the first DPC period (20 years) the remaining asset value transfers to TWUL's RCV and is then treated similar to an in-house model. To ensure a like-for-like comparison, we have assumed that under all models the asset value fully depreciates to zero over the 80-year recovery period. Therefore, under DPC as modelled, there is only a 60-year period over which RCV return is earned on the asset value, while under in-house delivery and SIPR, there is a full 80-year period. At the low-end of the WACC range for DPC, this results in an overall lower cost to customers than either in-house or SIPR.

On the other hand, the range of potential costs to customers under DPC is much wider than for in-house or SIPR models. This is a result of the different gearing ratios assumed for the upper and lower DPC WACC values. For DPC procurement, we have assumed a range of 2.5 - 3.8% WACC (Vanilla, CPI-H deflated) based on a range of evidence available.[27] This includes a modest gearing range of c. 40% (for the low WACC scenario) to c.60% (in the high WACC scenario). Our DPC modelling approach assumes that equity investors will achieve an Internal Rate of Return (IRR),

[27] For example, see Thames Tideway Tunnel WACC decision; Offshore Transmission Operators 2017/18 WACC

meaning project IRR will equal the cost of equity. Holding all else constant, we note that increasing the gearing level would result in a lower WACC. This in turn would improve the VfM outcome for customers:

- Considering the difference between potential delivery models, we note that increasing the gearing level from c. 60% to 80% would result in the marginally improved outcome for the DPC route relative to in house delivery that is currently depicted Figure 3.
- Our modelling indicates that opex and capex efficiencies savings in accordance with PR19 assumptions (c.10-15% savings) would have an approximately equivalent effect on the indicative cost to consumers as a lower WACC, thus implying that both areas are of similar importance in driving a greater VfM.

However, it is unlikely that increasing the gearing ratio while holding all else constant is realistic – increased gearing is likely to increase the cost of debt, which would therefore counteract some of the potential cost reductions brought about by higher gearing.

In summary, our early modelling suggests that DPC may offer lower cost to customers than in-house delivery. However, these results are dependent to a significant degree on the input assumptions – for example, DPC is only likely to offer lower costs if DPC delivery can achieve a cost-of-capital at the lower end of the assumed range (WACC of c.2.5%), or significant capex and opex efficiencies (greater than 10%), and assuming the total length of the recovery period is the same across both in-house and DPC models. On the other hand, variations on the standard DPC framework may also need to be considered, as these could potentially lead to better value for money for customers. For example, for Gate 3 it may be appropriate to further explore the use of staged payments during construction – rather than assuming a flat revenue profile, this could bring revenue sooner and in pre-agreed lump sum amounts, therefore strengthening the overall case for the DPC delivery route. More detailed exploration of potential DPC model parameters such as gearing, cost of debt and equity and achievability of capex and opex efficiencies is recommended for Gate 3 (as set out in Section 4.5 below). This should be undertaken through market engagement to ensure that parameters are based on realistic, up-to-date information, and supported by comprehensive financial modelling to determine the overall cost to customers under DPC.

Finally, our early modelling suggests that the SIPR model may lead to comparable VfM to DPC, and (if the best-case modelled DPC finance costs cannot be achieved) may deliver better VfM, i.e. lowest costs. While SIPR is not currently a viable option as the scheme is not considered to meet the SIPR size/complexity criteria, these indicative results show that the SIPR model should be reconsidered if SIPR regulations are modified in future to broaden its applicability to T2ST.

4.4.2 Assessing water resilience/resource value

This scheme creates a resilience asset that will ensure that water deficits are not experienced in a drought situation. This determines the core ‘water resource value’ delivered to customers from this scheme.

Future flexibility of this scheme’s capacity and operating regime may be desirable for the reasons given below.

- The required capacity of the treatment and pumping plant may increase. The plant is being constructed for 80 Ml/day but could be uprated in the future to 120 Ml/day depending on drought demand in the future.
- Potable treatment and pumping are energy intensive. Changes in energy costs would impact opex costs, and while these may not be significant in terms of overall totex pressures on water companies to achieve net zero carbon in the future may require all such operations to be reviewed.

If T2ST was delivered through an in-house model, then the company delivering the scheme (TWUL and/or Southern Water) would have the flexibility to modify the scheme or its operations as part of each company’s wider system of water resources. Through the five-yearly price control process, TWUL/Southern Water would be able to apply to Ofwat for additional revenue to fund the cost of these modifications. However, it is unlikely that the same degree of flexibility would be available under a DPC contract. If this flexibility was required within the DPC contract period, this would likely require a change to the CAP contract, in addition to justification to Ofwat that the change is necessary such that the revenue the CAP could recoup from customers could be increased. Whilst DPC contract changes are possible, they would come at a cost, thereby eroding value for money in comparison to an in-house model.

At this stage it is not clear whether the need for future flexibility is a material consideration when assessing the potential value for money under DPC vs. In-house delivery. Therefore it is difficult to value the benefit of the additional flexibility to customers, but qualitatively it reduces the case for DPC relative to an in-house delivery model. Further detailed modelling and scenario-analysis post-Gate 2 will help to understand the potential materiality of any future changes to the scheme, and therefore the value of future flexibility.

