

ENERGY MARKET INVESTIGATION

Explanatory Note

The Energy Market Investigation (Electricity Transmission Losses) Order 2016

This note is not a part of the Order

Introduction

1. The Competition and Markets Authority (CMA) published its findings in a report under section 136 of the Enterprise Act 2002 (the Act) entitled *Energy market investigation: Final Report* on 24 June 2016 (the Report).
2. The Report set out the CMA's findings that there is a feature of the wholesale electricity market in Great Britain which gives rise to an adverse effect on competition.
3. The CMA decided on a remedy to be implemented by it in order to address this feature.
4. The Energy Market Investigation (Electricity Transmission Losses) Order 2016 dated 14 December 2016 (the Order) gives effect to these remedies. Different articles in the Order will come into force on different days. Unless otherwise stated, it is not intended that there should be any further transitional period in relation to any of the provisions contained within the Order.
5. Nothing in this Explanatory Note is legally binding.
6. Terms defined in the Order have the same meaning in the Explanatory Note. In the event of a conflict between this Explanatory Note and any provision of the Order or the Transmission Licence, the Order and the Transmission Licence shall prevail.

Possible consequences of not complying with the Order

7. Section 167 of the Act places a duty on any person to whom the Order applies to comply with it. Any person who suffers loss or damage due to a breach of this duty may bring an action.

8. The CMA has the power under the Order to give directions, including directions to a person in their capacity as an office holder, for the purpose of carrying out, or ensuring compliance with, the Order.
9. Section 167 of the Act also provides that the CMA can seek to enforce the Order by civil proceedings for an injunction or for any other appropriate relief or remedy.
10. The obligations set out in Articles 3 to 5 of the Order will be introduced, pursuant to Article 6 and Schedule 3, into the Transmission Licence. To the extent that the obligations set out in the Order have been introduced into the Transmission Licence, GEMA has a duty to monitor compliance and, where appropriate, to use its powers under sections 25 to 28 of the Electricity Act 1989 (EA89), including where appropriate by imposing on the licensee a penalty of such amount as is reasonable in all the circumstances of the case. The CMA intends to collaborate with Ofgem so as to put in place processes to monitor and ensure compliance with the obligations set out in the Order and associated conditions of the Transmission Licence, where appropriate, through enforcement measures.
11. In addition, new provisions will be introduced, by Article 7 and Schedule 4 of the Order, into the Supply Licence and Generation Licence to take account of the obligations set out in the Order, and facilitate compliance by the Transmission Company.

Review of the Order

12. The CMA has a duty under section 162 of the Act to monitor the operation of the Order. This includes a duty to consider, from time to time, whether the Order should be varied or revoked in the light of a change of circumstances. Ofgem, the Transmission Company, National Grid Electric Transmission plc, in its capacity as System Operator for Great Britain, or any other directly affected party may apply for a variation or cancellation of all or part of the Order on the basis of a change of circumstances, or suggest that the CMA reviews the need for the Order or part of it.
13. GEMA has a general duty, under section 47 EA89, to monitor activities connected with regulated energy activities (including transmission), as well as provide advice, information and assistance to the CMA (on GEMA's own initiative or where expressly requested).
14. In view of this general duty, the CMA expects Ofgem to consider, from time to time, the need for the Order (and associated obligations set out in the Transmission Licence), and to inform the CMA of any change of circumstance

which in its view might require the termination or variation of the Order (and any consequential change to the Transmission Licence).

Structure of the Order

15. The Order is divided into five Parts and has three Schedules:
- (a) Part 1 contains general provisions, which include specifying when the Order comes into force, the scope of the Order and definitions that are used throughout the Order (and which are also used in this Explanatory Note).
 - (b) Parts 2 and 3 contain obligations on the Transmission Company to ensure that imbalance charges are calculated, as of 1 April 2018, such as to be locationally sensitive to Transmission Losses.
 - (c) Part 4 contains certain amendments to relevant licence conditions for the purpose of giving effect to, or taking account of, the provisions set out in the Order.
 - (d) Part 5 contains provisions for monitoring compliance, including provisions allowing the CMA to give directions as to compliance with the Order and to require the supply of information for the purposes of monitoring compliance with the Order and reviewing its operation.
 - (e) Schedule 1 contains technical details for the calculation of the Transmission Loss Factors as from 1 April 2018.
 - (f) Schedule 2 contains additional text for the purpose of a modification proposal which the Transmission Company must use best endeavours to ensure is approved and implemented by 1 April 2018 pursuant to Article 5.
 - (g) Schedule 3 contains the modifications to Condition C3 of the Transmission Licence.
 - (h) Schedule 4 contains the modifications to Condition 11 of the Supply Licence and Condition 9 of the Generation Licence.

