Guidance

SO:TO Optimisation Governance Document version 1.0			
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Overview:

The System Operator: Transmission Owner (SO:TO) Optimisation is a trial output delivery incentive (ODI) to encourage the Electricity Transmission Owners (ETOs) to proactively identify and provide solutions to the Electricity System Operator (ESO) to help reduce constraint costs in accordance with the STCP11-4 procedures. This SO:TO Optimisation Governance Document outlines the process and criteria for the ETOs to provide solutions eligible for this incentive trial; the reporting requirements placed on the ETOs and the ESO; the methodology the Authority will use to calculate the incentive payment during the trial period; and the timescales for the trial incentive review.

The SO:TO Optimisation Governance Document will be in place on the 1 April 2021 as part of the ETO's and ESO's RIIO-2 Price Control.

Associated documents

- RIIO-2 Final Determinations ET Annex: https://www.ofgem.gov.uk/system/files/docs/2020/12/final_determinations_et_annex.pdf
- Special Condition 2.13 (SO-TO Optimisation Governance) of the National Grid Electricity System Operator Licence
- Special Condition 4.7 (SO-TO optimisation output delivery incentive) of the Electricity Transmission Licence

Context

The purpose of this document is to set out; the scope of solutions that can be provided through this ODI incentive trial; the methodology by which the ESO will assess ex-ante forecast constraint savings and the trial reporting process for the ETOs and the ESO; the methodology for calculating the incentive payment; and the timescales for reviewing the ODI trial.

The content of this Governance Document does not alter or supplement the ESO's or ETO's compliance with its wider obligations under legislation, its licence or industry codes.

This Governance Document is issued by the Authority[1] under Part A of Special Condition 2.13 (SO-TO Optimisation Governance) of the ESO's licence and Part B of Special Condition 4.7 (SO-TO optimisation output delivery incentive) of the ETO's licence and may be revised and reissued from time to time in accordance with the above license conditions.

[1] In this document, we use the terms 'Ofgem' and 'the Authority' as well as the terms 'we', 'us' and 'our' interchangeably. Ofgem is the Office of the Gas and Electricity Markets. The Authority is the Gas and Electricity Markets Authority and is the governing body of Ofgem, consisting of non-executive and executive members.

Contents

Introduction

1.1. This chapter sets out the background to the SO:TO Optimisation Governance Document.

1.2. The SO:TO Optimisation ODI is a trial incentive that is designed to encourage the ETOs to proactively identify and provide solutions to the E ESO to help reduce constraint costs using the existing STCP11-4 procedures.[2]

1.3. STCP11-4 is a procedure that enables the ESO to buy a service from the ETOs, where this service has been identified as having a positive impact in assisting the ESO in minimising costs on the GB Transmission network.[3]

1.4. The performance measure of the incentive will be the ex-ante forecast constraint savings from the solutions proposed and delivered by the ETO, as assessed by the ESO through the existing STCP11-4 procedures and reviewed by the Authority.

1.5. The SO:TO Optimisation ODI will apply to the regulatory years 2021/2022 and 2022/2023. The Authority may decide to roll out the incentive for the remainder of the RIIO-2 Price Control . The reports that the Authority has requested from the ETOs and the ESO in Chapter 3 will inform the Authority's decision.

1.6. The Authority will review the SO:TO Optimisation ODI reports provided by the ESO and ETOs to determine the extent of benefits and value for money that this incentive delivers for consumers, taking into account the uncertainty of the assessment of constraint costs savings.

[2] Further details on the SO:TO ODI can be found in chapter 2 of the RIIO-2 Final Determinations – ET Annex - RIIO-2 Final Determinations Electricity Transmission System Annex (ofgem.gov.uk) https://www.ofgem.gov.uk/system/files/docs/2020/12/final_determinations_et_annex.pdf

[3] The proposal for the STCP11-4 includes some background information on the original drivers behind this code procedure. It can be found here: https://www.nationalgrideso.com/document/133416/download

2. SO:TO Optimisation ODI solution criteria and incentive reward methodology

SO-TO Optimisation solutions

2.1. The ETOs will be eligible for a reward under the SO:TO ODI for solutions that are accepted by the ESO as having been delivered in line with the STCP11-4 provision.

