



Ofgem

Analysis of Policy Options for the Enduring Regime

26 November 2012

Ernst & Young LLP

 **ERNST & YOUNG**

Private and confidential

Robert Hull
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26 November 2012

Dear Sir,

Ofgem – Analysis of Policy Options for the Offshore Enduring Regime

In accordance with our engagement titled: ‘Analysis of Policy Options for the Offshore Enduring Regime’, order date 6th August 2012 under the Framework Agreement ref Con/Spec/2011-082, we have undertaken an analysis in relation to offshore transmission owners’ funding structures, indexation and the length of revenue term. This report outlines the conclusions of our review.

Purpose of our report and restrictions on its use

This report was prepared on your instructions solely for the purpose of analysing the policy options for the enduring regime in relation to refinancing, indexation and revenue term and should not be relied upon for any other purpose. In carrying out our work and preparing our report, we have worked solely on the instructions of Ofgem and for Ofgem’s purposes. Our report may not have considered issues relevant to any third parties. Any use such third parties may choose to make of our report is entirely at their own risk and Ernst & Young LLP shall have no responsibility whatsoever in relation to any such use.

Whilst we acknowledge that the report may be disclosed to third parties, because others may seek to use it for different purposes the report must be disclosed in full and including the full transmittal letter and relevant limitations. We assume no responsibility or liability to any third party in respect of the contents of this report.

Scope of work

The scope of work addresses the following three issues which are included in the tender named ‘Analysis of Policy Options for Enduring Regime’ (the Tender):

1. Treatment of value that could lead to refinancing gains and related issues
2. Indexation of the regulated revenue stream
3. Length of revenue entitlement period

We have addressed these issues in the report in the order stated above. The extract of the Tender detailing the scope of this report is held in Appendix A.

Our work in connection with this assignment is of a different nature to that of an audit. Our report to you is based on inquiries of, and discussions with, you. We have also based parts of our report on publically available data and reports provided by you and your contractors. We have not sought to verify the accuracy of the data or the information and explanations provided.

If you receive any request under the Freedom of Information Act 2000 for disclosure of any information which includes information provided by us to you, please notify us upon receipt of such request and prior to any such disclosure.

If you would like to clarify any aspect of this review or discuss other related matters then please do not hesitate to contact us.

Yours faithfully,

Ernst & Young LLP

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Glossary

CFD	Contract for Difference
DSRA	Debt Service Reserve Account
EIB	European Investment Bank
EPC	Engineer, Procure, Construct
GW	Gigawatt
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
IRR	Internal Rate of Return
NAO	National Audit Office
NETSO	National Electricity Transmission System Operator
NGET	National Grid Electricity Transmission
NPV	Net Present Value
OFTO	Offshore Transmission Owner
p.a.	Per annum
PFI	Private Finance Initiative
PPP	Public Private Partnership
RO	Renewables Obligation
RPI	Retail Prices Index
SHETL	Scottish Hydro Electric Transmission Ltd
SoPC4	Standardisation of PFI Contracts version 4
SPTL	Scottish Power Transmission Ltd
SPV	Special Purpose Vehicle
Tender	Invitation to Provide Proposal named: 'Analysis of Policy Options for Enduring Regime' (see extract in Appendix A)
TNUoS	Transmission Network Use of System
TO	Transmission Owner
TR1	OFTO Transitional Round 1
TR2	OFTO Transitional Round 2
TRS	Tender Revenue Stream

1. Executive Summary

1.1 Background

The offshore transmission regime has been under development since 2004. This process of development has involved navigating through the significant technical and commercial challenges to constructing offshore links and associated regulatory complexity.

A transitional regime was put in place with the intention of opening the market to new investors and was implemented over an initial 9 offshore transmission assets with an estimated value £1.1 billion and capacity of over 2GW which together are known as Transitional Round 1 (TR1). There was sufficiently 'strong' appetite for the attractive transitional regime where design and build risk was taken by the developers and the OFTO could finance a constructed asset with a RPI-linked 20 year revenue stream to ensure competitive tension.

Ofgem is currently using the transitional regime to tender a further four assets with an estimated value of £1.3 billion and capacity of over 1.8GW which together are known as Transitional Round 2 (TR2).

To date Ofgem has appointed four different parties as preferred bidders on 11 OFTO projects across TR1 and TR2, of which six have reached financial close with a total capital cost of £468 million.

A significant number of further projects have been identified under the Enduring Regime with a total capacity of over 25GW¹.

A key feature of the transitional regime, under the overarching remit of promoting value for consumers, was simplicity to attract new entrants to the transmission market and to ensure a sufficient bidding competition for what was, at that point, an unknown and new asset class. The financial environment had already deteriorated and sourcing capital was therefore a concern. The approach to certain elements such as indexation, revenue term and refinancing gains was therefore developed in the context of providing certainty and clarity on the investment proposition to encourage a variety of bidders and financing solutions.

With the market now open and OFTO understood by investors as an asset class there is the opportunity for Ofgem to reconsider some of the assumptions made and positions taken for the transitional round projects to see if they continue to deliver value for money to the consumer for the future enduring regime.

This view is echoed by the NAO's recent review of the OFTO regime² to date which identified that Ofgem has "designed licence conditions which encouraged market interest but limited risk transfer to licensees, leaving significant risks for consumers".

This report therefore forms part of the review by Ofgem into the assumptions and positions and examines three key areas:

- Senior debt refinancing
- Indexation methodology
- Length of revenue term

¹ Based on Ofgem "Current and potential Offshore Transmission projects", excluding TBC projects

² Offshore electricity transmission: a new model for delivering infrastructure (National Audit Office, 22 June 2012)

1.2 Relevant industry comparators

In our assessment of the enduring policy options covered in this report we have considered industry comparators which may be relevant to the analysis.

One potentially relevant comparator is the current onshore transmission regime. There is inherent similarity in the assets being constructed, funded and operated, however there are material differences between the nature of OFTOs and the onshore TOs. Some key differences are set out here:

Assets: there are three regional monopoly onshore TOs (NGET for England, SPTL for southern Scotland and SHETL for northern Scotland) who between them own and maintain all onshore electricity transmission assets. As such, each TO is responsible for the ongoing network in its region. In contrast, OFTOs are granted licences by a competitive tendering process for each discrete set of transmission assets required for an agreed individual connection. It should be noted however that due to the number of tenders anticipated to be run, the successful tenderers may build up portfolios comprising a number of OFTOs.

Price control: onshore TOs have their maximum allowable revenue set by periodic price control reviews, currently every 8 years. Each TO's allowed revenue is based on the existing asset base and ongoing investment plans and is charged using an asset life of 50 years in an annuity calculation. OFTOs, by contrast, have their allowable revenue set during the upfront licence tender process for each discrete set of new build transmission assets with the revenue being set for 20 years based on a specific connection(s).

Funding: the onshore TOs obtain funding at a corporate level. They have historically demonstrated that they have access to a wide range of funding sources including index-linked bond funding. OFTOs are typically funded on a project basis, reflecting the fact that each OFTO has a single asset. It is also possible for the OFTO's shareholder to fund the OFTO from its own balance sheet but even if this is done the returns at corporate level are dependent on the performance of that individual project.

For these reasons it is considered that the current onshore transmission regime may not be the most appropriate industry comparator when analysing policy options for the enduring regime.

A second potentially relevant comparator is the UK PPP/PFI industry. Although UK PPP/PFI projects are not subject to the same regulatory regime, there are a number of similarities with the OFTO regime. Key similarities are set out here:

Procuring single asset: both OFTOs and UK PPP/PFI concessions are typically delivered by a project SPV which is set up specifically to deliver the project, which involves the procurement of a single asset or set of assets. The SPV ringfences both the project and the funding for the project. Project SPVs are set up following a competitive tender process to determine who will deliver the concession.

Revenue: both OFTOs and UK PPP/PFI projects have their revenue set at the outset of the concession for relatively long periods, typically 20+ years. There is no guarantee of further revenue beyond this initial revenue term.

Funding: both OFTOs and UK PPP/PFI projects are typically funded utilising project finance for the individual project, though projects can be funded using funding from the balance sheet of the SPV's shareholder. This funding is secured on the project's revenues rather than the assets of the corporate entity. In these structures the majority of the funding typically takes the form of bank or bond finance with a relatively small proportion of the funding being in the form of shareholder equity. The long term revenue security has to date enabled long term debt financing to be obtained in the majority of cases.

As a result of the above similarities a number of the current OFTO bidders are also entities with strong PPP/PFI track records. Further, it is possible that more entities with experience of

UK PPP/PFI, who understand and accept the majority of the principles of SoPC4, may look to bid for projects under the enduring regime.

It is noted that HMT is currently conducting a review of PFI, with the results of the review expected to be published on 5 December 2012. It is therefore possible that material changes will be recommended for future concessions. We have not attempted to predict any such changes and this report does not take account of possible future changes to the PFI regime. We recommend Ofgem carefully monitors the outcome of HM Treasury's PFI review for any new proposals which could be relevant to OFTOs.

Despite the uncertainty over the future of PFI, given the above factors it is considered that current UK PPP/PFI practice is an appropriate comparator when considering the specific policy options for the enduring regime in relation to refinancing, indexation and revenue term. These areas of the guidance have had considerable input from HM Treasury over the last decade. We have therefore set out a comparison to UK PPP/PFI in each section of this report, where relevant to do so. The report takes into account SoPC4, the standard guidance used on PFI contracts. Although not mandatory for non-PFI projects, SoPC4 guidance is widely used on other public sector infrastructure concession contracts and as such is considered a well-recognised industry standard. In addition the PFI/PPP model is widely used internationally. The report also reviews the applicability of such guidance in relation to the OFTO build and generator build options outlined in the enduring regime consultations³.

1.3 Senior debt refinancing

One of the key criticisms of PFI was that early PFIs did not include refinancing gain sharing mechanisms, with shareholders in the SPVs realising significant refinancing gains on a number of early PFIs. HM Treasury subsequently developed specific guidance for procuring authorities in relation to refinancing to enable procuring authorities to share in refinancing gains. As Ofgem's remit includes protecting consumer interests it is considering whether it should also include a refinancing gain sharing mechanism in the enduring regime.

Current OFTO policy is that all refinancing risk is taken by the private sector. Therefore all refinancing gains, and losses, go to the OFTO. Our understanding of the original rationale for this policy was that it was considered at the time that:

- the likelihood of OFTOs refinancing was low, given that the projects did not include financing construction risk, margins were considered to be relatively low and the tenor of debt long with short debt tail;
- its simplicity as well as the potential upside would be attractive to potential investors and help achieve the goal of opening up the transmission market to new entrants thereby increasing competition; and
- bidders might include refinancing gains in the TRSs bid back thereby reducing the TRS and giving the consumer the benefit of a guaranteed refinancing gain from the outset.

The OFTO regime is now more mature with the original objectives achieved in terms of opening up the transmission market to new entrants and increasing competition. The deterioration in commercial bank terms for long term debt has meant that the potential for future refinancing gains has increased where commercial bank debt is used. Ofgem is therefore considering whether its approach to refinancing remains appropriate for the enduring regime.

There is limited evidence from TR1 bids to conclude what benefit the consumer is receiving from bidders in the original TRS for passing refinancing risk and reward to OFTOs. In TR1 submissions the maximum benefit we have been able to explicitly identify from information provided by the bidders is a reduction to the TRS of less than 0.5%. However many bidders

³ The most recent enduring regime consultation documents were issued by Ofgem in December 2011 and May 2012.

have not indicated what saving, if any, has been incorporated in their bids and the savings achieved from the current policy could be greater or less than 0.5%.

We do not consider the potential for refinancing gains on the TR1 tenders to be significant, largely due to the size of the transactions. In section 2.8.2 we provide an estimate where the refinancing gain is shared, assuming highly aggressive refinancing assumptions, which we do not consider are deliverable in the current funding market. Our analysis indicates that the total gain, before any sharing, on the refinancing of £50 million of commercial bank debt would be no more than £5 million after costs. However given transactions in the enduring regime could be significantly larger than in TR1 the refinancing gains could be correspondingly larger. Our analysis, using the same highly aggressive refinancing assumptions, suggests that the total gain before any sharing for the refinancing of £300 million of commercial bank debt could be approximately £30-35 million after costs. In addition there are a number of aspects of the current funding markets, such as margin ratchets and the reduced availability of long term debt, which make it possible that future refinancing gains have the potential to be proportionately significantly larger.

There are potential disadvantages of introducing a refinancing gain share mechanism but Ernst Young considers, based on the scope of this report, that the advantages outweigh the disadvantages. Reasons for incorporating a refinancing gain share mechanism include the following:

- If funding terms do become more competitive in the future the consumer would not benefit and would continue to bear the higher cost of the funding markets at the point of financial close as the current policy does not enable refinancing gains to be shared;
- In addition the larger projects that are expected under the enduring regime could result in larger refinancing gains than the gains achievable on transitional projects; and
- Finally, if the OFTO refinances there could be increased contingent liabilities, e.g., due to a more back-ended debt repayment profile leaving more debt outstanding at any given point in time, the repayment of which the consumer could ultimately bear the cost of in the event the licence is revoked through no fault of the OFTO.

Due to the adverse publicity surrounding refinancing gains in PFI projects historically and the effect this can have on the perception of value for money for the public purse refinancing guidance in the PFI market is well developed and has been refined and updated over a number of years by HM Treasury in response to changes in the market. This guidance provides detail on how refinancing gains should be calculated and shared in PFI projects.

We would suggest that, based on our analysis, a refinancing gain sharing mechanism could provide consumer benefit. We also note that there are qualitative considerations which Ofgem is better placed to assess. As stated above there is already a well-developed refinancing mechanism in the PFI market and we would suggest this sharing mechanism and the associated drafting in relation to Authority consent to a refinancing and the Authority's right to request a refinancing may be a useful reference for Ofgem in developing such a policy.

