Guidance

Offshore Transmission: Guidance for Health Reviews

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Under the Offshore Transmission Owner (**OFTO**) regime, Ofgem runs a competitive tender process to select and licence OFTOs to own and operate offshore transmission assets for a specified period of time, usually twenty to twenty-five years, during which they receive a Tender Revenue Stream (**TRS**). OFTOs licensed through the first tender rounds are now beginning to approach the end of their initial TRS periods, and therefore Ofgem has been developing a policy framework over the last three years to enable the extension of OFTO revenue streams in the event that they – and the windfarms to which they connect – remain economically viable.

This guidance document sets out the health review process through which generators and OFTOs will assess the condition of and business cases for extension of their respective assets, as well as the information-sharing processes between generators, OFTOs and Ofgem to support decision-making on the length and level of the revenue stream and any investment works required to facilitate extensions. The guidance has been written after taking into account feedback from discussions with OFTOs and generators over the last twelve months.

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Contents

1. Introduction

Context and related publications

1.1 Since the first OFTO licences were granted in 2011, the OFTO regime has become a mature market. To date we have licensed 27 OFTOs across 8 tender rounds with a highly competitive cost of capital. The first round of OFTO licences will begin to reach the end of their regulated revenue streams, that is, their Tender Revenue Stream (**TRS**), from 2030 onwards. Over the last three years, Ofgem has been engaging with stakeholders about potential ways to extend the regulatory revenue period for assets that are still economically viable to avoid those assets being decommissioned earlier than needed, ensure best value to consumers and maximise the windfarms' contribution towards Net Zero.

1.2 Ofgem has published a number of consultations and decisions relating to extensions since 2021[1]. This guidance has been produced to assist generators and OFTOs in their understanding of the process for conducting health reviews and sharing information on the outputs with each other as well as Ofgem. These outputs will inform decisions on whether to extend OFTO revenue streams, and the scope and cost of any investment works required to enable extensions. Cumulatively, these documents set out the following requirements on responsibilities and timings relating to health reviews (illustrated in Table 1):

- The extension process starts with a generator-led health review of the windfarm assets. This must be carried out six years before the initial TRS ends, providing a clear view on the business case for extension and proposed duration of any extension(s). Key information, as specified in Section 2, will be shared with Ofgem and the relevant OFTO;
- Provided the generator wishes to continue to operate the windfarm in an extension period, once it has submitted its report to Ofgem in line with

[1] Consultation on EoTRS policy development (March 2021)
Decision document on EoTRS (July 2021)
Consultation on EoTRS policy development (June 2022)
Decision Document on EoTRS (January 2024)
Consultation on proposed modifications to OFTO licences (November 2022)
Decisions on proposed modifications to OFTO licences (June 2023 / July 2023)

Section 2 of this guidance, Ofgem will ask the relevant OFTO to carry out a health review of their transmission assets in line with the scope set out in Section 3 of this guidance. The OFTO will discuss the draft scope and outcome of the OFTO asset health review with the generator and consider their views carefully, although final decisions on the review will rest with the OFTO. The review must be carried out no later than five years before the initial TRS ends;

- Subject to review and approval by Ofgem, the OFTO may claim reimbursement through the licence for economic and efficient costs incurred in completing their asset health review, and for availability lost as a direct result of carrying out the review;
- Alongside its submission of the health report, the OFTO should provide Ofgem with a preliminary view of the anticipated costs for the extension duration(s) specified by Ofgem in advance. This should capture its estimated costs of maintaining, operating and insuring the asset in the extension period (making up the Extension Revenue Stream, ERS) – in addition to the costs of required investment works identified in the health report. Ofgem expects ERS estimates to be significantly lower than the current TRS, because the cost of purchasing the transmission assets will have been repaid;
- Ofgem will, on the basis of the windfarm and OFTO reports as well as discussions with both the generator and the OFTO, issue a minded-to position on the extension and its duration no later than four years before the end of the initial TRS period;
- The OFTO will then be invited to provide a full bid for the stated extension period on the basis of Ofgem's review of the health report and the OFTO's proposed investment costs;
- Ofgem will decide whether to agree an ERS with the incumbent OFTO – or whether putting the licence out to tender could deliver a better outcome for consumers - no later than three years before the initial TRS ends;
- Once Ofgem has stated its decision on the ERS, the windfarm will make its final determination on the duration for which it intends to continue to generate beyond the initial TRS period and inform the OFTO and Ofgem of this

as soon as possible, and by T-2 at the latest. Following this, Ofgem will proceed with licence modifications and corresponding ERS required to deliver the extension;

- Ofgem will consider further whether assurances might be needed at this point from generators about their ability to commit to running for the agreed extension period, including whether financial guarantees or other mechanisms such as a commitment fee might be needed to protect consumers from the cost of wind farms closing earlier than expected by Ofgem and the OFTO (e.g. OFTO revenue stream payments, the cost of the health review, any investment works needed to extend the life of the asset beyond the initial TRS).

Table 1: Health review and extension timeline

T-6	Windfarm asset health review and business case for extension period to be completed by September 30th
T-6	Outputs shared with Ofgem & OFTO by November 30th
T-6	Ofgem reviews extension request & asks OFTO to commence OFTO asset review for specified extension period(s)
T-6	OFTO begins to plan health review in line with Ofgem guidance, in consultation with generator
T-5	Health review of transmission asset to be completed by November 30th Health report shared with Ofgem & generator by December 31st, and preliminary costings shared bilaterally with Ofgem
T-4	Ofgem issues minded-to decision on extension period for OFTO asset
T-4	OFTO to submit revenue stream bid reflecting anticipated extension period and agreed investment works to Ofgem
T-3	Ofgem issues decision on whether incumbent OFTO will retain the asset in extension, and informs the generator of the anticipated corresponding revenue stream for the OFTO
T-3	*If, for any reason, Ofgem decides not to confirm the incumbent OFTO as the operator of the asset for the extension period at this stage, Ofgem would initiate a competitive tender process in T-3*
T-2	Generator to inform Ofgem and OFTO of final decision on extension period
T-2	Modify OFTO licence with corresponding revenue stream for extension period
T-2	If no extension agreed, DESNZ final decommissioning review at T-2

Generator-led process	OFTO-led process	Ofgem process	DESNZ-led process

1.3 We will keep this guidance and our approach to extensions under review to ensure alignment with any policy developments in the offshore regime and to deal with specific issues as they arise. We will continue to engage with

stakeholders and consult as appropriate to ensure the regime remains fit for purpose.

