



cutting through complexity

Offshore Transmission: An Investor Perspective

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Foreword

This independent Report on the UK Offshore Transmission Regime has been commissioned by the Office of Gas and Electricity Markets (Ofgem) from KPMG.

In the UK, separate Offshore Transmission Owners (OFTOs) take responsibility for offshore transmission assets under long-term OFTO licences. Since its launch in 2009, the OFTO asset class has seen over £470m invested and attracted significant interest from the investor community. It is underwritten by a transparent regulatory framework overseen by Ofgem with a strong track record to date.

This Report looks at the Offshore Transmission regime from an investors perspective. It provides an overview of the OFTO assets, including related business factors, risk and financial considerations and an explanation of the supporting regulatory regime. It also includes a presentation of the existing and new business opportunities provided by these assets in the context of other familiar infrastructure asset classes such as onshore networks and PFI/PPPs.

It has been a pleasure to work for Ofgem in preparing this Report and we look forward to working with all stakeholders to making the Offshore Transmission regime a continued success.

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Inside this report

Executive Summary	04
1 Introduction	08
2 What is an OFTO?	10
2.1 OFTO Assets	10
2.2 OFTO Licences	11
2.3 Performance Obligations	13
3 What are the characteristics of an OFTO investment?	16
3.1 The Transitional Regime	16
3.2 The Enduring Regime	25
4 How can OFTOs be invested in?	32
4.1 Transitional regime	32
4.2 The Enduring Regime	37
4.3 Secondary Market	39



Executive Summary	4
1 Introduction	8
2 What is an OFTO	10
3 What are the characteristics of an OFTO investment?	16
4 How can OFTOs be invested in?	32

Executive Summary

Since its launch in 2009 the Offshore Transmission Owner (OFTO) asset class quickly attracted significant interest from the investor community offering solid returns on a relatively low risk profile underwritten by a stable regulatory framework overseen by Ofgem. The purpose of this report is to provide an independent overview of the OFTO asset class and an understanding of the investment proposition provided by this new asset class.

Over £2bn has been committed so far to the OFTO asset class from a wide variety of equity and debt investors and a substantial pipeline of Offshore Wind Developments (11 to 18GW of Wind Power¹) exists, suggesting in excess of £8bn² of OFTO projects will come to market by 2020 in order to meet the UK target for renewables.

¹ UK Renewable Energy Roadmap, DECC (2011)

² Offshore electricity transmission: a new model for delivering infrastructure - Executive Summary published by National Audit Office June 2012

The key characteristics of this unique and well defined asset class include:

A long term inflation linked revenue stream

A fixed 20 year revenue stream indexed to UK inflation underpinned by the OFTO's licence provides a stable revenue profile over the life of the investment.

No exposure to the generating asset

The OFTO's revenue stream is unrelated to the generating asset's performance (or even presence). The OFTO needs only to ensure the transmission infrastructure is available to transmit regardless of the power actually generated.

Limited regulatory risk

The UK government's policy to support off-shore wind, Ofgem's track record in providing a clear regulatory framework with a transparent and evolutionary approach to any changes and the absence of periodic regulatory resets (such as those applied to onshore electricity networks) may mean less risk to OFTO investments from changes to the regulatory landscape.

Solid counterparty

OFTOs receive their revenues from the National Electricity Transmission System Operator (NETSO), a ring fenced, Ofgem regulated, investment grade rated business with a low risk profile.

Contained operational risks

Fitch has described the day to day risk of the OFTOs as no higher than most UK availability based PFI projects.

Executive Summary	4
1 Introduction	8
2 What is an OFTO	10
3 What are the characteristics of an OFTO investment?	16
4 How can OFTOs be invested in?	32

Opportunities for upside

Incentive mechanisms built into the regulatory framework provide OFTOs with opportunities to earn rewards through strong performance. Cost savings over the life of the assets can enhance shareholder returns.

Opportunity to take on construction, or focus on operations and maintenance

The OFTO asset class is evolving and future projects might enable OFTOs to design, procure and construct infrastructure if desired (OFTO build) or to focus on operations and maintenance only (Generator build), depending on risk appetite.

Multiple entry points

Access to the asset class is possible through upcoming competitive tender exercises administered by Ofgem or through secondary market access to existing projects. Investors could bid in their own right or through consortia depending on the exposure to the asset class sought and on the skills and expertise of the investor. Where appetite is strong, investors may choose to participate in seeking to influence windfarm developers to adopt the OFTO build approach, for example through visibly demonstrating their experience of delivering similar types of assets.

Whilst the OFTO asset class bears similarities to other investment opportunities in the UK and elsewhere, it also has some unique characteristics. The evidence to date suggests that OFTOs offer strong returns relative to comparable asset classes with similar risk profiles.

1 Introduction

Electricity generated from offshore wind is important to achieving the UK Government's target to provide 15% of the UK's energy needs from renewable sources by 2020. It has been estimated that around £200bn of investment is needed in the UK's energy sector to meet EU climate change targets. Ensuring that necessary infrastructure connecting these offshore windfarms to the onshore electricity grid is in place is equally critical to achieving Government's policy goals.

In many countries responsibility for constructing and operating offshore electricity transmission assets falls to either the windfarm developer or to the onshore transmission operator (TO). In the UK, separate Offshore Transmission Owners (OFTOs), which are neither the windfarm developers nor the onshore TOs, take responsibility for the assets under long term licences. The licence guarantees revenues over the lifetime of the assets subject to certain conditions such as satisfying performance obligations. Therefore, OFTOs represent an investment opportunity in a precisely defined type of asset supported by a strong underlying regulatory regime. This creates a unique asset class, which can be an attractive component of any infrastructure investment portfolio.

In the UK electricity conveyed at 132kV and above, including in offshore waters, is termed transmission. Where electricity is conveyed below this voltage it is considered to be distribution (and where undertaken offshore, it is therefore outside of the OFTO regime).

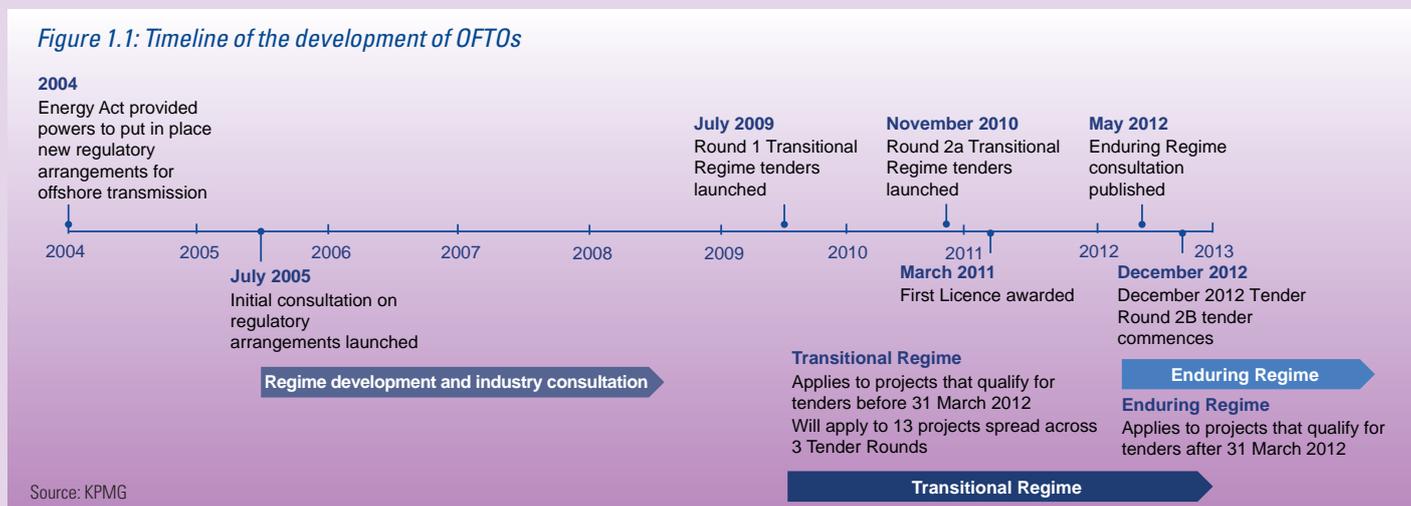
The OFTO regime was established in 2009 by Government and OFGEM with the objectives of:

- Delivering fit for purpose transmission infrastructure to connect offshore generation;
- Providing best value for money to consumers; and
- Attracting new entrants to the sector³.

Pursuant to the objectives above, competitive tenders have been run for 11 OFTOs to date under the Transitional Regime (which applies to assets already constructed or under construction at the time the regime was established, where the OFTO's role is to operate and maintain transmission assets) with a further two OFTO opportunities remaining to be tendered. Beyond this a significant pipeline of projects will be tendered under the Enduring Regime which will apply from 2013 onwards. The Enduring Regime will apply to assets not yet constructed, meaning an OFTO's role will expand to include construction and procurement of assets if desired. With strong government support for offshore wind this could result in a pipeline of OFTO investment opportunities in excess of £15bn. The pipeline is discussed in more detail in Section 3.2 of this report.

Executive Summary	4
1 Introduction	8
2 What is an OFTO	10
3 What are the characteristics of an OFTO investment?	16
4 How can OFTOs be invested in?	32

Figure 1.1: Timeline of the development of OFTOs



It is now three years since the first tenders for licences to operate the offshore networks were launched and more than twelve months since the first licence was awarded: OFTOs are now firmly established as an infrastructure asset class that has attracted over £2bn of committed investment from a variety of sources.

In order to continue to attract the significant capital investment needed as well as to retain the confidence of the wide offshore transmission stakeholder group, Ofgem has commissioned KPMG to prepare a report providing an independent overview of the OFTO asset class and an understanding of the investment proposition provided by this new asset class. There are wide ranging developments ongoing in the UK energy and infrastructure sectors. These include reforms to incentives for offshore wind generation through Electricity Market Reform (EMR), ongoing development of the interconnector investment market and the development of more co-ordinated offshore networks. This serves to highlight the importance of securing the continued success of the OFTO asset class.

The report is structured to address three key questions:

- What is an OFTO? Section 2 answers this question by describing the OFTO assets, regulatory framework and licensing regime.
- What are the characteristics of an OFTO investment? Section 3 considers this question by providing an overview of the OFTO investment proposition based on the risks borne by investors and the rewards available;
- How can OFTOs be invested in? Section 4 responds to this question by outlining the various ways the OFTO investment class might be invested in.

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2 What is an OFTO?

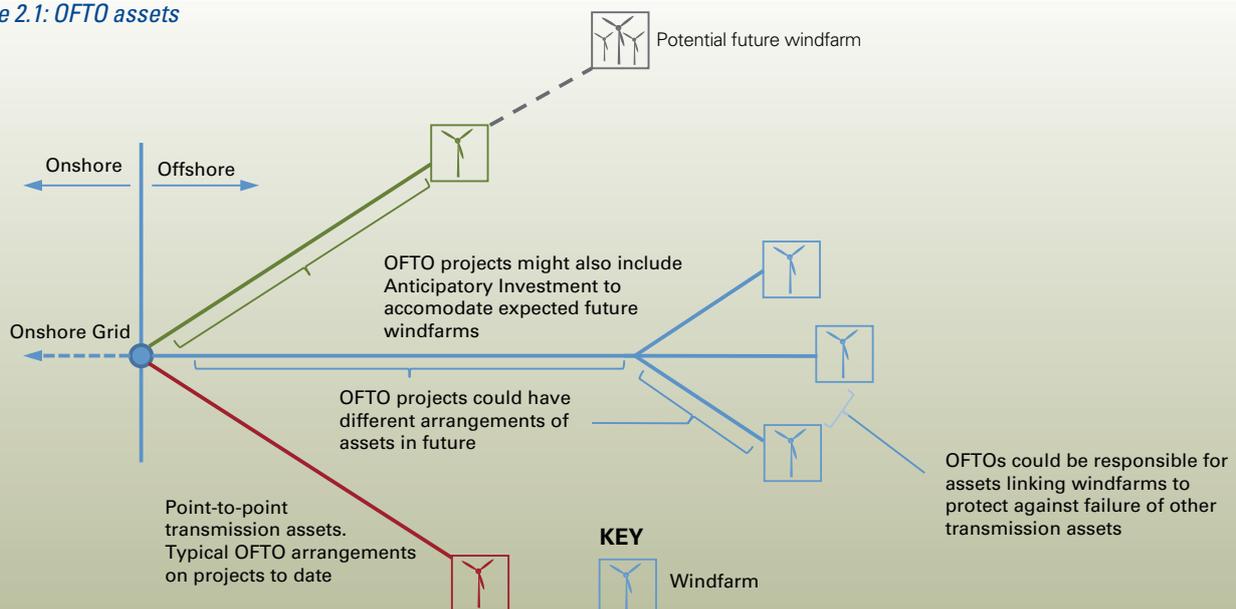
2.1 OFTO Assets

OFTO assets link offshore generation to the onshore network. Whilst there may be some variance from project to project, in terms of physical assets an OFTO will normally have ownership of offshore electricity transmission⁴ infrastructure (such as offshore substation platforms, subsea export cabling and onshore cabling), an onshore substation, and the electrical equipment relating to the operation thereof (transformers, communication equipment etc).