4.4.3 Summary assessment of value for money

Our analysis shows that for T2ST:

- DPC may offer lower costs to customers than in-house delivery, if a WACC of approximately 2.5% can be achieved. To help achieve lower finance costs, there are opportunities to adapt the ‘standard form’ DPC model (for example, introducing staged payments during construction or recovering costs over a longer

period). Notwithstanding, it is likely that capex and opex efficiencies of around 10-15% will be needed for DPC to achieve significantly lower costs to customers than in-house delivery.

- T2ST comprises reasonably typical water industry work-types and assets, and relatively low opex as a proportion of totex. Therefore, achieving 10-15% capex and opex efficiencies under DPC appears ambitious.
- There may be value-for-money benefits associated with retaining flexibility to adapt the scheme's future operating regime and capacity in response to changing needs. This would favour in-house delivery over DPC – however at this stage further analysis of the likelihood and impact of future change in scheme configuration or output is required to validate the materiality of this flexibility.

We recommend further investigation of these indicative findings, including detailed commercial risk analysis, market engagement with both potential investors and the construction supply chain, to inform more realistic parameters to include in detailed financial modelling of costs to customers under DPC and in-house models required for Gate 3.

4.5 Procurement model assessment conclusion

Table 7 overleaf summarises the assessment of the eligibility of the T2ST scheme for DPC and SIPR.

At this stage, it is considered unlikely that the value and complexity of T2ST is significant enough to pass the SIPR 'size or complexity' test, whether the scheme was to be delivered by TWUL or Southern Water.

As set out in this report, there are no critical impediments to the application of DPC for T2ST scheme based on size, discreteness or implementation timescales.

Therefore, the defining factor between in-house and DPC delivery for each scheme will be VfM. At this stage, VfM assessments set out in this report are inconclusive, but suggest that there is potential for DPC to deliver reduced cost to customers when modelled using Ofwat's PR19 assumptions. For this to be representative of actual future project costs, DPC models would need to offer significant levels of capex and opex savings (c.15%) and comparable finance costs to In-house delivery. Given the relatively low complexity of T2ST construction, it is unclear whether these opex and capex savings are realistic. In addition, the 'standard form' DPC model displays some characteristics (for example, no revenue during construction) that indicate that low finance costs may be challenging to achieve. We recommend that further market testing, and the exploration of 'enhanced' DPC models that are more likely to drive low finance costs, is undertaken post-Gate 2 to validate whether the DPC model does drive better value for money than in-house delivery for T2ST.

Table 7: Summary of Gate 2 assessment for the T2ST scheme

Criteria		Rating and commentary
DPC	Size	The scheme exceeds £100m totex (the threshold set at PR19 for DPC eligibility)
	Discreteness	T2ST passes the discreteness test, as it has well understood, relatively minor interactions with TWUL's and Southern Water's broader water systems. Risks are identified against all discreteness headings; however it is anticipated that these could be mitigated through a DPC contract. Risks are primarily around contribution to statutory obligations, interactions with the network (potable water is discharged to a service reservoir), contribution to supply capacity where the volume of contribution is unpredictable (drought related) and that the implications of operational failure could result in unwholesome water entering supply.
	Implementation timescales	The WRSE Regional Plan indicates that T2ST does not need to be operational until 2040 at the earliest. Based on this, the earliest required date for CAP award is likely to be around 2032. This means there are approximately five years from the planned completion of Gate 3 (in 2027) to the earliest potentially required date of CAP award in 2032. Therefore, we conclude that there are no material risks relating to the development and procurement of a DPC model within the timescales required.
	Value for money	The scheme exhibits characteristics that may reduce the opportunity for the DPC model to deliver the comparable cost of finance and significant capex and opex efficiencies needed to drive a lower cost to customers than in-house delivery. Opex is less than 20% of totex over a typical DPC contract duration period (i.e. the first c.25 years), and less than half over the life of the scheme. Therefore, the majority of savings delivered under DPC would need to come from capex, a significant proportion of which will be difficult for the CAP to influence at the point of detailed design commencement (for example, within civils capex, pre-DPC client costs such as land acquisition, planning and early-stage design is c.12% of total capex). However, there could be opportunities to significantly reduce capex and opex by taking a different approach to scheme design (for example, reducing the pipe diameter). Further investigation, including detailed commercial risk analysis for the scheme and further market engagement to inform more detailed modelling of the likely cost-to-customers is recommended to conclusively determine whether DPC offers better value for money than in-house delivery.
SIPR	Size and complexity	The scheme is not considered large or complex enough to satisfy the SIPR eligibility test i.e. T2ST is not of a size or complexity that threatens the incumbent undertaker's ability to provide services for its customers, whether the incumbent undertaker is considered to be either TWUL or Southern Water.