2.2. The ESO must assess the eligibility of the solutions that the ETOs put forward in line with the STCP11-4 provision. For the purposes of the incentive calculation, the ESO must assess the estimated ex-ante constraint savings associated using the methodology set out in annex A.

2.3. The methodology in Annex A was provided to the Authority by the ESO and largely reflects the existing processes set out in the STCP11-4. If the ESO identifies any need to update or change the methodology in Annex A, the ESO must engage with the Authority on the proposed amendments. If following the engagement the Authority agrees with the proposed amendments to the methodology, the Authority will amend this governance document in line with Special Licence Condition 4.7.11.

2.4. The ESO's assessed constraint cost savings will be reported by the relevant ETO to the Authority in line with the reporting requirements in Standard Condition B15 of the Electricity Transmission Licence[4]. These constraint savings will be subject to review and approval by the Authority before the incentive rewards is calculated in accordance with the formula in Special Condition 4.7 of the Electricity Transmission Licence. The Authority will not approve constraint savings in the following circumstances:

- Where the solution cannot be demonstrated by the ETO and ESO to be above and beyond business as usual (BAU);

[4] The final version of the license condition will be available in the following link: https://www.ofgem.gov.uk/publications-and-updates/statutory-consultation-riio-2-transmission-gas-distribution-and-electricity-system-operator-licences

- Where the delivery of the solution could adversely affect competition in the market for providing commercial services to the ESO, including through the ESO's constraint mitigation pathfinder;

- Where the solution has been adequately funded through other mechanisms other than through the provisions of STCP 11.4 (e.g. through RIIO-2 totex allowances);

2.5. For the avoidance of doubt, the ETO will need to deliver the solution before they are eligible for incentive rewards.

2.6. Where a solution makes constraint savings across more than one year, the incentive for year one will be based on the respective benefit the solution provides in year one and the incentive for year 2 will be based on the respective benefit it provides for year 2. The ESO should be able to assess level of savings forecast in year one (this will be the basis of the calculation of the incentive in year 1 for this solution) and level of savings forecast in year 2 for this solution (which will be the basis for calculation of incentive in year 2 for this solution).

2.7. The Authority may decide to cancel the trial ahead of the end of the trial period if it identifies any adverse behaviour by the ETOs such as suboptimal planning of outages or reduced timely coordination with the ESO.

STCP11-4[5]

2.8. Under STCP 11-4[6], changes to an ETO's outage program, project delivery method or project design may be requested by either the ETO or ESO. If the ETO identifies such potential change it will submit an application to the ESO with the details of the proposed change. The ESO will then assess if the solution would result in benefits to consumers in the form of reduced constraint costs. If the assessment is positive, the ESO will review the costs of the solution and will assess their efficiency. If the change is deemed to reduce system

[5] Note that the procedure as described is a summary of the STCP-11-4 provision as it was set out when this guidance document came into effect. The ETOs and ESO should follow the latest code procedure as is published on the ESO's website.
[6] This description applies to the most recent approved code procedure can be found here: https://www.nationalgrideso.com/document/141111/download .

operating costs and the ETO’s change costs are acceptable to the ESO the ETO will carry out the work as agreed.

2.9. Once a change to an ETO’s outage program, project delivery method or project design as well as its cost has been agreed by the ESO, the ETO will deliver the service and the ESO will pay for the service in accordance with the STCP11-4 in line with Special Condition 4.4 (SO-TO Mechanism) of the ESO’s Electricity Transmission Licence.

3. ODI Reporting Requirements

3.1. The SO:TO Optimisation ODI will be trialled from 1st April 2021 to 31st March 2023. The Authority will assess the extent of benefits that the SO:TO Optimisation ODI has delivered to consumers through reducing constraint costs and the value for money of the incentive, taking into account uncertainty around assessment of forecast and ex-post constraint costs savings.