Part 1 – General and interpretation

16. Article 1 provides that the Order applies to National Grid Electricity Transmission plc, as system operator of the GB transmission network. It provides that the Order shall come into force on 15 December 2016, except Articles 3, 4 and 7 which shall come into force on 1 April 2018.

17. Article 2 includes definitions of various terms used in the Order. To the extent possible, the terms used in the Order have been defined to have the same meaning as in the Transmission Licence and in the BSC. For the avoidance of doubt, when a word or expression has been expressly defined in the Order, the definition set out in the Order shall prevail over other definitions.

Part 2 – Transmission Losses Principle

18. The energy costs arising from Transmission Losses are recovered through BSC parties¹ Trading Charges² following adjustments to their metered volumes.
19. There is, however, no locational element to the metered volume adjustments, which means that parties who impose relatively greater costs associated with transmission losses on the system do not bear higher charges in proportion to such costs. As noted in paragraph 5.42 of the Report, this creates a system of cross-subsidisation that distorts competition between generators.
20. Article 3 contains the principle (defined in the Order as the Transmission Losses Principle) that the Transmission Company shall, from 1 April 2018, ensure at all times that the costs of Transmission Losses are recovered from users of the Transmission System in a manner which is sensitive to each user's contribution to Transmission Losses as a result of their location on the Transmission System.
21. The aim is to ensure that generation and demand receive appropriate price signals in relation to Transmission Losses, by imposing greater costs on parties which contribute to a higher level of Transmission Losses due to their network location. This should reduce, both in the short and long term, the level of Transmission Losses, therefore increasing the overall efficiency of the Transmission System (see paragraphs 6.112 to 6.114 of the Report).
22. Article 3 is not specific as to the rules and processes for the determination of such price signals. It is ultimately the responsibility of the Transmission Company to ensure compliance with this principle, which can be achieved in different manners and following different processes. The CMA accepts that it may not be possible to build a pricing model that would perfectly reflect the amount of Transmission Losses caused by each individual generator and supplier, and that a certain level of approximation may be necessary.

¹ Any person bound by the BSC (eg generators and suppliers).

² As defined in the BSC. These include the payments made or received by a BSC Party in relation to bid-offer acceptances, non-delivery, imbalance and residual cashflow reallocation, calculated in each settlement period.

23. For the avoidance of doubt, the CMA notes that price signals should not be based exclusively on the geographical location of generation and demand, but also on the technical characteristics of specific networks (eg High Voltage Direct Current (HVDC) circuits).

Part 3 – Implementation of the Transmission Losses Principle

24. Article 4 sets out an obligation on the Transmission Company to implement the CMA's remedy by ensuring that, as of 1 April 2018, the Trading Charges – and specifically the Transmission Loss Factors underpinning them – are calculated pursuant to the technical details set out in Schedule 1. These technical details are based on modification proposal [P229](#) 'Introduction of a seasonal Zonal Transmission Losses scheme', which was raised on 28 November 2008.
25. In addition, Article 5 requires the Transmission Company to use its best endeavours to ensure that a modification proposal reflecting the technical details set out in Schedule 1, and including an additional provision as set out in Schedule 2, is approved and implemented by 1 April 2018. The CMA notes, in this respect, that modification proposal [P350](#) 'Introduction of a seasonal Zonal Transmission Losses scheme' was raised by the Transmission Company on 4 July 2016. The explicit purpose of this modification proposal was to implement the CMA's package of remedies relating to the Locational Pricing AEC.
26. The CMA was invited by the BSC Panel to participate in Workgroup meetings and attended such meetings until the publication of the Order. The CMA's view is that modification proposal P350, as set out in the proposed legal text published within the context of the P350 Assessment Consultation Process (subject to minor changes discussed at the P350 Workgroup meeting of 5 December 2016),³ is entirely in line with Schedules 1 and 2.
27. In order to comply with the obligation set out in Article 5, the Transmission Company's 'best endeavours' will include continuing to develop modification proposal P350 and taking all practicable actions which are available to it to ensure that modification proposal P350 is submitted by the BSC Panel to GEMA in due course,⁴ ie in line with the progression timetable agreed upon

³ Modification proposal P350, 'Introduction of a seasonal Zonal Transmission Losses scheme', [Assessment Consultation Document](#).

