

Guidance

Transmission Constraint Licence Condition

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This document provides guidance to licensees and other interested parties on Ofgem’s interpretation and approach to the enforcement of the Transmission Constraint Licence Condition (TCLC). Transmission constraints are any limits on the ability of the transmission system (or any part of it) to transmit power from where it is supplied onto the transmission system to where it is needed. Where transmission constraints occur, then individual electricity generators, or groups of generators in particular areas, routinely hold a position of market power, with the system operator having limited options to manage the constraint other than reaching an agreement with the owners of those specific units to reduce their planned output. The purpose of the TCLC is to protect against the exploitation of this market power, by prohibiting generation licensees from obtaining an excessive benefit in transmission constraint periods.

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1. Background

Purpose

- 1.1 This document provides guidance to licensees and other interested parties on Ofgem’s interpretation and approach to the enforcement of Standard Licence Condition 20A of the Generation Licence, the Transmission Constraint Licence Condition (TCLC). For ease of reference the wording of the TCLC is reproduced in full in Appendix 1.
- 1.2 While this guidance sets out our general approach to assessing licensees’ compliance with the TCLC, our assessments will be necessarily case-specific and must take into account the particular circumstances surrounding a generator’s pricing. This means that the specific approach we take in our assessment, including the particular analytical methods used and evidence relied upon, may vary across investigations.
- 1.3 In the remainder of this section, we provide an introduction to transmission constraints and balancing services; describe the TCLC; explain how the TCLC fits alongside related provisions (eg under competition law); and summarise the high level approach we will take to enforcement where we suspect breaches of the TCLC. The second section of this guidance documents then discusses the specific requirements of the licence condition in greater detail – including how we will assess whether there is a transmission constraint, and our approach to assessing whether a bid price is “excessive”.

Transmission constraints

- 1.4 National Grid Electricity System Operator (the ESO) is the system operator, responsible for the secure real-time operation of the national electricity transmission system (NETS) in Great Britain.¹ Among other things, it is the ESO’s responsibility to co-ordinate and direct the flow of electricity onto and over the NETS. A key consideration for the ESO when carrying out its role is the need to manage transmission constraints.

¹ It is our expectation that from summer 2024, the new National Energy System Operator will take on the role of the ESO, subject to a decision on the proposals set out in our statutory consultation (available at: <https://www.ofgem.gov.uk/publications/national-energy-system-operator-neso-licences-and-other-impacted-licences-statutory-consultation>). All references to ESO in this guidance document should be interpreted as references to that Independent System Operator and Planner subsequent to National Energy System Operator being designated as the Independent System Operator and Planner by the Secretary of State

- 1.5 Transmission constraints as defined in the TCLC are any limits on the ability of the transmission system (or any part of it) to transmit the power supplied onto it to the location where the demand for that power is situated, such limits arising as a result of factors such as the need not to exceed the thermal rating of any asset forming part of the transmission system, or the need to maintain voltage on the system, or the need to maintain the transient and dynamic stability of plant, equipment and systems directly or indirectly connected to the transmission system.
- 1.6 Transmission constraints have become more prevalent over time, as the geographic and technological composition of the generation mix has changed. The impact of constraints – and the costs of resolving them – has been forecast by the ESO to continue to increase steeply in the coming years.² These trends highlight the continued importance of measures designed to mitigate constraint costs.

The Balancing Mechanism

- 1.7 The primary tool used by the ESO to manage transmission constraints and ensure that power flows across the NETS remain within the necessary bounds is the Balancing Mechanism (BM). In the BM, parties to the Balancing and Settlement Code (BSC) – including all licensed electricity generators – submit one or more pairs of bids and offers. Bids represent the price at which the party would be willing to decrease its generation or increase its consumption of electricity for a given unit in a given half-hourly delivery period, while offers represent the price at which the party would be willing to increase its generation or decrease its consumption of electricity. Bid and offer prices are specified in £ per megawatt hour (£/MWh) of reduced or additional output or consumption that the ESO requires that a unit deliver (relative to the unit's expected output or consumption prior to the action being taken).
- 1.8 A unit's expected level of output or consumption in each half-hourly settlement period – prior to any actions taken in the BM – is indicated through parties' submissions of Physical Notifications (PNs), made in accordance with the Grid Code. The prevailing PNs at the point which is one hour prior to delivery (referred to as gate closure) are confirmed by the ESO as Final Physical Notifications (FPNs), and used for the purposes of taking any required balancing actions in the BM. For each half-hourly settlement period, the ESO may accept various sets of

² See for example [ESO Modelled Constraint Costs, NOA 2021/22 Refresh, August 2022](#)

bids and offers, making payments to (or receiving payments from) different parties in exchange for them agreeing to alter their generation or consumption as compared to their FPNs.

- 1.9 In addition to the BM, the ESO also uses other balancing services to manage transmission constraints. This includes agreements with specific generators ahead of BM timescales to alter their generation, which are conducted under Schedule 7A of the Grid Trade Master Agreement.

The TCLC

- 1.10 The TCLC requires that generation licensees³ must not obtain or seek to obtain an excessive benefit from entering into relevant arrangements with the ESO in periods when a transmission constraint (as defined in the licence condition) occurs. In practice, this means that – where a transmission constraint occurs and a generation unit intends to export power – the licensee responsible for that unit must not submit bid prices in the BM at a level which would result in it obtaining an excessive benefit were that bid subsequently accepted by the ESO.⁴
- 1.11 The objective of the TCLC is to protect against the exploitation of market power by generators operating in the presence of transmission constraints. Transmission constraints routinely lead to either individual generators or groups of generators in particular areas holding a position of market power in one or more settlement periods, with the ESO having limited options to manage the constraint other than reaching an agreement with the owners of those specific units to reduce their planned output in those periods. If generators were free to take advantage of this market power in their agreements with the ESO, this would increase balancing costs (which are ultimately passed onto consumers) and create harmful incentives – encouraging further generation in those same areas or by generators with the same characteristics, exacerbating the constraints, and increasing system costs further.
- 1.12 The TCLC was first introduced in 2012 through powers under section 18 of the Energy Act 2010, for an initial period of five years. The original wording of the TCLC prohibited generators from seeking to obtain an excessive benefit in relation to

³ The requirements of the TCLC extend to all licensed electricity generators, including storage operators with a generation licence. See here for a list of all generation licensees: <https://www.ofgem.gov.uk/publications/list-all-electricity-licensees-including-suppliers>

⁴ For the avoidance of doubt, the generation licensee is ultimately responsible for compliance with the TCLC, irrespective of whether the task of submitting and/or determining bid prices is managed via a different party, appointed by the licensee.

reductions in electricity generation in transmission constraint periods (known as Circumstance 2). It also contained a further prohibition, requiring that licensees did not seek to create or exacerbate a transmission constraint by dispatching or withholding one or more generation units in circumstances where the generator had more economic options available to them (known as Circumstance 1).