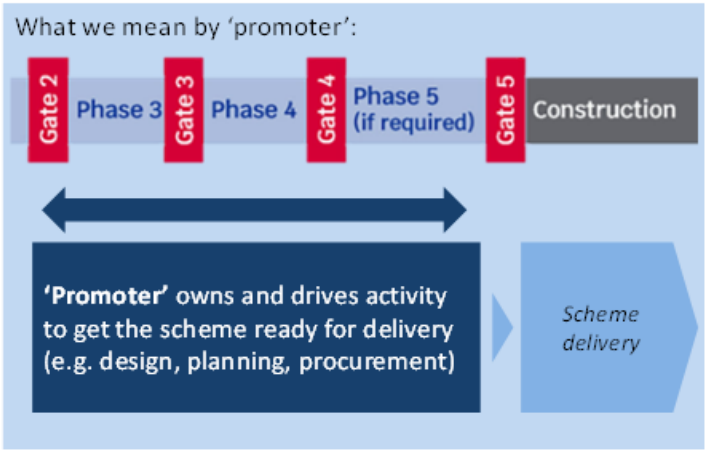
RAG rating definitions	
	Procurement model does not satisfy the criteria and should be dis-counted from consideration post-Gate 2.
	Procurement model satisfies the criteria based on information available at this stage, however there are some challenges to its viability that need further work to conclusively resolve.
	Procurement model satisfies the criteria.

5 Scheme ‘promoter’ options, operating and commercial arrangements

5.1 Promoter options

The scheme ‘promoter’ will own and drive activity to prepare the scheme ready for delivery from Gate 2 to Gate 5, as shown in the diagram below. Promoter responsibilities span the following key areas: preliminary design and feasibility activity; stakeholder engagement and consultation; planning activity; and procurement.

Figure 4: Overview of promoter activity within the RAPID gated process



Scheme promotion covers several key activities, critical to the success of the future scheme. This includes preliminary design and feasibility assessments, planning activity, stakeholder engagement/consultation and procurement. Because of this, clear governance is needed between all involved parties to make robust decisions on critical elements such as the funding/delivery model, the commercial approach (including for ongoing technical support to wider development activity), negotiation of commercial issues during procurement, and mitigations for key planning, technical and construction risks.

The T2ST scheme places particularly critical responsibilities on the Promoter organisation throughout scheme development. The scheme runs through the North Wessex Downs Area of Outstanding Natural Beauty, and is therefore expected to have a high degree of attention from the local community and their political representatives, requiring a strong focus on stakeholder engagement to de-risk the planning process.

Current Promoter arrangements

As set out in the PR19 Final Determinations for the AMP7 SRO gated development process, TWUL and Southern Water are currently jointly developing the scheme with a 50:50 funding allocation between the two companies respectively. As a result, TWUL and Southern Water have been operating a joint promotion role since 2020.

Promoter options beyond Gate 2

Using the definitions set out in the RAPID / Ofwat December 2021 consultation document[28], an SRO scheme Promoter could be one of the following:

- the provider/exporting company
- company where the assets are located
- the importing/beneficiary company
- a joint venture between the above
- a third party
- a hybrid option where one company leads with defined involvement from the others

Table 8 below sets out the specific companies that hold these roles for the T2ST scheme.

[28] https://www.ofwat.gov.uk/wp-content/uploads/2021/12/RAPID-Autumn-2021-condoc.pdf

Table 8: Promoter mapping to the T2ST scheme

	TWUL	Southern Water
Provider / exporting company	✓ *Source water extracted in TWUL area*	
Company where the assets are located	✓ *Significant proportion of assets (including the water treatment works) located in TWUL area*	✓ *Significant proportion of assets located in Southern Water area*
Importing / beneficiary company		✓ *Water supplied for the benefit of Southern Water customers*

This table shows that Southern Water customers are the key beneficiaries of the scheme, and Southern Water also has a significant proportion of assets located within its region.

TWUL is the exporting company, and also has T2ST assets in its region. However, TWUL is not a beneficiary of T2ST, and will be promoting or jointly promoting several other SRO schemes post-Gate 2, most of which have a more urgent need than T2ST. Therefore, we support the recommendation made by TWUL and Southern Water, that Southern Water, as the key beneficiary of the scheme, and the company with the greatest need for the scheme's successful delivery, should become the sole promoter of T2ST post-Gate 2.

5.2 Operating arrangements

As set out above, T2ST is being constructed solely for the benefit of Southern Water customers. The key driver for T2ST is to provide water supply resilience for Southern Water customers in times of drought. It is anticipated to deliver a maximum volume of 120 Ml/day at full flow during drought conditions (expected to be approximately 2-3 months every 2-3 years), and operate a 'sweetening' flow of approximately 15% of this volume for the rest of the time. Therefore, its operational requirement is driven by Southern Water – including both regular, 'business-as-usual' flow and additional flow during drought conditions. Therefore, we recommend that under all but the most extreme conditions, the operation of the scheme is defined and controlled by Southern Water.

'Business-as-usual' operations

Currently, the detailed operating requirements for scheme are still under development. There may be potential 'automated' operating regimes under which increased flows are triggered by external factors, such as constraints on supply from alternative sources, and Southern Water's involvement is limited to 'arms-length', passive oversight. These are likely to be more suited to scenarios in which T2ST remains purely a resilience asset, only 'ramped up' in times of drought. On the other hand, T2ST could become a more actively used part of Southern Water's supply system, with flow-rates changed regularly in response to a range of parameters including the relative cost of alternative sources (as long a required T2ST sweetening flows are maintained at all times). Therefore, 'business-as-usual' operating regimes could range from scenarios where Southern Water plays an 'arms-length' oversight role, to where it has active, day-to-day control.