⁴ Under the ordinary (and significant code review) process (which applies to any material modification proposal), modification proposals developed by the industry (including alternative proposals to the one that was originally raised) which do not meet the self-governance criteria must be sent to GEMA (with a recommendation from the BSC Panel as to whether the proposal should be approved or rejected) for final decision.

by the BSC Panel on 14 July 2016.⁵ The CMA agrees with the view reached by the BSC Panel that, for the purpose of implementing modification proposal P350 on 1 April 2018, a final modification report should be sent by the BSC Panel to GEMA by mid-February 2017 at the latest.

28. The CMA notes that, within the context of the modification process for modification proposal P350, the industry has identified areas requiring further consideration in view of recent technical developments and regulatory changes. The CMA discusses these areas, and their possible consequences for the calculation of Transmission Loss Factors pursuant to the Order, below in the context of discussing Schedule 1.
29. Upon implementation of a modification proposal in line with Schedules 1 and 2, Article 4 will cease to have effect (and Article 5 will also be satisfied). It follows that once modification proposal P350 (assuming it is implemented in line with Schedules 1 and 2) is in place, responsibility for setting out the rules governing the calculation of Transmission Loss Factors would revert to the industry (subject to GEMA's role within the context of industry codes governance⁶). The BSC parties and/or Ofgem, will therefore be able to raise further modifications to the BSC, including any provisions introduced in accordance with modification proposal P350, without any further interaction with the CMA. Within this context, the Transmission Company, and indirectly the other BSC parties (see paragraph 34 below), will however be constrained by the overarching Transmission Losses Principle and in paragraph 1E of the Transmission Licence, which are enduring requirements.
30. The CMA therefore expects Ofgem and/or the industry to raise from time to time further modification proposals with a view to furthering the Transmission Losses Principle. An area which the CMA considers should be further explored after implementation of this remedy is set out in paragraph 20.22(c) of the Report, where the CMA recommended that Ofgem and the industry 'assess alternative solutions to the remedy as implemented based on full marginal pricing and, if and when appropriate, consider whether to develop and implement a further code modification based on the most effective solution'.

⁵ As proposed in modification proposal P350, 'Introduction of a seasonal Zonal Transmission Losses scheme', [Initial Written Assessment](#).

⁶ Under the BSC modification process (and for the foreseeable future), any further modification proposal that would impact locational pricing for transmission losses would be subject to approval by GEMA. GEMA's decision to approve or reject such a modification proposal would need to consider, among other things, compliance with the Transmission Losses Principle.

Part 4 – Certain amendments to licence conditions

31. Pursuant to section 15 EA89, where the CMA makes an order, the order may also provide for the modification of the conditions of any of the standard licence conditions mentioned in section 6(1) EA89, to such extent as may appear to the CMA to be requisite or expedient for the purpose of giving effect to, or taking account of, any provision made by the order.
32. Article 6.1 provides for the modification of Condition C3 of the Transmission Licence, pursuant to the terms set out in Schedule 3. These terms substantially reflect the obligations imposed on the Transmission Company set out in Articles 3 to 5 of the Order.
33. As a result of the inclusion of these obligations in the Transmission Licence, the CMA expects GEMA to monitor and ensure compliance with these obligations, where appropriate by using its powers set out in sections 25 to 28 EA89. Within this context, the CMA and GEMA will work together so as to put in place effective mechanisms for monitoring the implementation of, and compliance with, the remedy.
34. The CMA also notes that, pursuant to Section B, paragraph 1.2, of the BSC, the BSC Panel must conduct its business in such a manner as to ensure the efficient discharge by the Transmission Company of the obligations imposed under the Transmission Licence. The CMA therefore expects BSC Panel members to support the Transmission Company for the purpose of ensuring that the obligations set out in Articles 4 and 5 (as reflected in the Transmission Licence) are implemented by 1 April 2018 and those set out in Article 3 as from 1 April 2018 on an ongoing basis.
35. In addition, Article 7.1 provides for the modification, as from 1 April 2018, of Condition 11 of the Supply Licence and Condition 9 of the Generation Licence. The purpose of these amendments is to bring energy suppliers' and generators' licences into line with the requirements on the Transmission Company to ensure that Transmission Loss Factors will be:
 - (a) at all times compliant with the Transmission Losses Principle; and
 - (b) until the implementation of a modification proposal that meets the requirement set out in Article 5.3 of the Order, determined pursuant to Schedule 1 to the Order .