- 1.13 Following consultation in 2017, Ofgem decided to extend the prohibition by introducing a new, permanent licence condition to the Generation Licence as Standard Licence Condition (SLC) 20A, in line with the licensing framework regulated by Ofgem. Updated guidance was issued alongside that licence condition.
- 1.14 Unlike the previous obligation, the new licence condition no longer included the Circumstance 1 prohibition – ie no longer included an obligation regarding the creation or exacerbation of a constraint. This element of the TCLC was removed because the behaviour described under Circumstance 1 is captured by Article 5 of the Regulation on Energy Market Integrity and Transparency (REMIT), discussed further below.⁵
- 1.15 Also in 2017, the licence condition was amended such that the definition of a transmission constraint was widened to capture a broader set of limits on the ability of the NETS to transmit power. In particular, the original TCLC defined transmission constraint periods as capturing only limits on the NETS arising specifically as a result of the thermal, voltage or stability requirements of the NETS or equipment attached to it (in line with the definition of a transmission constraint which appeared in the Transmission licence). In 2017, this was widened such that the list of factors cited in the licence condition – ie thermal, voltage and stability requirements – was no longer exhaustive. This change dealt with the possibility that as the system evolved, types of transmission constraints beyond those originally listed in the TCLC could arise – and thereby to future-proof the obligation.
- 1.16 In December 2023, following a number of investigations into licensees' compliance with the TCLC,⁶ a consultation was launched on an updated version of

⁵ For the avoidance of any doubt, despite Circumstance 1 being removed from the TCLC in 2017, it remains the case that Licensees must both submit PNs which accurately reflect their expected level of generation and do not dispatch themselves in a way that is intended to create or exacerbate a constraint.

⁶ This included cases brought to a conclusion in 2023 relating to [Drax Pumped Storage Limited](#)

the TCLC guidance – including providing additional detail regarding our approach to enforcing the condition. Following a review of the submissions received in response to that consultation, this updated guidance document was published on 10 June 2024.

Interactions between the TCLC and other related obligations

Competition law

- 1.17 Chapter II of the Competition Act 1998 (the Chapter II prohibition) prohibits undertakings from abusing a dominant position in a market in the United Kingdom. The legislation provides that one way in which a company could abuse a dominant position is by directly or indirectly imposing unfair purchase or selling prices or other unfair trading conditions.⁷ Given this, the potential exists for an overlap between the requirements of the Chapter II prohibition as it applies to electricity generators, and the TCLC.
- 1.18 The TCLC does not displace the application of competition law where appropriate, or vice versa. For example, if a generator that benefits from a licence exemption were to engage in pricing behaviour that is similar to that prohibited by the TCLC (ie submitting excessive bid prices in periods in which it enjoyed substantial local market power due to a transmission constraint), it may risk being in breach of the Chapter II prohibition. And even with respect to instances of potentially excessive pricing in transmission constraint periods by licensed generators, there could be circumstances where Ofgem concludes that it is more appropriate for it to proceed under the Competition Act 1998.
- 1.19 There should also not be any assumption that in assessing a TCLC breach we will have reference to case law relating to the Chapter II prohibition. Rather, the assessment of whether or not there has been a breach will be undertaken with reference to the specific framework of the TCLC. In part, this is because the specifics of the prohibitions are different. The Chapter II prohibition refers to "unfair" pricing. In contrast the TCLC applies to generators that obtain (or seek to

(resulting in a payment of £6.12 million); [SSE Generation Limited](#) (which was required to pay £9.78 million); and [EP SHB Limited](#) (required to pay £23.63m). Subsequently, in the first half of 2024 but prior to this final guidance being published, Ofgem also closed compliance reviews following admissions of TCLC breaches by [Dorenell Windfarm Limited](#) (resulting in a payment of £5.53m) and [Beatrice Offshore Windfarm Limited](#) (resulting in a payment of £33.14m).

⁷ This guidance document is not intended to capture the full details of the Chapter II prohibition in Competition Act 1998 – please see the relevant legislation.

obtain) an “*excessive benefit*”. There is also no requirement under the TCLC for the licensee to hold a dominant position for a breach to occur.

REMIT

- 1.20 Article 5 of REMIT⁸ prohibits wholesale market participants (including electricity generators operating in the BM) from engaging in or attempting to engage in market manipulation.⁹ Market manipulation is defined under REMIT and can take various forms, including (but not limited to) certain actions which give false or misleading signals as to the supply of or demand for wholesale energy products; or which secure the price of a wholesale energy product at an artificial level.¹⁰
- 1.21 The prohibitions under Article 5 of REMIT are much broader than the TCLC, extending to a much wider set of circumstances and market participants. However, like the TCLC, Article 5 of REMIT does place certain restrictions on electricity generators’ conduct in the BM in the presence of a transmission constraint. For example, a generator that dispatched itself in a way that specifically sought to create or exacerbate a transmission constraint in order to obtain payments from the ESO to reduce its generation would likely be in breach of REMIT. This is because it would have likely entered into a transaction to trade in a wholesale energy product which secured or attempts to secure the price of a wholesale energy product – here a bid in the BM - at an artificial level. Similarly, a generator which sought to inflate the bid payments received in the BM by exaggerating its PNs would likely also be in breach of REMIT, as it would have disseminated information which gives or is likely to give, false or misleading signals as to the supply of a wholesale energy product.¹¹
- 1.22 If a generator’s conduct in the BM in relation to transmission constraint periods appeared to breach the requirements of both the TCLC and REMIT (eg we were concerned that the generator were both submitting excessive bid prices and false or misleading PNs), then it would be open to Ofgem to open parallel

⁸ Article 5 of Regulation (EU) No 1227/2011 of the European Parliament and of the Council of 25 October 2011 on wholesale energy market integrity and transparency (Text with EEA relevance) (Retained EU Legislation).