The OFTO infrastructure is evolving as Figure 2.1 illustrates. While to date the connections have been point to point (i.e., from windfarm to onshore substation), in future more interlinked connections might emerge, including between windfarms, to provide greater redundancy and power switching options. Likewise, while offshore platforms have typically been monopile constructions to date, jacket and tripod structures may also emerge in time.

The asset ownership / interface boundary points are typically located at: (i) the incoming low-voltage transformer circuit breaker cable terminations on the offshore substation platform; and (ii) between the high-voltage busbar disconnectors and the high-voltage OFTO circuit breaker on the onshore substation.

Figure 2.1: OFTO assets



Source: KPMG

⁴ In the UK electricity conveyed at 132kV and above, including in offshore waters, is termed transmission. Where electricity is conveyed below this voltage it is considered to be distribution (and where undertaken offshore, it is therefore outside of the OFTO regime)

	Executive Summary	4
	1 Introduction	8
	2 What is an OFTO	10
3 What are the characteristics of an OFTO investment?		16
4 How can OFTOs be invested in?		32

2.2 OFTO Licences

OFTOs are regulated by Ofgem through licences like other regulated networks in the UK. The OFTO regime also has the support of the UK Government. Ofgem's role includes determining the appropriate regulatory arrangements and ensuring the smooth functioning of competitive tender processes to award licences for OFTO assets.

Under these competitive tender processes an OFTO is granted a licence which provides for a revenue stream in return for providing transmission services over a specific transmission system. In parallel to the process of being granted a licence, an OFTO will acquire the relevant transmission system from the windfarm generator (where appropriate) or will commence the construction of those assets themselves.

The licence also imposes a range of obligations on the OFTO (discussed in Section 2.3) including an availability incentive and the requirement to ensure compliance with a set of standard codes and frameworks applicable to the industry. This is similar to infrastructure investments where an investor holds a concession to operate an asset such as a road, a cable, or even an airport over a certain period of time.

The licence is awarded following a competitive bidding process where the successful bidder is selected based on their revenue request (known as the Tender Revenue Stream or TRS) as well as deliverability of their tender submission. The TRS reflects the costs of performing the OFTO's obligations and the costs of financing the investment.

The TRS is determined by Ofgem based on the competitive tender process where bidders take into account a pre-determined set of regulatory arrangements - discussed in more detail in Section 3 – laid down in the OFTO licence. The licence terms include the amount of the TRS itself (determined after a Preferred Bidder is appointed following the tender process) and specifies how

it will evolve over the licence period (e.g., indexed to RPI inflation). This limits Ofgem's regulatory discretion around revenue allowances to much narrower bounds than for traditional onshore regulated energy networks.

Ofgem's track record of providing regulatory certainty reduces the risk of any unexpected regulatory actions and may provide some comfort to investors around the evolution of the licence framework over time.

The Transitional Regime

As mentioned above, the Transitional Regime applies to OFTO projects which meet certain criteria prior to April 2012.

Under the Transitional Regime, the OFTO acquires operational assets from the offshore windfarm developer and is entitled to a stable, 20 year, Retail Price Index (RPI) inflation-linked revenue stream in return for operating, maintaining and then decommissioning the transmission assets. Although the revenue stream is only initially applicable for 20 years, an investor may take a view beyond this period whether the value in use of the transmission assets, the useful economic life of the windfarm and/or the scrap value of the assets may realise additional value. This is particularly relevant where windfarm developers design windfarms which have in excess of 20 years useful economic life, given that the licence is issued in perpetuity and the Crown Estate lease is issued for a period of 50 years.

The TRS reflects the O&M costs, insurance costs, SPV management costs, decommissioning costs, taxes and financing costs related to the acquisition of the assets from the windfarm developer (e.g., debt service and hedging costs (if applicable), as well as returns to equity and subordinated debt (if applicable)). Since OFTOs need to finance the Transfer Value as well as a range of up-front costs (e.g., bid fees, rating agency fees, SPV establishment costs, pre payments of insurance etc) the amount of capital injected into the OFTO will typically exceed the initial asset value and will be a significant portion of the TRS.

Ofgem's track record reduces the risk of any unexpected regulatory actions and may provide some comfort to investors around the evolution of the regulatory framework over time.

Figure 2.2 below indicates for a typical project how the different costs make up the overall TRS: financing costs are by far the most significant cost as expected for a typical infrastructure asset; operation-related costs only account for around 20% of the TRS⁵.

The Enduring Regime

The Enduring Regime will apply to all projects meeting Ofgem’s criteria after April 2012. Under the Enduring Regime an OFTO could be awarded one of two different types of licences dependent on an election made by the windfarm developer:

1. a licence to operate and maintain the assets similar to the licence awarded under the Transitional Regime (a “generator build” option); or
2. a licence to construct the assets as well as operate and maintain them (an “OFTO build” option).

In the latter case the TRS awarded to the successful bidder would cover the costs of design, procurement and construction of the OFTO assets as well as the operational and maintenance costs described for the Transitional Regime. Because the design, procurement and construction costs incurred by a windfarm developer under the Transitional Regime are wrapped into the asset transfer value (subject to an efficiency assessment by Ofgem) paid by the OFTO, these costs might represent – approximately – the same proportion of the TRS as financing costs did for the Transitional Regime as Figure 2.3 below illustrates.

Figure 2.2: Transitional Regime Approximate Tender Revenue Stream Breakdown



Source: Ofgem

Figure 2.3: Enduring Regime “OFTO Build” Approximate Tender Revenue Stream Breakdown



Source: Ofgem

⁵ Offshore electricity transmission: a new model for delivering infrastructure, 22 June, p21 and p30 corroborate that financing costs comprised around 80% of the TRS and operating and maintenance costs 20%, NAO (2012)

Executive Summary	4
1 Introduction	8
2 What is an OFTO	10
3 What are the characteristics of an OFTO investment?	16
4 How can OFTOs be invested in?	32

2.3 Performance Obligations

In addition to a range of financial incentives which encourage OFTOs to perform their duties a range of obligations are imposed upon OFTOs by their licences and by a series of industry codes and standards.

The licence imposes a set of obligations upon the OFTO to operate assets in line with industry best practice. In order to monitor OFTO's performance a range of reporting requirements are imposed upon the OFTO, including an annual data submission to Ofgem, in line with the Regulatory Instructions & Guidance (the RIGs). The OFTO must also provide details of any reduction in service which exceeds 21 days and a written statement of compliance with best practice if availability is below 75% in a year or below 80% over two years. Following under-performance of this nature, Ofgem may choose to engage in enforcement action to rectify any ongoing issues which remain unresolved. The ultimate sanction available to Ofgem in the extreme event of continued unsatisfactory performance is revocation of the OFTO licence, which removes the OFTO's entitlement to its revenue stream⁶.

There are a number of industry codes and standards that underpin the electricity market in Great Britain, which dictate the performance standards (e.g., around safety, interface with other generators and other transmission and distribution providers etc) that an OFTO must meet. OFTO licensees are required to design and operate at least to the minimum requirements set out in the NETS Security and Quality of Supply Standard (SQSS)⁷. Many of these codes and standards have a long track record of being applied to onshore electricity grids in the UK and are well understood across the industry and the investment community.

As Figure 2.4 illustrates OFTOs also operate under the terms of:

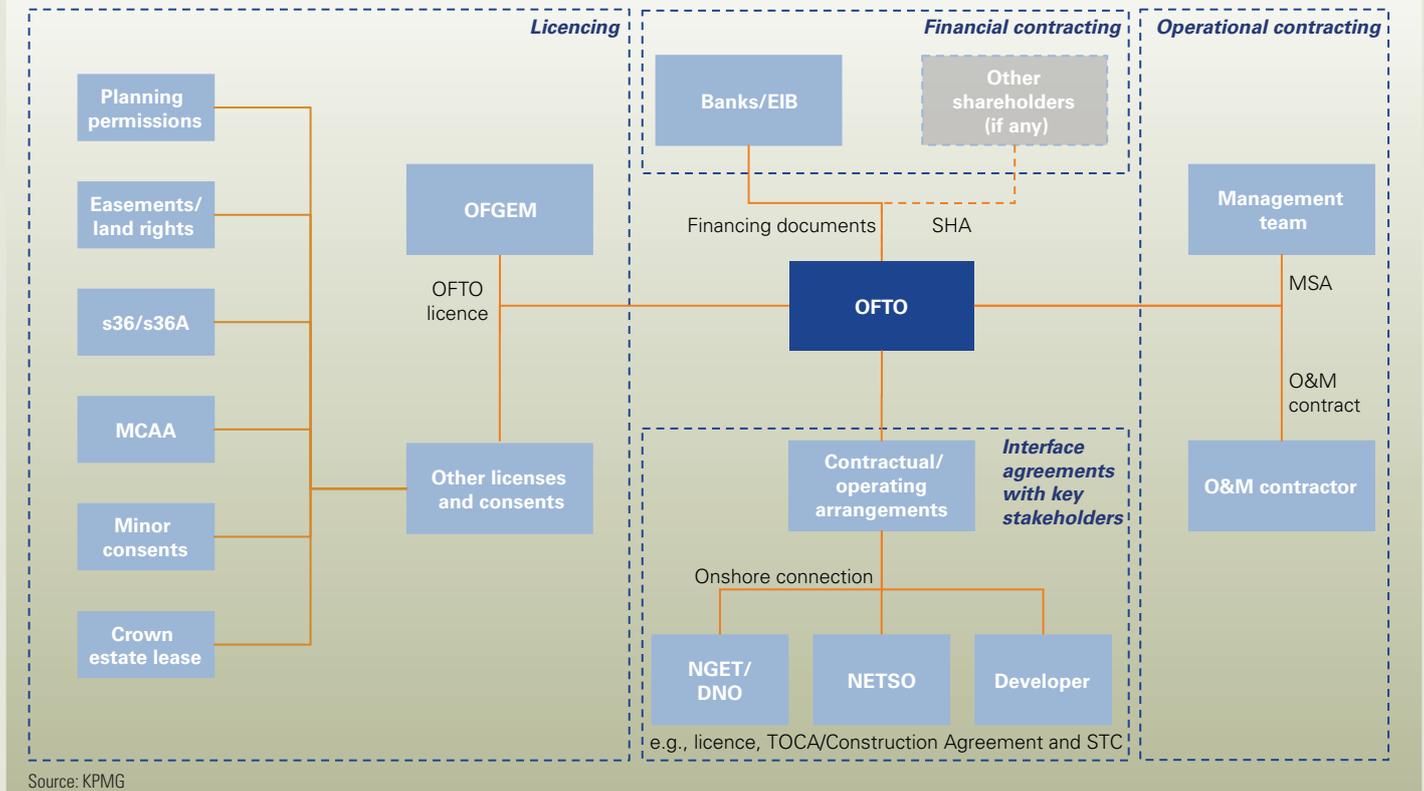
- Crown Estate Leases which provide the 50 year property right the OFTO needs to operate the offshore transmission assets. Offshore generators and OFTOs must have a Crown Estate Lease in order to place/retain their assets on the seabed - these leases are awarded by the Crown Estate which (via the Energy Act 2004) administers use of the seabed out to 200 nautical miles from the coastline. To date the Crown Estate has held three tender rounds to allocate offshore wind leases to generators;
- Interface Agreements which govern the relationship between the OFTO and the generator in terms of access rights, provision of services, decommissioning etc and between the OFTO and the onshore transmission or distribution network and between the OFTO and NETSO. Some interface agreements have an ongoing effect on the OFTO, while others only have a transitory impact around the date of the asset transfer:
 - o The Asset Transfer Agreement (ATA) between the OFTO and the offshore windfarm developer which effects the transfer of the transmission assets to the OFTO and which specifies each party's obligations (e.g. transfer of funds), as well as transferring many contracts from the developer to the OFTO. The ATA has no ongoing effect on the OFTO, though the transfer of assets, liabilities, warranties, wayleaves and consents transferred under the ATA do have an enduring impact on the OFTO over the licence period.
 - o Another important interface agreement is the Transmission Owner Construction Agreement (TOCA) between the OFTO and NETSO. This agreement specifies

The licence imposes a set of obligations upon the OFTO to operate assets in line with industry best practice.

⁶ No licence to operate an energy network has been revoked in the UK since privatisation

⁷ Other relevant industry codes include the Balancing and Settlement Code (BSC), the Connection and Use of System Code (CUSC), the System Operator-Transmission Owner Code (STC), the Grid Code and the Distribution Code and the Distribution Connection Use of System Agreement (DCUSA)

Figure 2.4: OFTO licencing and contractual arrangements



the terms of the connection to the onshore grid, such as the design, construction and operation of the assets, specifications of interface sites, and commissioning processes and consequently applies to the OFTO throughout the licence period. Since some OFTOs may connect directly to the local electricity distribution network, rather than to the national transmission grid, an interface agreement with the local distribution network owner (DNO) might also be required;

- A range of consents (e.g., planning, environmental (Marine and Coastal Access Act (MCAA)), easements) which allow the OFTO to perform its transmission related activities. The MCAA consents are required to carry out works on the seashore below the high water mark and to carry out construction work within UK territorial waters. Consents under sections 36 and 36A of the Electricity Act 1989

are required by the developer in order to construct and operate the offshore windfarm, but some of the obligations imposed may ultimately apply to the OFTO in respect of the transmission assets; and

- Contractual arrangements with financiers, other shareholders (via a Shareholders Agreement (SHA)) and with the management team (under a Management Services Agreement (MSA)) and the O&M contractor and other service providers. As part of the tender process managed by Ofgem, the windfarm developers are given the opportunity to offer an O&M solution up to the interested bidding parties. To date a number of the OFTO's use the windfarm developers for their ongoing O&M.