The business-as-usual operating regime will have implications on the arrangements under DPC, as operational responsibilities and accountabilities of Southern Water vs. the CAP will need to be clearly delineated. Between Gate 2 and Gate 3 we recommend further detailed investigation of the operating regimes of T2ST, including scenario-testing, to inform the most appropriate operating arrangements to be incorporated into future DPC commercial arrangements (expanded further in Section 5.3).

Operations during extreme conditions

The water source for T2ST is expected to be either SESRO, STT or a combination of both – the capacity of which will be shared between Southern Water, TWUL and Affinity Water, as well as potential additional customers in the future. Provision for T2ST will be included in operating arrangements for SESRO and STT, which are set out in the SESRO and STT Gate 2 Procurement Strategy Reports. During extreme conditions (for example, a more severe than 1 in 500 year drought), there is likely to be a need for the SESRO and/or STT operator(s) to manage flow through T2ST to ensure that water resources are most appropriately shared between Southern Water, Affinity Water and TWUL. Therefore, the SESRO and/or STT operator(s) will need to have some level of control over T2ST, to be triggered under specifically defined extreme scenarios.

5.3 Commercial arrangements

Commercial arrangements for T2ST can be broken down into two main elements – arrangements covering the supply and payment for raw water, and arrangements covering the T2ST assets themselves.

As set out above, raw water for T2ST will be supplied from SESRO and/or STT. Commercial arrangements covering the supply and payment for raw water from SESRO and/or STT are likely to include a capacity charge element and a volumetric charge element, with the capacity charge element being divided between the three companies based mainly on the relative resilience benefits provided. Details of indicative SESRO commercial arrangements are set out in the SESRO and STT Gate 2 Procurement Strategy Reports.

Commercial arrangements covering the T2ST arrangements themselves are much simpler – these assets are created for the benefit of, and as such will be funded solely by, Southern Water customers. As set out above, under a DPC model the detailed commercial arrangements will have a significant dependency on the operating arrangements, as these will define the level of control the CAP has over the use of the asset, and therefore its ability to manage, for example, maintenance risks. Further, as the SESRO and/or volumetric payment will depend upon the volume of raw water T2ST takes from these schemes, T2ST commercial arrangements will need to consider treatment of losses incurred during transfer (for example leakage from the pipeline), such that the CAP is incentivised to optimise the cost of losses (both financial and environmental) against the cost of loss minimisation (for example maintenance of the pipeline).

6 Risk allocation

This section sets out the current early thoughts on potential risk allocation between Southern Water (as the promoter), the CAP/IP and Southern Water customers for the T2ST scheme, based on delivery under a DPC model. Figure 9 of Ofwat's *Direct Procurement for Customers: Technical Review* report (reproduced in Figure 5 overleaf for reference) sets out indicative risk allocations for a typical project under the DPC model.

The construction risk profile for T2ST is relatively typical for a water industry project. As such we expect risk allocation to reflect that set out in Figure 9 of the Ofwat report, which includes risk sharing between the CAP/IP and customers during the 'Delivery' and 'Operations' phases. This should be limited to unforeseen costs or delays outside the CAP's control, and could be enacted by allowing the CAP to recoup efficient additional costs through the future DPC revenue stream.

Examples of unforeseen delays could include:

- Local public and political opposition to the scheme, particularly as the scheme passes through the North Wessex Downs Area of Outstanding Natural Beauty: while much of this risk will be mitigated through the planning process that will set conditions under which construction can proceed, there will remain a risk of local opposition to the scheme that could lead to delays. While this can be mitigated by the CAP, for example through comprehensive stakeholder engagement, it is unlikely to be completely removed.
- Significant environmental or archaeological impacts – while these can be mitigated by the CAP, for example through pre-construction surveys it is unlikely to be completely eliminated, and could cause significant delay.

As the residual risk (after mitigation) associated with the two risks outlined above would be outside the reasonable control of the CAP, this should be shared or transferred to customers as appropriate, to avoid the CAP/IP including excessive risk-costs into their price.

As the project develops and specific risks and costs become clearer towards Gate 3 and beyond, we recommend a more granular approach to the transfer of specific risks, following the principle, set out in the HM Treasury Green Book and reflected in the IPA Project Routemap, that '*responsibility for management of risk should be allocated to the organisation best placed to manage it*'.