⁹ This guidance document is not intended to capture the full details of the market participants’ obligations under REMIT - please see the relevant legislation. As well as prohibiting market manipulation, REMIT also prohibits insider trading, and contains certain requirements regarding the obligation on market participants to publish inside information.

¹⁰ See REMIT Article 2 for the full definition of market manipulation.

¹¹ This paragraph is not intended to capture all the ways in which Article 5 REMIT may be breached through the behaviour described.

investigations under both sets of regulations. It is relevant to note here that Ofgem's enforcement powers under REMIT differ to those relating to TCLC investigations, including with regards to penalties.¹²

Inflexible Offers Licence Condition

- 1.23 SLC 20B of the Generation Licence is the Inflexible Offers Licence Condition, or IOLC, introduced in 2023. Like the TCLC, it prohibits generators from obtaining an excessive benefit in the BM in certain circumstances. However, unlike the BM, it applies to offers rather than bids. Further, rather than in transmission constraint periods, it places restrictions on the prices that licensees can submit where a generation unit with a minimum zero time longer than 60 minutes has revised its PN from a positive value to zero within an operational day.
- 1.24 The TCLC is separate from IOLC, and subject to separate guidance. There should be no presumption that a level of benefit which is not considered excessive under TCLC would not be considered excessive under the IOLC (or vice versa). In each case we will assess excessiveness on its merits, taking into account all of the circumstances of the case.

Enforcement

- 1.25 We enforce the TCLC in accordance with both this guidance document, and our wider enforcement guidelines as they apply at the relevant time (which sets out our standard approach to investigations using powers under the Gas and Electricity Acts).¹³
- 1.26 Consistent with the enforcement guidelines, if, on our own initiative or following a complaint, we identify a potential breach under the TCLC, we may write to the licensee concerned, requiring it to provide costs and other relevant data, and asking it to explain the basis for its pricing (and any assumptions underpinning it).
- 1.27 Also as set out in our enforcement guidelines, where we suspect a breach, we will assess whether it is appropriate to take enforcement action against our stated prioritisation criteria. For example, where there is minimal harm to consumers, an investigation would be less likely. If the breach appears to be intentional, a sign

¹² Our enforcement guidelines as of the time of the publication of this guidance document are available here: <https://www.ofgem.gov.uk/sites/default/files/2022-03/REMIT%20Procedural%20Guidelines.pdf>

¹³ <https://www.ofgem.gov.uk/publications/enforcement-guidelines>

of negligence, or is part of a recurring pattern of poor behaviour then an investigation would be more likely.

- 1.28 If licensees have concerns regarding their potential non-compliance with the TCLC, they should contact Ofgem to report the potential breach, providing as much detail as possible. Where a breach comes to light as a result of prompt, accurate and comprehensive self-reporting, particularly when that breach was unlikely to come to light via other information sources, that may be seen as a mitigating factor and will be considered in Ofgem’s decision to prioritise enforcement action, or may be reflected in any penalty or redress outcome. Alternative Action in lieu of a formal investigation may also be considered for companies who self-report.
- 1.29 If a licensee is found to be in breach of the TCLC, it may face a financial penalty. The amount of any penalty imposed will be determined by the Authority in accordance with its published policy on financial penalties for licence breaches, and can be up to 10 per cent of a regulated person’s turnover.¹⁴ In the past, investigations into breaches of the TCLC have concluded with licensees being required to make significant payments to Ofgem’s consumer redress fund.¹⁵

¹⁴ <https://www.ofgem.gov.uk/publications/statement-policy-respect-financial-penalties-and-consumer-redress>

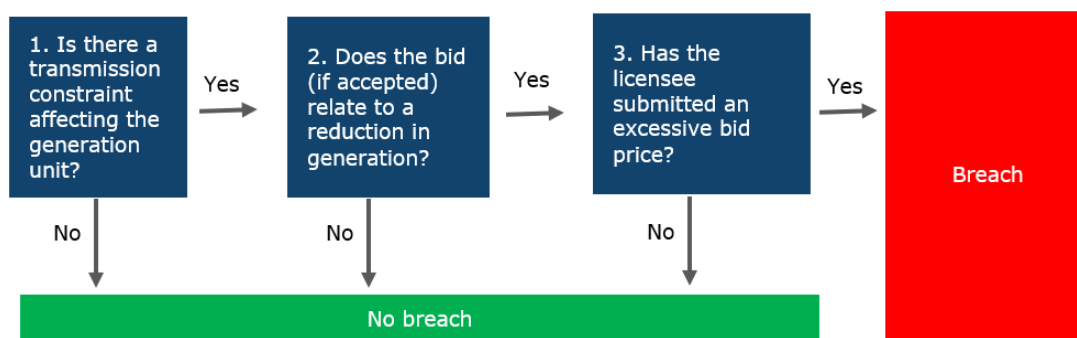
¹⁵ See the following link for further details of this fund:
<https://www.ofgem.gov.uk/publications/ofgem-appoints-energy-saving-trust-distribute-payments-rule-breaking-energy-companies-charities>