2. Windfarm health reviews

Section summary

This section sets out the high-level process and principles for the generator-led review of the offshore windfarm.

Overview

2.1 Health reviews of the offshore windfarm should be completed by September 30th of the year in which T-6 occurs, that is, six years before the end of the relevant OFTO's initial TRS. The purpose of these health reviews is to establish the windfarm's technical viability for generating beyond the initial TRS period, as well as a clear view of the business case for an extension and the generators' preferred extension period.

2.2 If, for any reason, the generator decides not to conduct a review or concludes through its review that the life of the windfarm could not reliably be extended, whether for technical or economic reasons, then neither the OFTO nor Ofgem will undertake further work on the extension of the transmission asset[2].

2.3 If the generator's review concludes that there is a business case for extending the life of the windfarm, they should inform both the OFTO and Ofgem and share relevant information with each party – as set out in this guidance - to support, respectively, the OFTO's health review of the transmission asset and, in turn, Ofgem's decision on the appropriate duration (and ultimately the appropriate regulatory revenue stream) for any extension period.

Review and information-sharing processes

2.4 If the generator does not intend to conduct a windfarm health review in anticipation of seeking to extend the operation of the windfarm, both Ofgem and the OFTO should be informed directly of this decision and the reasoning, by March 31st of T-6 at the latest.

[2] If the generator decides to undertake repowering of the site and the transmission asset remains a suitable route to market following this, then they should discuss this with the OFTO and Ofgem

2.5 The windfarm health review should be completed by September 30th of the year in which T-6 occurs, providing a clear overview of the state of windfarm assets (including but not limited to turbines, offshore structures, cables, foundations, switchgear, transformers and SCADA systems) and an informed view of the business case for extending the windfarm. The output and summary of the review (as set out below and in Appendix 1) should be shared with Ofgem and the OFTO, respectively, by November 30th of that year.

2.6 The report to Ofgem should identify the generator's preferred length of extension and model the impact of different ERS levels on the financial outlook for extension periods for that duration in five-year increments i.e. if the maximum is 15 years, figures should be provided for 5-yr, 10-yr and 15-yr extensions. The generator should, as a minimum, provide scenario analysis of how an ERS of 10%, 25%, 50% and 75%[3] of the initial TRS would affect the business case. The generator may supplement this with analysis on any additional percentages of initial TRS, as well as any other potential figures (e.g. on anticipated costs of OFTOs' investment works) that they consider relevant to Ofgem's decision-making.

2.7 In exceptional circumstances, if generators' health review indicates that a multi-year extension of less than 5 years is the maximum possible but they consider such an extension to be worthwhile in principle, they should provide the modelling for such a duration. Ofgem will consider shorter periods for extensions on a case-by-case basis.

2.8 Ofgem has not set a prescriptive template for the report that generators should submit. The key outputs of generators' health reviews required by Ofgem are an overview of the condition of the windfarm assets; a summary of the level and timing of any expenditure needed to extend the lifetime; the preferred extension period and uncertainties around that; and key assumptions in relation to subsidies and wholesale prices. In relation to any assumptions of ERS, Ofgem

[3] While Ofgem would expect the extension revenue stream to be considerably lower than that during the initial revenue stream period, this range of figures is designed to provide Ofgem with the full range of scenario analysis required to inform its decision-making on extensions

expects the ERS to be significantly lower than the current TRS given that the cost of purchasing the transmission assets will have been repaid.

2.9 This information will ensure that Ofgem's evaluation of the appropriate extension period(s) and decision on the ERS for the OFTO is informed by a view of how the ERS and other factors will impact the business case of the generator (alongside subsidy levels, wholesale market prices and other factors). Combined with Ofgem's own review and challenge of the individual components making up the OFTO's proposed ERS, this will support its ability to make extension decisions that promote value for money for consumers.

2.10 The generator's report to Ofgem should also set out the governance and practical steps that the windfarm would need to go through, and clear timings for these, to continue generating in an extension period. In respect of decommissioning the windfarm, in the event of no extension, the generator should set out the key governance and practical steps – and clear timings for these - that would be needed in order to commence the decommissioning process in line with the plans which the generator has submitted to DESNZ. This will inform the timings for Ofgem's decision-making process on each project, with a clear view of relevant "go/no go" deadlines within the generator and OFTO.

2.11 To provide the OFTO with the information needed to inform its own health report, in parallel to sharing the above report with Ofgem, the generator should share key conclusions from the windfarm health review with the connected OFTO by November 30th of T-6. This should include its preliminary decision on its preferred extension period and whether generation capacity may change in an extension (for example, if some turbines are taken out of service). If the generator has identified any specific considerations during the windfarm health review that it considers relevant to – and/or in need of further assessment by – the OFTO's health review, these should be included in the summary report to the OFTO.

2.12 The generator and OFTO should meet to discuss issues arising from the review in the autumn of T-6 to ensure that any concerns or issues meriting close attention are identified early and factored into decision-making in relation to both sets of health reviews. Ofgem should also be notified of any material issues arising in these discussions.

Ofgem's approach

2.13 Ofgem will conduct a first review of the information provided by the generator before asking the OFTO to conduct a health review of the transmission asset. The OFTO's review should be completed by November 30th of T-5, and shared with Ofgem and the generator by December 31st of that year.