Figure 9: Potential risk allocation under the DPC model

Key Risks in Project Life Cycle	Stakeholder			Comments
	Appointee	CAP	Consumer	
1. Solution Development				
Data	✓		✓	— Allocation of early design and solution development risks likely to be similar under DPC to existing models. Especially for later tender models. — Early tender model may allow some greater sharing of risk with CAP.
Uncertainty	✓		✓	
Constraints	✓	✓	✓	
2. Planning				
Land purchase and site risk	✓		✓	
Environmental and social risk			✓	
Planning / Consent permission	✓		✓	
Third Party Consideration	✓	✓	✓	
3. Design				
Design process		✓	✓	— Allocation of design risks likely to be similar under DPC to existing models. Especially for later tender models. — Early tender model may allow some greater sharing of risk with CAP.
Design for construction	✓		✓	
Design for maintenance	✓		✓	
Resource availability and expertise	✓	✓		
Change in design required due to external influences	✓	✓	✓	
Materials and plant		✓		
4. Delivery				
Time and cost overrun risk		✓	✓	— Allocation of construction or delivery risks to the CAP from the appointed company is anticipated under the DPC model but assumed to generally be a direct transfer.
Resource availability of contractors		✓	✓	
Unforeseen ground or existing building conditions		✓	✓	
Third party claims		✓	✓	— Some opportunity for risk transfer from customers may be possible in the competitive tender process albeit that this is likely to be priced in the bid. — We assume that some re-openers to CAP revenue continue for material changes that are outside of management control (see section 4).
Subcontractor default / bankruptcy		✓		
Poor project management		✓		
Commissioning overruns		✓		
Availability of facilities	✓	✓	✓	
Legislative / regulatory change	✓		✓	
5. Operation				
Service performance risk	✓	✓	✓	— Allocation of operational risks to the CAP from the appointed company is anticipated under the DPC model but some service related risks may be difficult to transfer where they relate to statutory obligations. — Some opportunity for risk transfer from customers may be possible in the competitive tender process albeit that this is likely to be priced in the bid. — We assume that some re-openers to CAP revenue continue for material changes that are outside of management control (see section 4).
Resource or input risk		✓	✓	
Demand risk		✓	✓	
Maintenance risk		✓	✓	
External and third party impact		✓		
6. Transfer				
Asset condition and performance at handback	✓	✓		— Introduction of DPC model creates new asset transfer and hand-back risk which we assume is shared across appointed company and CAP. DPC contract would need to include requirements for asset transfer and hand-back.
7. Tender model specific risks				
Procurement failure	✓		✓	— Assume procurement risk is faced by both companies and customers where this results in delays or cost increases.

Figure 5 Indicative allocation of technical risks under DPC delivery models (reproduced from Figure 9 of* Direct Procurement for Customers: Technical Review*, KPMG, 2017)

7 Procurement risks, plan and market engagement

7.1 Procurement risks

This section sets out the key risks associated with procurement of the T2ST scheme. The procurement strategy for this scheme is at an early stage, and as such a detailed procurement risk appraisal is not possible at this stage. However, the Infrastructure and Project Authority's *Project Routemap: Procurement* module[29] sets out some typical high-level procurement-related issues that are often encountered on major projects. As shown in Appendix 8.1, these issues can be simplified to four summary procurement risks – these risks, and their mitigations, are shown in Table 9 below. The mitigation actions are addressed in the market engagement and forward procurement plan, outlined in Section 7.3.

Table 9: Summary procurement risks and mitigations

Procurement risk	Mitigation
Sub-optimal detailed procurement/contract strategy and/or plan	Implementation of a robust procurement and contract strategy development process, including a detailed understanding of key scheme commercial risks, informed by comprehensive market engagement, and developed with the support of specialist advisors (e.g. legal) where necessary.
Misunderstanding of or insufficient promoter capability	Ensuring the required resources are in-place to deliver the procurement strategy are in-place, including specialist advisors, and that the required operating model (capabilities, organisation structure and supporting processes) is in place to manage the delivery and future operation of the scheme.
Misunderstanding of supply chain capability and/or appetite	Undertaking a rigorous market engagement process, and using this to inform the detailed procurement, commercial and contract strategy.
Misalignment between project requirements and what's procured	Ensuring the procurement, commercial and contract strategy is developed with an in-depth understanding of project technical and engineering requirements and risks, and any constraints driven through the planning process. This can be achieved by involving technical teams in the procurement, commercial and contract strategy development process, and through running a comprehensive market engagement process whereby prospective bidders are asked to provide feedback on the alignment between the procurement approach and desired project outcomes.

7.2 Market engagement and forward procurement plan

This report has concluded that DPC may have potential to deliver enhanced value for money for customers for T2ST, and as such should be considered further post-Gate 2. Further work is required to explore the potential financing, capex and opex savings in more detail to demonstrate that that is the case. Such work might include for example: exploration of the likelihood and practicalities of a CAP bringing innovation and a different approach to risk to enable a different scheme design, and whether this would lead to significant opex and capex savings. Scenario-testing should also be considered to assess how well different DPC and In-house models respond to different circumstances (e.g. drought conditions, where other SROs are delayed or don't deliver as expected, significant delays during construction, significant changes in future energy costs).

The value for money and scenario analysis should be updated to take into account relevant changes in circumstances between Gate 2 and Gate 3. For example:

- This report is based on the current eligibility criteria for specifying projects under SIPR, specifically that *"…the infrastructure project is of a size or complexity that threatens the incumbent undertaker's ability to provide services for its customers."*. We have concluded in this report that T2ST does not meet the current SIPR criteria. However, during the preparation of this report, discussions were held with RAPID/Ofwat to understand the likelihood that this eligibility criteria would be broadened, and those discussions are ongoing at the point of submitting this report.
- This report is based on the standard DPC model as described in Ofwat guidance. However, during the course of this project discussions have been held with RAPID to understand the appetite to make changes to the DPC approach where appropriate to unlock benefit for customers e.g. the possible introduction of stage payments to create a revenue stream during construction, and using a higher gearing ratio to reduce WACC. Further, we understand that updated DPC guidance is to be published as part of the PR24 methodology development process. Where this results in changes to the standard DPC model, it would be appropriate to

[29] Procurement_-_FINAL.pdf (publishing.service.gov.uk)

consider these possible changes, and the implications for the value for money of applying DPC procurement to these schemes, for T2ST.