2. How we assess whether a generator has breached the TCLC

Overview

- 2.1 Paragraph 1 of the TCLC provides that the licensee must not obtain an excessive benefit from electricity generation in relation to a transmission constraint period.
 - 2.2 Paragraph 2 of the TCLC further provides that the licensee shall be considered to have obtained an excessive benefit if the licensee and the ESO enter into, or have entered into, relevant arrangements in connection with a reduction in electricity generation which relate to a transmission constraint period; and
 - a) the licensee pays, or seeks to pay, the system operator an excessively low amount; or
 - b) the licensee is paid, or seeks to be paid, an excessive amount by the system operator.
 - 2.3 The relevant arrangements referred to in paragraph 2 of the TCLC are defined as the making of a bid in the BM.
 - 2.4 The TCLC applies to bids submitted by a licensee in transmission constraint periods even where those bids are not ultimately accepted by the ESO. This is because, in such circumstances, while the bid in question may not directly lead to higher balancing costs, consumer harm may nevertheless arise. For example, this could be the case where an excessive bid price leads to the ESO reaching an agreement with the same generator to reduce its output via a bilateral trade on less favourable terms than the ESO would have otherwise achieved, or leads the ESO to use a substantially more expensive or less effective alternative to manage the constraint (where such an alternative exists).
 - 2.5 The TCLC applies irrespective of whether a generator is seeking to be paid by the ESO to reduce its generation or is willing to pay. A generator may be willing to pay to have its output reduced where – in addition to continuing to receive any revenue earned in relation to the sale of power for the settlement period in question – it is also able to avoid certain costs. For example, a gas-fired generator benefits by – among other things - no longer having to burn as much gas, reducing its fuel costs. Where a generator is willing to pay the ESO to have its output reduced, this is indicated via a positive bid price.
 - 2.6 Figure 1 shows the three steps that Ofgem will generally expect to take when considering whether a breach of the TCLC has occurred.
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FIGURE 1: How we assess whether a generator has breached the TCLC



2.7 We have provided further information in relation to each of these steps below.

Is there a transmission constraint affecting the generation unit?

Overview

2.8 The TCLC only applies in periods in which a transmission constraint occurs. A transmission constraint is defined in the TCLC as:

... any limit on the ability of the National Electricity Transmission System, or any part of it, to transmit the power supplied onto the National Electricity Transmission System to the location where the demand for that power is situated, such limit arising as a result of factors such as:

(a) the need not to exceed the thermal rating of any asset forming part of the National Electricity Transmission System;

(b) the need to maintain voltage on the National Electricity Transmission System; and

(c) the need to maintain the transient and dynamic stability of electricity plant, equipment and systems directly or indirectly connected to the National Electricity Transmission System;

and such limit being used by the system operator to operate the National Electricity Transmission System in accordance with the National Electricity Transmission System Security and Quality of Supply Standard referred to in standard condition C17 (Transmission systems security standard and quality of service) of the standard conditions for electricity transmission licences or any other provision of the transmission licence, the Act or any other requirement of law.

2.9 The purpose of the TCLC is to protect against situations where limits of the transmission system give rise to either individual generators, or generators in certain areas, having market power in one or more settlement periods. Therefore,

the constraints that Ofgem will focus on when assessing potential breaches of the TCLC are those which can only be practicably and/or economically resolved by the ESO by instructing either a single generator or a particular group of generators connected to a specific part of the network to reduce their output. Where a limit does not specifically relate to the output of any single generator or the output of any group of generators in a specific part of the network, that limit will typically not be considered a transmission constraint within the scope of the TCLC.

Types of transmission constraint

- 2.10 Historically, the most common type of transmission constraint resulting in the ESO taking action in the BM has arisen from the limits related to the thermal ratings of assets forming part of the NETS (ie the example given under sub-bullet (a) of the definition of transmission constraint in the TCLC). This type of constraint exists due to the physical limits to the amount of power which can be transmitted through pieces of equipment on the NETS without causing that equipment to become overloaded and to overheat.
- 2.11 One implication of thermal constraints is to give rise to restrictions on the maximum amount of power which can be transferred between different parts of the NETS, creating what are known as “constraint boundaries”, each with a particular transfer limit. Part 5 of the NETS Security and Quality of Supply Standard requires the ESO to manage power flows on the system within the relevant thermal limits such that, under normal operating conditions, equipment is not overloaded in the event of certain faults.
- 2.12 One way that the ESO manages thermal constraints where they arise is by bidding down generation units located inside the relevant constraint boundaries. That is, in the event that expected power flows are such that there is a risk that the transfer limit relating to a specific constraint boundary would be exceeded, the ESO may accept bids to reduce generation inside the boundary of concern and accept offers to increase generation elsewhere on the NETS to replace that power.
- 2.13 While thermal limits have historically been the most common type of transmission constraint requiring the ESO to take action in the BM, this is not the only type of constraint to which the TCLC applies. Since its creation, the TCLC has also captured bids submitted in periods in which:
- There are limits on power flows arising from the need to ensure voltage remains within the necessary bounds on certain parts of the network; and
-

- There are limits on power flows relating to the need to avoid dynamic or transient instability of equipment directly or indirectly connected to the NETS.
- 2.14 In addition, as described in the Background section above, in 2017 the definition of a transmission constraint in the TCLC was widened such that it would capture *any* limit on the ability of the NETS, or any part of it, to transmit power (where that limit was used by the ESO to operate the NETS in accordance with its obligations). This change dealt with the possibility that as the system evolved, other types of transmission constraints beyond those relating to thermal, voltage and stability limits could arise – and thereby to future proof the obligation.
- 2.15 An example of a type of balancing action taken by the ESO since 2017 that addresses a limit falling under this wider definition – and captured under the TCLC - is the ESO’s curtailment of the planned output of specific large generators on occasion because of the risk posed to system frequency should a credible fault outage disconnect any of those generators from the NETS.

Visibility of constraints

- 2.16 Generators have historically had limited visibility of the ESO’s rationale for accepting specific bids and offers, and whether or not they are operating in the presence of a transmission constraint. In deciding what information to publish regarding both transmission constraints and bid acceptances, the ESO takes into account both the practical challenges associated with publishing such information (given that actions are being taken in real time, and given the number of actions being taken); and the commercial implications of doing so.
- 2.17 Nevertheless, significant information regarding the occurrence of transmission constraints is typically available to generators. At the time of this guidance being published, the clearest available indicator is the licensee’s ability to retrospectively observe whether or not bids are system flagged. In particular, in order to comply with Standard Condition C16 of its electricity transmission licence and Section Q of the Balancing and Settlement Code, the ESO determines which balancing actions have been taken for system management reasons and subsequently ‘flags’ them in accordance with a methodology statement.¹⁶ Information on which bids have been flagged is then made public via the Balancing Mechanism Reporting Service. The process allows these (and other)

¹⁶ April 2024 version of the ESO’s system management action flagging methodology available here: <https://www.nationalgrideso.com/document/315611/download>

system management actions to then be excluded from the calculation of imbalance charges.