1.4 Indexation

Current OFTO policy is that the TRS is fully indexed by RPI.

Our understanding is that the rationale for this approach is that:

- ▶ it is straightforward and offers the lowest cost to the consumer in the early years of the OFTO licence;
- ▶ it is consistent with the onshore regime;

- ▶ it ensures there is consistency between bidders and across the OFTO regime; and
- ▶ it was expected to make the investment more attractive to funders and investors seeking long term returns linked to inflation and in particular index linked bond funding solutions.

The approach taken was consistent with many of the early PFI transactions. However as with the PFI market the OFTO market has become more developed and Ofgem is now considering whether an alternative indexation mechanism would be more appropriate.

The original objectives in terms of opening up the transmission market to new entrants and increasing competition have been achieved. The finance structures proposed by bidders have typically taken advantage of fixed rate debt products with RPI swaps rather than the provision of index-linked funding, which was one of the possible funding structures anticipated at the outset of the OFTO regime.

We have undertaken some analysis for Ofgem to consider the NPV of the TRS of a fully indexed TRS with a RPI swap compared to a partially indexed TRS with no RPI swap. The analysis also considers the impact on the NPV for different outturn indexation assumptions for these two scenarios.

The analysis shows, using market rates in September 2012, that the NPVs of the partially indexed TRS and fully indexed TRS are broadly similar, assuming a typical inflation assumption of 2.5%, with the fully indexed TRS being marginally lower than the partially indexed TRS. This is due to the inflation assumption used of 2.5% being lower than the RPI swap rate resulting in the fully indexed TRS receiving RPI swap income throughout the life of the revenue term.

The value for money decision would depend on other factors such as the risk of incurring potential RPI swap breakage costs, the difference in potential interest rate swap breakage costs and the higher amounts of senior debt and equity returns outstanding over the life of the revenue term.

The value for money of the two different scenarios, from the perspective of the consumer, will also depend on outturn inflation rate over the life of the revenue term. The higher the inflation rate the better the value offered by a partially indexed TRS. Therefore the assessment of relative value for money will depend on Ofgem's view of the likely outturn inflation over the revenue term.

The Treasury guidance in respect of Interest Rate & Inflation Risks in PFI Contracts sets out the guidance for PFI projects and indicates that over-indexing the revenue stream can erode value for money. Current practice on UK PPP/PFI projects is for bidders to be asked to bid back the percentage of the revenue stream that they wish to be indexed. This enables them to create a natural hedge against the inflating costs in their underlying cost base.

Although there are differences between the OFTO regime and PFI it is not considered that any of these differences are so material that the enduring OFTO regime requires a different approach to determining the indexation percentage now that the OFTO regime has a proven track record of its own.

Based on our analysis, asking bidders to bid back their required proportion of the TRS to be indexed is likely to best meet bidders' requirements and offer best value for money to the end consumer. It is also most consistent with current HMT guidance for PFIs. Therefore we recommend that bidders are asked to bid back their required proportion of the TRS to be indexed by RPI though we note that there may be other considerations which Ofgem is best placed to consider.

1.5 Revenue term

Current OFTO policy is for a revenue term of 20 years. This reflects the lower limit of expected life of windfarms.

With the more mature OFTO regime Ofgem is re-considering its approach to the revenue term for the enduring regime, for example particularly around a potential extension to 25 years.

Our review has considered the revenue term in relation to the expected life of OFTO assets, expected required usage, licence structure and financing.

A report by Arup, commissioned by Ofgem, concludes that the overall expected life of OFTO assets is likely to be 40 years or more. The useful life is more unclear due to the relative youth of offshore windfarm technology but is likely to have a lower bound of 20 years reflecting the minimum expected life of an offshore windfarm.

Current funding solutions of bank project finance, bond financing and corporate financing are all available for in excess of 20 years for well structured projects with revenue terms also equal to or in excess of 20 years. However Basel III and general market conditions are adversely affecting cost and length of bank project financings.

Our review concludes that due to:

- ▶ uncertainties in relation to any future repowering or replanting of wind assets and associated increased risk of redundant OFTO assets;
- ▶ potential requirement for renegotiation of TRS post expiry of revenue term; and
- ▶ tightening of long term bank finance market, particularly when considering potential OFTO build projects which will include a construction period,

increasing the revenue term to 25 years does not appear to provide a clear improvement in the value for money to the consumer.

However given the potential issue of reaching the end of the revenue term with an operating transmission asset and windfarm there is a need to ensure that mechanisms for providing extensions are clearly set out for enduring projects well before the extension is considered.

2. Senior Debt Refinancing Mechanism

2.1 Introduction

This section of the report assesses the potential for the consumer to benefit from any senior debt refinancing by the OFTO. We summarise how debt refinancing gains arise, how they are calculated and shared in PFI projects and what level of refinancing gains could occur under given assumptions.

We also set out an analysis of the costs and benefits of two specific approaches to sharing any refinancing gains and consider the practicalities of implementing a refinancing mechanism.

2.2 How senior debt refinancing gains arise

Senior debt refinancing gains arise from improved debt terms available to the SPV. These are available due to improvements in market terms and for decreases in project risks arising from effective risk management by the SPV. To capture gains projects are typically refinanced once the construction phase has been completed and a project has a proven operational track record. Construction risk is typically one of the largest risks associated with a project and the successful completion of this phase removes this risk (although clearly this has not been a feature for transitional round projects).

Removal of construction risk potentially opens up the project to alternative funders and forms of financing (i.e., those who would not want to take on construction risk). Proven operations assists sponsors in demonstrating to external funders that the project risk profile is lower than may have been factored into the original funding terms.

From our experience of the refinancing of PFI projects the size of the refinancing gain, based on the impact on the equity IRR, has been typically driven by some or all of the following:

- ▶ extending the tenor of debt;
- ▶ release of the debt service reserve account (DSRA);
- ▶ reduction in the cover ratios;
- ▶ reduction in margins; and
- ▶ relaxation of banks' limits to lend only set percentages of capital cost.

It should be noted that movements in underlying interest rates won't give rise to refinancing gains, where the debt has been swapped out at financial close, because any savings achieved are broadly offset by breakage costs. Operational efficiencies achieved under current PFI gain sharing only give rise to refinancing gains to the extent that they enable the SPV to raise additional debt as a result of the above factors.

2.3 Current OFTO policy

Current OFTO policy is that all refinancing risk is taken by the private sector. Therefore all refinancing gains, and losses, go to the OFTO.

Our understanding of the original rationale for this policy was that it was considered at the time that:

- ▶ the likelihood of OFTOs refinancing was low, given that the projects did not include financing construction risk, margins were considered to be relatively low and the tenor of debt long with short debt tail;

- ▶ it would be attractive to potential investors and help achieve the goal of opening up the transmission market to new entrants thereby increasing competition; and
- ▶ bidders might include refinancing gains in the TRSs bid thereby reducing the TRS and giving the consumer the benefit of a guaranteed refinancing gain from the outset. It should be noted that while bidders are not required to do this they are under competitive pressure to do so.

However, the OFTO regime is now more mature, shifting from transitional to enduring, and the funding market for infrastructure assets continues to evolve.

The pros and cons of the current approach are detailed in section 2.7 below.

2.4 Refinancing mechanisms in PFI projects

Refinancing guidance in the PFI market is well developed and has been refined and updated over a number of years by HM Treasury in response to changes in the market. Many of the early PFI transactions did not include any reference to refinancing. This was one of the key criticisms of PFI, largely due to the fact that on a number of early PFIs significant refinancing gains were generated by the SPVs returning significant gains to the shareholders in the SPVs.

These gains in early PFI projects arose due to improvement in financing terms, as PFI became more standardised and understood, particularly in relation to the extension of the tenor of debt, but also from reduced margins, cover ratios and releases of reserve accounts.

In the PFI market refinancing gains have typically arisen as a result of the private sector contractor increasing the level of senior debt held in the project company and distributing the additional debt raised back to shareholders thereby leaving the project more heavily geared and therefore more likely to default on its debt obligations.

One of the key considerations in the public sector has been that in the event of default the termination liabilities borne by the public sector would be increased.

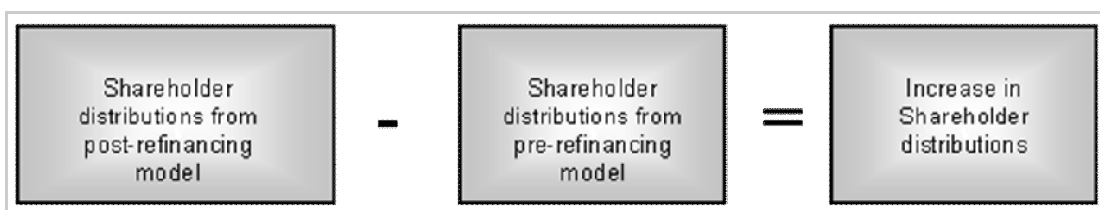
As a result of the above considerations, HM Treasury developed specific guidance for procuring authorities in relation to refinancing to enable procuring authorities to share in refinancing gains and to assist them in undertaking a value for money analysis of the benefit received compared to the increased contingent liabilities. The current guidance as set out in SoPC 4 has been refined, amended and updated over a number of years. The most recent amendment was issued in April 2012⁴ in response to the current state of the financing market.

Detailed below is how refinancing gains are calculated in PFI projects.

2.4.1 Step 1 – Calculate the Refinancing Gain

2.4.1.1 Calculate the change in cash flow from refinancing

Compare the NPV of the actual and forecast distributions to shareholders pre-refinancing and post-refinancing. The only changes that should be made to the pre-refinancing model to generate the post-refinancing model are to reflect the new funding terms. This would include both parties' costs reasonably incurred in undertaking the refinancing.



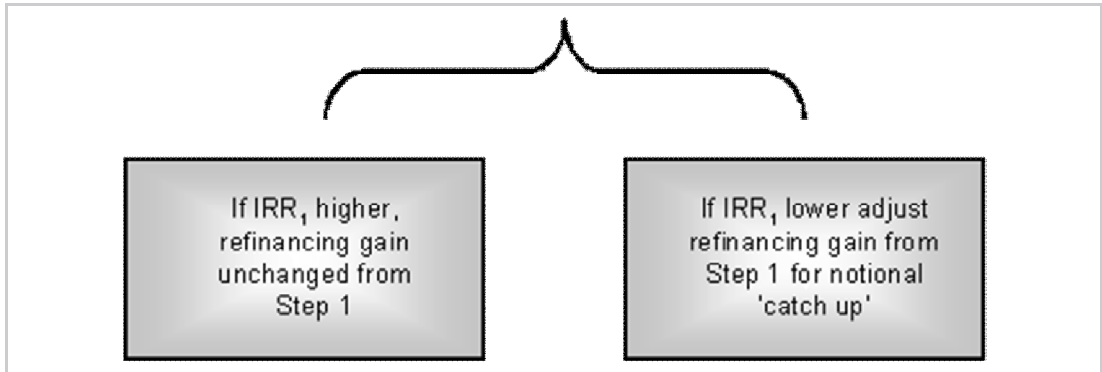
⁴ http://www.hm-treasury.gov.uk/d/sopc4_addendum_0412.pdf

2.4.1.2 Calculate refinancing gain

The refinancing gain is the increase in the NPV of shareholder distributions from refinancing discounted using the original base case blended equity IRR.

2.4.2 Step 2 – Comparison Against the Threshold IRR

Calculate the updated blended equity IRR in the pre-refinancing model (IRR_1) based on actual performance and revised forecasts and compare the updated shareholder IRR to the base case shareholder IRR (Threshold IRR) in the original financial close model (IRR_2).



The effect of this step is to ensure the SPV's shareholders are only required to share any element of the refinancing gain which represents over achievement against the base case at financial close.

2.4.3 Step 3 – Calculate Authority's Share of the Refinancing Gain

SoPC 4, prior to any amendment, originally stated that the Authority would be entitled to receive 50% of any refinancing gain. However as noted above SoPC 4 has been refined, updated and amended over a number of years.

The amended refinancing provisions issued by HM Treasury on 27 April 2012, the most recent amendment, state:

"The Authority shall be entitled to receive:

- a. *Where there is a reduction in the Margin from the Margin as shown in the Senior Financing Agreements as at Financial Close arising from a Qualifying Refinancing (or, in the case of a second or subsequent Qualifying Refinancing, from the Margin as shown in the immediately preceding Qualifying Refinancing) a 90% share of the Margin Gain arising from the Qualifying Refinancing; and*
- b. *A share of any further Refinancing Gain (arising otherwise than from a reduction in Margin) from a Qualifying Refinancing, in respect of any Refinancing Gain (when considered in aggregate with all previous Qualifying Refinancings) as follows:*
 - i *For a Refinancing Gain from £1 to £1 million, a 50% share;*
 - ii *For a Refinancing Gain of £1 million up to £3 million, a 60% share; and*
 - iii *For a Refinancing Gain in excess of £3 million a 70% share."*

A Qualifying Refinancing is broadly any refinancing of the debt funding.

2.4.4 Step 4 – Determine the profile of the authority share

Standard Guidance states that an Authority should be able to take its share either as a cash lump sum or in the form of a guaranteed reduction in the unitary payment.

Where the refinancing gain is taken over the contract term as a reduction in unitary payment Standard Guidance suggests that the interest accrued on the deferred gain could be akin to the interest charged on senior debt plus an appropriate margin.