2.14 Following the OFTO's submission of its own health report, Ofgem will evaluate both reports in tandem to reach a decision on the appropriate duration of any ERS in T-4, and its decisions on the level of ERS thereafter as set out in Section 1. Ofgem may throughout this process request further information from the generator and/or the OFTO to inform its deliberations, and notes some information (e.g. the business case for generators) will be preliminary in some respects at T-6/T-5 and need to be refined in the run-up to final decisions at T-2.

Continued monitoring

2.15 In line with good industry practice, the generator should continue to carry out regular monitoring and inspection of the condition of the windfarm beyond T-6.

2.16 The generator and OFTO should meet each year to discuss any new issues arising after T-6, and Ofgem should be kept informed of any significant developments or changes to the key findings of the T-6 report.

3. OFTO health reviews

Section summary

This section sets out the process and principles for the OFTO review of the offshore transmission asset.

Overview

3.1 Health reviews of OFTO assets should be completed by November 30th of the year in which T-5 occurs, that is, five years before the initial TRS ends[4]. As discussed in Section 2 above, the OFTO health review will be preceded by the generators' health review of the windfarm and report of key information to the OFTO.

3.2 The purpose of the OFTO asset health review is to inform an assessment of the condition of the OFTO asset, the duration for which the OFTO asset can continue to run, and the costs – and impact on availability - of any repair or investment works required to enable the OFTO to run for the extension period set out by Ofgem. This will inform the OFTO's own discussions with their lenders, investors and insurance providers about the financial costs of an extension; support the assessment of how to maximise the economic and technical life of the OFTO (and the connected windfarm) where this delivers continued green electricity at good value for the consumer; and ultimately support Ofgem's decision on the appropriate duration (and, in due course, on the regulatory revenue stream) for any extension period.

3.3 The extension process is likely to benefit both windfarms and OFTOs, along with consumers. Both parties are expected to work together cooperatively throughout the process.

[4] Recognising that it will not be possible to carry out reviews in the winter months, the Health Review should be completed by the summer of the year in question e.g. if the TRS ends in February 2040, the Health Review should be completed by August 2035.

Planning for the health review

3.4 The scope of the review will be specific to each particular site, and therefore the output of the review should reflect the necessary due diligence on all of the relevant components. Appendix 2 includes the template report within which OFTOs should reflect the key findings of the review, supplementing it with more detailed reports on specific areas as needed. Before starting the review, OFTOs should share the proposed work programme with the generator and provide them with an opportunity to make reasonable suggestions on the areas to be covered and the approach to assessing the condition of the assets.

3.5 The OFTO health review should be completed by November 30th of T-5, within 12 months of the point when the generator shared their asset health report and summary with Ofgem and the OFTO respectively. The OFTO's final health report should be shared with Ofgem and the generator by December 31st.

3.6 In scheduling any transmission outages required to conduct the health review, OFTOs should use best endeavours to coordinate with generators' planned outages. OFTOs should consult with the generator before scheduling the review in order to reduce disruption as much as possible.

3.7 As set out in Ofgem's 2021 decision and implemented through OFTO licence modifications in 2023[5], OFTOs will – subject to review and approval of claims by Ofgem - be able to claim for costs that are economically and efficiently incurred as a direct result of carrying out health reviews of their transmission assets. OFTOs may also claim adjustments for availability lost as a direct result of carrying out the health reviews and investment works in accordance with the relevant licence conditions.

3.8 The duration of the review will depend on the nature and context for each specific asset. Delivery of the review is likely to take place over a six-month period. OFTOs have previously forecast that the outages required to deliver health reviews should generally be 3-4 days. As set out in Ofgem's July 2023 decision, outages of longer than 7 days will be carefully assessed by Ofgem and

[5] Decisions on proposed modifications to OFTO licences (July 2023)

adjustments for availability lost during health reviews will only cover works which have been carried out in accordance with Good Industry Practice.

Conducting the review

3.9 Each OFTO should ensure that their asset health review gives a complete and accurate picture of the health of the OFTO asset and its continued viability for defined extension periods of 5, 10 and 15 years (or other periods where specified by Ofgem, reflecting those put forward by the generator) beyond the end of the initial TRS period, and any costs of repair or investment works required to enable it to continue to operate for these periods.

3.10 The content and level of details of the review should be agreed between the OFTO and its technical adviser, in line with this guidance, to ensure adequate technical and commercial coverage. As noted above, the generator should also be given an opportunity to make reasonable suggestions on the approach to the review and methods for assessing the health of the assets at the beginning of the process.

3.11 The OFTO should gather the information and undertake the tests necessary to provide a comprehensive view of the health of the asset, with an eye to ultimately summarising the findings in the template in Appendix 2. The OFTO should appoint technical advisers to carry out any parts of the review that require specialist advice. Much of the information required to inform the review should already be available through the OFTO's discharge of O&M obligations for the site. Where information is not available, the OFTO will be responsible for obtaining it.

3.12 The generator should be permitted to attend on- and off-shore visits related to the health review process (and given advance notice of these), and OFTO-generator collaboration should continue through the normal bilateral engagement processes between the two parties. If parties connected with the generator are providing O&M activities to the OFTO, such entities should also provide all reasonable assistance to the OFTO to complete its health review.

3.13 While the template in Appendix 2 captures the headline information required to inform Ofgem's extension decision (and that of the windfarm), additional detailed due diligence reports expanding on each of the subject areas to the level necessary for the site in question should also be made available to Ofgem – as well as the generator as appropriate.

Review and information-sharing processes

3.14 Throughout the process, the generator and OFTO should meet to discuss issues arising from the review to ensure that any concerns or issues meriting close attention are identified early and factored into decision-making in relation to the health review. Ofgem should also be notified of any material issues arising in these discussions.