- 2.18 Under the system flagging methodology as it exists at the time of this guidance being published, bids from electricity generators which are accepted by the ESO and system flagged would have been accepted to address one or more of thermal, voltage or stability limits; or primarily to manage Rate of Change of Frequency or fault levels. Given this, a generator can reasonably expect that where it has bids accepted which are subsequently system flagged, those bids will have been accepted in relation to a transmission constraint as defined in the TCLC. Note that the converse may not always be true – ie it is possible that on occasion bids which are not system flagged may nevertheless relate to a transmission constraint as defined in the TCLC.¹⁷
- 2.19 In addition to system flagging, further information on the presence and nature of constraints and the rationale behind individual dispatch decisions is also available to market participants via the ESO’s publications. While the information published by the ESO changes over time, at the time of this guidance being published this includes information published to the ESO data portal, as part of the Electricity Ten Year Statement, and within its regular operational transparency forums.
- 2.20 There is no requirement under the TCLC that a generator must know that a constraint exists in order for the obligation that it should not obtain or seek to obtain an excessive benefit to apply. However, where a breach is found, then one factor that we will typically have regard to when considering whether a penalty is appropriate (and the level of any such penalty) is whether a party could reasonably have been expected to anticipate that a transmission constraint period was likely to have been in effect.¹⁸ We would also expect to take this factor into account when deciding whether to open an investigation in the first place (in line with the principles set out in our enforcement procedural guidelines), as it will be one factor affecting the potential seriousness of a breach.

¹⁷ This arises because the definition of a transmission constraint in the TCLC differs to the list of balancing actions that will be system flagged as set out in the system flagging methodology document, capturing a wider set of limits. We would however expect the scenario where a bid was not flagged but did relate to a transmission constraint period to be uncommon.

¹⁸ Our assessment of whether a licensee could reasonably have been expected to anticipate that a transmission constraint period was likely to have been in effect would depend on the circumstances of the case, but we would generally expect this to include an analysis of the information that was available to the generator at the time, as well as the steps taken by the generator to seek out and understand whether it was likely to be bidding in relation to a transmission constraint period.

Does the bid (if accepted) relate to a reduction in generation?

- 2.21 The TCLC only applies to “reductions in generation” – ie a reduction in the export of electricity in comparison to the licensee’s intended output for that transmission constraint period as indicated by its FPN. The licence condition does not apply to situations where generators are being paid by the ESO to import electricity.
- 2.22 The rationale is that the TCLC should only apply where a licensee’s intended level of output for a particular generation unit causes or exacerbates a transmission constraint. Where this is not the case, the TCLC does not regulate the prices that a generator can submit.
- 2.23 By focusing only on instances where the generator’s notified level of output causes or exacerbates a constraint, the TCLC ensures that licensees are prevented from benefiting from market power which may arise as a result of a transmission constraint; while at the same time ensuring that the BM can work to reward generators that are available to help to resolve a constraint (incentivising further investment by providers that can offer such services).
- 2.24 As described above, a generator may submit multiple bids, specifying the prices at which it would be willing to reduce output for different variations in output. Where a licensee was intending to export in a settlement period and submitted multiple bids, only those bids which applied (in part or in full) to a reduction in generation would be subject to the TCLC.

Has the licensee submitted an excessive bid price?

Overview

- 2.25 The TCLC requires that generation licensees must not obtain an excessive benefit from electricity generation in relation to a transmission constraint period. In practice, this means that – where a transmission constraint occurs, and where the generator intends to export power – generators must not submit bid prices at a level which would result in them obtaining an excessive benefit were that bid subsequently accepted by the ESO.
- 2.26 While our assessment will be carried out on a case-by-case basis, taking all of the relevant circumstances into account, in order to assess whether a price was excessive we will generally consider whether that price was set at a level which meant that the benefit that the licensee either obtained or sought to obtain in relation to one or more transmission constraint period was significantly greater

than the benefit it would have obtained in the absence of any transmission constraint.

- 2.27 The benefit that a licensee obtains or seeks to obtain through its bid prices is the profit associated with those bids (or the implied profit, had those bids been accepted). That is, the revenue and any avoided costs less the incurred and opportunity costs to the licensee of reducing its generation.
- 2.28 The definition of excessiveness that we use follows directly from the objective of the TCLC, which – as set out above - is to protect against the exploitation of market power by generators operating behind transmission constraints. If generators were free to use their market power to obtain a benefit significantly greater than that which would have been obtained absent the transmission constraint, then this would increase balancing costs (which are ultimately passed onto consumers). It would also create harmful incentives – putting generators operating in the presence of a transmission constraint at an advantage compared to those that are not, and encouraging further generation to locate behind constraint boundaries.
- 2.29 In carrying out our assessment, we will be mindful of the possibility that, on rare occasions, it may be necessary for generators to submit what are on face value excessive bid prices due to environmental or other regulatory obligations. For example, a hydro generator considering safety hazards associated with curtailment in extreme weather conditions may be forced to submit expensive bid prices to avoid being bid down if there are factors which prevent it from signalling its unavailability for curtailment via other means. Where a licensee can demonstrate that what may otherwise appear to be an excessive bid price is necessary for a generator to meet its environmental or other regulatory obligations, then that price would not be considered excessive.
- 2.30 With regards the period of time we will consider in our assessment, a transmission constraint period in the TCLC is defined as any period of time, regardless of the duration, when a transmission constraint occurs. In practice, while we would not rule out looking at the benefit that a generator obtained or sought to obtain in an individual settlement period (particularly a period with extreme prices), we would generally expect to consider generators' pricing behaviour over longer timeframes than this.¹⁹ The most appropriate period will depend on the circumstances of the case, including factors such as the extent of

¹⁹ By way of illustration, in previous enforcement and compliance work, our analysis has focused on pricing behaviour in time periods ranging from around a year up to around three years.

the excessive benefit that is considered to have been obtained; the length of time for which a particular bid price policy was in place; and the pattern over time of bid acceptances in constraint periods for the licensee in question.