- Since financial markets are also evolving, the assessment of financing costs used in the value for money calculations should also be updated to take into account relevant changes in market conditions.

Ofwat requires a procurement plan for T2ST as part of the Gate 2 submission. The procurement plan needs to consider the whole period until the CAP has been appointed, not just the period between Gate 2 and Gate 3. To assist TWUL and Southern Water to prepare the procurement plan, we have considered the activities required to complete the evaluation of the preferred model, and to prepare for the DPC procurement process (should this be the preferred model).

7.2.1 Market engagement and procurement activities

These activities include:

- **Commercial risk analysis –** further understanding of key scheme specific risks (for example risks associated with large-scale, linear construction in an Area of Outstanding Natural Beauty), and their potential mitigations. This will include any constraints built into the T2ST design or delivery approach through the stakeholder engagement and planning consent process.
- **Market engagement (with the construction supply chain) –** structured engagement with key construction contracting organisations to better understand their views on the scheme, including:
    - Project risks and dependencies (as above), including their materiality, how they would be mitigated, and how they would be priced and treated contractually;
    - Potential construction methodologies and programming, including whether there are any opportunities to expedite or de-risk construction, and any specific construction or supply chain risks;
    - If/how T2ST would be priced or contracted differently under different procurement models, for example contracting with an investor as opposed to either Southern Water or TWUL, and what modifications to each model would mitigate this; and
    - Understanding the attractiveness of T2ST as a regionally significant, sustainability-driven project – including whether this is genuinely attractive or seen as inviting extra scrutiny and therefore risk. This should be undertaken with the aim of making T2ST more attractive to the supply chain to increase competition when it comes to the future procurement event.
- **Market engagement (with potential investors) –** structured engagement with investor organisations to better understand their views on the scheme, including:
    - Project risks and dependencies (as above), including their materiality, how they would be mitigated, and how they would be priced and treated contractually, and how easily these could be passed to the construction supply chain;
    - Understanding the attractiveness of T2ST as a regionally significant, sustainability-driven project – including whether this is genuinely attractive or seen as inviting extra scrutiny and therefore risk. As above, this should be undertaken with the aim of making T2ST more attractive to investors to increase competition when it comes to the future procurement event;
    - Early views on potential deal structuring and financing arrangements including gearing, cost of equity and cost of debt.

  (Market engagement is divided into two progressive stages; ‘soft market testing’, and ‘formal market testing’, as detailed further below)
- **DPC Modelling Activities** –building a more detailed financial model that incorporates insight from the above risk analysis and market engagement activities, in order to make a robust VfM recommendation on the preferred delivery model at the Control Point C. Additions to the model may include debt refinancing repayment schedules, equity and debt financeability metrics (i.e. dividend cover, AICR), functionality for stress testing as well as refining financial, capex and opex assumptions following soft market engagement activities and expert input. In addition, this will include modelling of any identified modifications to the DPC model that may improve value for money, to ensure a robust and representative comparison between In-house and the ‘enhanced’ DPC model (rather than the ‘standard form’ model assessed in this report).
- **Development and negotiation of commercial arrangements between TWUL and Southern Water –** agreement of contractual obligations between TWUL as the ‘provider’ and Southern Water as the ‘beneficiary’ of the scheme, likely to take the form of a bulk supply agreement. Includes consideration and negotiation of contractual terms such as pricing, volume requirements, quality requirements, availability, and any exclusions that apply. Depending on the arrangements relating to T2ST’s upstream source (SESRO and/or STT) these negotiations may also involve other companies involved in these schemes (for example, Affinity Water, United Utilities or Severn Trent Water).