3.2. In order to carry out this assessment and maintain transparency of the ETOs' overall ODI performance, the ETOs and the ESO must report to the Authority during the trial and at the end of the trial.

ETO Reporting requirements

3.3. The ETOs are required to individually submit a report setting out how the SO:TO ODI has driven reduction in constraint costs. Annex B sets out the format that the ETOs must use to set out this this information.

<u>Timescales of the ETO report</u>

3.4. The ETOs are required to submit an interim report at the end of year 2021/2022 setting out how the ODI is being utilised. The Authority will provide informal feedback on the interim report within three months of receipt of the interim report. The ETOs will then be required to submit the final ODI report by 31st March 2023.

3.5. For the purpose of monitoring and calculation of the incentive rate the ETOs must separately provide information as part of the Annual performance monitoring carried out by the Authority in line with license condition B15 of the Electricity Transmission Licence Standard Conditions[7].

[7] sThe final version of the license condition will be available in the following link:

Content of the ETO report

3.6. The ETOs must report on the following:

- Details of each solution that the ETO has delivered through this incentive, specifically:
  - a description of the works that have been delivered;
  - the costs that have been funded through STCP11-4; and
  - value of forecast constraint savings as estimated by the ESO.
- Steps taken to identify the solutions proposed and/or delivered by the ETO under STCP11-4, including:
  - A description of how the ETO identified the solution.
  - Why, in the ETO's view, the solution delivered is above and beyond business as usual (BAU). Specifically, the ETO should clarify why this solution was not identified as part of the original planning process, and planning optimisation. The ETO is required to demonstrate why each solution would not have been identified and progressed if there had not been an incentive in place.
  - The ETO must set out that the solutions put forward under STCP11-4 do not, to the best of its knowledge, overlap with funding through other mechanisms or overlap with the constraint mitigation pathfinder.
  - The ETO must explain why this solution could not have been funded through other mechanisms (e.g. MSIP, optimisation of outage plan).
  - If applicable, a list of solutions identified and proposed by the ETO which were either rejected by the ESO or accepted but not delivered. The ETO must include the reasons for rejection by the ESO and/or the reason for the solutions not being delivered, respectively.
- Views on the overall consumer value of the ODI trial, including:

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https://www.ofgem.gov.uk/publications-and-updates/statutory-consultation-riio-2-transmission-gas-distribution-and-electricity-system-operator-licences

- Views on the benefit that the ODI has delivered including improvement to network planning and internal processes.

- Any issues identified with the ODI trial in place, and potential solutions to the ODI design if the ODI were rolled out for the remainder of the pl.

- What expectations the ETOs have for further solutions that could be provided through a potential future output delivery incentive.

Independent ESO report

3.7. The ESO must independently report to the Authority providing their assessment of the ODI .

3.8. The ESO must flag to the Authority any concerns it has in relation to unintended consequences of the ODI, for example any deterioration in quality of outage planning, or distortions to competition in constraints services to the ESO.

Timescales for the ESO report

3.9. The ESO is required to submit an interim report at the end of the first year of the ODI by 31st of March 2022. If there are ex-post assessments on solutions delivered that cannot be completed by this date the ESO should submit the completed report by 30th of April 2022.

3.10. The ESO is required to report at the end of the ODI , by 31st March 2023. If there are ex-post assessments on solutions delivered that cannot be completed by this date the ESO should submit the completed report by 30th of April 2023.

3.11. The ESO must monitor and notify any concerns it has in relation to unintended consequences from the use of the ODI in relation to the points set out below.