The costs and benefits of being bid down

- 2.31 A primary consideration in our assessment of whether a licensee's prices have breached the TCLC will be the costs and benefits incurred (or expected) by the generator as a result of having a bid accepted. This is because an assessment of the costs and benefits of being bid down is necessary to calculate the profit (and so benefit) obtained by the generator in relation to a transmission constraint period. This assessment is also important because the TCLC does not prevent a generator from recovering the reasonable costs of being bid down – that is, where a generator's bid prices are set at the level of its reasonable costs, then those prices cannot be excessive. Were this not the case, then generators operating in transmission constraint periods would be at a disadvantage compared to other generators.
- 2.32 Because the cost and benefits of being bid down determine the level of benefit obtained, where a licensee does not have regard to these costs and benefits when setting its bid prices in transmission constraint periods, it carries an intrinsic risk of breaching the TCLC.
- 2.33 Some of the potential costs and benefits of being bid down could in principle apply to all generators, irrespective of generation technology. For example this could include the costs associated with the risk that a generator is unable to enact a bid instruction (and so faces a non-delivery charge), or potential costs associated with a bid acceptance where that reduction in output risks the generator no longer being able to meet its obligations under an ancillary balancing services contract.
- 2.34 However more commonly, the nature of the costs and benefits of being bid down will vary significantly depending on technology type. Table 1 sets out some examples of potentially material costs and benefits of being bid down for different technology types. This list is not intended to be exhaustive, nor is it the case that all costs and benefits listed will necessarily apply to (or be material for) all generation units of a particular technology type.

Table 1: **Examples of potential costs and benefits of being bid down**

Technology type	Examples of possible costs or opportunity costs of being bid down	Examples of possible benefits or avoided costs of being bid down*
Thermal	<ul style="list-style-type: none"> - Greater maintenance costs due to stress of running at low levels of output (including impact on component lifespan) - Risk that the unit is unable to resynchronise, or synchronises but subsequently trips, on returning to generation where bid takes one or more turbines offline - Costs associated with restarting generation, where the unit is desynchronised as a result of the bid - Costs associated with lower efficiency of running at lower levels of output 	<ul style="list-style-type: none"> - Avoided fuel and emissions costs - Where the unit is bid offline, reduced maintenance costs
Intermittent (eg wind)	<ul style="list-style-type: none"> - Greater maintenance costs due to stress of running at low levels of output (including impact on component lifespan) - Risk that the unit is unable to resynchronise, or synchronises but subsequently trips, on returning to generation where units or sub-units are taken offline as a result of the bid acceptance - For accredited sites, any opportunity costs associated with foregone Renewable Energy Guarantees of Origin certificates 	<ul style="list-style-type: none"> - Where the unit is bid offline, reduced maintenance costs - Avoided rent charges due to the landowner where these charges are contingent on output - Any profit associated with power delivered to a location other than the NETS, where that was made possible by the bid acceptance
Storage	<ul style="list-style-type: none"> - Opportunity cost of reduced potential to pump/charge in future periods (where prices are negative and profitable opportunities to pump/charge exist) - For pumped storage and hydro, where close to full capacity, likely costs associated with spill (ie the release of water without it flowing through the turbines and generating power) - Cost of potential imbalance where timing of bid (combined with technical limitations of the unit) means that contracted position for a subsequent period can't be delivered - Risk premium associated with expected movement in intraday or imbalance prices compared to forecasts when bid prices are set 	<ul style="list-style-type: none"> - Revenues associated with greater potential to generate in future periods - Avoided costs that would have otherwise have been incurred when pumping/charging in subsequent periods in order to increase the energy stored in the asset

* Prior to 1 April 2023, a significant further benefit across all generation types was avoided Balancing System Use of System (BSUoS) charges. Subsequent to this date, following a modification to the Connection and Use of System Code (CMP308), BSUoS charges were removed from generation.

2.35 In addition to those set out in the table, under existing market arrangements there may also be costs or benefits to some generators of being bid down associated with subsidy payments received or foregone under either the Contracts for Difference (CfD) or Renewables Obligation (RO) schemes, which we will similarly take into account when assessing the benefit that a licensee obtains or seeks to obtain through its bid prices:

- Payments to/from CfD generators are based on metered output, ie output *after* any bid or offer has been accepted by the ESO. This means that in periods where the relevant wholesale reference price is below a generator's strike price, the licensee may incur a further cost when it has a bid accepted attached to the subsidy payment that is lost as a result of the unit's reduced output. In contrast, in periods where the relevant wholesale reference price is above a generator's strike price, the licensee may incur a further benefit where it has a bid accepted as a result of the repayment it no longer has to make to the Low Carbon Contract Company. The exact subsidy implications of a bid in a given settlement period will vary between CfD generators depending on their strike prices; and
- Under the RO scheme, Renewable Obligation Certificates (ROCs) are issued based on the metered output of RO accredited stations. Therefore, where a RO generator has a bid accepted, reducing its metered output, this reduces the revenue it is able to generate from the sale of ROCs, resulting in a cost to the licensee. The extent of the foregone subsidy will vary between RO generators depending on their banding (ie the number of ROCs that a station is issued per MWh of generation, which depends on when the station was accredited, the generation technology and/or the station's capacity).

2.36 We note the possibility that there could also be specific engineering issues which give rise to particular costs or risks associated with bid acceptances. This may particularly be the case when a generator is in a testing or commissioning process. If the evidence were to indicate that factors of this type resulted in material additional costs where a given unit was curtailed, we would expect to take those factors into account when assessing that generator's compliance with the TCLC.

2.37 We recognise that at times, the costs or benefits associated with having a bid accepted by the ESO will be uncertain. For instance, this could be the case where repeated curtailment of a unit is expected to create additional maintenance costs – but those costs will not be realised until much later in the unit's lifespan. For a storage unit, this could be the case where the true opportunity cost or benefit that a generator incurs as a result of being bid down will depend on subsequent weather patterns and wholesale electricity prices, which are unknown. Licensees may face particular uncertainty immediately after a unit begins operation, at which point very limited historic data may be available on the impacts of curtailment.