- **Engagement with Ofwat and RAPID** – successful outcome at the gates and control points will be dependent on appropriate and proportionate engagement with Ofwat and RAPID. This should help in identifying potential issues before the submission takes place, as well as providing the regulator to have an input in to the overall process. This is especially going to be important for Control Point C where preferred delivery route would need to be identified, and in between C and E where a number interrelated drafting, planning and modelling activities will be taking place. Any proposed modifications to the DPC model to improve value for money, as identified through market engagement and detailed modelling activities outlined above, will also need to be presented and agreed with Ofwat through this process. In addition, Ofwat should also be engaged as appropriate in relation to the terms of the commercial arrangements between TWUL and Southern Water.
- **Engagement with other stakeholders** – the scheme delivery programme will also be highly dependent on getting the external and internal right expertise and inputs at the required times. For example, the scheme Promoter will likely require input from legal and commercial advisors when drafting contractual agreements between TWUL and Southern Water as needed, appropriate outputs of the engagement with Drinking Water Inspectorate, output of the engagement with local/regional authorities for obtaining required consents for the scheme.
- **DPC/in-house delivery contract drafting** – once the preferred procurement model has been determined, and relevant risks are sufficiently understood and quantified, an appropriate contractual agreement will need to be drafted. Risks will need to be appropriately apportioned between the water company, and investors/supply chain as appropriate, so that risks are allocated to the party that is best placed to manage them. Contractual documentation is likely to undertake a number of iterations between Control Point B and D and will be dependent (and inform) the outputs within detailed modelling and market engagement.
- **Procurement Strategy detailed development** – in parallel to contract drafting, a good oversight will need to be obtained around the design of tendering activities. Activities may involve drafting tender scoring methodology, planning detailed activities around each of the tendering stages, and ensuring the right resources are in place to manage the process.
- **Additional internal activities** – includes design, technical and delivery activities appropriate for a scheme of T2ST's magnitude, including finalising design and technical readiness plans, undertaking benefits and risk appraisals and engineering activities to determine outputs and service levels.
- **Tender process:** following Ofwat's Gate 4/OBC approval, call for competition would be issued, and formal market engagement can start. During PQQ stage (~6-months) bidders will be evaluated according to commercial and/or technical criteria and few shortlisted bidders will be allowed to proceed. During ITT stage (~12months) shortlisted bidders to comment on contract, and preferred bidder is selected. During preferred bidder stage commercial contract is finalised and agreed, financial close is reached and FBC submission is made to the regulator. Tender activities are likely to require 18 to 24 months in total given the size of the scheme, and depending on the preferred procurement model selected[30].

T2ST will need to be discussed with potential investors, construction and O&M contractors as well as with the supply chain in order to establish how best to design the DPC process, and potentially the role of the CAP, to maximise competitive tension and value for money. A comprehensive, robust engagement process could include:

- **Soft Market Testing**: during this time water company will need to engage with potential investors and construction contractors to present the scheme, timings, scheme-specific risks, dependencies and constraints The purpose would be to gather feedback on the optimal structure of the deal, financing arrangements including gearing, cost of equity and cost of debt, as well as how risks are allocated and to enable a more informed appraisal of how risks would be priced. This will help to inform input parameters for the detailed modelling needed for the VfM case at Control Point C. This is likely to use a combination of presentations, workshops and bilateral meetings to communicate with the investor and supply chain community. This stage may last between 6 to 18 months.
- **Formal Market Testing**: during formal market testing stage (which would commence after publication of the Prior Information Notice (PIN)), we would expect a number of targeted workshops taking place with potential investors and supply chain organisations, as appropriate to the preferred procurement model. These may cover scheme optioneering, procurement approach, contract details, construction and operations of the asset, ground investigation, finance & legal activities etc. Formal market engagement may last 12 to 24 months.

A forward-looking procurement plan for T2ST is presented overleaf. This plan is part of the broader Project Delivery Plan (Appendix F-1), and is based on the best information that is currently available. However, as this scheme proceeds beyond Gate 2, Southern Water should consider whether further updates to the plans may be required in light of feedback obtained through market engagement and WRSE activities (which could influence the timing of

[30] For comparison, United Utilities' HARP scheme, currently out for procurement under DPC, has a planned procurement event duration of c.23.5 months from commencement to financial close (PQQ – c.4 months, ITN c.15 months, Award c.4.5 months).