Content of the ESO report

3.12. For each solution that has been accepted and funded under the STCP11-4 procedure the ESO must provide:

- Details of each solution that has been accepted under STCP11-4, including:

  - the information that has been set out in the TO Commercial Operational Service Provision Cost Estimate pro forma as set in Annex A of STCP11-4;

  - the rationale for accepting the solution and why, to the ESO's best knowledge, this solution could not have been delivered through other mechanisms or competitive tenders (at a lower cost to consumers);

  - the ESO's calculation of ex-ante constraint savings in line with the methodology set out in Annex A of this SO:TO Optimisation Governance Document; and

  - the ESO must also set out why proposed solutions were rejected during the ODI period.

- Details of solutions proposed by the ETO that were rejected and the reasons it had been rejected.

- The ESO's view on the overall value of the ODI including:

  - an assessment on how the ODI has driven TO behaviours in relation to outage planning;

  - expectations that the ESO has for future value with an output delivery incentive, including the interactions with existing or future funding mechanisms that may overlap with this ODI;

  - recommendation on whether the ODI should continue operating after the initial trial period, and if so, its recommendations for improvements to the ODI and governance arrangements; and

  - ex-post assessment of the constraint costs saved attributed to the solution delivered. This assessment will be carried out in line with the methodology as set out in annex A of this document. The Authority may ask for these assessments within the trial period from time to time.

4. SO:TO ODI trial assessment

4.1. Special licence condition 4.7 of the Electricity Transmission Licence Special Conditions will reduce the value of the SO:TO term (the incentive value)to zero after March 31st 2023.

4.2. Following receipt of the reports from the ETOs and the ESO at the end of the ODI, the Authority will assess if there is consumer benefit in rolling out the incentive for the rest of the RIIO-2 Price Control, and whether there is need to make any changes to the design of the incentive and to this document.

4.3. As part of this assessment, the Authority will consider:

- whether the ODI has driven the ETOs to proactively identify solutions that reduce the operating costs of the GB transmission system through the use of the existing STCP11-4;

- if the initiatives taken by the ETOs to identify STCP11-4 solutions were as a result of the incentive or whether they should have or could have been identified as part of the ETOs BAU;

- whether the ODI has driven any adverse behaviours, for example, sub optimal planning of outages, or use of the STCP11-4 over other existing routes;

- if there have been any adverse impacts on competition in the provision of constraint services and if there is any existing or upcoming pathway/policy that may override the need for the incentive;

- any ex post assessment of the potential savings of constraint costs and the actual savings if materialised as reflected in the ESO report;

- if the current incentive rates present value for money for consumers in light of actual savings and if there is a need to adjust these for the remainder of the RIIO-2 Price Control; and

- any other considerations relevant to the Authority's assessment of the ODI's impact on the best interests of future and existing consumers.

4.4. Following our assessment, should the Authority decide to continue the ODI beyond the trial period for the remainder of RIIO-2 Price Control (with or without amendments), this SO:TO Optimisation ODI Governance Document will be updated to include any changes to the incentive parameters and how incentive rewards will be calculated going forward, including for solutions that may have been delivered while we assess the trial reports.

4.5. The Authority will endeavour to complete any assessment as early as possible to provide certainty for licensees and other stakeholders on whether solutions provided through STCP11-4 continue to be eligible for incentive rewards.

4.6. For avoidance of doubt, following the end of the ODI on 31 March 2023, the SO:TO Optimisation ODI Governance Document will remain in place and continue to govern any future output delivery incentive]unless:

- the Authority confirms it does not intend to proceed with the ODI beyond the trial period for the remainder of the RIIO-2 Price Control; or
- In accordance with SPC 4.7.11, the Authority amends the SO:TO Optimisation ODI Governance Document to reflect the new arrangement.

Annex A: ESO methodology to calculate constraint costs savings

Process for identification of STCP 11-4 opportunities and forecasting savings.

This document outlines the process which begins after the identification of a potential change to a ETO's Outage, Delivery Project or Project Design as per section 3 of the STCP11-4 document and will detail the process followed by the ESO to assess forecast savings and viability of the option.

Before following this process, an ETO will have identified an opportunity for consumer savings over years 0-6 of the transmission plan.