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- 2.38 Where uncertainty exists, it is important that any assumptions made to estimate the costs or benefits associated with a bid acceptance are based on a robust methodology, and are well-documented. This becomes even more important where the generator in question is having a substantial volume of bids accepted in transmission constraint periods. Licensees should use realistic rather than 'worst-case' assumptions.
- 2.39 In certain cases, the costs of curtailment may be the same irrespective of whether the unit is bid down for a single settlement period or for multiple consecutive settlement periods. For example, this may be the case where a cost is incurred when the unit is taken offline – but that cost is not affected by the length of the period for which the unit is taken offline. When licensees are estimating their costs for the purposes of setting their bid prices in transmission constraint periods, we therefore expect them to take into account a reasonable expectation of the extent to which they are likely to be bid down for single or multiple consecutive settlement periods, to avoid over-recovering. This expectation could be based, for example, on historic patterns of bid acceptances for that unit (or comparable units).
- 2.40 In many cases, the costs and benefits of being bid down will vary over time. Therefore, we expect licensees to keep their pricing under regular review and to ensure that changes in expected costs and/or benefits are reflected in their bid prices in transmission constraint periods. This includes updating assumptions used to derive estimates of the costs or benefits of curtailment following operational experience of the impact of being bid down – as well as updating assumptions to reflect the extent of curtailment activity that the unit has been subject to in practice. Licensees should have robust processes in place to take decisions on the level at which bid prices should be set where a transmission constraint may occur; and be ready to provide analysis and supporting evidence (including, where relevant, justification for not changing bid prices despite the costs of being bid down falling, or the benefits increasing).²⁰
- 2.41 There may be occasions where the cost to a generator of a bid acceptance in a particular transmission constraint period is very high. In such instances our

²⁰ Supporting evidence could include, for example, documents or models that show: the process via which bid prices in constraint periods have been determined; the basis of any assumptions that have been made; the source of the various inputs used as part of a pricing formula; the methodology used to convert those inputs into the bid prices submitted; the results of any comparisons which have been carried out between expected and out-turn costs / benefits; and the review and approval process used to agree the bid price strategy, including the consideration given to TCLC compliance.

expectation remains that the generator should submit bid prices that remain reflective of the (significant) costs of being bid down. We note in this respect that on occasion it may be necessary for the ESO to accept bids even where the associated prices are very high. A generator that submits an extremely expensive bid price in a transmission constraint period that would cause it to obtain an excessive benefit if it were accepted would still be in breach of the TCLC, even if its intent is to price itself out of the market.²¹

- 2.42 While we would not expect to carry out an assessment of cost inefficiency as part of every TCLC investigation, one factor we may have regard to when assessing a breach of the TCLC is any evidence that reported curtailment costs appear particularly high compared to those of comparable generators, or do not appear to be necessary in order to deliver a reduction in generation. Where such evidence exists, this may suggest that a licensee seeking to include those costs in bid prices in transmission constraint periods may result in it obtaining an excessive benefit. This follows from the broader principle that market power can result in excessive profits – but also cost inefficiency due to the lack of pricing pressure faced by the company enjoying an absence of competition.

Profit benchmarks

- 2.43 In addition to the costs of being bid down (net of any benefits), licensees may also choose to seek to recover a reasonable level of profit and/or contribution to their indirect costs via their bid prices. Following directly from the test set out in paragraph 2.26, we consider that it would not be reasonable for a generator to recover a profit margin in £/MWh via their bid prices which would allow them to obtain an overall profit in pounds that is significantly greater than that which would be expected absent the transmission constraint. If this were the case, generators that are regularly subject to a transmission constraint would be materially advantaged relative to other generators that were not subject to a constraint.
- 2.44 Given this, there is no single 'maximum' level of profit in £s, £/MWh or percentage terms that generators are allowed to include in their bid prices in transmission constraint periods. Instead, what is reasonable will depend on the circumstances – and it is contingent on licensees to ensure that any profit or

²¹ With the possible rare exception where, as set out in paragraph 2.29 above, this were necessary due to environmental or other regulatory obligations.

contribution to indirect costs priced into their bids does not result in them obtaining a benefit that significantly exceeds that which they would have expected to earn on bids in those same settlement periods in the absence of any transmission constraint.

- 2.45 In most cases, we would expect generators to be bid down significantly less frequently absent a transmission constraint – and to face more competition. Therefore any contribution to profits or indirect costs that it is reasonable for licensees to factor into bid prices in transmission constraint periods under the TCLC may often be quite limited – particularly where the net curtailment costs of the unit involved are such that it would not commonly be bid down absent the constraint.
- 2.46 A licensee may face significant uncertainty about bid acceptance volumes – both with respect to the volume of bids that the generator will have accepted in transmission constraint periods, and the volume of bids it would have had accepted in those same periods if it were not subject to a transmission constraint. This can create challenges for a generator when putting in place a bid pricing policy which places controls on the profit / contribution to indirect costs that it obtains (or is seeking to obtain) as a result of bids in transmission constraint periods, and ensures that this benefit is not excessive. We will take this uncertainty into account in our assessment of a licensee’s compliance with the TCLC, including in our analysis an assessment of the information that would have been available to the generator at the time of submitting its bids.
- 2.47 We would not expect a licensee to price bids at a loss in order to compensate for a previous temporary over-recovery arising as a result of bid volumes exceeding the expected level (just as we would not expect generators to price bids at a higher profit margin in order to compensate for a previous temporary under-recovery arising as a result of bid volumes coming in under forecast). However, we do expect licensees to base any forward-looking assumptions they make around bid acceptance volumes on an appropriate and well-evidenced methodology, and to keep bid acceptances and the profits obtained in transmission constraint periods under close review. If a generator observes unexpectedly large bid volumes or high profits as a result of a transmission constraint, then it should consider whether this suggests an inadequacy in its previous forecasts. If it does, then it should adjust its bid prices without delay to reflect this, and so ensure that any benefit that it obtains in subsequent transmission constraint periods does not significantly exceed what would be expected absent any constraint. In such a scenario, the licensee may also want to
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consider pro-actively contacting Ofgem to explain the circumstances that have led to the generator obtaining what might - based on a retrospective analysis - appear to have been an excessive benefit.