3.15 Following completion of the review and compilation of the draft report in line with Appendix 2, the OFTO should share this with the relevant generator for discussion and consider any reasonable suggestions or changes requested by the generators. However the review and report to Ofgem is ultimately the sole responsibility of the OFTO.

3.16 The report should be signed off by a reputable third party – this may be the appointed lenders' technical advisor with whom the OFTO already has a relationship, or another third party qualified to evaluate the report if the OFTO so chooses. If this review results in any major changes to the draft previously shared with the generator, these should be discussed with the generator. In turn, if the generator has any material comments which the OFTO then reflects in the report, it should be re-shared with the third party for sign-off as appropriate.

3.17 Once the report has been deemed final by the OFTO and its technical adviser, it should be submitted to Ofgem along with relevant supporting documentation (such as relevant monitoring and inspection records). The report should be accompanied by a comprehensive overview of the governance and practical steps that the OFTO would need to go through, and clear timings for these, to extend transmission and – in the event of no extension – to decommission the OFTO asset. This will inform the timings for Ofgem's decision-making process, with a clear view of relevant "go/no go" deadlines within the OFTO (as well as the generator) for each project. The OFTO should share the report and accompanying documents with Ofgem by December 31st of T-5.

3.18 The OFTO should share a final version of the asset health report with the generator in parallel. In the event that generators have any outstanding comments on the final report that they deem material, they may submit these to Ofgem for discussion – but only after first discussing them with the OFTO.

Preliminary costings

3.19 Alongside the health report being shared with both Ofgem and the generator, the OFTO should submit to Ofgem a preliminary view of its anticipated costs of operating the OFTO asset for the specified extension period(s) in line with the guidance in Appendix 3.

3.20 This information will inform Ofgem's decision in T-4 on the duration of any extension. It will not constitute the OFTO's formal and final bid – Ofgem will request this following its duration decision.

Ofgem's approach

3.21 Ofgem intends to use expert external consultants to review key elements of the health reports and accompanying bids, as a minimum for the first extension projects and potentially for all cases.

3.22 Ofgem may request further information from the OFTO to verify or expand on the contents of the report. Ofgem may also carry out site visits at short notice to assess the condition of a sample of assets in person relative to that described in the reports submitted.

3.23 Following the submission of the generator and OFTO health reports, Ofgem will evaluate both reports in tandem to reach a decision on the appropriate duration of any ERS in T-4, and its final decisions on the level of ERS thereafter as set out in Section 1. Ofgem may throughout this process request further information from the generator and/or the OFTO to inform its deliberation.

Investment works following the health review

3.24 As set out in Ofgem's 2021 decision and implemented through OFTO licence modifications in 2023[6], OFTOs will – subject to Ofgem's review and approval of claims - be able to claim for costs that are economically and efficiently incurred when carrying out investment works needed to extend the lifetime of those assets which are beyond the scope of the initial TRS.

[6] Decisions on proposed modifications to OFTO licences (July 2023)

3.25 Such investment works, where practical and not overly detrimental to the likelihood or cost of any life extension, should be performed at the start of the extension period or at the end of the TRS period. There should be a clear distinction made between repairs required to reach the end of the initial TRS period (for which costs should be captured by the existing TRS, or IAE/CEA claims where applicable) and those that go above and beyond this to extend the life of the asset.

Continued monitoring

3.26 In line with good industry practice and the OFTO licence, the OFTO should continue to carry out regular monitoring and inspection of the transmission assets.

3.27 Any major issues that arise in connection with the assets between T-5 and T-0 should be promptly raised and discussed with the generator and Ofgem, and reflected in the asset health report as appropriate.

4. Conclusion and next steps

4.1 As we approach the end of the initial TRS period of the first licenced OFTOs, this guidance aims to provide the detail needed to ensure consistency of approach and a clear process for sharing relevant information across the generators, OFTOs and Ofgem in order to support decisions on extensions of OFTOs and windfarms. We will keep this guidance under review, taking stock of whether any changes are required after the first few projects have passed the health review stage – as well as to ensure alignment with any policy developments in the offshore regime.

4.2 As set out in Sections 2 and 3 above, the reports on the health of and business case relating to the windfarm and connecting transmission asset, along with supplementary information and discussions as required, will inform Ofgem's preliminary decision on the appropriate extension period for the OFTO asset. Ofgem will issue a minded-to position on the extension no later than four years before the end of the initial TRS. Following submission of a final extension bid by the OFTO, Ofgem will issue a decision on the ERS no later than three years before the end of the initial TRS.

4.3 Once Ofgem has stated its decision on the ERS, the windfarm should make its final determination on the duration for which it intends to continue to generate beyond the initial TRS period – and inform the OFTO and Ofgem of this – as soon as possible, and by T-2 at the latest[7]. As noted in Section 1, as Ofgem develops its approach to implementing extension decisions, it will consider further what assurances might be needed at this point from generators about their ability to commit to running for the agreed extension period, and whether financial guarantees or other mechanisms such as a commitment fee might be needed to protect consumers from the cost of early wind farm closures (including those relating to OFTO revenue stream payments and any investment works needed to extend the life of the asset beyond the initial TRS).

[7] This reflects decommissioning milestones required by DESNZ

Appendix 1 : Outputs from windfarm health review to be shared with OFTOs and Ofgem, respectively

Key information to be shared with OFTOs

A1.1 Notice of preliminary decision to extend or not, and maximum extension period - and preferred initial extension period if shorter.

A1.2 Notice of any anticipated change to generation capacity during the extension period(s) e.g. if any turbines will be taken out of service.

A1.3 Any other information that the generator considers relevant and needed to help ensure that the OFTO review at T-5 covers a suitable scope with the appropriate in-depth analysis to address any potential concerns identified by the generator.

Key information to be shared with Ofgem

A1.4 While Ofgem does not require generators to submit windfarm health reports in a specified format, a number of outputs will be needed to support our initial decision on the proposed extension and our evaluation of the OFTO's extension bid in due course. These are summarised in Table 1 below.