The ESO and ETO will have discussed the technical viability, timescales and requirements to complete the works to ensure that all parties believe that they are realistically deliverable.

The opportunity identified must be shown by the ESO to reduce balancing costs by reducing a transmission constraint.

There are a wide range of plausible opportunities that could result in a reduction of balancing costs, some opportunities will reduce a thermal constraint, some a voltage constraint and some a stability constraint. In all cases the process for the ESO to follow will be to assess the network and associated cost reduction introduced by the change. The steps in **figure 1** should be followed to result in a decision on whether to proceed.

The ESO during the stages in **figure 1** will consider a wide range of conditions regarding generation patterns, demand patterns, future connections, intact conditions, outage conditions and fault conditions.

The ESO will look to stress the system to its credible worst-case scenario(s) to capture not only the monetary cost but also capture the 'value' that may be realized with regards to improving security. Often initiatives would result in a cost and a security benefit, with the former being the more tangibly quantifiable element financially.

The cost figure which is arrived at to determine whether to proceed will be based upon a cost forecast rather than a cost exposure and therefore the figure will be under realistic rather than worst case conditions.

Cost exposure here is the absolute maximum cost reduction that could be achieved, and the forecast cost is the realistic savings expected. These realistic forecast savings are based upon factors such as the load factor (seasonal and time of day demand), quantity, location and price of flexible generation, quantity and location of inflexible generation such as embedded wind or nuclear units and planned generator outages.

The flexible generation used to reduce a boundary transfer to its limit varies in price depending upon market conditions and type of generation. At the time of writing, the average bid price for transmission connected wind is of the order £70MWh-£80MWh and the average bid price for conventional generation is of the order £50MWh-£60MWh. These prices are not only sensitive to wider GB market conditions but also to the location of the constraint and the generation within it and they are therefore subject to change.

The steps in **figure 2** must be followed ex-post to assess actual savings and the pro-forma should be fully completed with full details of savings of or reasons that the savings were not captured.

Please note here that where estimated ex-post cost savings significantly differ from forecast savings a reason must be given in the pro-forma using codes A, B, C, D, E and/or free text.