To the extent that tax savings are released as a result of the Authority’s decision to spread its refinancing gain over the contract term, the Authority should share the benefit of the tax savings that arise as a result. In practice, determining the refinancing gain, the Authority’s share and the resultant profile of the Authority’s share is an iterative process.

It should be noted that the above guidance relates to the refinancing of project financed transactions. SoPC4 does not set out detailed guidance on the refinancing of corporately financed transactions.

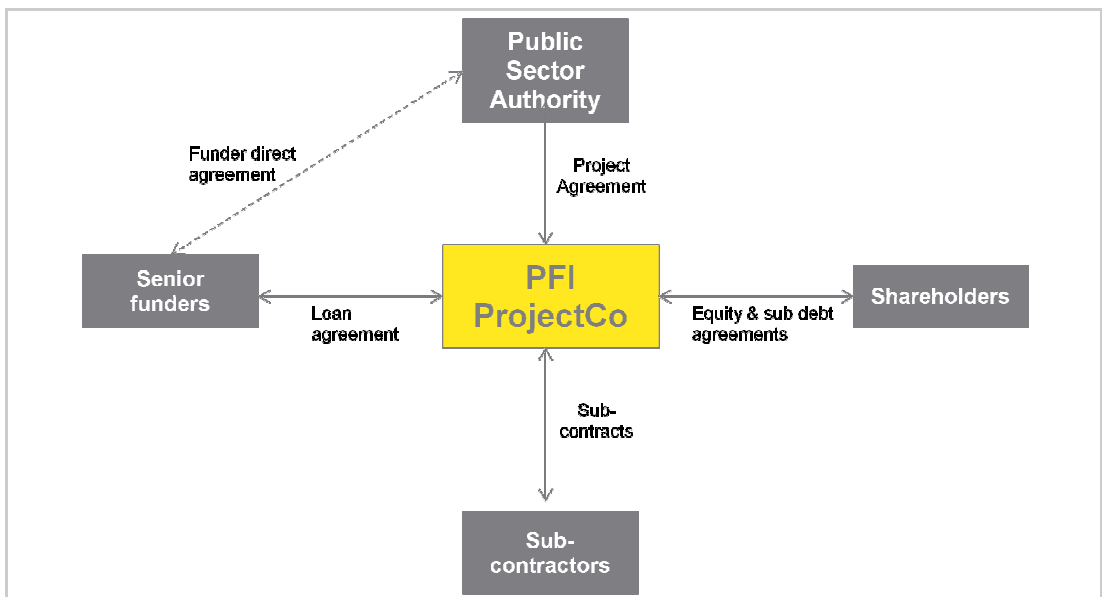
SoPC4 states that transactions originally undertaken on a strictly corporate finance basis should not be subject to the refinancing gain sharing provisions. However it is also recognised in SoPC4 that in practice few projects meet the full requirements of a corporate finance classification, with SoPC4 stating that considerable care must be exercised by Authorities in this regard.

In reality, if a project is corporately financed and the contractor wishes to refinance to project finance, such a change will require changes to the contract documents and liabilities of the Authority that will mean this cannot be undertaken without the prior approval of the Authority, with the result that the resulting structure and implications for both parties will be discussed and negotiated in detail.

2.5 Differences between the OFTO regime and PFI

The key elements of the contractual structure for the OFTO regime and PFI are illustrated below.

Figure 1: PFI contractual structure

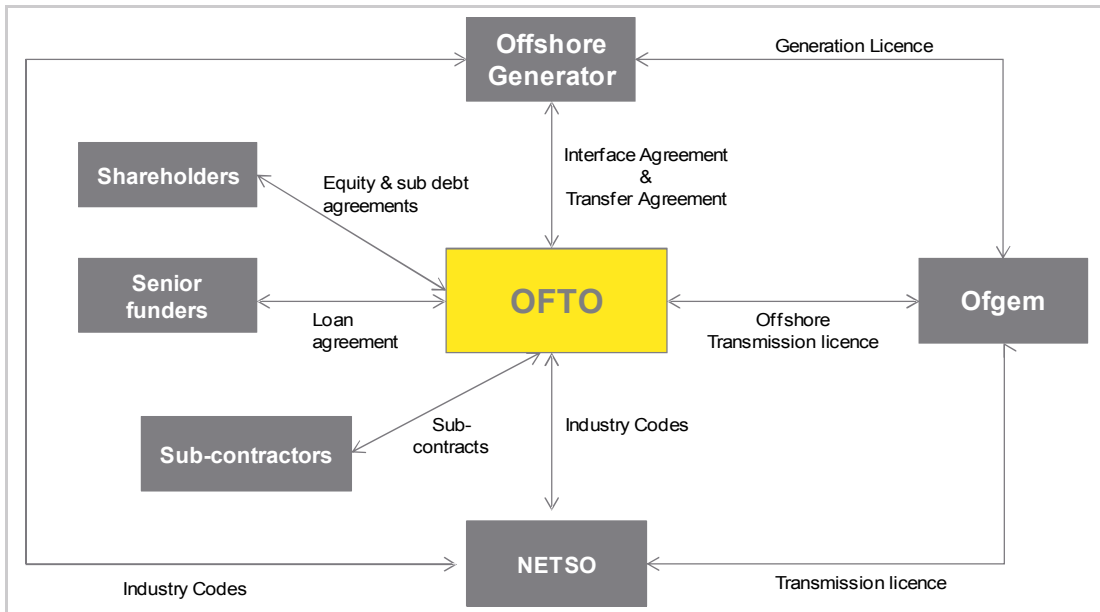


The key features of this structure are:

- Project Agreement between the public sector procuring Authority and the ProjectCo, which sets out the contractual rights and obligations of each party.

- ▶ The public sector procuring Authority pays the unitary charge to the ProjectCo.
- ▶ External funding is provided by senior funders and shareholders, however it should be noted that a number of projects are in fact funded corporately by the project sponsor.
- ▶ Funder direct agreement between the senior funders and the public sector Authority, which allows the senior funders to step in to the contract to attempt to protect and recover its investment following a termination or threatened termination of the contract resulting from default by the ProjectCo.

Figure 2: OFTO contractual structure



The key features of this structure are:

- ▶ Licence granted to the OFTO by Ofgem.
- ▶ OFTO's rights and obligations are set out not only in the licence but also in the industry codes and in the interface agreement between the OFTO and the offshore generator.
- ▶ The OFTO's TRS is paid to the OFTO by NETSO.
- ▶ External funding provided by senior funders and shareholders however the OFTO can alternatively be funded corporately by the project sponsor.
- ▶ No direct agreements, either between the funder and Ofgem or NETSO, or between the OFTO's sub-contractors and Ofgem or NETSO.
- ▶ There is a licence requirement for the OFTO to achieve and maintain an investment grade credit rating or equivalent as agreed with Ofgem.

Although there are some similarities between OFTOs and PFI the structures illustrated above give rise to a number of differences between the two regimes. The key relevant differences are set out below:

Table 1: OFTO and PFI comparison

	OFTO	PFI
Licence vs. project agreement	Licence sets out the key commercial terms, including the amount and duration of the TRS, however the TRS is actually paid to the OFTO by NETSO	Project agreement between the public sector Authority and ProjectCo sets out the key commercial terms of the contract and the unitary charge is paid by the same public sector Authority
Key contractual parties	Multiple parties to the OFTO's contractual rights and obligations: <ul style="list-style-type: none"> ▶ Licence granted by Ofgem ▶ National Grid produces and maintains the industry codes ▶ National Grid as NETSO pays the TRS ▶ Interface agreement between the OFTO and offshore generator 	Key contractual relationship is between ProjectCo and the public sector Authority
Asset reversion	Licence is in perpetuity; asset does not revert to Ofgem or NETSO or any public sector body at the expiry or termination of revenue period	Asset typically reverts to the public sector on contract expiry or termination
Direct agreements	No direct agreements	Direct agreement between senior lenders and Authority
Contractual mechanisms to deal with events of default (see below for further details)	No formal mechanisms setting out compensation to any party in the event of potential default scenarios	Project agreement sets out precise default scenarios, default thresholds and mechanisms to determine compensation to either party in the event of all potential default scenarios

In respect of the mechanisms to deal with events of default, there is no contractual compensation for the OFTO in the event Ofgem decides to revoke the OFTO's licence. There is therefore no formal documented protection for the OFTO's funders, both debt and equity. However, it is our understanding that Ofgem has in the past demonstrated that it will act as a reasonable regulator where a loss of transmission revenue occurs through no fault of the transmission owner. As such, it appears that the consumer could potentially pick up increased contingent liabilities following the refinancing of an OFTO but which it is important to note would only crystallise if Ofgem actually chose to revoke such a licence before the end of the revenue term.

In contrast, the standard PFI contract contains provisions whereby if the contract is terminated due to Authority default (e.g., non payment of the unitary charge) or simply voluntarily terminated by the Authority, the Authority is required to fully compensate both debt and equity (i.e., so they are no worse off than they would have been if the contract had proceeded as expected).

2.6 Differences between OFTO and generator build

We are not aware of any PFI contracts which have been refinanced before construction completion. Therefore for the purposes of this report we have assumed that under OFTO build there would be no refinancing before construction completion.

Once into the operational period we would not expect any differences in risk profile between OFTO build and generator build, therefore we would expect the refinancing process and the treatment of gains to be the same under each build option.

However there may be some differences in the operational period funding terms between OFTO build and generator build for the following reasons:

- ▶ It may be considered that operational funding margins for OFTO build might be higher than generator build due to construction risk in the project and the longer tenor of debt required. Similarly, the tail on the senior debt may be longer under OFTO build than generator build due to the longer term of the project which would include the construction period in addition to the same length of operations period as a generator build, or due to the senior debt providers' view on risk of overall transaction.
- ▶ For OFTO build projects we would expect funders to require similar security packages as are required for PFI projects from the construction contractors. However if the OFTO is required to meet the investment grade criterion before the start of operations gearing may be lower in OFTO build than in generator build. We understand it is currently the intention that the OFTO build licence would be granted before construction commences, however it is currently unclear whether meeting the investment grade criterion will be a licence requirement prior to transmission and how this will be controlled / assessed.

The above points may make a refinancing more likely, and could give rise to significantly higher potential refinancing gains, under OFTO build compared to generator build or the transitional projects. However, as we would expect the refinancing process and the treatment of gains to be the same under each build option, the principles set out in this section 2 apply equally to OFTO build and generator build.

2.7 Consideration of options

In this section we consider two specific approaches to sharing any refinancing gains. For each approach we have summarised the practical considerations associated with the approach and have set out the key advantages and disadvantages.

2.7.1 Maintain the status quo

Under this option the OFTO faces no restriction on refinancing and there is no mechanism for sharing any gain with the consumer or generator if the OFTO does refinance. This is the current policy.

Advantages

- ▶ The benefit of a potential future refinancing may be, at least partially, embedded in the original TRS, e.g., by bidders requiring a lower IRR. One bidder has indicated that its equity IRR requirement is 0.25% lower because of this and has included reduced debt terms in its financial model to achieve this. However we have no information on what other bidders have priced in: it could be more than 0.25% or it could be nil. As an indication of the potential impact, Ernst & Young's calculations indicate that a reduction of 0.25% in the equity IRR reduces the TRS by 0.37%
- ▶ This position is attractive to OFTO bidders. It could be argued that the approach to refinancing on TR1 and TR2 has helped to develop strong market interest which has in turn resulted in competitive tenders on the OFTOs that have been tendered to date.
- ▶ Potentially difficult and onerous licence management and monitoring issues are avoided as there is no need for Ofgem or NETSO to do anything in relation to OFTO refinancing.

Disadvantages

- ▶ The OFTO may make future refinancing windfall gains, none of which would be shared with the consumer. Given the deterioration in the competitiveness of senior funding terms over the past 3-4 years it is considered that this potential for refinancing gains is increasing should terms improve in the future.
- ▶ If the OFTO refinances and the refinancing results in an increase in the debt outstanding at any given time in the future, should Ofgem decide to revoke the licence before the end of the revenue term (e.g., if the transmission asset is no longer required) the liabilities faced by the consumer could be higher than they would have been prior to any refinancing without any compensation (eg, a reduction in TRS) to reflect the additional risk the consumer is taking.
- ▶ If the OFTO is not required to inform Ofgem or any other party of the details of any refinancing, there is a risk that Ofgem may not be fully aware of the financial position of the OFTO and whether its credit rating (or alternative measure of credit worthiness where Ofgem has allowed an alternative measure to be used under the terms of the licence) has deteriorated.

2.7.2 Sharing refinancing gains

Refinancing gains are shared in PFI between the public and private sectors. A summary of the current refinancing gain sharing arrangements in SoPC 4 is set out in section 2.5 above.

In addition to the gain sharing proportions, SoPC 4, as amended in April 2012, includes guidance in relation to triggering a refinancing and consent to the refinancing. This can be summarised as follows:

- ▶ **Authority consent:** the contractor must gain the Authority's written consent to undertake any debt refinancing. The Authority is not to unreasonably withhold its consent (e.g., to get a greater share than that permitted in the contract).
- ▶ **Triggering a refinancing:** there is no restriction on when the contractor can propose a refinancing. However, an amendment to the guidance in 2009 in response to the deterioration in funding terms provides the Authority with the right to ask the contractor to ask potential funders for terms for a potential refinancing if it considers the funding terms are more favourable than the project's current funding terms. Unless the Authority withdraws its request the contractor is required to go out to the market to obtain terms for a refinancing. The Authority can make this request at any time, but not more than once in any two year period. At the time of writing this report we are not aware of any refinancing which has been triggered by an Authority request.