Table 1: Windfarm health report to Ofgem

Item	Description
Extension period	• Preferred extension period, and the generator's view of the business case for extension periods for that duration in five-year increments (and maximum potential extension capacity if different) • If generators' preferred extension period is shorter than 5 years, the duration and rationale for the extension should be clearly articulated
Business case	• Business case for extension periods for preferred duration in 5-year increments (i.e. if the maximum is 15 years, figures should be provided for a 5-yr, 10-yr and 15-yr extension) • The report should provide an overview of the condition of the windfarm assets and, for the different potential durations of extension, the overall extent and cost of intervention required to enable the extension • The key assumptions influencing the business case for extension(s) should be set out, including scenario analysis of how revenue levels of 10%, 25%, 50% and 75% of the initial TRS would affect the business case • Any supplementary modelling or financial analysis that the generator considers relevant to Ofgem's decision-making
Governance & implementation	• Overview of the governance and practical steps – and timings of these - that the windfarm would need to go through to (i) continue generating in an extension period and (ii) decommission the windfarm

Appendix 2 : OFTO health review template

The template below provides guidance on the asset categories that should be covered as part of the OFTO asset review and the information provided for each, with detailed descriptions and examples included in blue text. It is intended to promote consistent outputs from health reviews of OFTO assets in as far as possible, but should be adapted as needed to cover any bespoke elements of individual OFTO assets.

The purpose of the health report is to inform an assessment of how to maximise the economic and technical life of the OFTO (and relatedly, the windfarm) where this delivers continued green electricity at good value for the consumer, by supporting Ofgem's decision on the appropriate duration (and, in due course, on the regulatory revenue stream) for any extension period.

Each section of the report should specify the primary inspection method, secondary inspection method (if applicable), condition monitoring (if applicable) and remedial maintenance (if applicable). For all components, OFTOs should specify:

- The design life for components where not already stated
- The current expected lifetime, without any interventions
- Anticipated intervention costs where relevant- as well as any impact of investment works required for extension(s) on availability
- Critical spares/obsolete parts related to the component type

In compiling the health report, the OFTO should confirm that all maintenance activities have been performed in accordance with the O&M manuals and/or Good Industry Practice, and any deviations to this have been detailed in the report.

The report should be submitted to Ofgem along with relevant supporting documentation (such as relevant monitoring and inspection records). The report should be accompanied by a comprehensive overview of the governance and practical steps that the OFTO would need to go through, and clear timings for these, to extend transmission and – in the event of no extension – to decommission the OFTO asset.

Note, this template is designed for HVAC assets. Closer in time to life extension considerations for the first HVDC OFTO asset, we will consult with industry on any changes required to the template to account for the differing features of HVDC assets.

Asset Health Report for [Name of OFTO]

Document History

Issue	Date	Summary of Changes / Reasons	Author(s)	Approved By (Inc. Job Title)

TABLE OF CONTENTS

1 EXECUTIVE SUMMARY

- The Health review provides an assessment of current operational integrity and makes a recommendation of actions to reduce onward unavailability impact and operational risk if operated throughout a defined extension period beyond the initial TRS period.
- Key conclusions:

2 INTRODUCTION

- Unless specifically defined by the generator and Ofgem, the default periods for the assessment will be 5, 10 and 15 Years.

2.1 General Asset Information

- Brief description of the site and the OFTO scope of assets
- Installation, first power, OFTO initial TRS expiry date

2.2 Asset Health Supporting Reports – Supplied as an Appendix.

- List of supporting asset health documents and reports used to support the OFTO asset health review, including but not limited to:
  i. Recent offshore visual inspections (Last 12 months from date of review)
  ii. Recent onshore visual inspections (Last 12 months from date of review)
  iii. Offshore substation structural assessment including CP system.
  iv. Offshore substation fabric maintenance and condition assessment
  v. Onshore civils assessment.
  vi. Fire protection system risk assessments (On and Offshore)
  vii. Seabed mobility and Cable Burial Risk Assessment ("CBRA") report.
  viii. Offshore and onshore cable test reports.
  ix. OEM assessment of reactive compensation equipment.
  x. Primary plant condition monitoring supporting information.
  xi. Transformer and shunt reactor condition assessments
  xii. Environmental monitoring data (benthic ecology, scour studies, cable exposures, geophysical (multibeam echosounder), side scan sonar, sub-bottom marine profilers
  xiii. Any required consent management plans e.g. project environmental management and monitoring plan
  xiv. Cable specification and installation plan
  xv. Construction method statement
  xvi. Scour protection management plans

3 OFFSHORE STRUCTURE

3.1 Introduction

- Description of the foundation and topside configuration, age and inspection regime deployed – supported by photographs and detailed appendices

3.2 Foundation Structural Survey

- A third party assessment report to opine on remaining operational life based on design life and inspection regime employed for foundation, export cables,

onshore civils, etc with details on expected remaining useful life with and without intervention. Details to be provided on scour studies and monitoring and the use of any biodiversity enhancements of foundation scour protection.

Table 3.1: Structural recommendations for life extension

Asset	Sub Asset	Intervention Required	Est. Cost of Intervention (£k) and year
OSP 1	e.g. boat landings	description	year and estimated cost
	Cathodic protection		

- Cathodic protection anodes may need replacing or additional anodes may need fitting.
- An assessment of existing protection is needed

3.3 Topside Corrosion Protection and Fabric maintenance review.

- Summary of original design intent, products deployed and what interventions have taken place since takeover

3.3.1 Corrosion protection and Fabric maintenance Survey Report

- A paint / corrosion protection / Fabric maintenance campaign is likely given the paint specification is normally c.18 years, thus a paint inspection survey assessment is required to opine on what is appropriate for the extension period.