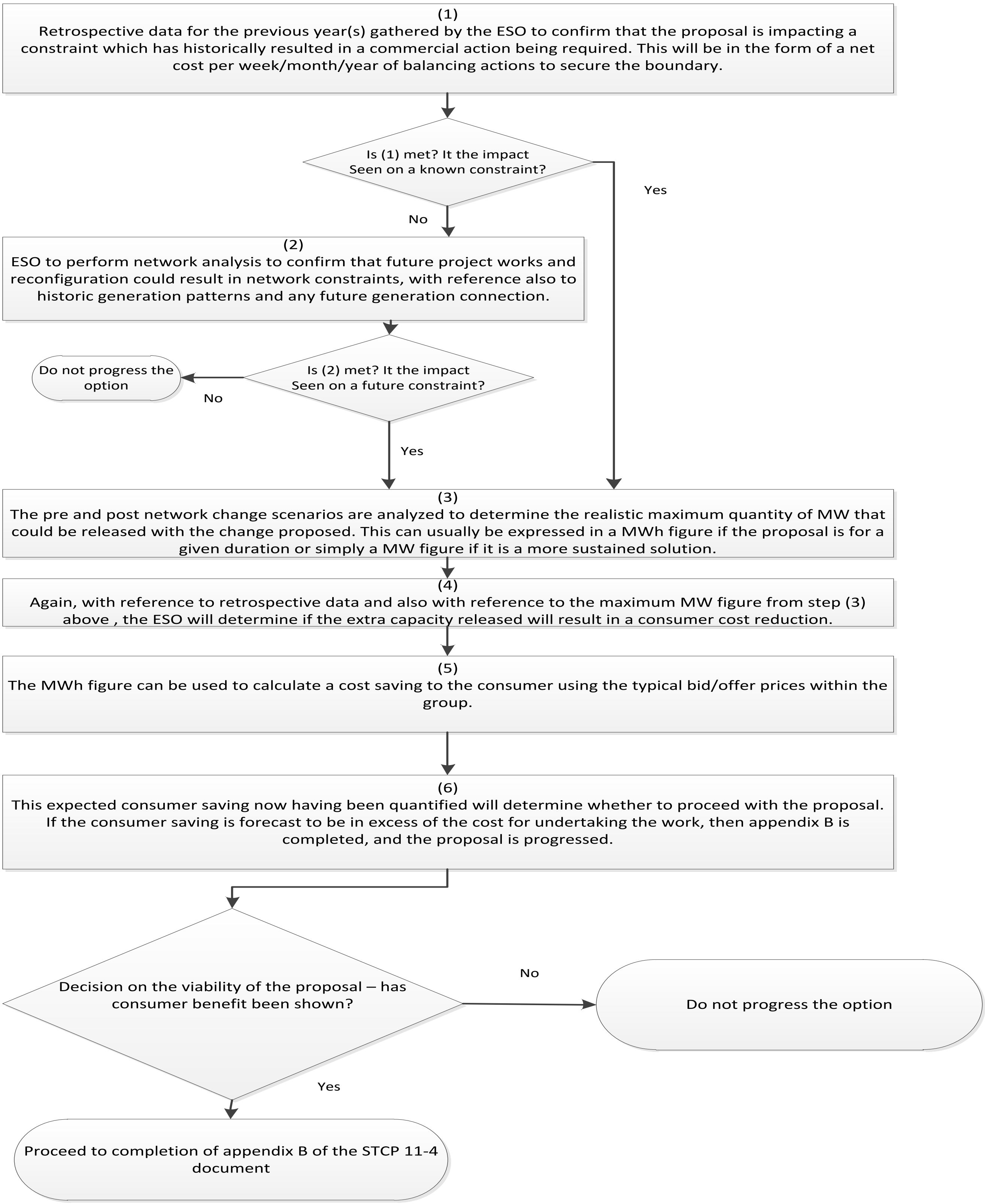
(1)
Retrospective data for the previous year(s) gathered by the ESO to confirm that the proposal is impacting a constraint which has historically resulted in a commercial action being required. This will be in the form of a net cost per week/month/year of balancing actions to secure the boundary.
Is (1) met? It the impact Seen on a known constraint?
Yes
No
(2)
ESO to perform network analysis to confirm that future project works and reconfiguration could result in network constraints, with reference also to historic generation patterns and any future generation connection.
Do not progress the option
No
Is (2) met? It the impact Seen on a future constraint?
Yes
(3)
The pre and post network change scenarios are analyzed to determine the realistic maximum quantity of MW that could be released with the change proposed. This can usually be expressed in a MWh figure if the proposal is for a given duration or simply a MW figure if it is a more sustained solution.
(4)
Again, with reference to retrospective data and also with reference to the maximum MW figure from step (3) above , the ESO will determine if the extra capacity released will result in a consumer cost reduction.
(5)
The MWh figure can be used to calculate a cost saving to the consumer using the typical bid/offer prices within the group.
(6)
This expected consumer saving now having been quantified will determine whether to proceed with the proposal. If the consumer saving is forecast to be in excess of the cost for undertaking the work, then appendix B is completed, and the proposal is progressed.
Decision on the viability of the proposal – has consumer benefit been shown?
No
Do not progress the option
Yes
Proceed to completion of appendix B of the STCP 11-4 document