Executive Summary	4
1 Introduction	8
2 What is an OFTO	10
3 What are the characteristics of an OFTO investment?	16
4 How can OFTOs be invested in?	32

In order to monitor OFTO's performance a range of reporting requirements are imposed upon the OFTO, including an annual data submission to Ofgem.



3 What are the characteristics of an OFTO investment?

3.1 The Transitional Regime

In the Transitional Regime the investor in an OFTO is required to finance, operate and maintain the transmission assets, but is not required to construct the assets.

20 Year Stable Inflation-Linked Revenue Stream

Ofgem sets the OFTO's allowed revenue (the TRS) for a 20 year period at the time the licence is granted. The licence cannot be voluntarily revoked until the end of the revenue period, subject to 18 months notice being given. The TRS is enshrined in the OFTO's licence and published when the licence is granted – there is no regulatory discretion to revisit this revenue stream over the course of the licence period. Unlike other energy networks regulated by Ofgem, there are no periodic resets of the price control and therefore there is no revenue at risk due to regulatory re-setting of prices. In this respect OFTOs are closer to PPP assets than to regulated utilities. This also means that the OFTO's revenue stream is stable over the licence period (though there are some scenarios where an OFTO may request a revenue adjustment, discussed in more detail below).

The TRS is linked to RPI inflation: the allowed revenue increases each year based on the previous year's RPI inflation, similar to the way revenues are indexed for other energy networks. This may provide inflation protection to investors, but it also means that the cash flows from the OFTO assets fluctuate with inflation. In particular, while inflation increases cashflows, deflation can have a significant negative impact on cash flows and credit metrics.

The OFTO's 20 year TRS reflects the costs of acquiring, operating and maintaining the assets. The O&M costs are based on the successful bidders bid, while the acquisition

price reflects on the assessment by Ofgem of the economic and efficient costs of developing and constructing the transmission assets incurred by the windfarm developer. Because final construction costs are not known when the tender process is run, Ofgem requires all bidders to assume an Estimated Transfer Value (ETV) when calculating their TRS submissions to ensure consistency of approach. The ETV is updated by Ofgem once the assets are fully constructed; the TRS is adjusted for this revised Final Transfer Value (FTV).

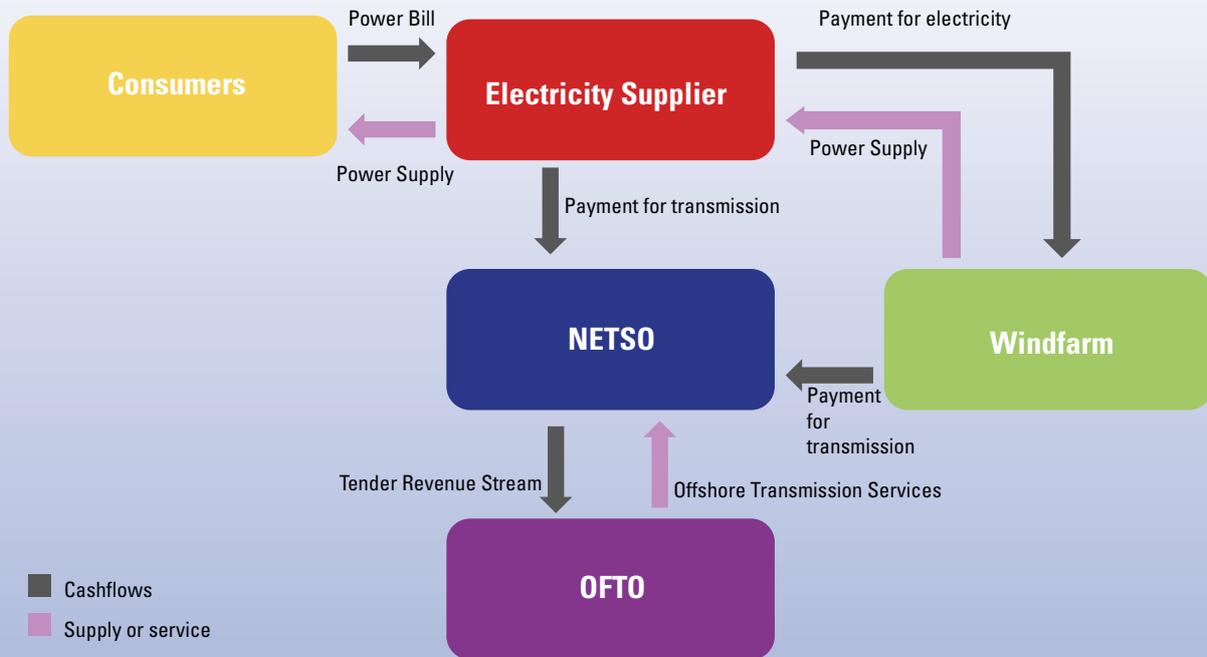
The TRS is ultimately effectively paid by consumers as part of their power bills. This is funnelled through the National Electricity Transmission System Operator (NETSO), a role currently held by National Grid Electricity Transmission (NGET). NGET is a separately licensed and regulated entity, subject to a number of ring fencing provisions including a requirement to maintain an investment grade credit rating. NGET is currently rated A3/A-/A reflecting its relatively low business risk profile.

It is critical to note that the consequence of this arrangement is that the OFTO does not rely on the windfarm for any of its revenue.

The TRS is ultimately paid by consumers as part of their power bills. This is funnelled through the National Electricity Transmission System Operator (NETSO), a role currently held by National Grid Electricity Transmission (NGET). The consequence of this arrangement is that the OFTO does not rely on the windfarm for any of its revenue.

Executive Summary	4
1 Introduction	8
2 What is an OFTO	10
3 What are the characteristics of an OFTO investment?	16
4 How can OFTOs be invested in?	32

Figure 3.1: Simplified Illustration of Cashflows and Services between Consumers, NETSO, Windfarm and the OFTO



Source: KPMG

Simple, Performance Based Incentives

As with other regulated utilities, OFTOs are subject to a system of incentive regulation which rewards or penalises OFTOs for good or bad performance respectively. The incentive regime applied to OFTOs is somewhat simpler than the regimes applied to other utilities – there are relatively fewer and simpler incentive mechanisms in place for OFTOs.

OFTOs are incentivised to perform as efficiently and effectively as possible through a range of mechanisms:

- **An availability incentive**, which awards bonus payments or imposes penalties if the OFTO is unable to achieve an availability target (which has usually been set to 98% on projects to date) – further details are presented on page 18;
- **TRS is indexed to RPI inflation**, which preserves the TRS in real terms over the life of the licence. For an OFTO to achieve the rate of return it included in its bid submission, the OFTO's costs

will need to be constrained to the original bid submission (which will typically assume most costs increase in line with RPI inflation);

- **Competitive tender process:** bidders must submit the most competitive TRS and service proposal they can achieve to give themselves the best chance of winning the licence;
- **Fixed TRS for 20 years**, subject to a limited range of adjustment mechanisms: if the OFTO is able to outperform its own bid assumptions then it will be able to provide higher returns to equity investors. A fixed TRS also incentivises bidders to include a prudent amount of headroom in their bids, recognising there is significant uncertainty around costs over the 20 year period.

The availability incentive

OFTOs are subject to an availability incentive mechanism, whereby if availability of the transmission infrastructure decreases below a target level (specified in the licence in accordance with the Transmission Entry Capacity (TEC) stated in the OFTO's connection agreement with the onshore grid) the OFTO is subject to a penalty in the form of lower allowed revenue. Equally, however, if the OFTO can achieve availability in excess of the target, bonuses in the form of additional allowed revenue will accrue. Similar availability payments are known from the PPP market.

The mechanism is relatively simple and operates as follows:

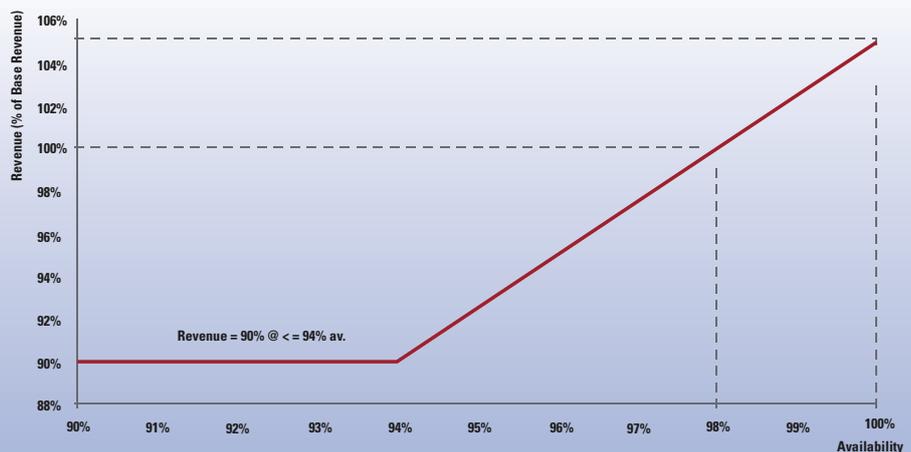
- Penalties up to a maximum of 10% of revenue can be imposed if availability drops more than four percentage points below the target (e.g., if the target is 98% and availability falls to 94% or lower).
- More significant penalties can be incurred if availability is lower than the target, but penalties in excess of 10% of revenue are rolled up and imposed over a period of up to five years: the maximum revenue reduction in any given year is 10%.
- Rewards up to a maximum of 5% of revenue can be awarded if availability exceeds the target. These rewards are immediately

available to investors under Round 2 (Transitional Regime) projects, but there was a banking mechanism in place for Round 1 projects that meant the rewards could not be paid out to investors until five years after the reward had been earned.

For most projects to date the availability target has been set at 98% by Ofgem with existing licensees performing well above this level⁸.

Availability is measured against the capacity of the transmission infrastructure and is not a simple average across the 12 months of the year because some months are afforded greater weight in the calculation recognising that these are months where offshore wind generation is likely to be higher. This means that reduced availability during periods of lower generation incur smaller penalties for the OFTO; scheduling planned maintenance of OFTO assets during these periods is one way OFTOs can maximise their performance against the availability incentive. Similarly, planning outages in line with generator's outage plans will also help to avoid undue penalties.

Figure 3.2: Illustration of Availability Incentive Mechanism



Source: KPMG

Executive Summary	4
1 Introduction	8
2 What is an OFTO	10
3 What are the characteristics of an OFTO investment?	16
4 How can OFTOs be invested in?	32

Built-in Protections Against Risks

Ofgem has designed the regulatory regime so that OFTOs can manage the risks that they are best placed to manage and mitigate. In particular, since the TRS is fixed for a 20 year period, the OFTO bears the risk (and gets the reward) of costs rising (falling) above (below) their expectations (i.e., the assumption submitted as part of the bid) and has a strong incentive to manage these costs as efficiently as possible. At the same time, recognising that some costs are beyond OFTOs' control, and that there may be unforeseen events which impact on the OFTOs, Ofgem has included a range of mechanisms in licences which adjust the TRS in particular circumstances. These risk protection mechanisms are shown below:

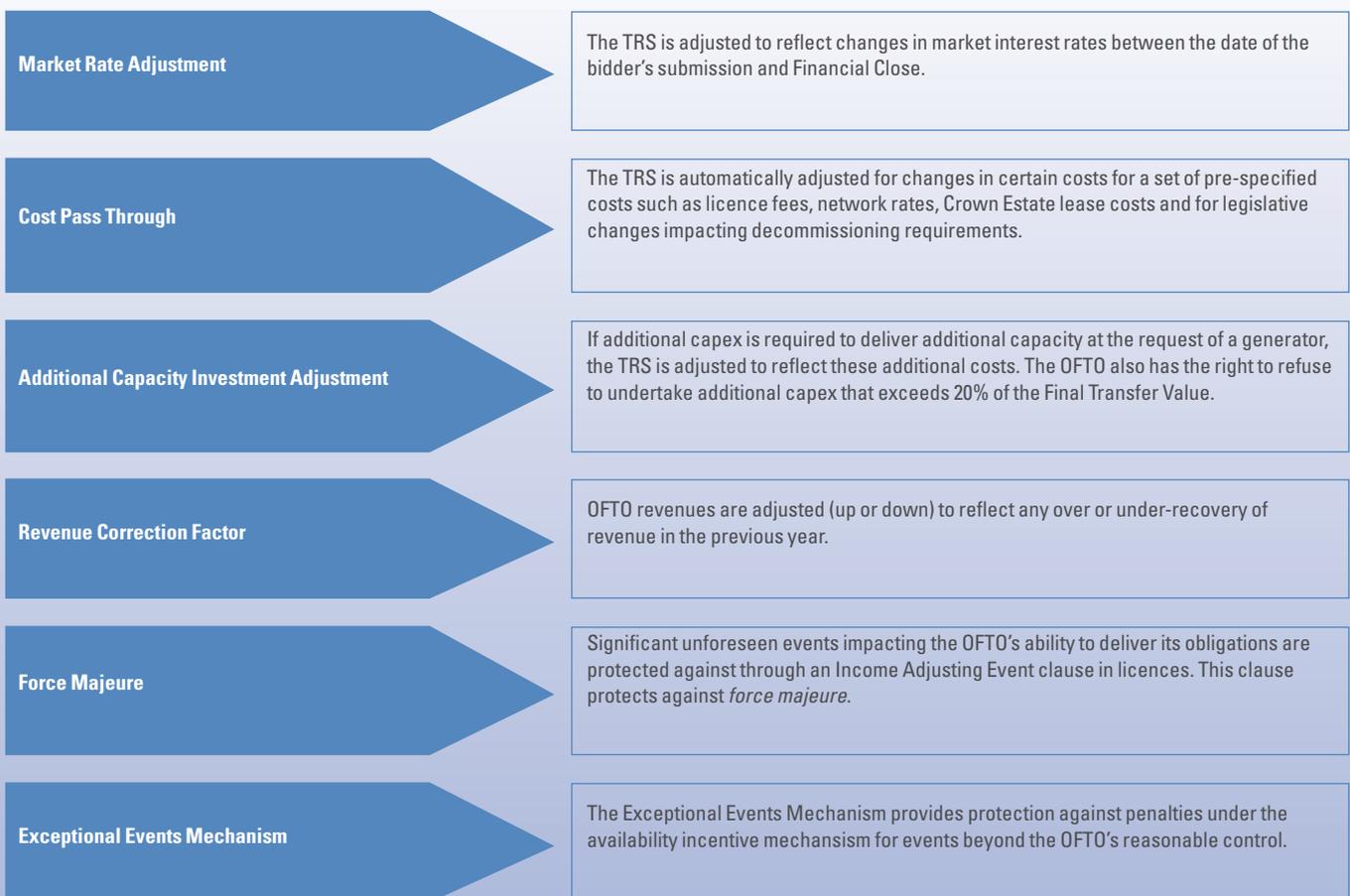
Low Risk Profile

Taking into account the risk mitigation mechanisms inherent in the regulatory framework, Table 3.1, overleaf, summarises the key risks around offshore transmission and which party bears those risks.

While investments in OFTOs are not risk-free, relatively few risks are borne directly by the OFTO and most of those risks are relatively small and/or can be passed on to third parties depending on the risk appetite of the OFTO investor.

This applies to the existing regulatory framework. Ofgem is currently considering some changes to the licences which might change the risk profile of the investments in the future.

Figure 3.3: Risk Protection Mechanisms



Source: KPMG

Table 3.1: Offshore transmission risk allocation – Transitional Regime

Risk	Description	Risk allocation and mitigation
Construction risk	Cost overruns during construction, or failure to complete the assets on time (or at all)	This risk is borne by the windfarm developer which has responsibility for constructing and commissioning the assets.
Demand risk	Windfarm shuts down or generates lower amount of power than expected Higher or lower than expected demand for transmission capacity	So long as the OFTO makes the transmission assets available the OFTO is entitled to its revenue stream – it is not exposed to the performance of the windfarm. The OFTO is under no obligation to undertake additional capex to meet higher demand if the capex would exceed 20% of the FTV. No stranding risk is borne by the OFTO. If windfarm shuts down before end of OFTO revenue period, revenues for transmission services continue to be paid.
Operational risk	Unexpected asset failure due to technical reasons increase cost An unexpected increase in the cost of operating and maintaining the transmission infrastructure	Risk borne by the OFTO is that a failure to make assets available will result in penalties under incentive mechanism (up to 10% of revenue p.a.). The OFTO can mitigate this risk through maintenance contracts and insurance , passing off some of the risk to other parties. Due diligence on assets prior to acquisition can also help to ensure fit-for-purpose assets are transferred to the OFTO. The exceptional events mechanism manages risks which impact availability and can be demonstrably proved to be outside the OFTO's reasonable control. Risk borne by the OFTO is that a higher (lower) increase in costs will decrease (increase) equity returns. The OFTO can mitigate this risk through medium term (5 – 10 year) fixed price O&M contracts with credible third party contractors. Linking contracts to RPI inflation , like the TRS, can also help to mitigate the risk of above inflation cost increases.
Force majeure	Force Majeure events lead to increased costs and decreased availability	The OFTO licence includes an Income Adjusting Event clause which protects the OFTO against force majeure. Since the System Transmission Owner Code (STC) definition of force majeure includes changes to industry codes (such as the STC, Grid Code or SQSS) the OFTO is protected against code change risk, albeit only for costs above a specified threshold level (which is dependent on project size and currently varies between £500,000 and £1m).
Counterparty risk	Risk of non-receipt of TRS	TRS is received from NETSO, a ring fenced subsidiary of National Grid , which is regulated by OFGEM and with an investment grade credit rating.
Low inflation (or deflation) risk	Lower than expected inflation reduces interest coverage ratios	The OFTO bears the risk of inflation being lower than expected. If revenue does not increase as quickly as expected, this may be detrimental to interest cover and other debt service ratios. The OFTO can mitigate this risk through hedging agreements with financial intermediaries e.g., by swapping a portion of the RPI-linked TRS into fixed terms or swapping some of the nominal fixed rate debt into RPI. Structuring contractual arrangements with identical indexation mechanisms as the TRS can also mitigate the risk.
Financing costs	Interest payable by OFTO may increase or decrease over project life	The OFTO bears the risk of financing costs being higher or lower than expected. Re-financing at lower cost offers OFTOs potential upside. To mitigate against downside risk an OFTO can hedge its financing costs.
Tax risk	Tax payable is higher or lower than expected over project life	Risk borne by OFTO: Any unfavourable change in tax legislation over the 20 year period is for the OFTO's account (and any favourable change, for the OFTO's benefit). Because there are no regular pricing reviews, there is no mechanism for the TRS to be adjusted to reflect changes in tax legislation.
Change of Law	Change in law imposes additional (or reduces) costs of OFTO General changes in law, where not deemed an Income Adjusting Event, are borne by OFTO	Licence includes a clause which means some pre-specified changes in law, such as in respect of decommissioning obligations, are passed-through to the TRS.
Change in Government policy	Government decide that Offshore Wind is no longer a high priority	Because a licence has been issued with a fixed revenue stream for 20 years and there is no mechanism to revoke prior to concession end, the OFTO is protected against this risk.

Source: KPMG

Executive Summary	4
1 Introduction	8
2 What is an OFTO	10
3 What are the characteristics of an OFTO investment?	16
4 How can OFTOs be invested in?	32

Track Record of Investments

The experience to date has demonstrated that the OFTO asset class represents an investable proposition. Six projects have now reached financial close, several more have had tenders run and Preferred Bidders appointed, and a very significant amount of capital (more than £2 billion) has been committed to the OFTO projects to date by a variety of debt and equity investors of different types and of different geographical backgrounds. The fact that this has been achieved during volatile and uncertain economic and financial conditions demonstrates the bankability of OFTOs.

The latest status of the Transitional Regime projects (split into three Tender Rounds) are summarised below. The projects have increased in size over time and this trend might be expected to continue under the Enduring Regime: Projects in Round 1 had an average transfer value of around £120m; the average for Round 2 projects is expected to be closer to £350m. The TRS on projects which have reached financial close to date has been in the range of £5m-£10m p.a. This figure would be expected to increase broadly in line with the increases in the Transfer Values of future projects.

The £2bn+ of capital committed to OFTO projects to date has come from a variety of sources listed below including:

- Equity investors, including infrastructure funds and strategic investors from Europe and Australia;
- The European Investment Bank (EIB), which has committed over £1bn to the OFTO assets; and
- A wide range of commercial banks including Barclays, ING, Lloyds, BNP Paribas, Santander, National Australia Bank.

The fact that the funds have been provided by such a diverse investor base, which continues to bid for assets as they become available, demonstrates investors' appetite for OFTO investments and the bankability of this asset class.

Comparable to PPP structures and other regulated network businesses

Comparison to PPP structures

OFTOs provide a long term, stable, RPI linked revenue stream on a low risk investment and are capable of generating positive cashflows to investors from early in the project's operating phase. In this respect OFTOs have some parallels with projects let under the Private Finance Initiative (PFI) or Public Private Partnerships (PPP) as noted by Fitch⁹:

"... The day-to-day risk profile of OFTOs is no higher than most UK private finance initiative (PFI) projects, which also use an availability-based revenue structure..."

OFTO assets have many of the same benefits as traditional PPP assets, for instance long term availability-based revenue as well as an ability to pass through certain costs (as described earlier). However, there are a number of key differences between the OFTO asset class and typical PPP assets:

- PPP assets normally involve a construction element, making them more risky in that respect than OFTOs under the Transitional Regime.
- For PPP assets only a proportion of the revenue stream (or unitary charge) is normally indexed to RPI inflation. Normally the proportion of the revenue indexed matches the proportion of total costs represented by any elements of the contractors' underlying costs which are not fixed. However, the OFTO's entire TRS is indexed at RPI (under the Transitional Regime).
- OFTOs' exposure to performance is lower than on most PPP projects. While the maximum penalty that an OFTO can incur is 10% of its annual TRS, PPP projects do not normally benefit from a similar cap on penalties.
- OFTOs are not entitled to compensation on termination whereas PPP investors may be.

OFTO assets have many of the same benefits as traditional PPP assets, for instance, long term availability-based revenue as well as an ability to pass through certain costs.

⁹ UK OFTOs – Sound Credit Profile Expected Subject to Testing of Regulation, November 14, Fitch (2011)

Table 3.2: Summary of Transitional Regime Projects to Date

Tender Round	Project	Transfer Value	Selected Bidder	Status
1	Robin Rigg East and West	£65.5m	Transmission Capital Partners ¹⁰	Licence granted 2 March 2011 ARS*: £6.5m
1	Gunfleet Sands 1&2	£49.5m	Transmission Capital Partners	Licence granted 19 July 2011 ARS: £6.0m
1	Barrow	£33.6m	Transmission Capital Partners	Licence granted 27 September 2011 ARS: £4.8m
1	Walney 1	£105.4m	Blue Transmission ¹¹	Licence granted 21 October 2011 ARS: £11.0m
1	Sheringham Shoal	£182.1m	Blue Transmission	Preferred Bidder Appointed
1	Ormonde	£103.9m	Transmission Capital Partners	Licence granted 10 July 2012 ARS: £10.6m
1	Greater Gabbard	£316.6m	Equitix, AMP Capital and Balfour Beatty	Preferred Bidder Appointed
1	Thanet	£163.1m	Balfour Beatty Capital	Preferred Bidder Appointed
1	Walney 2	£109.8m	Blue Transmission	Licence granted 26 September 2012 ARS: £11.8m
2a	London Array	£428.0m	Blue Transmission	Preferred Bidder Appointed
2a	Lincs	£282.0m	Transmission Capital Partners	Preferred Bidder Appointed
2a	Gwynt y Mor	£346.0m	N/A	ITT commenced
2b	West of Duddon Sands	£311.0m	N/A	Tender expected to start in December 2012

Source: KPMG. Transfer values are Ofgem's estimates for projects where a licence has not yet been granted.

ARS*: Annual Revenue Stream

¹⁰ TCP – consortia comprising Transmission Capital, International Public Partnerships and Amber Infrastructure Group

¹¹ Blue Transmission – consortia comprising Macquarie Capital Group and Barclays Infrastructure Funds Managements

	Executive Summary	4
	1 Introduction	8
	2 What is an OFTO	10
	3 What are the characteristics of an OFTO investment?	16
	4 How can OFTOs be invested in?	32

- OFTO tender process is not run by the ultimate counterparty.
- The primary user of the OFTO assets is neither the counterparty nor tender process administrator.
- Obligations for OFTOs are dictated through licences and associated codes rather than through contract and have different governance mechanisms.

Given the above, the expected rate of return to OFTO investors may be lower than the returns available to PPP investors (in particular on projects where the latter bear construction risk). However, where PPP investors do not bear construction risk (e.g., on investments in already operational assets), one might expect the return to OFTO investors to be higher than for a PFI asset class, which is relatively more mature. However, other factors and considerations will also be relevant to the expected rate of return.

The UK National Audit Office (NAO) has suggested the equity IRR on PPP projects since mid 2009 has been in a range of 8–9%¹² whereas the rate of return requested by bidders on Transitional

Regime projects to date have so far been in the range of 9–10% according to Infranews and 10–11% according to the NAO (nominal, post-tax)¹³.

The equity contributed to the Transitional Regime projects usually comprises pin point equity (i.e., a small amount of ordinary share equity) and subordinated debt, though alternative solutions – including 100% equity financing – have also been adopted.

Returns to debt investors in OFTOs and PPP projects can also be compared. Publicly available information on projects which have reached financial close suggests margins on loans to OFTOs have typically been around 200–220 bps (over LIBOR) with tails around 12 months (see table below). Data compiled by KPMG suggests PPP projects have typically had similar loan arrangements – i.e., spreads have been between 200–300 bps, though tails have been slightly longer (at around 18–36 months). The NAO has suggested that the financing terms achieved by OFTOs to date were “competitive in the prevailing environment for medium to long term bank lending” and slightly lower than for PPP projects over the same period¹⁴.