In terms of practical implications, a refinancing gain share mechanism could be built into the licence. Such a gain share mechanism would set out the sharing proportions that would apply in the event of a refinancing, the OFTO's rights and obligations (e.g., in relation to informing Ofgem of its intention to undertake a refinancing) and Ofgem's rights and obligations (e.g., in relation to giving consent to a refinancing and triggering a refinancing, as applicable).

Potential for OFTOs to avoid sharing refinancing gains

There is a potential risk that OFTOs would be able to avoid sharing any refinancing gains despite the existence of a refinancing gain share mechanism. Ways in which this may occur include:

- ▶ a failure by the OFTO to inform Ofgem of its intention to undertake a refinancing; and
- ▶ the OFTO financing the assets through an intermediate holding or associated company structure, with the result that the legal entity which enters into the licence is different from the legal entity which secures the finance and is therefore potentially not captured by any refinancing provisions.

However there are a number of ways to enhance the effectiveness of a refinancing gain sharing mechanism to remove the likelihood of the OFTO avoiding sharing any refinancing gains it makes, including:

- ▶ Ofgem may benefit from reviewing relevant finance documents before financial close to ensure it fully understands the nature and structure of the OFTO's financing, though it is recognised that it would not be desirable or appropriate for Ofgem to have any control over these commercial agreements or to have a final say over the financing proposals;
- ▶ it would be possible to make it clear in the drafting that an OFTO would be in breach of its licence obligations if it was to undertake a refinancing without first informing Ofgem and seeking Ofgem's consent;
- ▶ our expectation is that senior debt providers would not provide financing as part of a refinancing of which Ofgem was unaware if it was clear in the licence that failure to inform Ofgem and seek Ofgem's consent would be a licence breach by the OFTO; and

- ▶ the restrictions in the licence should cover the possibility that the assets are effectively financed through an intermediate holding or associated company structure, e.g., through the definition of what qualifies as a refinancing (it should be noted that this would not include corporate financing of the assets by an OFTO). The guidance in chapter 34 of SoPC4 contains standard drafting in respect of refinancing and explanations for the drafting. We have set out below the key definitions which assist in ensuring the drafting covers refinancings by intermediate holding companies or associated companies of the OFTO:
 - ▶ **Refinancing:** means:
 - a) *any amendment, variation, novation, supplement or replacement of any Financing Agreement (other than any Subordinated Financing Agreement);*
 - b) *the exercise of any right, or the grant of any waiver or consent, under any Financing Agreement (other than any Subordinated Financing Agreement);*
 - c) *the disposition of any rights or interests in, or the creation of any rights of participation in respect of, the Financing Agreements (other than the Subordinated Financing Agreements) or the creation or granting of any other form of benefit or interest in either the Financing Agreements (other than the Subordinated Financing Agreements) or the contracts, revenues or assets of the Contractor whether by way of security or otherwise; or*
 - d) *any other arrangement put in place by the Contractor or another person which has an effect which is similar to any of (a)-(c) above or which has the effect of limiting the Contractor's or any Associated Company's ability to carry out any of (a)-(c) above;*
 - ▶ **Financing Agreement:** *means all or any of the agreements or instruments entered into or to be entered into by the Contractor or any of its Associated Companies relating to the financing of the Project (including the Initial Financing Agreements and any agreements or instruments to be entered into by the Contractor or any of its Associated Companies relating to the rescheduling of their indebtedness or any Refinancing);*
 - ▶ **Associated Company:** *means in respect of a relevant company, a company which is a subsidiary, a Holding Company or a company that is a subsidiary of the ultimate Holding Company of that relevant company, and in the case of the Contractor shall include [Holdco and] each of the Shareholders; [N.B. If a fund or limited partnership or "50:50" owned vehicle (which is not a "subsidiary") or similar is in the relevant ownership chain of the Contractor, this definition will need to be expanded to cover it.]*

Finally, it is also considered that due to the high profile nature of OFTOs and future pipeline of projects it is unlikely that OFTOs would seek to circumnavigate the refinancing provisions due to the damage to market reputation to OFTOs and their sponsors.

We recommend Ofgem seeks legal advice on the detailed drafting that would be appropriate to incorporate into the licence should Ofgem decide to implement a refinancing gain sharing mechanism.

Potential impact on competition for OFTO licences

There is a concern that the introduction of a refinancing gain share mechanism may disincentivise some potential bidders from bidding altogether, thereby reducing competition for the licences, and/or result in an increase in the price bid.

However, it is unclear from the licences awarded to date how much benefit, if any, OFTOs have embedded in the tender revenue stream and whether changing the refinancing

provisions would result in an increase in the price bid. Ernst & Young considers the potential for refinancing to be a relatively small, albeit important, aspect of any contract which gives potential (but not guaranteed) upside.

In addition the experience from the PFI market is that competition for contracts is still strong despite the current refinancing provisions. Ernst & Young is not aware of any studies that have been undertaken in the PFI market to assess whether the introduction of a refinancing gain sharing mechanism either reduced market participants or resulted in an increase to the price paid by Authorities for PFI projects. However our experience of the PFI market is that competition for contracts is still strong despite the current refinancing provisions, and that when refinancing drafting has been amended there has been no identifiable impact on the price proposed by bidders in competition.

Potential impact on financing terms

Senior debt terms on the OFTOs to have reached Financial Close to date have been relatively competitive given funding market conditions. Senior debt providers will typically want the debt to be refinanced well before the actual maturity of the loan, in order to recycle their capital for use on future loans and investments. There is a concern that senior debt providers may take the view that the existence of the gain sharing mechanism will make it less likely that their debt will be refinanced which could have an adverse impact on the senior debt funding terms that OFTOs are able to obtain.

We consider that the introduction of a refinancing sharing mechanism could reduce the likelihood of sponsors undertaking a refinancing. However the sharing mechanism could also enable Ofgem to initiate a refinancing, which is not available where there is no refinancing clause, even though we see this as an unlikely scenario.

We do not consider that the introduction of a refinancing gain share mechanism would result in a material adverse impact on OFTOs' senior debt funding terms as we are not aware of senior debt providers taking into account the probability of sponsors refinancing when they are setting their terms for a transaction, as there is no certainty that a refinancing will occur.

A summary of the advantages and disadvantages of introducing a refinancing gain share mechanism is provided below.

Advantages	Disadvantages
<ul style="list-style-type: none"> ▶ Refinancing gains would be shared, allowing the end consumer to benefit from reduced transmission costs. ▶ Enabling the end consumer to share in refinancing gains, preventing any windfall gains from being retained solely by the OFTO, would help to avoid any negative publicity in the event of a refinancing. ▶ The requirement for Authority consent (or in the case of OFTOs, Ofgem consent) enables value for money to be maintained in the event of any refinancing, as any refinancing which would put the Authority (or in the case of OFTOs, the consumer) in a worse position, taking account of future liabilities, can be refused. ▶ The right to trigger a refinancing would provide Ofgem with the ability to ensure the consumer benefits if debt markets do improve and a refinancing gain could be achieved. ▶ If SoPC 4 gain sharing mechanism is adopted by Ofgem the drafting is readily available and is understood by both equity and debt providers in the PFI market. However, we note that OFTOs are regulated by licence rather than contract and if the SOPC4 principles were to be adapted by Ofgem it would need to consider how they were incorporated into the licence. 	<ul style="list-style-type: none"> ▶ The existence of a gain sharing mechanism may increase bid prices as bidders would not be able to embed the full benefit of a potential future refinancing in the TRS. However, as noted above, there is no certainty as to the extent to which bidders are actually embedding any additional value in their TRSs under the current OFTO regime. ▶ The existence of a gain sharing mechanism may disincentivise some potential bidders from bidding altogether, reducing competition for OFTO licences, however the experience from the PFI market is that competition for contracts is still strong despite the current refinancing provisions. ▶ Senior debt funding terms may be adversely affected if a gain sharing mechanism is introduced. However there is no evidence at this stage to support this. ▶ It is possible that OFTOs could avoid sharing refinancing gains even if a refinancing mechanism exists, however the potential for this can be mitigated through the licence drafting. ▶ Including these provisions could increase the level of monitoring and licence management Ofgem would be required to carry out.

The current SoPC4 sharing mechanism is the result of developments and refinements over a number of years in response to changes in the market. Specifically, the changes which have increased the public sector's share above 50% have been in response to changes in the debt funding markets since the onset of the global financial crisis in 2008.

The OFTO regime is not PFI and is not bound by SoPC4 guidance. It has been noted that the absence of a refinancing gain share may have assisted in (or at least did not detract from) attracting potential investors and increasing competition in TR1 and TR2. Ofgem may therefore consider that it wishes to continue to differentiate itself from PFI by either retaining its current refinancing policy or adopting different sharing proportions from those set out in the latest SoPC4 guidance. For example, it would be possible for Ofgem to adopt a sharing mechanism in which refinancing gains are shared 50:50.

2.8 Quantification of gains using PFI mechanism

In this sub-section we consider the potential for projects to be refinanced and the potential quantum of the gain to the private sector contractor.

2.8.1 Potential for OFTO projects to be refinanced

There are a number of factors which make it possible that OFTOs could generate refinancing gains and therefore may be incentivised to refinance:

- ▶ Margins are higher than they were before the financial crisis began. While we are not aware of any commentators predicting a return to the margins that were being seen just before the financial crisis began it is not known how margins may move over the course of a 20 year concession.
- ▶ In addition to the general level of margins, in our experience any long term debt funding solution in the current market contains margin ratchets. These are designed to incentivise the borrower (in this case the OFTO) to refinance in order to reduce its funding costs.
- ▶ The availability of long term debt is reducing. If the funding available to future OFTOs is only short to medium term the OFTO may be required to refinance at least once during the revenue term and the potential for refinancing gains could be increased by extending the tenor of the debt.
- ▶ The continued increase in interest in infrastructure debt from institutional funding sources may increase the opportunities for OFTOs to refinance their initial bank debt to a more efficient funding solution.

2.8.2 Potential quantum of refinancing gains

We would not expect the level of refinancing gain to be as large as in early PFI projects where the size of the gain was largely driven by extending the tenor of the debt. The debt tail in TR1 is typically less than 2 years thereby limiting the level of gain that can be achieved through this mechanism.

As set out above, from our experience of the refinancing of PFI projects the following factors typically drive the size of the refinancing gain:

- ▶ extending the tenor of debt;
- ▶ release of the debt service reserve account (DSRA);
- ▶ reduction in the cover ratios; and

- ▶ reduction in margins.

We have carried out analysis of potential gains that could be achieved from these four elements, both individually and in aggregate. Key assumptions used in the analysis are below:

Table 2: Key refinancing model assumptions

Item	Assumption
OFTO capital cost	£100m
Gearing	90:10
Debt funders	50% EIB, 50% commercial lenders
Debt to be refinanced	Commercial lenders only
Arrangement fee on new debt	200bps
Discount rate used to calculate the gain⁵	10.5%
Timing of refinancing	Year 2 of operations
Refinancing assumptions	
Reduction in margins	100bps
Reduction in cover ratios	0.05
Release of DSRA?	Yes
Tenor extension	6 months

The rationale for using the above assumptions is as follows:

- ▶ the initial funding assumptions (capital cost, gearing, arrangement fee, etc) reflect a generic TR1 project; and
- ▶ the refinancing assumptions are chosen to enable illustrative results to be calculated which demonstrate the relative impact of amendments to the possible elements of the funding terms which could be amended as part of a refinancing.

The figures in the table below provide an indication of the quantum of gain that could be achieved given the above assumptions and the extent to which this gain would be shared with the consumer if the PFI gain sharing mechanism is applied. These are provided for illustrative purposes only and neither the assumptions nor the results are predictions of the likely gain for each of these elements of a refinancing.

Figures for two possible gain sharing mechanisms have been provided in the table below:

1. Amended (i.e., current) PFI mechanism as set out in April 2012 and summarised in section 2.4.3 above.
2. As for (1), but excluding the 90% share of any gains arising purely from margin reductions, ie, gain shared 50/60/70%.

The table below illustrates the net refinancing gain share for the consumer assuming the amended (i.e., current) PFI mechanism as set out in April 2012 and summarised in section 2.4 above. In addition, the final row in the table illustrates the gain share for the consumer if the 90% share of any gains arising purely from margin reductions is not applied and all gains (including those arising from margin reductions) are simply shared in the 50%/60%/70% bands:

- i For a Refinancing Gain from £1 to £1 million, a 50% share;

⁵ The discount rate reflects the mid-point of the OFTO equity returns highlighted in the NAO report of 10-11%. This rate is used as it is the future shareholder returns which are discounted in order to calculate the refinancing gain. Shareholder returns comprising shareholder loan capital and interest, plus dividends.

- ii For a Refinancing Gain of £1 million up to £3 million, a 60% share; and
- iii For a Refinancing Gain in excess of £3 million a 70% share.

Within the table the impact on the gain of adding in each of the 4 amendments to the debt terms is shown.

Table 3: Refinancing gains assuming current PFI mechanism

£m	Reduce margins by 1%	Reduce margins by 1% & ADSCR by 0.05	Reduce margins by 1%, ADSCR by 0.05 and release DSRA	Reduce margins by 1%, ADSCR by 0.05, release DSRA and 6 month tail
Gross refinancing gain	3.0	4.7	5.8	7.8
Arrangement fee⁶	(1.0)	(1.1)	(1.2)	(1.2)
Other transaction costs⁷	(1.0)	(1.0)	(1.0)	(1.0)
Net refinancing gain	1.0	2.6	3.6	5.6
Option 1: Consumer gain share in accordance with April 2012 guidance	0.9	1.8	2.4	3.7
Incremental change from previous scenario	-	0.9	0.6	1.3
Option 2: Consumer gain share if gain shared 50/60/70%	0.5	1.5	2.1	3.5

The consumer gain share calculated in the table above assumes that the generator passes through the full benefit of the reduced TRS it pays to the OFTO to the end consumer. As stated above the figures in the table above are not intended to be predictive of potential refinancing gains in any way, they simply illustrate the gains that would be achieved for the given assumptions.