Figure 1

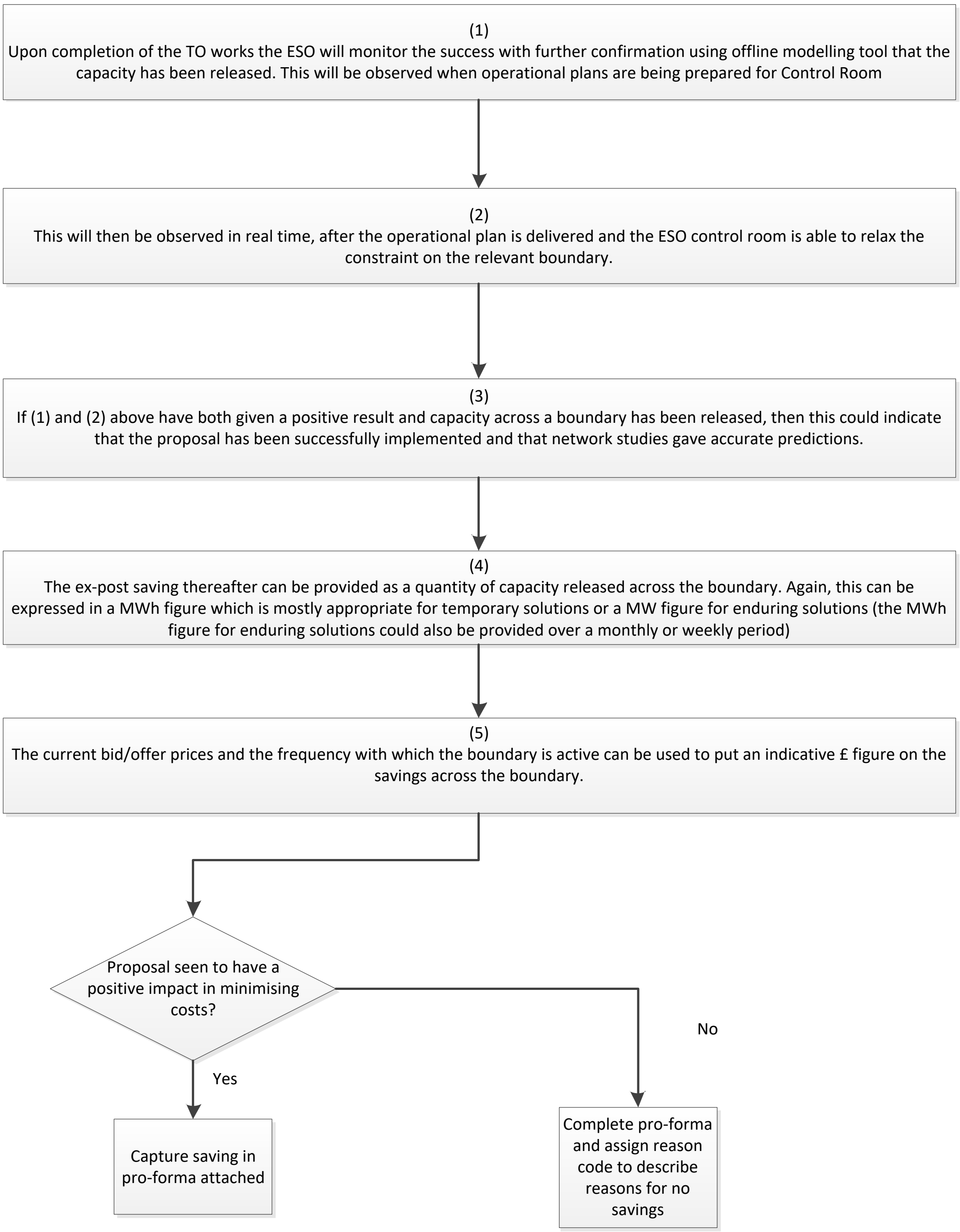
(1)
Upon completion of the TO works the ESO will monitor the success with further confirmation using offline modelling tool that the capacity has been released. This will be observed when operational plans are being prepared for Control Room
(2)
This will then be observed in real time, after the operational plan is delivered and the ESO control room is able to relax the constraint on the relevant boundary.
(3)
If (1) and (2) above have both given a positive result and capacity across a boundary has been released, then this could indicate that the proposal has been successfully implemented and that network studies gave accurate predictions.
(4)
The ex-post saving thereafter can be provided as a quantity of capacity released across the boundary. Again, this can be expressed in a MWh figure which is mostly appropriate for temporary solutions or a MW figure for enduring solutions (the MWh figure for enduring solutions could also be provided over a monthly or weekly period)
(5)
The current bid/offer prices and the frequency with which the boundary is active can be used to put an indicative £ figure on the savings across the boundary.
Proposal seen to have a positive impact in minimising costs?
No
Yes
Capture saving in pro-forma attached
Complete pro-forma and assign reason code to describe reasons for no savings