Table 3.2: Summary of Topside fabric maintenance recommendations

Asset	Intervention Required	Est. Cost of Intervention (£k) and year
OSP 1	description	year and estimated cost

3.3.2 Far-shore AD/DC systems with Reactive Compensator stations

4 EXPORT CABLE – OFFSHORE

4.1 Introduction

- Description of the cable(s) and route – Including commentary on design, manufacture and installation, as well as any biodiversity enhancement measures which have been introduced or might be in future.

4.2 Surveys and risk management

- An assessment of current and future cable risk including review of historic surveys should be provided together with a survey / intervention frequency for the extension period, alongside a full subsea survey to highlight recent trends where appropriate, including details of:
  - Cable exposures
  - History and frequency of cable repairs/replacements and cable protection (new/replacement)
  - Details of any surveys of any cable protection biodiversity enhancements.

4.3 Cable integrity tests

- Detail electrical and mechanical tests and their output that have been used to assess cable integrity and fibre optic condition (including historic, present and expected test values), as well as cable burial depth compared to target and installed cable burial depth, and Distributed Temperature Sensing to assess whether the cable has been exposed to high temperatures or if it has hot spots

Table 4.1: Additional Offshore Export Cable survey and test requirements prior to and during extension.

Asset	Intervention Required	Est. Cost of Intervention (£k) and year
Export Cable [1]	Targeted survey	year and estimated cost

4.4 Crossings

- An assessment will be required of the integrity of any crossings to confirm that mattresses and rock berms will remain stable, supporting by operational bathymetric surveys. A summary of the commercial crossing agreements should also be provided for clarity.

5 EXPORT CABLES – ONSHORE

5.1 Introduction

- Description of the cable(s) and route – Including commentary on design, manufacture and installation.

5.2 Surveys, inspections and risk management

- An assessment of current and future cable risk should be provided together with a survey plan for the extension period.

5.3 Cable integrity tests

- Detail electrical and mechanical tests and their output that have been used to assess cable integrity

Table 5.1: Onshore Export Cable inspection and test requirements prior to and during the extension period.

Asset	Intervention Required	Est. Cost of Intervention (£k) and year
Export Cable [1]	Targeted survey	year and estimated cost

6 ONSHORE CIVILS & SUBSTATION SITE (INCLUDE SUBSTATION CABLES)

6.1 Introduction

- General description of the onshore site and cable infrastructure
- Options for a civils 3rd party review of the infrastructure if deemed necessary

Table 6.1: Onshore Civils & security requirements prior to and during extension.

Asset	Intervention Required	Est. Cost of Intervention (£k) and year
Structure (1)	description	year and estimated cost

7 ONSHORE SWITCHGEAR

7.1 Introduction

- Description of equipment installed
- Narrative of asset health of each section of primary and ancillary equipment summarised in Table 7.1

Table 7.1 Onshore Switchgear Asset Heath Assessment

Asset	Manufacture and Type	Design Life (years)	Asset Health Assessment Method	Any Known Issues Impacting Asset Health	Intervention Required to achieve extension	Est. Cost of Intervention (£k) and year
132kV gas insulated switchgear	XXX (ELK-04)	[45]	Visual inspection and desktop review including fault history	examples: Ongoing SF_6 leaks Fault interruptions nearing major overhaul Defects not rectified	add description of intervention required / otherwise 'None'	estimated cost and recommended year
132kV gas insulated switchgear						
132kV gas insulated switchgear						

8 OFFSHORE SWITCHGEAR

8.1 Introduction

- Description of equipment installed
- Narrative of asset health of each section of primary and ancillary equipment summarised in Table 8.1

Table 8.1 Offshore Switchgear Asset Heath Assessment

Asset	Manufacture and Type	Design Life (years)	Asset Health Assessment Method	Any Known Issues Impacting Asset Health	Intervention Required to achieve extension	Est. Cost of Intervention (£k) and year
132kV gas insulated switchgear	XXX (ELK-04)	[45]	Visual inspection and desktop review including fault history	Ongoing SF_6 leaks Fault interruptions nearing major overhaul Defects not rectified	add description of intervention required / otherwise 'None'	estimated cost and recommended year
132kV gas insulated switchgear						
132kV gas insulated switchgear						

9 ONSHORE TRANSFORMERS AND SHUNT REACTORS (INCL. AUXILIARY AND EARTHING TRANSFORMERS)

9.1 Introduction

- Summary of installed equipment, manufacturer, design and operational history
- Details of DGA history and condition assessment tests. Include results from the last two sets of DGA analysis.

Table 9.1 Onshore Transformer and Shunt Reactor Asset Heath Assessment

Asset	Manufacture and Type	Design Life (years)	Asset Health Assessment Method	Any Known Issues Impacting Asset Health	Intervention Required	Est. Cost of Intervention (£k) and year
SGT1	XXX (DYn11)	[xx]	Condition assessment and desktop review of fault history	examples: High DGA results Tap changer and diverter nearing major maintenance (e.g. vacu tap 300,000 operations before major maintenance) Defects not rectified	add description of intervention required / otherwise 'None'	estimated cost and recommended year

10 OFFSHORE TRANSFORMERS AND SHUNT REACTORS

10.1 Introduction

- Summary of installed equipment, manufacturer, design and operational history
- Details of DGA history and condition assessment tests. Include results from the last two sets of DGA analysis.

Table 10.1 Onshore Transformer and Shunt Reactor Asset Heath Assessment

Asset	Manufacture and Type	Design Life (years)	Asset Health Assessment Method	Any Known Issues Impacting Asset Health	Intervention Required	Est. Cost of Intervention (£k) and year
SGT1	XXX (DYn11)	[xx]	Condition assessment and desktop review of fault history	examples: High DGA results Tap changer and diverter nearing major maintenance (e.g. vacu tap 300,000 operations before major maintenance) Defects not rectified	add description of intervention required / otherwise 'None'	estimated cost and recommended year

11 STATCOM/SVC / DYNAMIC REACTIVE COMPENSATION EQUIPMENT

11.1 Introduction

- Summary of Statcom / SVC / reactive compensation equipment – Manufacturer, installation.