The following points are worth noting:

- ▶ A refinancing which involves an amendment to only one of the parameters tested is likely to result in either a very small refinancing gain or a net loss after the transaction costs (both arrangement fees and other transaction costs) are taken into account, unless the change to the given parameter is very material.
- ▶ The figures in the table above indicate that of the four parameters tested the gain calculation is arguably most sensitive to changes in the debt tail.

The figures above provide indicative refinancing gains for the given assumptions on a project which is a broadly typical size for a TR1 project. However, enduring projects are anticipated to be materially larger on average. If the same assumptions were applied to a project with £300 million of senior debt, the total net refinancing gain (before sharing) could range from c.£10 million for a 1% margin reduction through to c.£30-35 million if all four of the identified improvements in the funding terms were achieved.

2.9 Other factors

Other factors to consider in determining refinancing policy include:

⁶ An arrangement fee arises because new finance is being arranged. This fee varies in each scenario because the improvement in terms means the SPV can support more debt while still meeting the required cover ratios; therefore more debt is injected at the time of refinancing.

⁷ Other transaction costs assumed to be adviser costs for all parties.

- ▶ **Passing any gain to the consumer:** given the complexities of the TNUoS charging system there are in theory a number of methods and routes by which any refinancing gain earned through a refinancing gain share mechanism could be passed to the end consumer. We have not addressed these in this report.
- ▶ **Portfolio refinancing:** given the anticipated pipeline of OFTO projects it is possible that a bidder may aggregate a number of OFTOs into a portfolio and seek to refinance them on a portfolio basis. We understand that Ofgem considers that bidders would need to discuss this approach with them prior to enacting this due to the ring-fencing provisions in the licence and the refinancing gain share would need to be agreed during these discussions.
- ▶ **Impact on rating:** the impact of any refinancing on the OFTO's credit rating (or alternative financial arrangements if such arrangements have been agreed by Ofgem) would need to be considered.
- ▶ **Availability of long term debt:** if the funding market evolves to a position where long term debt is no longer available it is possible that the short initial debt tenor could give rise to potentially large refinancing gains.

2.10 Summary

One of the key criticisms of PFI was that early PFIs did not include refinancing gain sharing mechanisms, with shareholders in the SPVs realising significant refinancing gains on a number of early PFIs. HM Treasury subsequently developed specific guidance for procuring authorities in relation to refinancing to enable procuring authorities to share in refinancing gains. As Ofgem's remit includes protecting consumer interests it is considering whether it should also include a refinancing gain sharing mechanism in the enduring regime.

There are a number of aspects of the current funding markets, such as margin ratchets and the reduced availability of long term debt, which make it possible that OFTOs could generate significant refinancing gains in the future though, as noted in section 1.3, there would need to be material movement in market rates before these gains could be realised on TR1 projects. These gains could arise due to changes in funding market terms and not from any actions a particular OFTO has taken, meaning the shareholders in the OFTO could receive a windfall gain.

Given these aspects we would suggest that a refinancing gain sharing mechanism could provide consumer benefit. There are potential disadvantages of introducing a refinancing gain share mechanism as discussed in section 2.7. We consider that the advantages outweigh the disadvantages but note that there are other issues which we have not considered because we believe Ofgem are better placed to consider them.

If funding terms do become more competitive in the future the consumer would only benefit to the extent that refinancing gains have been assumed in the bid, and would not benefit from the improvements in funding terms, as the current policy does not enable refinancing gains to be shared. In addition the larger projects that are expected under the enduring regime could result in larger refinancing gains than the gains achievable on transitional projects. Finally, if the OFTO refinances there could be increased contingent liabilities following the refinancing of an OFTO but which it is important to note would only crystallise if Ofgem actually chose to revoke such a licence before the end of the revenue term..

There is already a well-developed refinancing mechanism in the PFI market. Given the similarities between the OFTO regime and PFI, particularly in relation to the sources and tenor of funding used, we would suggest this sharing mechanism and the associated drafting in relation to Authority consent to a refinancing and the Authority's right to request a refinancing may be a useful reference for Ofgem in developing a refinancing gain sharing policy.

It would be possible to justify different refinancing mechanisms for OFTO build and generator build given the potential for different levels of gearing and other funding terms under OFTO build. However, we would not expect any refinancing to occur during construction, and during operations the risk profile for OFTO build projects and generator build projects should be the same. We would therefore suggest that the refinancing policy should be the same for either type of model build for the enduring regime to provide consistency across the licence terms.

3. Indexation

3.1 Introduction

In this section we address how varying forms of indexation can affect value for money of the OFTOs to consumers.

We analyse the costs, benefits and practical considerations for a range of policy options for indexation, including the current fully RPI indexed TRS in the OFTO licence.

3.2 Current OFTO policy

For TR1 and TR2 projects the current OFTO policy is that the TRS is fully indexed by RPI.

Our understanding is that the rationale for this approach is that:

- ▶ it is consistent with the onshore regime⁸;
- ▶ it ensures there is consistency between bidders and across the OFTO regime;
- ▶ it is straightforward and offers the lowest cost to the consumer in the early years of the OFTO licence; and
- ▶ it was expected to stimulate competition amongst funders and investors seeking long term returns linked to inflation and in particular index linked bond funding solutions.

Our understanding is that it was anticipated that the above factors, particularly the policy's simplicity and its consistency both with the onshore regime and across the OFTO regime, would deliver benefits to the consumer through making the investment simpler for investors to understand and would increase competition for the OFTOs, delivering value to consumers.

3.3 PFI guidance

In May 2006 HM Treasury issued Application Note – Interest Rate & Inflation Risks in PFI Contracts⁹. In respect of inflation issues in PFI contracts the Application Note addresses:

- i The proportion of the unitary charge to be indexed
- ii Measures of inflation
- iii Inflation assumptions in bid evaluation
- iv Inflation-indexed financing or hedging by the contractor
- v Interaction between inflation swaps and interest rate swaps

Below we summarise some of the key issues contained in the Application Note in respect of points (i) and (iv) above:

- ▶ Indexation of the unitary charge should be assessed from the perspective of value for money.
- ▶ The relationship between the degree of indexation of the public sector's resources and of the unitary charge is an important issue in the assessment of affordability over the life of the contract.

⁸ A brief comparison of the onshore and offshore regimes, including a summary of key differences, is provided in section 1.

⁹ http://www.hm-treasury.gov.uk/d/pfi_hedging120506.pdf

- ▶ Over-indexing of the unitary charge can erode value for money:
 - ▶ the Authority is paying for a longer average loan life which is more expensive over the life of the project, as more interest is paid overall;
 - ▶ the short term affordability benefit may be offset by long term affordability constraints;
 - ▶ termination liabilities will be higher due to higher outstanding loan balances; and
 - ▶ there may be pressure to enter into inflation hedging.
- ▶ Given the above the value for money baseline should be a matching of indexation of the unitary charge to the underlying inflation exposure of the contractor's costs, assuming that debt servicing costs are fixed.
- ▶ Inflation hedging by the contractor can create contingent liabilities for an Authority, raising important value for money considerations. Where inflation hedging is appropriate it may be better value for an Authority to provide protection for the contractor through the unitary charge indexation regime than for inflexible hedging instruments to be used.
- ▶ The conclusion reached in the Application Note is that *"it is therefore relatively hard for inflation-indexed finance or an inflation swap arranged by the contractor to demonstrate the best long term value for money for the Authority even if there is an apparent initial benefit or affordability advantage"*.

These comments were made in the context of PFI and, as noted in section 2, the OFTO regime differs from PFI in a number of ways. Differences particularly relevant to indexation are discussed below.

3.4 Differences between the OFTO regime and PFI

The key contractual differences between the OFTO regime and PFI are set out in section 2 and are therefore not repeated here. Other differences that are potentially relevant when considering the approach to indexation are:

- ▶ **Affordability:** public sector authorities entering into PFI contracts, particularly NHS Trusts, typically have affordability limits and constraints. For the PFI project to go ahead the cost to the Authority of the contractor's solution must be below this affordability limit. In some of the earlier PFI deals the revenue stream was fully indexed to reduce the cost in the early years of the concession enabling the project to be affordable. For the OFTO regime this is less of a concern: neither Ofgem nor NETSO (as the entity paying the TRS to the OFTO) have specific affordability limits. However a core element of Ofgem's role is to deliver value for consumers therefore a significant element of the evaluation of OFTO bids is the price of each bid. This is easier to assess if the TRS is fully indexed as the first year TRS for all bidders is directly comparable on a consistent basis.
- ▶ **Onshore Regime:** when PFI was originally introduced there was no industry norm for it to be compared to and the indexation regime has developed over time with guidance from HM Treasury. With respect to OFTOs the onshore transmission regime could be considered to be a relevant benchmark and as noted in section 3.2 above one of the original drivers behind Ofgem's decision to fully index the TRS is that this is the norm in the onshore transmission regime.

3.5 Differences between OFTO and generator build

We would not expect any difference in indexation policy between OFTO build and generator build as indexation applies to the TRS which is only paid after construction has been completed and operations have commenced. It is not expected that there will be any material

difference between OFTO build and generator build during operations, both in relation to the activities of the OFTO and the cost base which the revenue needs to cover.

3.6 Alternative indexation approaches

There are a number of possible approaches to how the TRS could be indexed, which are considered below. For each approach we have summarised the practical considerations associated with the approach and have set out the key advantages and disadvantages.

3.6.1 100% of the TRS subject to RPI indexation

This would maintain the approach adopted on TR1 and TR2. It is also consistent with the approach adopted in many early PFI projects and the onshore grid regime.

Practical considerations

All bidders will have a fully indexed TRS, which simplifies the evaluation of the price bid by bidders as it can simply be carried out on the year 1 TRS.

Indexing 100% of the TRS will result in the OFTO carrying exposure to inflation since financing costs account for the majority of its cost base and, unless the OFTO has arranged inflation-linked funding, the financing costs will not fluctuate with inflation. As a result the inflation on the OFTO's income will not match the overall inflation on its cost base. To date none of the OFTOs have utilised index linked debt.

If the OFTO's funding is not index-linked it is likely that the OFTO will be required by its funders to enter into a RPI swap, in order to protect the OFTO against fluctuations in inflation during the revenue term as consistent with TR1 bids.

Advantages	Disadvantages
<ul style="list-style-type: none"> ▶ Consistent with the onshore regime. ▶ Potentially provides a reasonable match to the end consumer's available income, which may be assumed to increase by inflation albeit not necessarily RPI. ▶ Where the RPI swap rate is higher than the inflation assumption swapping out a proportion of the TRS at this higher assumed rate results in a lower base TRS than would be achieved with no RPI swap. ▶ Allows direct comparability between bidders on evaluation without having to consider what outturn inflation may be over the full revenue term. 	<ul style="list-style-type: none"> ▶ RPI swap providers charge a credit spread. This reduces the all-in rate achieved on the RPI swap and as such is an additional cost for the project to bear. ▶ RPI swaps create a contingent liability, with the potential for significant breakage costs in the event the RPI swap needs to be cancelled. Ultimately this cost could be borne by the consumer (e.g., in the event the transmission asset is no longer needed and Ofgem decides to revoke the licence or terminate the TRS entitlement). ▶ There is greater variability of the price for the consumer than there would be if a lower percentage of the TRS was indexed.

3.6.2 Percentage to be indexed to be biddable

Under this approach the bidders would determine the percentage of the TRS which is subject to indexation. This is the approach typically taken on UK PPP/PFI projects in recent years.

Practical considerations

There are a number of practical considerations of this approach.

Evaluation

All bidders will potentially be bidding different indexation percentages, to match their individual solutions. Adopting this approach would consequently result in the need for amendments to the current evaluation approach, including:

- ▶ Ofgem would need to stipulate a RPI rate assumption for all bidders to use, for the purposes of comparability between bids. This is commonly done in UK PPP/PFI projects.

- ▶ The price evaluation would need to be carried out on the NPV of the TRS over the full revenue term rather than simply using the year 1 TRS value. The reason for this is that a bid with a lower indexation proportion may start with a higher year 1 TRS than competing bidders but could result in the lowest overall cost as the TRS does not inflate as rapidly over the full revenue term.

We would expect the proportion of the TRS to be indexed bid by bidders to be similar on individual projects, given the nature of the assets being tendered and the restrictions on variant bids.

Bidder in control of inflation risk

This option allows bidders to structure their bids to match their inflation appetite and thereby avoid any risk pricing which may occur if they are being asked to take risks they would rather not take.

Bidders can choose whatever indexation proportion provides a natural hedge to inflation, i.e., the proportion which results in the inflation on the OFTO's income stream matching the overall inflation on its full cost base. We consider it is likely that this is the approach bidders would take as the OFTO's senior funders will require it to be effectively hedged to inflation.

RPI swap

This option means that bidders should not need a RPI swap to hedge inflation risk. However it should be noted that as current long term RPI swap rates are higher than the 2.5% inflation rate which has typically been used as the inflation assumption in PFI projects, it is possible that bidders may still choose to bid high indexation proportions and take out a RPI swap, so as to offer a lower TRS, as the markets are expecting higher inflation than the 2.5% assumption provided. If this option was adopted Ofgem should make it clear within the tender instructions that it does not want the TRS to be over-inflated and that RPI swaps should not be included in bid submissions to ensure consistency for bidding purposes.