Third Energy Directive

European Union (EU) requirements under the so called Third Energy Directive require that ownership of transmission and generation assets be unbundled. The Electricity Act 1989 requires transmission system operators (TSOs) to be certified as complying with the ownership unbundling requirements of the Third Package, by 3 March 2012 or an extended deadline as agreed by the Authority (Gas and Electricity Markets Authority). The Directive suggests that it may not be possible to control, or own majority stakes in, both transmission and generation assets within the EU. The impact of the Directive on OFTO projects depends on:

- The UK has transposed the EU Directive into UK legislation in a way that enables transmission owners to also own generating plant which has capacity < 50 MW.
- How Ofgem certifies OFTOs: Ofgem, which is expected to take utmost account of the EC’s opinion in these matters, has recently certified the Robin Rigg, Gunfleet Sands, Barrow and Ormonde OFTOs and has previously issued detailed guidance on the process.
- The precise implications of this law are not yet known and practical application of it remains to be determined.

Table 3.3: Transitional Regime Round 1 OFTO financing terms

Project	Senior Debt (Gearing)	Terms
Robin Rigg^a	£65.1m (c. 84%)	19 year tenor (12 month tail) Priced at ~ Libor +220-235bp
Gunfleet Sands 1 & 2^b	£50m (c. 85%)	19 year tenor Priced at ~ Libor +195bp
Walney 1^a	£105m (c.85%)	19 year tenor (12 month tail) Undisclosed pricing Additional minor reserve facility of around £3m
Barrow^b	£35m (c, 81%)	17.5 year tenor ^c Priced at ~ Libor +220bp

Source: a Inspitatia website; b InfraNews website; c Barrow’s licence was for 18.5 years only

¹² *Offshore electricity transmission: a new model for delivering infrastructure*, June 22, p29, NAO (2012)

¹³ See *UK OFTOs: The Challenges of Meeting the Sectors GBP17bn capex requirements*, 30 March, Infranews (2012) and *Offshore Electricity Transmission: A New Model for Delivering Infrastructure*, June 22, p10, NAO (2012)

¹⁴ *Offshore electricity transmission: a new model for delivering infrastructure*, 22 June, p27 which estimated that the premium over gilts on OFTO loans were 210–220 bps, while PPP loans had had premiums of 250–300 bps. The NAO suggested the premium on PPP projects may have been slightly higher due to the construction risks present on those projects which are absent from the OFTO projects considered, NAO (2012)

Public Private Partnerships

UK PPP is a well understood, liquid and mature asset class, with a two decade long track record of successfully delivering infrastructure projects (more than 800 deals have been signed) with demonstrated investor acceptance of the risk profile (debt and equity) as well as the project structure.

In a typical PPP structure, a government/public sector entity contracts with a private sector project company (typically a special purpose financing vehicle) that takes on the obligation to design, build, finance, maintain and operate an asset (e.g., a hospital or school building) for a fixed period of time (typically 30 years post construction) and to a pre-defined set of performance standards.

In return for discharging its obligations under the PPP contract, the private sector counterparty receives from the public sector/government counterparty, a pre-defined payment stream (typically an annual 'service' payment in monthly instalments and which is set for the term of the agreement by upfront competitive bidding) and can suffer deductions and/or penalties for non-compliance with the required contractual performance standards.

It is important to note that in a typical PPP project, the payment to the private sector party does not depend on the level of usage of the asset by the public sector/government counterparty (e.g., the number of patients in a hospital), but rather on the private sector party having made the asset available for use by the public sector/government counterparty. Such PPP projects are therefore termed 'availability' type PPP projects as opposed to a PPP project in which the payment made to the private sector counterparty may depend on the level of asset usage (e.g., a toll highway).

Comparison to other regulated network businesses

The regulated nature of the OFTO revenue stream and the type of assets (electricity transmission) mean that OFTOs are also at least partly comparable to 'traditional' regulated energy networks such as onshore electricity and gas transmission and distribution networks such as National Grid Electricity Transmission (NGET), Scottish Power Transmission Limited (SPTL) and Scottish Hydro Electric Transmission Limited (SHETL). Importantly, they are also regulated by Ofgem with the track record of regulatory history and practice even if the role of the regulator and regulatory discretion is more limited in the case of OFTOs.

There are a number of important differences between OFTOs and traditional regulated network businesses including:

- Regulated network businesses typically have to undertake significant ongoing capex programmes to expand and reinforce their existing networks, meaning the network business bears risks associated with construction that an OFTO does not bear and that a network business may be cash negative for many years.
- Regulated networks are typically able to access bond markets (GBP and foreign currency) in addition to the bank finance market.
- Regulated networks are not exposed to the single asset risk in the same way as an OFTO; failure by a single asset may have a much smaller effect

on a network business comprising numerous assets than an OFTO, especially if the network is resilient to the asset failure.

- The absence of periodic price controls means that the OFTO does not face regulatory risk in the same way as the onshore networks.
- The last point also means that the OFTO cannot benefit from regulatory resets to accommodate significant changes in financial or operating costs.
- Finally the scale of operations means that most of the regulated utilities are much larger than OFTOs.

Given there are some factors that might make onshore regulated energy network businesses both riskier and less risky than OFTOs and that there are other differences between the investment propositions, it is difficult to assess how the rate of return on OFTOs should compare to the returns achieved on traditional regulated network businesses.

The returns on OFTOs (to date) appear broadly similar to returns on onshore energy network businesses: as noted earlier, the rate of return requested by bidders for OFTO assets has been around 9-11% in post tax nominal terms, which is broadly in line with the 10-11% equity IRRs that might be targeted by equity investors in traditional regulated network businesses¹⁵.

Regulated Onshore Networks

Investors in regulated UK utilities such as onshore electricity and gas transmission and distribution, water, rail and airports get a regulated rate of return on the regulated asset base ('RAB'). The rate of return (or Weighted Average Cost of Capital (WACC)) is periodically reset by an economic regulator, typically for a fixed period of time (the price control period) and according to well understood methodologies. RAB x WACC is part of the revenue entitlement of the regulated utility, along with allowances for

operating costs, depreciation and tax. The rate of return achieved by investors depends heavily on the WACC set by the regulator, but can be enhanced by outperforming the regulator's assumptions in other areas e.g., operating the business more efficiently than expected. Returns to investors can also be enhanced by performing strongly against various incentive mechanisms, typically focused on customer satisfaction or on performance against environmental targets, triggering bonus payments to the regulated utility (in the form of higher allowed revenue).

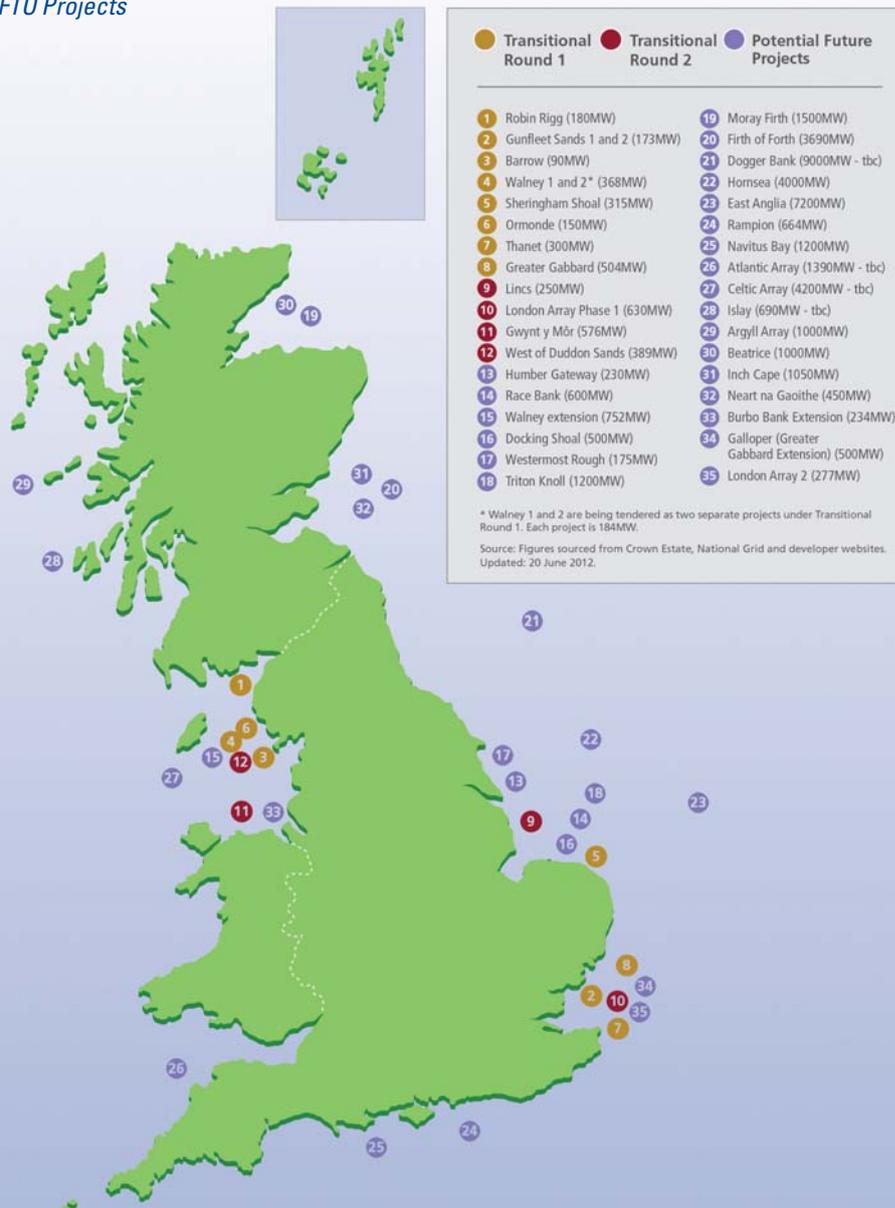
Executive Summary	4
1 Introduction	8
2 What is an OFTO	10
3 What are the characteristics of an OFTO investment?	16
4 How can OFTOs be invested in?	32

3.2 The Enduring Regime

Ofgem is currently consulting on the regulatory framework to apply to Enduring Regime projects i.e., those which qualify after 31 March 2012. As part of this process Ofgem has already provided a significant amount of information on how the regime might work so that investors can begin to form a clear view on the opportunity to

invest in the £15-20bn of projects in the pipeline under the Enduring Regime, as illustrated in Figure 3.4 below. Some of these projects are likely to be built out in phases. Dogger Bank and Hornsea are two examples of projects where a phased build out is likely to occur¹⁶. The exact number of tenders for each project will depend on the final investment decisions made by the developers. However, current estimates suggest that around 50 tenders may be required if all future projects are to be built¹⁷.

Figure 3.4: Potential Future OFTO Projects



Source: Ofgem

16 Source: Ofgem
17 Source: Ofgem

The most significant change from the Transitional Regime to the Enduring Regime is that the potential role of an OFTO will be expanded. Alongside a “Generator Build” option, where the OFTO’s role would be very similar to the role it has under the Transitional Regime, an “OFTO Build” option will also be introduced under the Enduring Regime, providing an opportunity for OFTOs to become involved in the construction and procurement of the transmission infrastructure rather than just the operation and maintenance.

The table below summarises the responsibilities of the OFTO under the OFTO-build and Generator build options. Compared to the Generator build option the OFTO would also take responsibility for:

- Detailed design work;
- Procurement of suppliers;
- Negotiation of construction contracts; and
- Delivering the build programme.

The number of OFTO build projects that emerges over time will depend on whether developers (which are likely to include a diverse range of companies like Centrica, DONG, EDP Renovaveis, Eneco, E.ON, Mainstream Renewable Power, RWE, Scottish Power,

SeaEnergy, Siemens, SSE, Statkraft, Statoil and Vattenfall) opt for an OFTO to build the assets or whether they will build them themselves. If a developer decides to ask Ofgem to appoint an OFTO to construct the assets, Ofgem will run a tender exercise (see Section 4) and prospective OFTOs will decide whether to bid or not – no party or existing OFTO will be required to take on construction risk that it does not wish to bear.

There may also be a pipeline of projects available to OFTOs that windfarm developers feel less willing to undertake; while the direct transmission link between the onshore transmission network and the offshore windfarm will be of obvious significance to the windfarm developer, a range of wider works may also need to be undertaken, but may be of lesser significance to windfarm developers. For example, interconnecting or secondary transmission links which are of benefit to several windfarms rather than for the benefit of a single windfarm may be candidates for OFTO build.

The most significant change from the Transitional Regime to the Enduring Regime is that the potential role of an OFTO will be expanded.

Table 3.4: Potential OFTO Responsibilities under the Enduring Regime

Activity	Generator Build	OFTO Build
Obtain connection agreement	Generator	Generator
High level design	Generator	Generator
Pre-construction	Generator	Generator
Detailed design work	Generator	OFTO
Procure suppliers	Generator	OFTO
Negotiate construction contracts	Generator	OFTO
Deliver the build programme	Generator	OFTO
Operate	OFTO	OFTO
Maintain	OFTO	OFTO
Decommission	OFTO	OFTO

Source: KPMG

Executive Summary	4
1 Introduction	8
2 What is an OFTO	10
3 What are the characteristics of an OFTO investment?	16
4 How can OFTOs be invested in?	32

Potential advantages of an OFTO build for windfarm developers

Whether developers will opt for an OFTO build process or not depends on several factors and considerations, but there are a number of potential advantages of this option for the windfarm developer:

- The developer will not need to finance the construction of the offshore transmission infrastructure, freeing up balance sheets to finance windfarm construction. This financing benefit may be particularly valuable if balance sheets become more stretched in the future if a single developer develops multiple, large projects simultaneously;
- The developer may be able to project finance their windfarm without the complication of having to sell of the transmission assets at a later date;
- Given that around 8% of the costs spent by windfarms on assets transferred to OFTOs so far have been disqualified by Ofgem¹⁸, there may be some financial benefit to the windfarm developer off an OFTO build exercise as the windfarm would no longer face this risk.
- The combination of design, construction, long-term operation and financing might deliver lower cost outcomes overall.