- 2.48 To help us assess whether or not a profit margin / contribution to indirect costs that a generator obtains or seeks to obtain is reasonable, we may consider a range of different evidence, including (but not limited to):
- The prices of bids – and associated profit margins – of comparable generators, where those generation units are not subject to a constraint.
 - The prices of bids – and associated profit margins – of the same generator outside of transmission constraint periods (where its prices are not uniform).
 - The prices of bids – and associated profit margins – of the same generator in historic periods.
 - Any profit targets or other internal benchmarks used by the licensee or affiliated companies.
 - Details of the specific pricing strategy of the generator – and the extent to which this appears designed to limit profits to a level which would approximate those which would be obtained absent the constraint.
- 2.49 For the price or profit margin of another generator to provide a useful benchmark, the comparator price should not have been submitted by a generator in relation to a transmission constraint period, nor by a generator that is commonly subject to a transmission constraint. This is because the objective of our benchmarking assessment is to form a view on the benefit the licensee would have likely obtained (or a reasonable level of profit) in the absence of any transmission constraint.
- 2.50 When carrying out a comparison of bid prices across generation units, typically we will only consider comparisons with generators of the same technology type. This is because different generation technologies are likely to incur significantly different costs – both in terms of the direct costs of being bid down, and the indirect costs associated with operating in the BM. Further, it may not be appropriate to compare generators even of the same technology type if they are operating in different ways or subject to different operating conditions. In contrast, it may under some circumstances be possible to carry out comparisons of profits across generation units of different technology types.

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- 2.51 When carrying out a benchmarking analysis, we will generally avoid comparisons with any single generator or to focus on the price or profit of a comparator in any single settlement period. This is because it can be difficult to fully observe the conditions under which bids are being submitted by different generators, and so to form a view on their suitability as comparators. Instead, we will typically focus on differences in average prices over sustained periods of time, reducing the sensitivity of our analysis to outliers.
- 2.52 Where a licensee submits similar or identical bid prices for a generation unit in periods in which transmission constraints do occur as in periods in which there is no constraint, this does not mean that its prices cannot be excessive for the purpose of the TCLC. This will depend on whether those uniform bid prices are such that the generator will obtain a benefit in transmission constraint periods which is significantly greater than that which it would have obtained absent any constraint.
- 2.53 Similarly, where the ESO is observed to have accepted a bid in a settlement period from a generator that is not subject to a transmission constraint at a given price, this does not mean that the same price would necessarily not be excessive if it had been submitted by a generator that was subject to a constraint. This includes where the benchmark in question is the 'marginal' price – ie the most expensive bid that the ESO was subsequently observed to have accepted in that period which was not system flagged. This is because whether or not such a price is excessive will depend on the extent to which any benchmark based on accepted bid prices provides a reliable guide to the benefit the generator would have expected absent any transmission constraint – and at least for the price of the 'marginal' or most expensive bid acceptance, this will commonly not be the case.
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Appendix 1 – Licence condition

Condition 20A. Transmission Constraint Licence Condition

1. The licensee must not obtain an excessive benefit from electricity generation in relation to a Transmission Constraint Period.
2. For the purposes of paragraph 1, the licensee shall be considered to have obtained an excessive benefit from electricity generation in relation to a Transmission Constraint Period if:
 - a) the licensee and the system operator enter into, or have entered into, Relevant Arrangements which related to a Transmission Constraint Period; and
 - b) under the Relevant Arrangements and in connection with a reduction in electricity generation in the Transmission Constraint Period, either:
 - (i) the licensee pays, or seeks to pay, the system operator an excessively low amount; or
 - (ii) the licensee is paid, or seeks to be paid, an excessive amount by the system operator.
3. For the purposes of paragraph 2 the reference to a reduction in generation by the licensee in a Transmission Constraint Period means:
 - a) a reduction in comparison to the licensee's Notified Electricity Generation for that Transmission Constraint Period; and
 - b) a reduction in generation of electricity by particular generating plant, whether or not there is an overall reduction in electricity generation in that Transmission Constraint Period.
4. This licence condition shall be interpreted and enforced in accordance with guidance published by the Authority.
5. Before this condition comes into force the Authority shall publish the guidance referred to in paragraph 4.
6. Before the Authority publishes the guidance referred to in paragraph 4 the Authority shall consult:
 - a) the holder of any licence under section 6(1)(a) of the Act; and
 - b) such other persons as the Authority thinks it appropriate to consult.
7. The Authority may from time to time revise the guidance referred to in paragraph 4 and before issuing any such revised guidance the Authority shall consult such person as specified in paragraph 6 setting out the text of, and the reasons for, the proposed revisions.
8. The licensee shall provide to the Authority, in such manner and at such times as the Authority may reasonably require, such information as the Authority may

require or deem necessary or appropriate to enable the Authority to monitor the licensee's compliance with this condition.

9. In this condition:

"Balancing Mechanism"	means the mechanism for the making and acceptance of offers and bids to increase or decrease the quantities of electricity to be delivered to, or taken off, the total system at any time or during any period so as to assist the system operator in coordinating and directing the flow of electricity onto and over the national electricity system and balancing the national electricity system pursuant to the arrangements contained in the BSC;
"Notified Electricity Generation"	means the intended level of generation notified by the licensee to the system operator for a period pursuant to the notification arrangements established by BETTA and the BSC;
"Relevant Arrangements"	means arrangements entered into by the licensee and the system operator within the Balancing Mechanism, and the entering of such arrangements shall include the making of a bid by the licensee whether or not that bid is accepted by the system operator;
"Transmission Constraint"	<p>means any limit on the ability of the National Electricity Transmission System, or any part of it, to transmit the power supplied onto the National Electricity Transmission System to the location where the demand for that power is situated, such limit arising as a result of factors such as:</p> <ul style="list-style-type: none"> (a) the need not to exceed the thermal rating of any asset forming part of the National Electricity Transmission System; (b) the need to maintain voltage on the National Electricity Transmission System; and (c) the need to maintain the transient and dynamic stability of electricity plant, equipment and systems directly or indirectly connected to the National Electricity Transmission System; <p>and such limit being used by the system operator to operate the National Electricity Transmission System in accordance with the National Electricity Transmission System Security and Quality of Supply Standard referred to in standard condition C17 (Transmission systems security standard and quality of service) of the standard conditions for electricity transmission licences or any other provision of the transmission licence, the Act or any other requirement of law;</p>
"Transmission Constraint Period"	means any period of time, regardless of the duration, when a Transmission Constraint occurs.