Advantages

- ▶ There is lower variability of outcome for the end consumer than there would be if 100% of the TRS is indexed.
- ▶ Bidders can inflate the proportion of the TRS which provides a natural hedge to inflation on the cost base. This provides an efficient solution for inflation purposes.
- ▶ No need for a RPI swap to be taken out. This avoids the project having to bear the cost of the RPI credit spread (currently 0.3%-0.4%) and also avoids the potential for any breakage costs on such a swap in the event it needs to be cancelled before the end of the original revenue term.

Disadvantages

- ▶ If there is a large range of indexation proportions across the competing bidders for any one OFTO licence, the overall evaluation result may be sensitive to the inflation assumption.
- ▶ If the proportion subject to indexation is very low, this would result in consumers in the early years incurring a higher cost for transmission in real terms compared to the cost incurred by consumers in later years.
- ▶ Not consistent with the on-shore regime.

3.6.3 Fixed percentage (less than 100%) indexed

This would involve Ofgem stipulating to the OFTO bidders the percentage of the TRS to be indexed.

Practical considerations

For this to be meaningfully different from the full indexation above the fixed percentage would need to be materially less than 100%. In practice, if this option was adopted we would expect the fixed percentage to represent either an estimate of the OFTO's indexing cost base or at least a percentage which results in a materially different payment profile from the full indexation option.

We are aware of a limited number of procurements of long term infrastructure concessions in the past where bidders have been asked to bid a fixed indexation percentage. However, in our experience, this is a relatively unusual approach.

Advantages	Disadvantages
<ul style="list-style-type: none"> ▶ Allows direct comparability between bidders on evaluation without having to consider what outturn inflation may be over the revenue term. ▶ There is lower variability of outcome for the end consumer than there would be if 100% of the TRS is indexed. ▶ Is likely to provide the OFTOs with a better natural hedge to inflation than the current approach of 100% indexation. 	<ul style="list-style-type: none"> ▶ The percentage chosen is unlikely to provide a precise natural hedge to inflation for the OFTO as it will be based on an estimate by Ofgem. Therefore bidders are likely to be left with an inflation exposure which they will need to mitigate (e.g., through taking out a RPI swap) if they do not wish to bear it. ▶ If a RPI swap is required this will introduce swap credit spreads and potential breakage costs to the project as identified above. However these costs would not be expected to be as large as in the current 100% indexation approach as indexing less than 100% should mean the OFTO has a smaller inflation exposure than in the 100% indexation approach. ▶ Potential adverse impact on future index-linked funding solutions

It is considered that the relative benefits of this approach are not as great as either the current OFTO policy or the 'biddable indexation' approach set out in 3.6.2, therefore we do not recommend considering this option further.

3.6.4 Bidders to choose from a prescribed selection of indexation percentages

This would involve Ofgem providing a list of indexation assumptions (e.g., 100%, 50%, 20%) and asking bidders to choose the indexation proportion in their bid from the list.

Practical considerations

The main practical considerations of this approach are in relation to evaluation. All bidders could potentially bid different indexation percentages. Adopting this approach would consequently result in the need for amendments to the current evaluation approach, including:

- ▶ Ofgem would need to stipulate a RPI rate assumption for all bidders to use, for the purposes of comparability between bids.
- ▶ The price evaluation would need to be carried out on the NPV of the TRS over the full revenue term rather than simply using the year 1 TRS value.

In addition to the above, we would recommend Ofgem runs inflation sensitivities on the bidders' TRS profiles during evaluation to test how sensitive the evaluation result is to actual inflation over the revenue term.

We are not aware of this approach being used on other long term infrastructure concessions.

Advantages	Disadvantages
<ul style="list-style-type: none"> ▶ For indexation percentages below 100% there will be a lower variability of outcome for the end consumer than there would be if 100% of the TRS is indexed. ▶ Indexation percentages below 100% are likely to provide the OFTOs with a better natural hedge to inflation than the current approach of 100% indexation. 	<ul style="list-style-type: none"> ▶ This option introduces the possibility of variant bids: if bidders are ambivalent between approaches they may wish to put forward a bid for each approach. ▶ There could be a large range of indexation proportions across the competing bidders for any one OFTO licence. This would mean the overall evaluation result may be sensitive to the inflation assumptions chosen. ▶ Any of the percentages chosen are unlikely to provide a precise natural hedge to inflation for the OFTO, therefore bidders are likely to be left with an

inflation exposure which they will need to mitigate (e.g., through taking out a RPI swap) if they do not wish to bear it.

- ▶ If a RPI swap is required this will introduce swap credit spreads and potential breakage costs to the project as identified above. However for indexation proportions below 100% these costs would not be expected to be as large as in the current 100% indexation approach.
-

It is considered that the relative benefits of this approach are not as great as either the current OFTO policy or the 'biddable indexation' approach set out in 3.6.2, therefore we do not recommend considering this option further.

3.7 Quantification analysis

The analysis below compares a fully indexed TRS with a RPI swap to a partially indexed TRS with no RPI swap. The analysis also considers different outturn indexation assumptions for these two scenarios.

This analysis is not intended to be a full value for money analysis of the two scenarios as it does not take into account the differing risk profiles between the two options, namely the potential breakage costs associated with the RPI swap and the different outstanding loan profiles under the two options. Rather it simply focuses on the potential payments that could be made under differing inflation assumptions and the NPV of those TRS profiles.

i) TRS payment profile fully indexed with a RPI swap

The figures presented are for illustrative purposes only and have been carried out on a generic OFTO project with the following key assumptions:

- Capital costs: c.£200m
- Assumed base case RPI rate: 2.5%
- Interest rate swap rate: 2.070%
- RPI swap rate: 2.875%
- RPI swap credit margin: 0.30%
- Proportion of TRS swapped out 84%

The rationale for using the above assumptions is as follows:

- ▶ the capital cost reflects a generic enduring project, though we recognise and expect that many enduring projects will be significantly larger than this;
- ▶ the assumed base case RPI rate of 2.5% is a standard bidding assumption to ensure comparability across bidders;
- ▶ the interest rate swap rate, RPI swap rate and RPI swap credit margin are based on market rates in September 2012; and
- ▶ the proportion of the TRS swapped out reflects the proportion of the OFTO's costs which are funding related costs and therefore not linked to actual inflation.

The table below shows the potential variation in the year 20 TRS value as compared to the year 1 TRS value for different indexation rates. It also shows that the NPV of the revenue

stream is unaffected by differing indexation rates as the TRS is wholly indexed and the nominal discount rate for each scenario necessarily incorporates the assumed outturn inflation rate, therefore the nominal discount rate for each scenario is different.

Table 4: 100% of TRS subject to indexation

Outturn inflation rate	Year 1 TRS (£m) Nominal	Year 20 TRS (£m) Nominal	NPV ¹⁰ (£m)
0%	16.2	16.2	243
2.5%	16.2	26.5	243
2.875%	16.2	28.6	243
5%	16.2	43.0	243
Variance (0% to 5%)	0	26.8	0

ii) TRS payment profile partially indexed with no RPI swap

The figures presented are for illustrative purposes only and have been carried out on a generic OFTO project with the following key assumptions:

- Capital costs: c.£200m
- Assumed base case RPI rate: 2.5%
- Interest rate swap rate: 1.934%
- Proportion of TRS indexed 14%

It should be noted that the interest rate swap rate under this option is lower than under the fully indexed scenario as the senior debt has a shorter average loan life, ie, although the debt tail is the same the repayments are more front-ended due to there being proportionally more revenue in the early years of the project compared to the fully indexed scenario. The proportion of the TRS indexed reflects the proportion of the TRS which needs to be indexed to provide a natural hedge against inflation given the proportion of the OFTO's costs which are themselves linked to inflation.

The table below shows the potential variation in the year 20 TRS value as compared to the year 1 TRS value for different indexation rates. It also shows that the NPV of the revenue stream is affected by differing indexation rates as the TRS is wholly indexed.

¹⁰ Discounted using the Treasury discount rate of 3.5% real

Table 5: 14% of TRS subject to indexation

Outturn inflation rate	Year 1 TRS (£m) Nominal	Year 20 TRS (£m) Nominal	NPV ¹¹ (£m)
0%	19.5	19.5	292
2.5%	19.5	21.3	244
2.875%	19.5	21.6	238
5%	19.5	24.0	210
Variance (0% to 5%)	0	4.5	82

The tables above show that a partially indexed TRS will require a higher first year TRS than the fully indexed TRS. However over time the partially indexed TRS is impacted less by indexation than the fully indexed TRS. The NPV of the payments made under fully indexed TRS does not change for differing levels of indexation, whereas the NPV of the partially indexed TRS reduces as indexation increases. As such, if the outturn inflation rate is above the original inflation assumption, the NPV of the partially indexed TRS will be lower than the NPV of the fully indexed TRS. If the outturn inflation rate is below the original inflation assumption, the opposite will be true.

It should be noted that using a typical inflation assumption of 2.5% that the NPVs of the partially indexed TRS and fully indexed TRS are broadly similar, with the NPV of the fully indexed TRS being marginally lower than that of the partially indexed TRS. This is due to the inflation assumption used of 2.5% being lower than the RPI swap rate resulting in the fully indexed TRS receiving RPI swap income throughout the life of the revenue term.

If the inflation assumption is 2.875%, the same rate as the RPI swap, which could be viewed as the rate markets expect inflation to be over the life of the revenue term, then the partially indexed TRS has a lower NPV than the fully indexed TRS. This is due to the lower interest rate swap rate in the partially indexed TRS scenario and the RPI swap credit margin in the fully indexed TRS scenario.

It can be seen that this aspect of the assessment of value for money of the two different scenarios, from the perspective of the consumer, will be dependent on the view taken with regards to the inflation assumption over the life of the revenue term. Using a typical public sector inflation assumption, of 2.5%, there is little difference between the cost of the two scenarios detailed above and the value for money decision would therefore depend on other factors such as the risk of incurring potential RPI swap breakage costs, the difference in potential interest rate swap breakage costs and the higher amounts of senior debt and equity returns outstanding over the life of the revenue term and the impact on investor appetite.

3.8 Summary

The current OFTO policy is for the TRS to be fully indexed by RPI.

In respect of the percentage of revenue stream to be indexed, current practice on UK PPP/PFI projects is for bidders to be asked to bid back this percentage. This enables them to create a natural hedge against the inflating costs in their underlying cost base. Conversely onshore TOs receive a revenue stream which is fully linked to inflation, albeit for a shorter time period before the price is reviewed by Ofgem.

Although there are differences between the OFTO regime and PFI it is not considered that any of these differences are so material that the enduring OFTO regime requires a different

¹¹ Discounted using the Treasury discount rate of 3.5% real

approach to determining the indexation percentage now that the OFTO regime has a proven track record of its own. Based on our analysis, asking bidders to bid back their required percentage is likely to best meet bidders' requirements and offer best value for money to the end consumer. It is also most consistent with current HMT guidance for PFIs.

Therefore we recommend that bidders are asked to bid back their required percentage of RPI though we note that there may be other considerations which Ofgem is best placed to consider.

4. Length of revenue term

4.1 Introduction

This section considers the risks and benefits associated with a 20 year and 25 year revenue term as agreed with Ofgem. As identified in the introduction in section 1, the analysis will take into account current SoPC4 PFI guidance given the similarities between PFI and OFTOs. Ofgem has provided us with cost assumptions to enable us to undertake a quantitative analysis of the potential benefits and costs to consumers of a 20 year and 25 year revenue term.

We consider the potential impact on funding of the difference between a 20 and 25 year revenue term and have taken into account the differences between OFTO and generator build. We also consider potential options relating to the extension of the TRS at the end of the current revenue term both on existing Transitional Round assets and on future enduring regime projects.

4.2 Current OFTO policy

The current OFTO policy is to provide a 20 year revenue term to each OFTO, reflecting the expected life of the windfarms. The 20 year revenue term is also equal to the term of the renewable obligation (RO) which is the main revenue support mechanism currently in place for windfarm generators, though it should be noted that the start date for payments under the RO under transitional projects is likely to be different from the start date of the OFTO revenue term. In the setting up of the OFTO regime a 20 year revenue term was considered to provide an asset class attractive to investors. However the potential for windfarms to operate beyond 20 years, plus the potential for OFTO build projects which may bring additional revenue term considerations, suggests that further consideration is needed for the enduring regime.

Whilst the licence for the OFTO is provided in perpetuity the 20 year revenue term effectively limits the period for which the OFTO will provide the capability for the wind farm to transmit electricity.

At present should there be an extension required to the revenue term due to:

- ▶ a wind farm wishing to operate longer than 20 years and cable able to transmit; or
- ▶ a cable able to transmit and windfarm to be reconditioned/repowered (i.e., new turbines erected) or replanted,

then a trilateral discussion is likely to be required between the generator, Ofgem and the OFTO to extend the revenue term, albeit Ofgem as the regulator would ultimately determine the terms of the extension.

Whilst there would be no obligation on any party to extend the revenue term it is likely to be in the commercial interests of all parties to come to an agreement. We would expect any TRS in this extended period to be significantly lower than that paid for the initial 20 year term as the capital requirement, which makes up the majority of the TRS, would have been paid off through the initial revenue term.

4.3 Consideration of revenue term and expiry under PFI

4.3.1 Revenue term

PFI consideration

SoPC4 provides 7 considerations for the appropriate duration of a contract for PFI projects. These are as follows¹²:

1. The service requirements of the Authority and the Authority's ability to forecast quality and quantity outputs in the longer term.
2. The expected life of the assets underpinning the Service and any possible residual value and the need for timing of major refurbishment or asset refreshment programmes during the Contract.
3. The importance of continuity in the delivery of the Service, including the degree of transition difficulties and inefficiencies that might be caused by changing Contractors.
4. The importance of maintaining performance incentives over time.
5. The viability of recompeting the Contract regularly, including private sector capacity and bidders' likely willingness to bid against the incumbent.
6. The ability of the Contractor accurately to forecast its base cost.
7. The possibility of an option to extend the term of the Contract by entering into a further contract period with the initial Contractor.