An OFTO build exercise may also, depending on the regulatory framework, insulate the windfarm developer from delays in the construction and installation of the cables, though Fitch has suggested that outsourcing transmission asset construction to a third party may be a credit negative for windfarms¹⁹.

An Evolving Regulatory Framework

The regulatory arrangements for the Enduring Regime will be similar to the Transitional Regime. However, recognising that the investment proposition under the Enduring Regime is evolving, Ofgem is considering some changes to the framework for the Enduring Regime (both OFTO-build and Generator-build), which could be reflected in potential changes to the licences. It is expected that the changes will aim to continue to ensure value for money for consumers while also to retain investor confidence. The changes being considered include:

- The term of the licence: Whether licences should continue to be for 20 years is being considered given the life of the generation and transmission assets might evolve in the future.
- The approach to indexation and the most efficient indexation arrangements: The proportion of the OFTO's revenue stream indexed to inflation is being reviewed to ensure arrangements are as cost efficient as possible. For example, whether the need for hedging through swaps can be reduced and financial flexibility increased are being explored.

Ofgem has also set out some 'minded to' positions on aspects of the regulatory regime specific to the OFTO build option including:

- The OFTO would need to pay the developer for the economic and efficient costs of any assets transferred (such as pre-construction works).
- The OFTO's revenue stream would only commence once the assets were completed. Revenues would then be earned for a fixed period (unaffected by any delays to construction or licence grant).

While Ofgem has set out 'minded to' positions on a range of aspects of the Enduring Regime, Ofgem's position is still being considered in some areas including whether:

- To introduce a refinancing pain/gain share mechanism to reduce the risks borne by OFTOs.
- Share sale arrangements should be permissible as an alternative to asset transfers (on the understanding that there may be advantages to some parties of permitting a share sale).
- To introduce certain enhancements to the availability incentive mechanism, particularly to reflect more complex system configurations.
- For the OFTO build option, whether to introduce risk sharing mechanisms relating to delays arising from weather conditions or to the licence grant when these delays are outside of the OFTO's control.

In considering some of these changes (such as indexation of the TRS, refinancing gain share mechanisms and the term of the revenue stream) it is important to be mindful of how lessons from PPP and other sectors might be appropriately applied to OFTOs.

An Evolving Investment Proposition Generator build

Although Ofgem has noted some changes to the regulatory framework for a Generator-build scenario, the investment proposition appears likely to be broadly similar to under the Transitional Regime.

OFTO build

Given its different role under an OFTO build option, an OFTO may have some additional opportunities, and also bear some additional risks around construction, interface/design and procurement that an OFTO does not face under the Transitional Regime or the Generator-build option.

Recognising these additional risks, Ofgem is consulting on whether to introduce risk protection mechanisms to protect the OFTO against delays outside of the OFTO's control e.g., weather or licence grant. Table 3.5 overleaf summarises at a high level how

¹⁸ *Offshore electricity transmission: a new model for delivering infrastructure*, June 22, p27, NAO (2012)

¹⁹ *Construction risk in offshore wind farms*, May 23, p7, Fitch (2012)

the general risk profile of an OFTO build option may differ from the Transitional Regime (set out earlier in Table 3.1).

Given the changes to the role of the OFTO and the changes to the regulatory framework mooted, the risks borne by the OFTO appear likely to be different under the OFTO build option. Opportunities for the OFTO to add value and enhance returns also appear likely to be greater. For example, since the OFTO would provide its own detailed design of the assets to a specification (e.g., capacity) provided by the developer, innovative designs enabling the specification to be delivered at lower cost or to a higher standard could give a bidder an advantage over its competitors. Similarly, an ability to negotiate with and manage suppliers and contractors could enhance an OFTO's bid (this is discussed in more detail later in Section 4.2).

The returns available to OFTO investors could be expected to evolve in line with the risk profile of the opportunity. All else being equal, the investment proposition under an OFTO build scenario might evolve closer to traditional PPP projects, most notably by allowing the OFTO to take on construction, design and procurement

roles typically also taken on by the PPP investor. Returns available to debt and equity investors in an OFTO build project might resemble those available to PPP investors, although there are still likely to be some differences between the two investment opportunities that could generate differences in returns. The relative immaturity of any initial OFTO build projects might be one factor affecting initial bids by investors.

The potential expansion of the role of an OFTO might make the investment proposition more attractive to certain types of investors. For example, contractor equity—where the equity bidder is also the construction contractor—might view the equity investment as an additional area to earn returns (i.e., over and above contractor profit margin), as emerged in the PFI market over time. Involvement in construction might also introduce the possibility of the involvement of institutions such as export credit agencies and development banks/agencies (e.g., the European Investment Bank (EIB), Nippon Export and Investment Insurance (NEXI), Japan Bank for International Cooperation (JBIC), etc) that contractors may approach to wrap/insure the project finance debt.

The potential expansion of the role of an OFTO might make the investment proposition more attractive to certain types of investors.

Table 3.5: Offshore transmission risk allocation – Enduring Regime

Risk	Description	Mitigant / owner
Construction risk	Cost overruns during construction, or failure to complete the assets on time (or at all)	Borne by OFTO, subject to any risk sharing mechanisms introduced by Ofgem
Counterparty risk	Risk of non-receipt of TRS Risk of non-performance by suppliers and contractors	TRS is received from NETSO, a ring fenced subsidiary of National Grid, regulated by OFGEM and with an investment grade credit rating Contractual arrangements will need to be carefully negotiated to ensure counterparties are appropriately incentivised
Delivery risk	Failure to deliver the required electricity transmission infrastructure	TRS does not commence until the asset is complete Via the well-established industry framework OFTO must provide 20% of the construction works cost, plus liquidated damages liability, as security during construction
Financing costs	Interest payable by OFTO may increase or decrease over project life	Ofgem is considering introducing a refinancing pain/gain share mechanism

Source: KPMG

Executive Summary	4
1 Introduction	8
2 What is an OFTO	10
3 What are the characteristics of an OFTO investment?	16
4 How can OFTOs be invested in?	32

A Significant Pipeline of Investment Opportunities

Investors might also be attracted by the potential pipeline of future OFTO opportunities as Figure 3.5 (based on connections data from the TEC register) illustrates. While there is some uncertainty around the pipeline of future projects (given some projects are only at the planning stage of development or earlier), at least some of the projects within the Enduring Regime are envisaged to be larger in size (as the later projects will typically require greater capital investment to meet the challenges of deeper water, greater distance from shore and more complicated connections) than the projects tendered so far under the Transitional Regime.

The timing of future OFTO opportunities is somewhat uncertain. Connections data – shown below – suggests around 30GW of capacity could be generating by around 2020, significantly more than

the Department of Energy and Climate Change’s (DECC) expectations which have a central estimate of 11-18 GW by 2020. Nevertheless, it is clear that there is a substantial pipeline of offshore wind projects and associated OFTOs. For example, the NAO recently estimated that an additional £8bn of investment would be needed in OFTOs by 2020, suggesting Ofgem may be running around £1bn of tenders for OFTO projects annually over the next eight years²⁰.

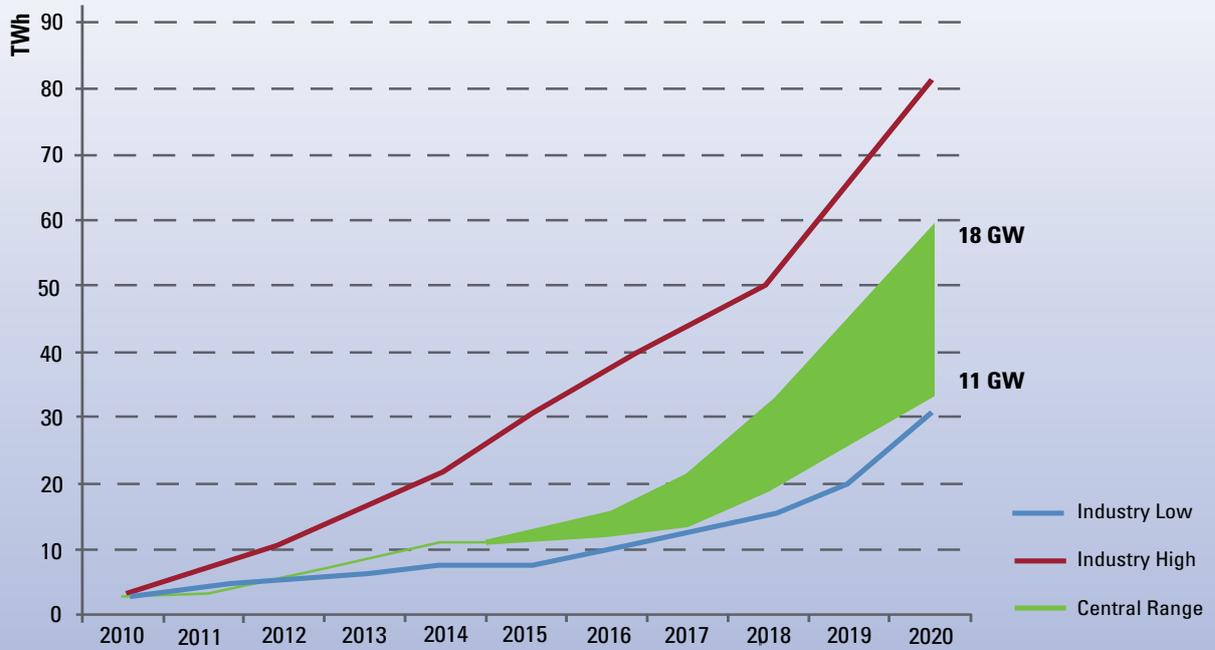
Figure 3.5: Potential future OFTO opportunities



Source: KPMG analysis of Ofgem data

20 Offshore electricity transmission: a new model for delivering infrastructure, June 22, p15, NAO (2012)

Figure 3.6: DECC's Renewable Energy Roadmap



Source: UK Renewable Energy Roadmap, p45, DECC (2011)

OFTO connections sum up to around 30GW of capacity that could be generating by around 2020, which is above the Department of Energy and Climate Change's (DECC) expectations.

Executive Summary	4
1 Introduction	8
2 What is an OFTO	10
3 What are the characteristics of an OFTO investment?	16
4 How can OFTOs be invested in?	32

A significant pipeline of investment opportunities.



4 How can OFTOs be invested in?

Investors can invest in the OFTO asset class in a variety of ways including:

- Primary market: by investing in debt or equity in transitional regime projects;
- Primary market: by investing in debt or equity in upcoming enduring regime projects;
- Secondary market: by buying in to or re-financing existing assets.

4.1 Transitional regime

Tender process

In the Transitional Regime, the tender process for the transfer of the OFTO assets has run alongside the asset construction process. There are a number of key stages running from an expression of interest to financial close. The process took about 12 months from Pre-Qualification (PQ) to appointment of a Preferred Bidder for most of the Round 1 Transitional Regime projects, but has taken longer on Round 2a projects due to construction delays and because some projects were tendered relatively earlier to enable the PQ process to be run jointly for a number of projects (reducing costs for bidders).

For the Transitional Regime projects to date the tender process has consisted of the following steps:

- 1) **Pre-qualification:** Bidders are required to submit summary information on their experience and capabilities (the PQ Questionnaire) which demonstrates they are capable of:
 - Taking over the ownership of the OFTO assets for the Project it has tendered for; and
 - Assuming the responsibilities and duties associated with being an Offshore Transmission Licensee.

The first tender round received 29 PQ submissions across the nine projects.