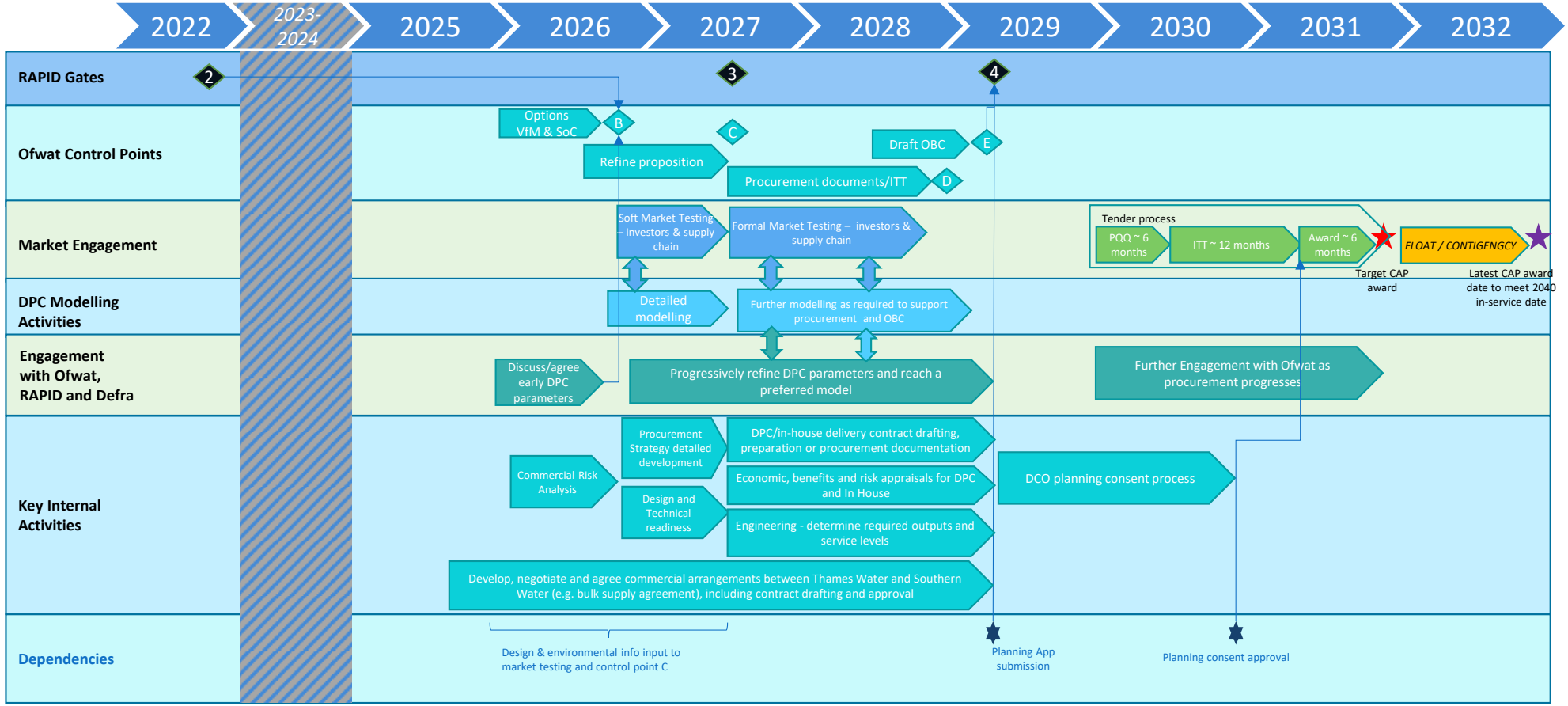
when schemes need to be delivered by). This procurement plan will be developed further, into a fully detailed plan, for Control Point C.

7.3 Procurement Plan

The WRSE draft Regional Plan indicates that T2ST does not need to be operational until 2040 at the earliest. Based on this, the earliest required date for CAP award is likely to be around 2032, allowing some time for programme risk. The plan below depicts key procurement activities that will need to take place in order to meet the earliest CAP award date by 2032 (with a target date of late 2031 to provide a 12-month float/contingency allowance for potential delays in the consenting and/or procurement process), to show the 'worst-case' procurement timetable. Besides passing relevant Ofwat's control points, achieving the 2032 date will be dependent on getting planning consent approved before CAP award, which implies a planning application submission date of early-2029. Given the lengthy duration of time between Gate 2 and T2ST's required in-service date, there is a period between 2023 to 2025 where procurement-related work on the scheme is minimal.

No market engagement has been undertaken so far on this scheme.

Figure 6: Procurement plan for T2ST



8 Appendices

8.1 Typical procurement risks

Typical procurement risks are based on the Infrastructure and Project Authority's Project Routemap: Procurement Module[31].

(reproduced from Project Routemap: Procurement Module*, Infrastructure and Projects Authority*

Typical findings relating to procurement This list describes situations that might arise and would indicate that the approach to developing project procurement needs improvement. Other relevant modules may also help you close identified capability gaps.	Summary procurement risks			
	Sub-optimal detailed procurement and contract strategy	Misunderstanding of promoter capability	Misunderstanding of supply chain capability and/or appetite	Misalignment between project requirement and what's procured
There is a disjointed relationship between the sponsor, client, asset manager and market with no clear understanding of risk allocation and no incentive for collaborative working.	✓	✓	✓	✓
A new client model (for example, establishing a fully integrated team) is being proposed, which the client/supply chain organisations do not have previous experience of applying successfully.	✓		✓	
The client model is not aligned with the proposed procurement strategy. For example, adoption of a thin client model with significant retained obligations.	✓	✓		
The requirements are poorly articulated or conflicting, so the purpose of the project and/or what it needs to deliver is confusing.				✓
The client does not understand the capacity, capability nor the market appetite to deliver the project.			✓	
The current supply chain structure is overly complex resulting in inefficiencies and failure of suppliers to work together to meet client needs.	✓			✓
Inadequate time has been allowed for the tender process, and tender documentation issued to the market is incomplete. This risks rushed solutions and poor-quality bids leading to problems downstream during delivery.	✓			
The client over-prescribes how the supply chain should do the work, which limits opportunities for the supply chain to innovate or add value.	✓			✓
The tender process and contract performance indicators are disproportionate to the size and complexity of the project, potentially reducing the pool of bidders and stifling competition and innovation.	✓			✓
Elements of the contracting model (risk allocation, incentivisation) have not been fully stress tested to identify potential unintended consequences, for example, limiting innovation or social value.	✓			✓
The evaluation criteria (technical, behavioural, ESG) are not structured in a manner to differentiate between suppliers. This causes price to become the determining factor obscuring the original intent of a balanced tender process.	✓			
The asset manager is not engaged in the development of asset information requirements, meaning they are not effectively built into the tender documentation and contract model. This results in issues handing over the asset and effective transition into operations and maintenance.	✓			✓

[31] Procurement_-_FINAL.pdf (publishing.service.gov.uk)