The Australian model for Social Infrastructure also uses similar guidelines to SoPC4 in respect of revenue duration whilst including some considerations around funding.¹³

Differences to PFI projects

The key contractual differences between the OFTO regime and PFI are set out in section 2 and are therefore not repeated here.

In addition in consideration of revenue term the OFTO regime is different from PFI as it has a private sector user, rather than a public sector user, of the asset, the windfarm.

This therefore affects Ofgem's ability to forecast the demand requirements on the OFTO assets particularly in relation to the length of service provision and requires consideration of the windfarm operation/future windfarms in the same location.

4.3.2 End of revenue term/Contract expiry

PFI consideration

SoPC4 also considers the treatment of assets on expiry of the service period which parallels closely with the end of revenue term for an OFTO. Distinctions are drawn between:

- ▶ contracts where it represents best value for money for the Authority to take control of the assets on expiry which generally relates to assets where the long-term public sector demand is clear or for which there is no practical alternative use; and
- ▶ contracts where residual value of the assets is best transferred to the contractor which generally relates to assets which have alternative use outside the public sector and for which there is no clear long-term public sector need.

Under the SoPC4 considerations our view is that an OFTO asset resembles a contract where it is best value for money for the Authority to take control on expiry as there is no alternative use for the OFTO assets (assuming pure point to point connections) and there is potential need for the asset going forward. We note that this may not be the case for some network

¹² See Standardisation of PFI Contracts Version 4, section 2.2.1.

¹³ See National Public Private Partnership Guidelines. Volume 3: Commercial Principles for Social Infrastructure, December 2008.

configurations and that Ofgem may be aware of other considerations which lead to a different conclusion on what is the best value for money.

Differences to PFI projects

There is a significant divergence for OFTO from PFI given that the asset cannot revert back to Ofgem¹⁴. Under a PFI project of a similar nature it would be expected that the asset would revert back to the public sector.

There is also a more acute asset redundancy issue in an OFTO context than in PFI. Accommodation and other similar projects may suffer from under usage but are generally unlikely to have zero usage and to some extent the usage of the asset is within the control of the public sector Authority. If a windfarm were to be fully decommissioned prior to the expiry of the revenue term, which is wholly outside the control of both Ofgem and the OFTO, then there may be payments made to the OFTO where there is no requirement for the asset.

4.4 Consideration of revenue term for OFTO

Based on the considerations of SoPC4 and the differences to the OFTO projects we have reviewed the considerations for OFTO based on three main groups as below:

Grouping for OFTO	SoPC 4 consideration
Technical life and lifecycle costs	Expected life of assets Technical life and lifecycle costs
Operating life of windfarm	Long term forecast demand Continuity requirement Performance incentives
Contracting structure	Recompeting Option to extend

In addition to the three defined groups covering the SoPC4 considerations we also consider that the tenor of available senior debt funding for any project is an important consideration.

We therefore review this in conjunction with the SoPC4 considerations in the section below.

4.4.1 OFTO technical life and lifecycle costs

A report by Arup, commissioned by Ofgem, considers the life of offshore transmission assets¹⁵. The report concludes that the overall expected life of OFTO assets is likely to be 40 years or more. The useful life is more unclear due to the relative youth of offshore windfarm technology but is likely to have a lower bound of 20 years reflecting the minimum expected life of an offshore windfarm.

4.4.2 Operating life of windfarm

The overall length of use of the OFTO assets will be dictated by the length that an offshore wind farm will be in the location where it can be connected by the cable owned by the OFTO.

4.4.2.1 Technical life

The Arup report reviews the length of the windfarm assets making up a wind farm are mainly in excess of 20 years except lifecycle elements which have a sub-10 year life.

¹⁴ We understand that this would require significant changes to Ofgem’s powers.

¹⁵ Including HVAC subsea and land cables, HVDC assets, offshore platforms, switchgear, transformers, compensation equipment and comms/SCADA hardware

4.4.2.2 Support length

The support currently available to windfarms is through the renewables obligation (RO) legislation which provides revenue in addition to the wholesale price of electricity for generation. This support lasts for 20 years from the commencement of the operation of the wind farm.

The government has indicated its intention to move to a contract for difference (CFD) mechanism for the support of all large-scale (over 5MW) renewable energy. This will provide a 'top-up' above the wholesale power to generators bringing revenues to a pre-determined £/MWh figure. The CFD mechanism is expected to be in place for 15 years¹⁶ from commencement of operation.

If a wind farm is still fully or partially operating at year 20 post-commissioning (15 years for CFD) there will be an economic incentive to continue generating as long as the wholesale price that can be achieved for power at this point outweighs the operating costs (and potential additional lifecycle costs).

4.4.2.3 Repowering

Given the technical progress occurring in the offshore wind sector there may be incentives to alter the turbine prior to the expected end of its technical life due to larger sizes, higher capacity factors, lower lifecycle costs, etc. Assuming that new equipment would have a similar or higher technical life than the original equipment repowering will extend the expected technical life of the asset. It also would be expected to increase the probability of the windfarm operating after the removal of support under the RO/CFD.

4.4.2.4 Replanting

At the end of the technical life of the windfarm assets it would be expected that the assets would be decommissioned as required under various obligations. However the site itself will have been permitted for wind and a detailed understanding of the seabed conditions, wind conditions, etc., will have been gathered through operations.

At this point should offshore wind be economic (either under a new support regime or with no support) it is likely that the preferred sites will be the existing offshore sites with new turbines.

Therefore the possibility of replanting must be considered in relation to the requirement for future use.

Overall whilst it is unclear as to the exact required length for each individual OFTO the lower bound will be the minimum technical life of an individual windfarm (c. 20 years). However there is a real potential that OFTO assets will be required for in excess of 20 years.

4.4.3 Contracting structure

The OFTO contracting structure is different from a standard PFI as highlighted previously. This limits the ability to re-compete and extend the revenue term in a competitive environment, two areas that would normally be considered in relation to the revenue term.

4.4.3.1 Re-competing asset

The issues likely to affect any re-compete which are specific to the OFTO regime are:

- ▶ licence held in perpetuity by individual OFTO;
- ▶ assets are owned by OFTO with no current ability for these to revert to Ofgem; and
- ▶ Ofgem is unable to hold assets under current powers.

¹⁶ Based on DECC EMR documentation published May 2012
http://www.decc.gov.uk/en/content/cms/meeting_energy/markets/electricity/electricity.aspx

The first two points of these would preclude a recompete under the transitional projects as there are limited levers that Ofgem could use to force the OFTO to give up its licence and pass assets to any new bidder at the end of life. It is our understanding that, whilst alterations to the licence would add complications, there would be the potential to address these two issues. It should be noted that while the OFTO continues to have a licence it continues to have its obligations under the licence.

However the third issue, that Ofgem is unable to hold assets, potentially creates an issue for a retender. Should a retender be delayed or fail to attract interest there would be an issue as to where the asset would then revert to though it would likely default to remaining in the possession of the incumbent OFTO. Staying with the existing OFTO may be acceptable but the actual level of the TRS would not have been set.

Ofgem does have in place an OFTO of Last Resort mechanism, which allows Ofgem to appoint an OFTO outside of the competitive tender process, and could potentially be used in situations such as the one outlined above. Ofgem has stated that it would only use the OFTO of Last Resort mechanism once other mechanisms for ensuring ongoing transmission have been exhausted. The mechanism has been set out in detail by Ofgem in documentation published on its website, therefore we have not gone into any further detail on it here.

Including a recompete at the end of revenue term would also result in primary bids on OFTO limiting any residual value upside implicit in the bid since the probability of receiving this would be lessened.

Therefore the option of recompeting the asset could result in a high cost for limited additional benefits. However, we note that this is not a full exploration of the issues and the appropriate course of action at the time will of course depend on the specific facts and circumstances.

4.4.3.2 Extending the revenue term

Under the transitional regime there is the possibility that the transmission assets will be required after the end of the revenue term of 20 years.

A methodology for extending the revenue term would mitigate the risk of redundancy whilst enabling the use of the asset after the defined term. We set out below our proposed methodology for such an extension. We note that Ofgem may take a different view based on the specific facts and circumstances should they ever need to extend the revenue term.

There are many ways in which an extension could be defined in the licence. At the point of extension beyond 20 years the initial funding requirement should have been fully repaid (both debt and equity) in line with the original base case.

Therefore the payments that should be made to equity investors should take into account the marginal operating costs – O&M, SPV and insurance costs net of any additional third party income, plus additional lifecycle costs required, all of which could be market tested/ benchmarked, plus a return to equity.

For example the return to equity could be a 10% mark-up on costs. This would provide equity investors with an incentive to extend whilst giving the potential to include a similar availability mechanism as is already in place to incentivise equity to ensure that the cable remains operable. In circumstances where the initial TRS included a residual asset value this would also need to be taken into account in determining the level of equity return for any extension to the revenue term.

It would be advantageous to both the OFTO and generator for any discussions on an extension to the revenue term to occur at an early stage of planning for repowering/ replanting. This will enable the OFTO to consider additional required lifecycle costs early in the process and also give certainty to the generator of its ability to transmit at the point of their investment decision. Should there be technical issues which would preclude the cable being used after the initial revenue term this will also enable Ofgem and the generator to

commence proceedings to procure a new cable either through generator or OFTO build should it be required. In our experience contract extensions are complex, therefore any upfront agreement of principles and/or drafting to reduce the complexities should benefit all parties concerned.

Any extension would also need to consider the requirement for decommissioning at the end of life. Whilst the reserve which has been built up at the end of the revenue term could be carried forward, any implicit value ascribed by bidders in relation to releases from the reserve will then be pushed backwards by the period of the extension.

4.4.4 Length of financing available

We understand that three key sources of finance have been proposed on bids to date in the Transitional Round OFTO submissions, bank project finance, institutional investors via bond finance and corporate finance. Whilst the bond finance solution has not been executed to date we understand that there is appetite from both bidders and the funding community to provide this type of financing.

4.4.4.1 Bank project finance

Commercial bank debt project finance solutions have been widely used in the projects that have reached financial close to date.

At the commencement of the transitional round tenders in 2009 20 year commercial bank debt for low-risk, availability based projects such as OFTO was readily available to bidders who wished to use this funding method.

Over the past few years margins for project finance bank debt have risen, due to the increased cost of borrowing for commercial banks and evidenced by the widening credit default swap (CDS) levels for banks in Europe, and tenors becoming shorter. This has been due largely to the credit and Euro crisis affecting liquidity and banking regulation, such as Basel III, pushing up costs of providing long term loans.

Basel III will impose stricter capital requirements on banks, meaning that they will be required to hold a larger capital allocation against their lending exposures. The impact of Basel III will become increasingly apparent through to the implementation deadline of 2019 and will therefore continue to impact the OFTO enduring regime.

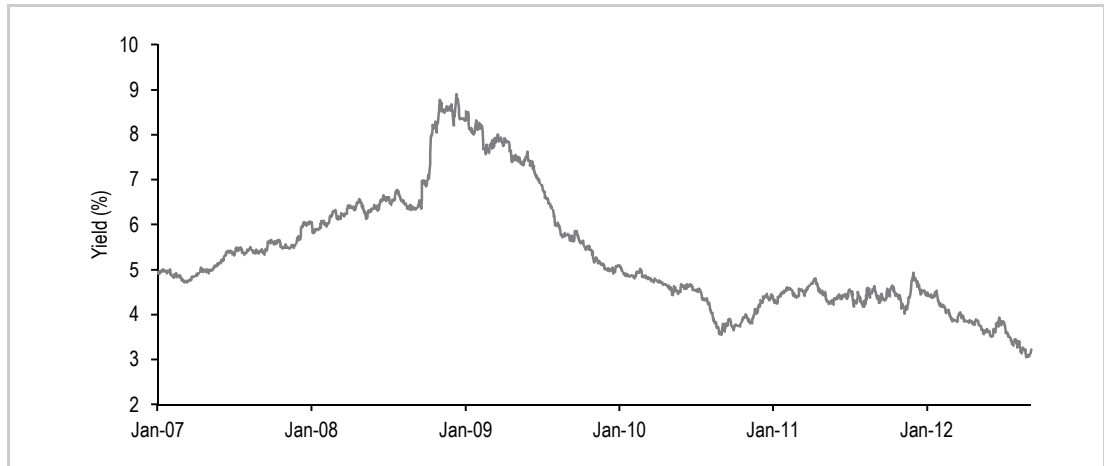
This impact has already been seen through margin increases and step-ups, shorter tenors and requirements for cash-sweeps and refinancing in other deals, though not in the OFTO sector.

We expect therefore that there is the potential that the tenor of debt for project finance loans to decrease from those seen on the transitional rounds. This gives the likelihood of a longer debt tail which will affect the level of refinancing gains that could be available if there is a future improvement in the market (see section 2).