11.2 Major interventions

- Details of major interventions during the operational phase

Table 11.1 STATCOM / SVC Asset Heath Assessment and recommended actions.

Sub Asset	Manufacture and Type	Asset Health Assessment Method	Any Known Issues Impacting Asset Health	Intervention Required	Est. Cost of Intervention (£k) and year
IGBT	XXXX	Survey inspection and desktop review of fault history	examples: High IGBT failure rates History of cooling faults) Defects not rectified	add description of intervention required / otherwise 'None'	estimated cost and recommended year

12 HARMONIC FILTERS

12.1 Introduction

- Summary of Filter equipment installed – Manufacturer, installation.

12.2 Interventions

- Details of major interventions during the operational phase

Table 12.1 Harmonic Filter Asset Heath Assessment and recommended actions.

Sub Asset	Manufacture and Type	Design Life (years)	Asset Health Assessment Method	Any Known Issues Impacting Asset Health	Intervention Required	Est. Cost of Intervention (£k) and year
Capacitor	xxxxxxx	xx	Survey inspection and desktop review of fault history	examples: High capacitor failure rates History of cooling faults) Defects not rectified	add description of intervention required / otherwise 'None'	estimated cost and recommended year

13 ON AND OFFSHORE PROTECTION AND CONTROL EQUIPMENT

13.1 Introduction

- Summary of SCADA and protection systems installed, and overview of performance in historical and current testing of protection systems
- Commentary on obsolescence, replacement availability and Cyber risk – provided by internal experts or third party specialist as appropriate

Table 13.1: Protection and Control Systems requirements for extension

Asset	Design Life	Asset Health Assessment Method	Intervention Required	Est. Cost of Intervention (£k) and year
Main protection system	xx	Assessment of age, obsolescence and cyber security, and desktop review of fault history	None or description	year and estimated cost
SCADA				
GE Grid				

14 AUXILIARY PLANT, with commentary on each of the following systems

14.1 Emergency Diesel Generators

14.2 Uninterruptable Supply systems ("**UPS**")

14.2.1 110V DC Battery Systems and Chargers

14.2.2 LV AC UPS systems

14.3 Heating Ventilation and Air Conditioning Systems ("**HVAC**") – Onshore and Offshore

14.4 Cranes and other mechanical plant

14.5 Safety equipment

14.5.1 Offshore Fire Protection System

14.5.2 Onshore Fire Protection System

14.5.3 Evacuation systems

14.6 Telecoms network

14.7 Security Systems

14.7.1 Electric Fence and Gates

14.7.2 Building alarm systems

14.7.3 Closed Circuit Television Camera Systems ("**CCTV**")

14.8 Public Announcement Systems ("**PA**")

14.9 Environmental Systems inc. drainage (e.g. aqua sentry)

Table 14.11 Ancillary Systems Asset Heath Assessment and requirements for extension period

Sub Asset	Manufacture and Type	Design Life (years)	Asset Health Assessment Method	Any Known Issues Impacting Asset Health	Intervention Required	Est. (£k) Cost of Intervention and year
Emergency Diesel Generators	[xxxxxxx]	[xx]	Visual inspection and desktop review of fault history	e.g. History of cooling faults) Defects not rectified Age of starter batteries	add description of intervention required / otherwise 'None'	estimated cost and recommended year
110V DC Battery Systems and Chargers			Visual inspection, age plus results from latest battery impedance tests			
LV AC UPS systems			Visual inspection, age plus results from latest battery impedance tests			
HVAC			Visual inspection, age			
Offshore Fire Protection System			Survey report by qualified inspector and desktop review of fault history	possible replacement of all gas bottles and refurbishment of system		
Onshore Fire Protection System			Survey report by qualified inspector and desktop review of fault history			
Telecoms Network			Survey report by qualified inspector and desktop review of fault history			
Electric Fence and Gates			Inspection and desktop review of fault history			
Building alarm systems			Inspection and desktop review of fault history			

Table 14.11 Ancillary Systems Asset Heath Assessment and requirements for extension period

Sub Asset	Manufacture and Type	Design Life (years)	Asset Health Assessment Method	Any Known Issues Impacting Asset Health	Intervention Required	Est. (£k) Cost of Intervention and year
CCTV			Inspection and desktop review of fault history			
PA			Inspection and desktop review of fault history			
Environmental Systems (e.g. aqua sentry)			Inspection and desktop review of fault history			
Miscellaneous systems e.g. SF_6 alarm			Inspection and desktop review of fault history			

15 SYSTEMS, SOFTWARE AND COMPONENTS

- OFTOs should detail key obsolescence risks for systems, software and components and identify planned measures to address any such risks, with support from a third party specialist as appropriate

16 SF6 LEAKAGE

- This section should provide a holistic summary of SF6 leakage/risks for both on and offshore elements of the transmission asset

17 STATUS OF LICENCES / LEASES

- This section will capture existing licensing and those required to secure onward operations of the OFTO equirement during the extension period(s)

17.1 Onshore and offshore consents

- Are the current consents compatible with the planned extension period

17.2 Marine Consents

- Are the current consents compatible with the planned extension period

17.3 Onshore and offshore leases

17.4 Grid related agreements

17.5 Transmission licences and other agreements (e.g. crossing agreements)

18 DECOMMISSIONING PROGRAMME STATUS

- The OFTO will retain decommissioning liability at the end of the extension (unless the asset is transferred for any reason, in which case the decommissioning liability would be transferred alongside). It will provide the latest revision of its decommissioning program, to support discussions with the generator on its own decommissioning plan and facilitate collaboration between both parties

19 SUMMARY OF ASSET HEALTH REVIEW AND REQUIRED INTERVENTIONS

- Overall summary and conclusions, including visual representation of key information in line with Table 19.1. (Note, timelines for interventions assume that OFTOs will undertake investment works from the beginning of the extension period – or at the end of the initial TRS period at the earliest. The RAG ratings are therefore structured to consider whether the interventions are required urgently, over the course of a 5-year period or not until later).
- OFTOs should also set out the anticipated availability impacts, if any, of the proposed interventions.