Figure 1

Activity	Input	Notes
Ex-post information- completed by NGESO		
Unique Works Identification Code		As per the appendices of STCP 11-4 Enhanced Service Provision
Invoice number and amount		
Works description		Brief description of the works which have been provided.
Date		Date work completed by ETO.
Service Provision		Description of the service that has been provided
Any additional information		Any additional information that NGESO feel is relevant in addressing ex-post savings.
Details and description of impacted boundary/boundaries		Details of all boundaries impacted by the enhanced service provision
MW increase on boundary or boundaries.		MW of all boundaries impacted by the enhanced service provision
Total duration		Total duration of the service provision. For permanent solutions enter
Estimated ex-post savings (MWh)		For permanent solutions, provide weekly/monthly/yearly figure
Estimated cost savings (£)		
If the figure entered in the field above is significantly different from forecast benefit, then please provide reasons for this difference. Choose at least one of the below, with supporting information: A – Change in expected generation pattern, generator unexpectedly available/unavailable. B – Change in wider transmission outage pattern initiated by TO. C – Change in wider transmission outage pattern initiated by ESO. D – Unseasonable demand and renewable generation conditions. E – Other, please specify giving as much detail as possible below. *Please flag if any of the above was due to circumstances outside the control of the ETO/ESO such as storm or unplanned generator change.		

Annex B: ODI trial report template (ETO)

4.7. The ETO is required to report on each solution using the format below.

Activity	Input	Notes
Details of solution delivered		
Solution description		Description of solution provided including name of boundary/project/ location. Details of all boundaries impacted by the enhanced service provision. Total duration of the service provision.
Date		Date of solution submitted to the ESO and works completed by ETO.
Cost of solution		Cost to deliver the solution under STCP11-4 as agreed by the ESO
Estimated constraint savings		As estimated by the ESO as part of their CBA of the proposed solution.
Demonstration of delivery beyond business as usual		Why this solution could not have been funded by other mechanism (MSIP, optimisation of original outage plan)? Demonstration on how this deliverable could not have been provided without the ODI in place.
Any additional information		Any other relevant information in relation to the solutions delivered

Activity	Input	Notes
Details of solutions rejected or not delivered		
Solution description		Description of solution proposed including name of boundary/project/ location.

Date		Date of solution submitted to the ESO.
Cost of solution		Cost of solution proposed to be delivered under STCP11-4.
Estimated constraint savings		As estimated by the ESO as part of their CBA of the proposed solution. (if accepted by the ESO but not delivered)
Estimation of consumer benefits		Why the proposed solution, in the ETO's view, would have delivered consumer benefit.
Details of non- delivery		Why the solution was not accepted by the ESO or why the solution could not have been delivered.

4.8. The ETO is required to provide their views of the overall value of the ODI . The report should include the following:

- Benefits of the ODI : Views on the benefit that the ODI has delivered including overall consumer benefit as well as improvement to network planning and internal processes.

- Unintended consequences and or inefficiencies of the ODI design: ETOs must also consider any issues identified with the ODI in place, and potential solutions to the ODI design if the ODI were rolled out beyond the trial period for the reminder of the RIIO-2 Price Control.

- Future value of the ODI: What expectations the ETOs have for further solutions that could be provided through a potential output delivery incentive in the coming years.

- ETOs may add any additional information they feel is appropriate in relation to this ODI.