4.4.4.2 Bond finance

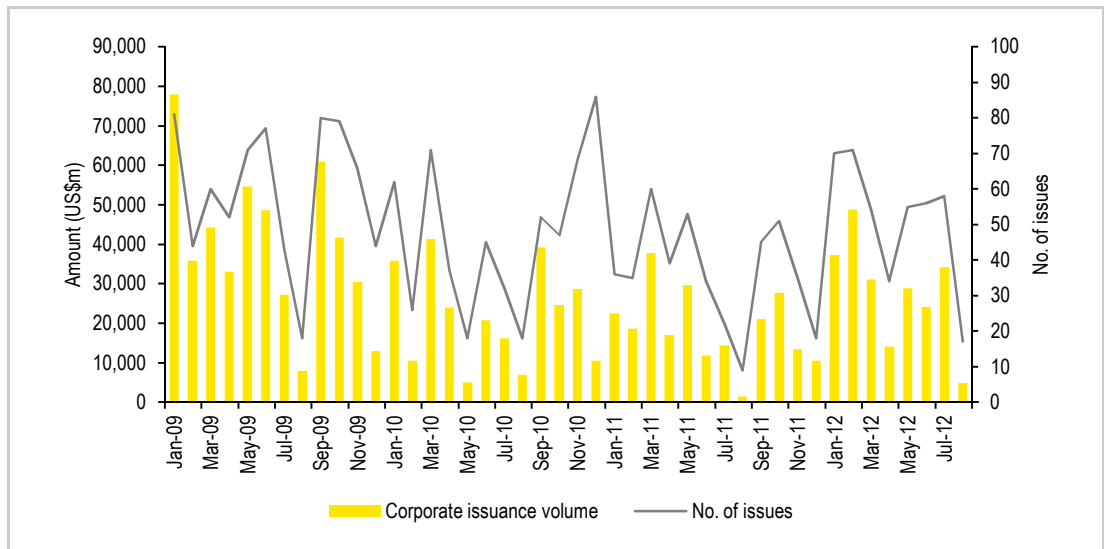
As bank funding becomes increasingly constrained, there has been a notable shift of corporates turning to the debt capital markets to not only diversify their funding but also to take advantage of the low yield environment (which is currently below even 2007 levels) with investors accessing both the public and private bond markets.

Figure 3: GBP BBB rated bond yields



Source: Bloomberg

Figure 4: European corporate bond issuance



Source: Thomson One

H1 2012 saw c. 52% of funding for European corporates sourced through bonds which is the first time that bond issuance has outpaced the loan market in Europe.

Whilst the project bond market, to date, has had no significant issuance in the UK market various entities are considering project bond financed deals.

The EIB 2020 Project Bond Initiative and Hadrian's Wall are also looking to bring forward project bonds through providing credit enhancement via subordinated loan instruments. This can therefore be expected to also assist in bringing forward bond financing.

Whilst the exact terms of these types of financings are currently uncertain the ability to provide long-dated debt is not as restricted as for project finance banks.

4.4.4.3 Corporate finance

Corporate financings are generally not bound by tenor. The funding decisions of any corporate will be based on overall strategy and do not need to reflect the revenue term of a single project. We expect that the competitiveness of corporate bids in relation to revenue

term will be affected only in the relative attractiveness of other sources of funding rather than an alteration in the ability of corporates to finance varying revenue terms.

4.5 Potential revenue terms

Ofgem has requested that we consider the relative merits of the current revenue term policy of 20 years and of 25 years. In this section we examine these for generator build options. OFTO build is then considered in a further section.

4.5.1 20 year operational term

A 20 year revenue term (as per current transitional OFTO policy) provides a term which reflects the expected technical life of a currently installed windfarm.

This mitigates the risk of redundancy, i.e., the consumer paying for an asset that is not being used through the TRS being paid to the OFTO but no electricity being transmitted. However there is the potential that the windfarm will continue to generate electricity beyond the period of the 20 year revenue term which leaves the potential for the need to negotiate an extension to the revenue term so that the windfarm can continue to transmit the electricity generated.

The likelihood of a generator stopping generation prior to the end of the 20 year revenue support¹⁷ is lower than the likelihood of a generator stopping generation after the end of the revenue support period. We believe that potential issues such as a low power price in the future would have limited impacts as the support levels under RO and CFD are likely to cover the marginal costs of generation.

Should the windfarm be economic to operate after the estimated technical life there could be the desire to extend the revenue term. Under the current OFTO regime this will require a renegotiation. Given that the 20 year revenue term is considered prudent to protect consumers against redundant assets we would suggest that the current revenue term incorporates provisions to enable the extension of the revenue term on pre-determined terms, which could be as detailed in section 4.4.3.2.

A repowering or replanting of the windfarm either at the end of life or during the technical life of the windfarm (due to technical improvements) would increase the need to extend the revenue term as the value to the generator of the ability to transmit is likely to be significantly higher due to the longer renewed life. Uncertainty regarding the revenue term will affect the likelihood of repowering/replanting and may require resolution prior to the end of the original revenue term to ensure that the economic decision of the generator is not affected.

Currently the 20 revenue year term allows competition from all funding sources. However future movements in commercial bank debt to shorter terms may result in longer debt tails in the future and/or margin increases to reflect the higher cost of long term debt, making commercial bank debt less competitive and increasing the potential for refinancing gains.

4.5.2 25 year operational term

Increasing the revenue term to 25 years pushes the revenue term past the revenue support life for offshore wind assets and increases the risk of a redundant OFTO asset.

Increasing the life will also increase uncertainty around various costs in the OFTO such as O&M, lifecycle costs and insurance. As such there may be additional risk factored into the revenue bid back and therefore increase cost to the consumer.

A 25 year stream may push future funding solutions away from commercial bank debt. Whilst this length of debt has been seen on recent PFI deals this is becoming more expensive and, in the future, there is the potential for a significant tail due to shorter tenors. This is likely to therefore prove more expensive than bond solutions which will be able to meet a longer tenor financing.

¹⁷ 15 year proposed for CFD

4.6 Quantification analysis

We have received generic OFTO assumptions from Ofgem to provide an indication of the likely effect on value for money of extending out the OFTO revenue term from 20 to 25 years. The model has been used with a TRS of £17 million p.a. (real, year 1) and optimised to an IRR provided by Ofgem.

Ofgem has requested that we consider two scenarios in relation to the tenor of debt: firstly that the tenor of senior debt is not increased for the longer revenue term, and secondly that the tail on the senior debt is the same for both a 20 year and 25 year revenue term. The overall results for both constant debt tenor and constant debt tail are as follows:

	Nominal NPV ¹⁸ of flows from 20 year case			
	No increase in debt tenor		Constant debt tail of 0.5 years	
	£m	% movement from base	£m	% movement from base
20 years base TRS plus 5 year extension	£259m	-	£259m	-
25 years TRS	£278m	7.3%	£254m	(2.0)%

Increasing the length of the revenue term and holding debt terms constant will increase the overall cost of the project by over 7% (based on public sector discount rate of 3.5% and inflation assumption of 2.5%). This is due to the cost of equity in the additional 5 years being significantly above the public sector rate.

If the debt tail remains constant at 0.5 years then there is a 2% reduction in the NPV. However this assumes that the cost of debt in this period remains constant. There may be step ups in margins to encourage the debt to be refinanced early, which have not been taken into account in this analysis.

The above analysis does not give a definitive outcome as to whether a 20 or 25 year revenue term offers best value for money and the outcome is dependent on the underlying assumptions. Ofgem should therefore take into account the risks associated with a 20 and 25 year revenue term to assess which it considers offers it best value for money for consumers. These risks would include:

- for a 20 year revenue term the cost of negotiating a 5 year extension at the end of the initial revenue term, meaning Ofgem has retained the risk on costs (O&M, insurance and life cycle) for this extension; and
- for a 25 year revenue term the tenor of the senior debt and the margin on the senior debt during the extended period.

4.7 Differences between OFTO and generator build

Key differences between OFTO and generator build are already highlighted in section 2. We review the differences here which purely affect revenue term considerations.

4.7.1 Construction period and financing tenor

The inclusion of a 3 year construction period will increase the debt tenor by these three years. A 20 year revenue term therefore implies a requirement for 23 year debt (less tail), a 25 year term would require a 28 year debt term (less tail).

Whilst this tenor of debt is currently available in the market we consider it unlikely that on a 28 year project (3 year construction plus 25 year revenue term) that a debt tail of 6 months will be achievable and that a longer tail will be required than on a project that has a shorter

¹⁸ Nominal discount rate of 6.0875% based on real public sector discount rate of 3.5% and inflation of 2.5%

revenue term. Given the tightening of commercial markets it is unlikely that the availability of long-term finance will increase in the near term. A 25 year revenue term is likely to make commercial bank debt solutions more expensive than 20 year revenue term, particularly in an OFTO build scenario.

4.7.2 Variation in cable type

We recommend Ofgem seeks technical advice in relation to whether an OFTO could, under OFTO build, reduce costs by procuring transmission assets which offer the lowest cost over a 20 year revenue term by virtue of, for example, having a design life of less than 40 years. Logically, if possible a Bidder on an OFTO build may look to match cable type more closely to the overall length of the initial revenue term to minimise costs over this period.

If this is possible, this may provide for better value for money by reducing residual value in the cable at the end of the revenue term which is likely to be heavily discounted by equity parties. However if there is knowledge of future windfarms that will be built in the location or plans for interconnection this may prove to be non-beneficial as an additional cable would need to be laid after the initial revenue term.

As stated above, we recommend Ofgem seeks technical advice on this matter.

4.8 Summary

Overall there is a natural tension in OFTO projects between the known length of usage (i.e., the technical life of the windfarm and revenue support through green subsidies), the potential additional usage (i.e., repowered/replanted windfarms) and the technical life of the OFTO assets.

The current transitional regime is matched to the expected length of usage which mitigates the risk of redundant OFTOs but leaves potential risks around revenue term extension.

Extending the OFTO revenue term to 25 years will assist in mitigating the extension risks but only to a limited extent due to the possibility that extensions in excess of 5 years may be required.

Our analysis based on the assumptions provided by Ofgem would not indicate a definitive outcome as to whether a 20 or 25 year revenue term offers best value for money and the outcome is dependent on Ofgem's views regarding the risks associated with either option.

We therefore suggest that whilst moving to 25 years for revenue term does not demonstrably provide better value to the consumer, a mechanism for approaching extensions to the revenue term should be considered.

Whilst a retender of OFTO at year 20 may be desirable the practicalities in relation to the licence and also considerations of whether competitive bids could be received from other parties means that this may not be a possibility

We suggest that an agreed upon methodology such as that set out in section 4.4.3.2 could be added to the licence to ensure that there are provisions for extension by mutual agreement of the windfarm and OFTO. These might reflect a margin above operating costs and lifecycle but would not provide for any of the initial capital costs since these will have been repaid over the main term.

Appendix A Scope of Work

Set out below is an extract from Ofgem's Tender, in which the scope of work for this report is detailed.

Refinancing mechanisms

1. In relation to debt refinancing in particular, analysis of the costs and benefits from the consumer's perspective of the following approaches to refinancing of debt:
 - Maintaining the status quo – no restriction on refinancing, no gain sharing mechanism. This analysis should include consideration of the likely benefit of, for example, assuming refinancing benefits are "bid in" at ITT submission.
 - Implementing a gain sharing mechanism (the report would also need to flesh out the details of what a gain sharing mechanism might look like and how it would work in practice, including all the relevant components required to make it effective, e.g. including monitoring requirements and the potential length of time it may be appropriate to have a clawback mechanism in effect).

Where possible this analysis should be quantitative and, as appropriate, should consider qualitatively the costs and benefits. This analysis will need to explicitly consider the specific implications of the existence of construction risk under the OFTO build model.

2. Overall conclusion on the relative merits of each of the refinancing policy options considered.
3. Analysis of the practicalities of implementing a refinancing mechanism which is likely to include the following areas:
 - i. A review of refinancing arrangements in PFI/PPP projects to date;
 - ii. Identification of the common difficulties associated with designing and implementing refinancing gain share mechanisms as well as difficulties specific to the OFTO regime;
 - iii. Identification of potential solutions to the issues identified at point ii;
 - iv. Identification of any other practical considerations which are considered relevant in the context of implementing a refinancing gain share mechanism.

This analysis must draw on the consultant's experience of involvement in previous PFI/PPP refinancings.

The analysis of issues associated with refinancing (points 1-3) will need to consider which issues apply to OFTO build and generator build models individually since whilst some issues may apply to both there are likely to be some which are unique to just one of the two models.

Indexation

1. An assessment of how indexation, or otherwise, of the revenue stream can deliver value for consumers and the extent to which the current indexation mechanism in the OFTO licence might not maximise value for consumers.

2. Analysis of the costs and benefits from the consumer's perspective of the following policy options for indexation:
 - Continuing with the status quo – 100% of revenue is indexed.
 - A fixed percentage of revenue is indexed – this piece would need to specifically address the issue of how the fixed percentage is set and the basis of such a calculation that was generic for all projects or set on a case by case basis, but which was fair to all funding structures.
 - The percentage of revenue subject to indexation is a biddable assumption on which the bidder takes the risk.

Where possible this analysis should be quantitative and, as necessary, should consider qualitatively the costs and benefits.

3. Description of the practical considerations associated with each of the policy options. Specifically to include consideration of the implication of the policy choice on Ofgem's ability to evaluate the offshore transmission tender bids.
4. Overall conclusion of the relative merits of each of the indexation policy options.

Length of revenue term

1. Analysis of the costs and benefits from the consumer's perspective of the following length of revenue period policy options:
 - Continuing with the status quo – 20 years
 - Extending the revenue period – using 25 years as a working assumption and considering qualitatively the issues associated with even longer revenue terms

Ofgem will supply indicative assumptions that should be used in order to quantify the impact on tender revenue stream and overall net present cost of using each of the above revenue term lengths. This analysis should be accompanied by relevant qualitative analysis and insight.

2. Identification of alternative revenue entitlement period policy options and high level consideration of whether they are more or less suitable than those outlined above.
3. Consideration of how the length of revenue term can lead to a change in funding model, number and variety of bidders and/or operating costs and how these ultimately impact on consumers.
4. Overall conclusion of the relative merits of each of the revenue entitlement period policy options considered.

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