Table 19.1: Summary of asset health and required interventions

	Residual Lifetime (without interventions)	Urgency of significant interventions (tick relevant box) **No significant interventions required within 10 years of extension**	Urgency of significant interventions (tick relevant box) **Intervention required within 5 years of extension**	Urgency of significant interventions (tick relevant box) **Intervention required within 2 years of extension**	**Cost of interventions required: For 5 year extension**	**Cost of interventions required: For 10 year extension**	**Cost of interventions required: For 15 year extension**	**Cost of interventions required: For [bespoke term if sought by generator/Ofgem]**
Offshore structure								
Export cables, offshore								
Export cables, onshore								
Onshore civils & substation site								
Onshore switchgear								
Offshore switchgear								
Onshore transformers & shunt reactors								
Offshore transformers & shunt reactors								
Statcom/svc								
Harmonic filters								

On and offshore protection & control equipment								
Auxiliary plant								
…								
Holistic assessment of OFTO asset								

Appendix 3: OFTO preliminary extension costs and assumptions

1. Alongside their submission to Ofgem of the asset health report by December 31st of T-5, OFTOs should submit to Ofgem a preliminary estimate of their anticipated costs for the ERS. For the purposes of this estimate, OFTOs should assume that the findings and investment costs identified through the health report are agreed. Costs should be provided for a 5-year extension period and/or other duration(s) requested in advance by Ofgem for specific projects.
2. This information will support Ofgem's cost-benefit analysis, informing its T-4 decision on the appropriate duration of any extension. Cost estimates for this stage should not be preceded by official procurement exercises, however OFTOs should conduct exploratory conversations with relevant parties to inform their preliminary estimates. The information will not be regarded as a final bid from the OFTO. Ofgem will invite this in T-4 following its preliminary decision on the extension period in the same year.
3. The financial information provided by the OFTO in T-5 will not be shared with the generator. Generators will be informed of the ERS associated with an extension following Ofgem's decision on whether to grant an extension to the existing OFTO's regulatory revenue stream by T-3 at the latest – or, if relevant, following any tender process.
4. Preliminary figures should be provided under the headings set out below, with notes to explain any key assumptions. OFTOs may also provide additional breakdowns within those categories and related supplementary information which they deem relevant to Ofgem's decision-making. Cost information is expected to mirror the definitions and approach of the Initial Invitation to Tender documentation, in as far as relevant to the extension and the level of detail being sought by Ofgem at this stage. [A detailed template the OFTO's official ERS bid in T-3, with specified reference rates to be used in the OFTO's financial model along with other assumptions and methodologies to be applied by OFTOs, will be provided by Ofgem in due course].

Operations & Maintenance

5. OFTOs should provide an estimate of the costs of management, operations and maintenance of the transmission asset for the specified extension period(s). A breakdown of the proposed costs should be provided relating to the SPV, asset management, O&M arrangements and contingencies. The figures should be accompanied by any key assumptions or context on how the estimates were reached.

6. As the cost of investment works identified through the health review is set out in the health report and any related claims are to be assessed separately from the ERS as a pass-through cost, OFTOs may usefully note the key figures for completeness but should avoid double-counting such costs.

Insurance

7. Ofgem expects OFTOs to have in place as a minimum an Operational All Risk insurance policy with a LEG3/06 exclusion, or equivalent policy, which includes an indemnity for the full cost of replacement or rectification of the Transmission Assets (but not improvement) rendered necessary by damage which is the consequence of a latest defect. OFTOs must also continue to ensure they have insurances in place which comply with the Crown Estate Lease conditions.
8. OFTOs should provide their anticipated costs of obtaining such insurance for the duration(s) of extension period specified.

Decommissioning

9. OFTOs are expected to have prepared decommissioning programmes (and therefore appropriately funded their decommissioning plans through the initial Tender Revenue Stream) based on the guidance prepared by the Marine Directorate, Scottish Government and informed by engagement with the Department for Energy Security for Net Zero.
10. Noting that government decommissioning policies are subject to review, OFTOs should confirm the decommissioning fund from the initial TRS period, and the scrap value that has been assumed.

Advisory Fees

11. OFTOs should provide a preliminary estimate of expert or specialist advisory fees, including financial, insurance, technical and legal advisors.
12. As advisory fees for the health review process are to be assessed separately from the ERS as a pass-through cost, OFTOs may usefully note the key figures for completeness but should avoid double-counting such costs.

Indexation of revenue

13. OFTOs should specify the proportion (0 to 100%) of the ERS that they anticipate indexing to CPI over the length of the extension period.

14. Ofgem will evaluate the cost estimates provided on the basis of the Net Present Value of the total nominal ERS for the duration(s) of extension period specified.

Financing structure

15. Noting that funding costs will depend on other costs, capex, and risk assumptions, OFTOs should provide a preliminary view of their anticipated financing structure, setting out in high-level terms the sources of finance they expect to utilise and estimated costs in relation to debt interest, debt repayment and dividends.

Corporate structure

16. As per the initial tender process, Ofgem expects the corporate structure of an OFTO to be a company or unregistered company in order that it is capable of being a "protected energy company" within the meaning of the Energy Act 2004. For the avoidance of doubt, Ofgem does not consider that either a partnership or limited liability partnership is an unregistered company and therefore does not consider that the special administration regime for energy licencees under the Energy Act 2004 would apply to a partnership or LLP as they are not capable of being "protected energy companies".

17. OFTOs should confirm that they anticipate they will continue to meet this requirement.