> **Based on PQ submissions Ofgem identifies a long list of bidders**

- 2) **QTT:** Bids are based upon generic and project specific information memoranda and are assessed against a number of criteria that are a combination of financial and operational criteria. For Round 2a, these criteria were:
 - Project IRR and Tender Revenue Stream (25% Weighting)
 - Financing Strategy (15% Weighting)
 - Financial and Shareholding/Bidder Group Structure (5% Weighting)
 - Commercial Risk Management (20% Weighting)
 - Proposed Takeover Plan (10% Weighting)
 - Management and Operational Capability Statement (20% Weighting)
 - Transfer Agreement (5% Weighting)

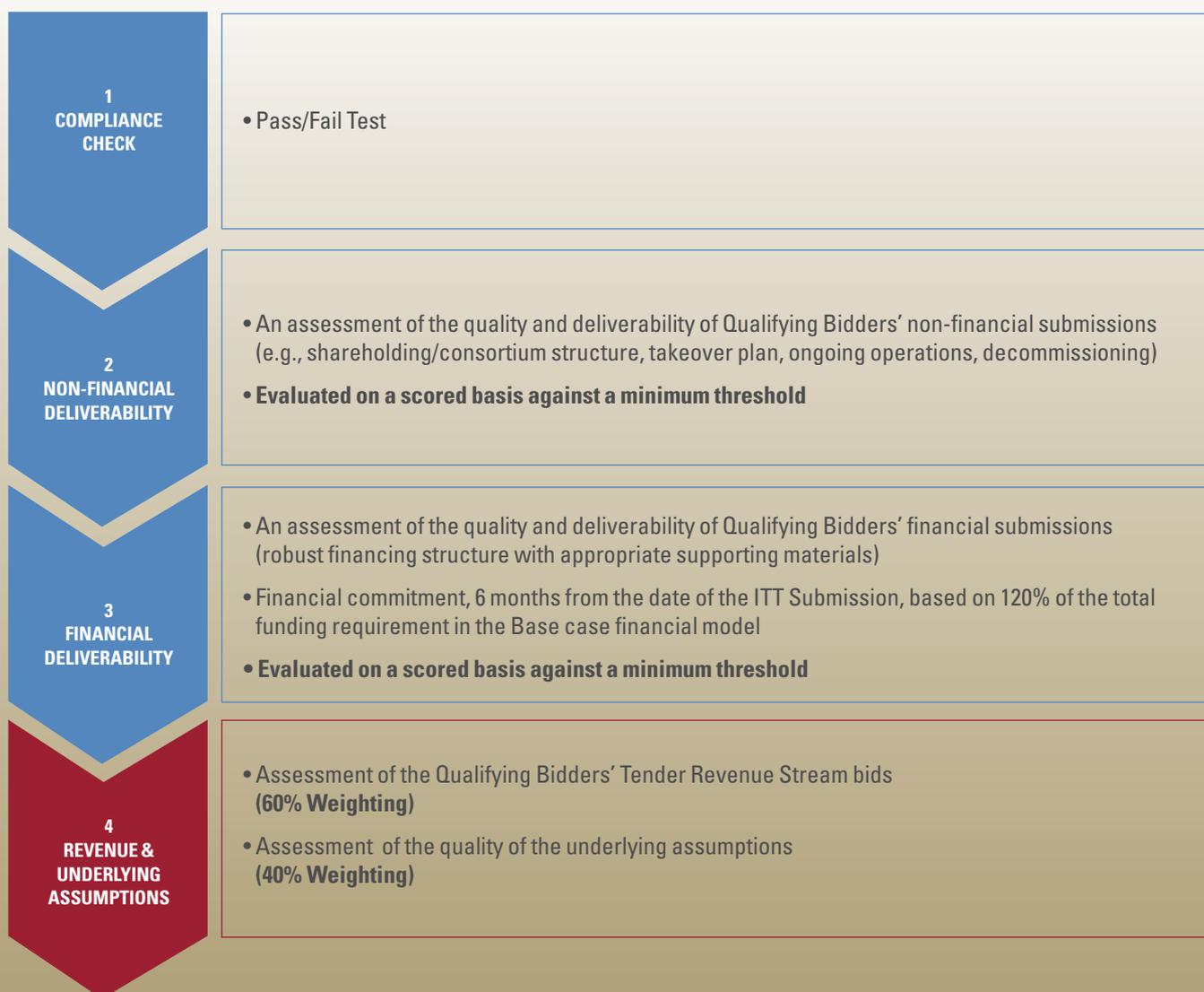
> **Based on QTT submissions Ofgem identifies a short list of bidders**

Executive Summary	4
1 Introduction	8
2 What is an OFTO	10
3 What are the characteristics of an OFTO investment?	16
4 How can OFTOs be invested in?	32

3) **ITT:** A short list of bidders (typically 3-5) are provided with access to a data room to complete detailed due diligence and finalise their tender. For Round 1 Transitional Regime projects, the detailed evaluation process was conducted over four distinct sequential stages shown below.

> **Either: Preferred and reserve bidder announced or BAFO**

Figure 4.1: Transitional Regime Bidding Process



Source: KPMG

4) Best and Final Offer (Optional) (BAFO): Some or all shortlisted bidders may be required to resubmit their tender proposals where it has not been possible to identify a preferred bidder at the ITT stage. In Round 1 the Preferred and Reserve bidders were selected for eight of the nine transmission projects based on the ITT stage. For the Ormonde project the ITT stage was inconclusive so three bidders were selected to submit Best and Final Offers prior to selection of a Preferred Bidder. A similar process has recently been run for the London Array project, as part of Round 2.

> Preferred and Reserve Bidders announced and Licence Grant

Once a preferred bidder is appointed, there is a period for confirmatory due diligence, final credit approvals and finalisation of the transfer documentation. The PB process is followed by a 28 day Section 8a Consultation (on modifying the Licence to incorporate OFTO specific provisions). Any outstanding matters arising from this are dealt with prior to Licence Grant. Financial close occurs immediately thereafter. In total, this process has taken as little as seven months (e.g., for Robin Rigg) for projects that have reached financial close to date, but in other cases more than 24 months have passed without reaching financial close due to construction and commissioning delays affecting the projects.

Developing a Successful Bid

As noted above, a bid is evaluated on the basis of the TRS proposed and on the deliverability of the proposals included in the bid. In order to put together a successful bid investors need to give careful consideration to a range of issues including:

- Financial structuring: gearing, type and cost of debt, and structuring of equity;
- Asset takeover planning;
- Operations and maintenance: whether to outsource O&M functions or not, structuring of contracts with third parties to mitigate risks effectively.

Innovative Financial Structures may be Adopted

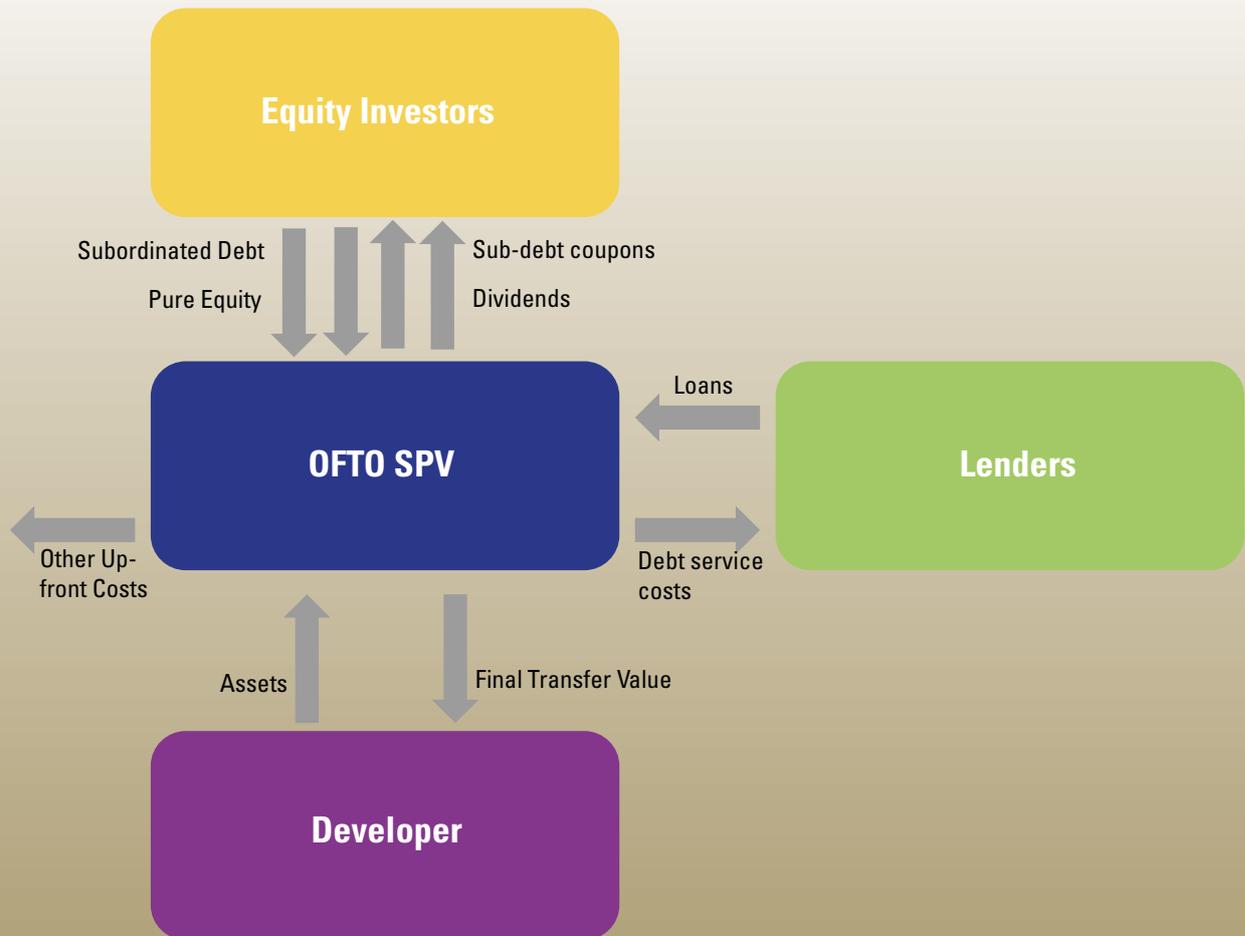
Bidders have flexibility over the financing structure they put forward as part of their bid, so long as the deliverability of the proposal is convincing and the proposal enables the investor to put forward a competitive TRS. A range of structures have been put forward in Transitional Regime bids so far:

- Highly leveraged project finance type structures with a mixture of equity, shareholder subordinated loans and long term senior debt (sometimes with reserve facilities to cover short term liquidity needs). When these structures have been used, equity has usually been structured into a sub debt component and pin point ordinary share equity; and
- Lower leveraged project finance type structures where equity has constituted a majority (and in some cases all) of the capital invested. Where lower leverage is used equity investment sizes may be more attractive (by making them larger) to some investors than under a highly leveraged approach.

Those projects financed using a highly leveraged project finance type structure, as illustrated by Figure 4.2 opposite, have typically involved gearing of 80%-90% from a variety of commercial banks and the EIB²¹.

Bidders have flexibility over the financing structure they put forward as part of their bid, so long as the deliverability of the proposal is convincing and the proposal enables the investor to put forward a competitive TRS.

Figure 4.2: Illustrative financing structure of a highly leveraged project financed OFTO



Source: KPMG

While structures put forward so far have involved project financing through Special Purpose Vehicles (SPVs), on balance sheet corporate financed solutions might also be possible.

Most bidders for OFTO projects have so far been part of consortia, but other parties have bid on a stand alone basis and there is no requirement to be part of a consortium. While each project and circumstances are different, bidders might consider:

- **Bidding in their own right**, which provides the greatest amount of control over the bid process and bid submission, but also requires the greatest equity commitment. Bidders might draw on external advisers to provide expertise around particular

issues (e.g., technical, legal or financial) to make bidding easier.

- **Forming a consortium** to provide access to additional capital and/or involve expertise, bidding in conjunction with other partners might be advantageous. Finding partners with similar investment risk appetite and agreeing investment assumptions (e.g., required rates of return) may add complexity to the bidding process.
- **Joining an existing consortium** to take advantage of direct OFTO bidding experience, joining an existing consortium might be beneficial.

To access debt on the most competitive terms bidders may react to changing financial market conditions by:

- **Exploring different sources of bank finance** as the banking market is changing and the identity of lenders to the OFTO industry may change. For example, European banks' lending appetite (and the tenor and price they are willing to lend at) may be affected by new regulations such as Basel III which impose requirements for banks to hold more risk capital than they previously did (for long dated loans in particular). Growing interest in OFTOs by Japanese banks, such as SMBC and Mizuho, may provide an alternative source of bank finance.
- **Considering raising debt in the capital markets:** the features of the OFTO asset class (long term guaranteed revenues, investment grade structures etc) lend it to bond financing. However, as yet this route has not been taken. There may be a range of reasons for this such as the size of the projects (meaning any bond issues would have been relatively small), but primarily the absence of bond finance so far has probably been due to its lack of price competitiveness with bank finance. Should relative pricing change, or long term tenors cease to be available, it is possible that bond finance will become more viable for bidders, especially as the project size increases. That the requirement for bidders to provide a minimum period of committed financing as part of Round 2 (bidders had to have funds committed for six months on Round 1 projects) has been removed may also increase the possibility of using project bonds.
- **Refinancing a portfolio of OFTOs through bond issuance** is another option that might be explored for financial planning, though the licence ring fence provisions (which require that default by one OFTO cannot trigger cross default of another OFTO) may make this more difficult. This issue is discussed further in Section 4.3.

Operations and maintenance, insurance and tax

Bidders might opt to put forward competitive bids by:

- **Installing an experienced management team** who understand the particular challenges of operating OFTOs, or by **risk sharing through contracting with third parties** e.g., O&M contractors may be willing to accept penalties associated with the availability incentive mechanism in return for receiving bonus payments for exceeding the availability target. The windfarm developer may be willing to provide O&M services. Wherever contractors are used, bidders will also need to consider whether fixed price medium term contracts offer the best value for money: periodic renegotiations may represent an opportunity or a risk, depending on the level of competition which emerges for providing the contracted services.
- **Putting in place insurance as efficiently as possible** (both in terms of price and coverage). Property Damage, Business Interruption and Third Party insurance might all be required in some form as a result of industry standards or financiers' requirements (e.g., the EIB may impose stricter requirements than some other lenders). Minimising prices through brokers or by self insuring can be important to securing a competitive advantage, while optimising insurance coverage so that it dovetails with protections in the licence and in other contractual arrangements and construction warranties may secure a competitive advantage without affecting the risk profile of the business. Bidders will also need to form a view about the appropriate risk buffer to include in their insurance cost projections, taking into account how they expect the insurance market to evolve over time e.g., how liquid it will be, how many participants there will be, how pricing might be affected by any claims made.

In order to access debt on the most competitive terms, bidders will need to react to changing financial market conditions.

Executive Summary	4
1 Introduction	8
2 What is an OFTO	10
3 What are the characteristics of an OFTO investment?	16
4 How can OFTOs be invested in?	32

4.2 The Enduring Regime

Tender process

Many of the same considerations as applied to the Transitional Regime will apply to the Enduring Regime.

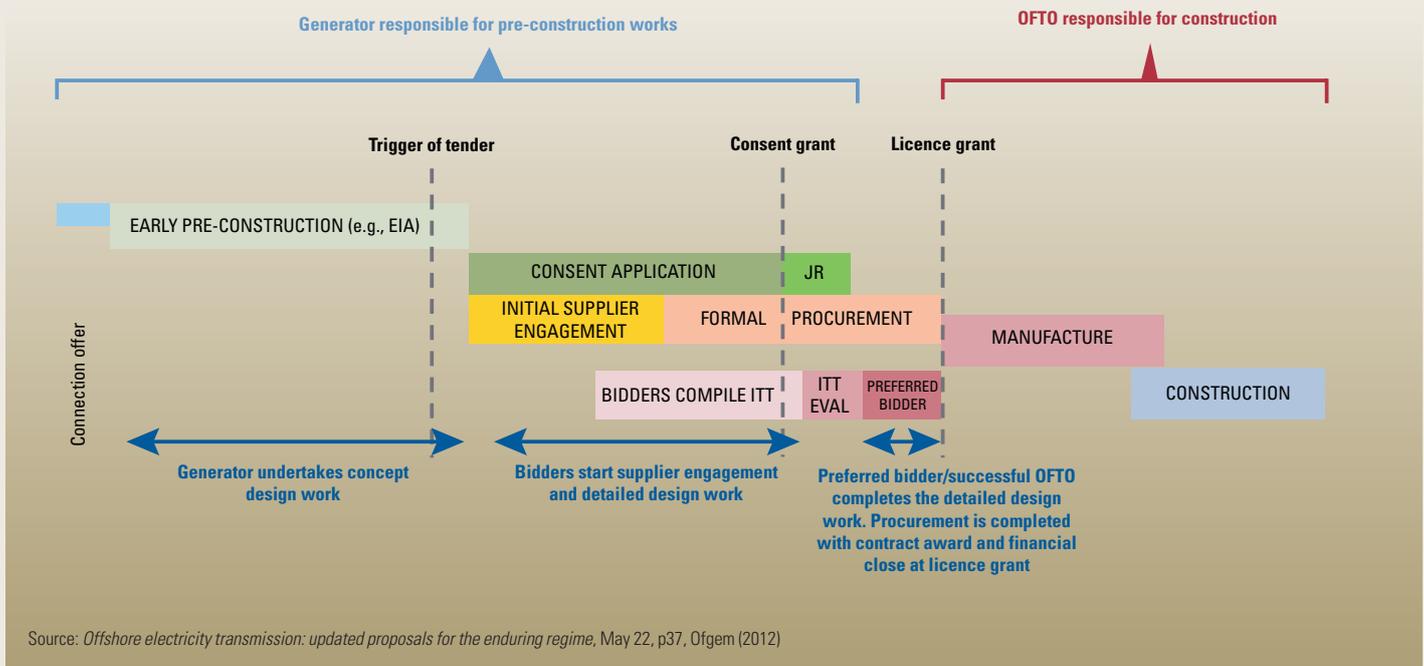
Depending on the option chosen the tender process and the requirements for a successful bid will differ:

- Under the OFTO build option the OFTO would become involved at a much earlier stage in the development of the project to enable the OFTO to engage with suppliers and undertake detailed design work (as the chart on the next page illustrates). Consequently, the tender process would need to commence earlier. Ofgem has estimated that the tender process might take 15 to 18 months from ITT to licence grant, which would be longer than for the Transitional Regime reflecting the greater complexity of bids. A PQ and ITT phase will definitely be included, but the QTT phase might be dispensed with on a case by case basis. Where possible Ofgem will seek to cover as many projects as possible within a single PQ phase, but separate project by project ITT phases appear likely.
- Bids may become more complex and innovative, so more weight may need to be placed on the deliverability of the proposals and less weight on the TRS itself.
- For a Generator build option the tender process could be quite similar to those for the Transitional Regime projects. Ofgem is likely to try to group together projects into Rounds with concurrent QTT and ITT phases where possible.
- The bid evaluation process is likely to be quite similar for the Generator build option as for the Transitional Regime; bids might be evaluated roughly 50/50 between the TRS and deliverability.

Synergies between OFTOs may be explored by appointing the same contractors to operate or manage multiple projects or by insuring multiple OFTOs with the same party. The potential for maintenance and repair costs to be reduced through the use of a common pool of spare parts or joint procurement of ships might also be areas for consideration.

- **Exploring the potential for additional revenue** from non regulated activities such as providing reactive power services.
- **Ensuring that their bids contain robust tax assumptions.** The UK headline corporate tax rate, currently 24%, has been reducing in recent years and current expectations in 2012 are that this trend will continue. However the UK does not currently grant tax relief for expenditure on buildings and structures and so the effective tax rate on profits is likely to be higher than the headline rate. There will be a need for bidders to analyse expenditure in terms of the tax rules. At current 2012 rates, tax depreciation can be claimed on qualifying plant and machinery at rates of 18%/8% per annum, reducing balance basis, depending on whether it has a useful economic life of less than or more than 25 years. The UK is relatively generous in the tax deductions granted for financing costs when compared to some other jurisdictions, however, the UK tax rules are complex in this regard and will need to be considered carefully when formulating a bid. The UK does not levy withholding tax on dividend payments made in the ordinary course of business, but 20% withholding tax applies to interest payments, which may be reduced if for example, an exemption or a relevant double tax treaty applies.
- **Synergies between OFTOs** is an area that may be explored e.g. by appointing the same contractors to operate or manage multiple projects or by insuring multiple OFTOs with the same party. The potential for maintenance and repair costs to be reduced through the use of a common pool of spare parts or joint procurement of ships might also be areas for consideration.

Figure 4.3: Indicative OFTO Build process



Source: *Offshore electricity transmission: updated proposals for the enduring regime*, May 22, p37, Ofgem (2012)

Developing a Successful Bid

The ingredients for a successful bid under the Transitional Regime are likely to be equally applicable to a generator build scenario under the Enduring Regime. However, bidding strategy may need to evolve recognising:

- **Project size might be larger:** larger and more complicated consortia may be needed, especially for an OFTO build option, to provide the capital and expertise required to deliver the projects. This may mean that the parties which have bid for OFTO licences to date may not be the same as the parties which bid for future OFTO licences; and
- **A significant pipeline of projects** may mean that early entry into the market could secure a competitive advantage over other rivals slower to react – the experience and knowledge gathered through bidding might be vital to succeeding over the longer term.

Section 3.2 identified a number of potential benefits to generators of an OFTO build process for consideration. Should a developer opt for such an approach it might be anticipated that bids which better deliver those benefits (to the ultimate benefit of consumers) more favourably may be more highly regarded. To this end, bids under an OFTO build tender which are better able to demonstrate a comprehensive design, build and operate proposition (e.g., through innovative design, efficient procurement and management of contractors and suppliers and efficient risk transfer and management) may be expected to have a better chance of success. Specifically, in order to be regarded more favourably bidders for OFTO build projects might seek to demonstrate:

- **Supply chain management:** demonstrating ability to work in partnerships with reputable and reliable potential suppliers to deliver reliable, innovative solutions that achieve value for money for consumers and which provide confidence on the deliverability

Under the OFTO build option the OFTO would become involved at a much earlier stage in the development of the project to enable the OFTO to engage with suppliers and undertake detailed design work.

	Executive Summary	4
	1 Introduction	8
	2 What is an OFTO	10
3 What are the characteristics of an OFTO investment?		16
4 How can OFTOs be invested in?		32

of plans could be advantageous. Experience and track record at procuring and managing suppliers, including manufacturers, could be important to demonstrate.

- **Construction delivery:** credible plans to mitigate and manage construction risks through contractual arrangements and appropriate risk sharing could add value for consumers. Different contractual arrangements might be possible including EPC or 'turn key' contracts, or a package of bilateral contractual arrangements as has been common to date on offshore windfarm projects.
- **Risk mitigation:** aside from managing and sharing the risks associated with the supply chain and construction, the underlying financial strength and resilience of bids would be expected to impact the deliverability of bids and consequently how much value for money they are likely to be delivering.

Investors might also enter the OFTO asset class by buying out an existing equity investor or to provide debt finance through a refinancing of existing debt.

Group in December 2011. This was facilitated by Macquarie Capital Group effectively offering short term equity in the consortium alongside Barclays until its stake could be sold to a long term holder²². These arrangements could be repeated when Blue Transmission reach Financial Close on the Walney 2 and Sheringham Shoal projects²³. Acquiring an existing equity stake may be attractive to investors because:

- The need to participate in the Ofgem run bidding process may be circumvented; and
- Access to an existing consortium's knowledge and experience may be gained, benefiting future bid submissions.

Experience from other markets such as PPP suggest that an active secondary market could be expected to emerge in the future²⁴. In the case of PPP, many projects have changed hands on secondary markets. Likewise, there are numerous examples of secondary market transactions in onshore regulated utility networks.

4.3 Secondary Market

Investors might also enter the OFTO asset class by buying out an existing equity investor or to provide debt finance through a re-financing of existing debt. The emergence of a secondary market could have positive ramifications for the OFTO asset class, not least because it would allow capital to be recycled and would enable the investor base to diversify further.

Equity

To date effective liquid secondary markets have not yet emerged, partly due to the preferences of existing investors. However signs of an embryonic secondary market for OFTO equity can be seen in Mitsubishi Corporation's acquisition of a 50% stake in the Walney 1 project from Macquarie

Debt

Secondary market activity for debt investors could also emerge if acquisition loans are refinanced. Whether existing equity investors would seek to refinance existing debt depends on a range of factors such as the presence of margin step ups in existing loan documentation, as well as the general evolution of financial markets. Under the regulatory arrangements applied to projects tendered to date any gains through refinancing (debt or equity) would not be shared with consumers.

Investors may be keen to tap new financing sources if they emerge and are priced competitively. For example, investors could be expected to try and access alternative sources of commercial bank debt if a divergence in

²² InfraDeals web site

²³ The sale by Macquarie Group to Mitsubishi Corporation of its stake in the Walney II and Sheringham Shoal projects was approved by the European Commission in August 2011- see Case COMP/M6176 – Mitsubishi Corporation/Barclays Bank/Walney I Topco /Walney II Topco/ Sheringham Shoal Topco (OJEU 5 August 2011)

²⁴ *Offshore electricity transmission: a new model for delivering infrastructure*, June 22, p29, See NAO (2012)

lending appetite emerges: banks from Asia, which appear willing to continue to lend at long tenor and at lower margins, may emerge more prominently in refinancings as new capital regulations (e.g., Basel II and Solvency III) impact on European lenders. Other alternative sources of capital might include direct pension fund investment, infrastructure funds, debt funds or insurers.

Another possibility, which is yet to be seen in the OFTO context but has been reasonably common for PFIs in the past, may be for investors to access bond markets in future. Whether an investor would decide to access capital markets might depend on several factors:

- **Relative price of bank loans and bonds:** to date, bank loans have been cheaper than bonds and bidders have typically opted for the lower cost alternative.
- **The size of the projects:** small projects under the Transitional Regime have meant that any bond issuance would also be relatively small and potentially not cost competitive once transaction costs are taken into account.
- **The availability of credit enhancement facilities:** the use of capital market solutions might depend on whether credit enhancement facilities such as guarantees or swaps are also available. Credit enhancement might be provided in future by the EIB project bond initiative whereby the EIB effectively underwrites infrastructure lending, enhancing its attractiveness to lenders and reducing borrowing costs for project sponsors by supporting credit ratings. That this initiative might be available for OFTOs appears likely given that the EIB has already signalled that OFTOs could be considered for this initiative.

- **The ability to finance multiple OFTOs jointly:** that relatively few projects have closed to date may mean investors have not yet explored this possibility in depth, but the ability to issue larger bonds secured against revenues arising from a portfolio of OFTO projects might provide investors with another route to refinancing. It is also possible that rating agencies might view debt secured against a portfolio of projects marginally lower risk as single asset risk would be reduced. Ring fencing provisions in OFTO licences – which effectively mean default by one project cannot be allowed to affect the financing of another project – may limit the ability of investors to leverage against a portfolio of projects. However, it may be possible for investors to structure financing in a way that respects the ring fencing provisions whilst securing the benefits of the portfolio effect.

OFTOs are now firmly established as an infrastructure asset class that has attracted over £2bn of committed investment from a variety of sources.

Executive Summary	4
1 Introduction	8
2 What is an OFTO	10
3 What are the characteristics of an OFTO investment?	16
4 How can OFTOs be invested in?	32

Another possibility, which is yet to be seen in the OFTO context but has been reasonably common for PFIs in the past, may be for investors to access bond markets in the future.

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