Part 5 – Monitoring compliance

36. As noted above in paragraphs 12 to 14, the CMA has a general duty under section 162 of the Act to keep under review the carrying out of any order. The CMA also noted GEMA's monitoring role in paragraph 33 above.
37. In order to assist the CMA in carrying out its monitoring duty, Article 8 provides that the CMA may give directions as to compliance with the Order.
38. Article 9 provides for any person to whom this Order applies to provide information required by the CMA to allow it to monitor and review compliance with and operation of the Order. GEMA has powers, under each licence, to obtain from licensees information that it considers may be necessary to enable it to perform any functions given or transferred to it by or under any legislation. The CMA notes in addition that, in the light of GEMA's role in the context of the code governance process, it will have access to relevant information for the purpose of monitoring the Order.
39. For the purpose of facilitating the exercise of its duty under section 162 of the Act, and the exercise by GEMA of an equivalent general duty in relation to Condition C3 of the Transmission Licence and Conditions 11 and 9 of the Supply Licence and Generation Licence (respectively), and subject to Part 9 of the Act, the CMA will generally disclose to GEMA information obtained by it under Article 8 (subject to the restriction on further disclosure set out in section 241(2) of the Act). Subject similarly to Part 9 of the Act, relevant sector-specific legislative provisions and any other provisions relating to the disclosure, handling and use of information, the CMA expects GEMA to provide any information it obtains in the exercise of its functions to bring any instances of non-compliance to the CMA's attention.
40. The CMA has not included in the Order an obligation for the Transmission Company to provide the CMA with a compliance statement. The CMA expects, however, that the Transmission Company will inform the CMA, when and to the extent appropriate, of the steps taken to comply with Article 5 of the Order, and that GEMA (as well as BSC Parties) will monitor on an ongoing basis compliance with the Transmission Losses Principle.

Schedule 1 – Calculation of Transmission Loss Factors

41. This Schedule contains the technical details for the calculation of the Transmission Loss Factors for each BM Unit.
42. This solution is identical in all technical details to the solution developed by the industry within the context of modification proposal P229, subject to the comments set out below.

43. This Schedule does not seek to determine which entity will undertake the activities that are necessary for calculating TLFs and Trading Charges. Within the context of Article 4.1, the Transmission Company has an obligation to ensure that Trading Charges for each Trading Party and the Transmission Company will be determined using a Transmission Loss Factor calculated pursuant to this Schedule 1. Nothing in the Order or Transmission Licence should be read as preventing the Transmission Company from satisfying this obligation by delegating certain activities to third parties, such as agents or Elexon. If the Transmission Company does so, it will remain responsible for ensuring that the final output is compliant with the Order. The CMA expects that the BSC Panel and Elexon will support to the Transmission Company if and where appropriate.
44. Within the context of Article 5, this Schedule leaves to the BSC Panel the task of developing a legal text for P350 that will determine more precisely how these activities are to be allocated (subject to the step-in power set out in Schedule 2). The CMA expects that a solution similar to the one developed in P229 will be adopted (with the various activities set out in Schedule 1 being allocated among the BSC Panel, Elexon, the Transmission Loss Factor Agent and other agents appointed by Elexon).

Recent changes (post-P229) to be considered for the purpose of implementing the remedy

45. The CMA has noted that since modification proposal P229 was assessed and developed in 2009:
- (a) EU legislation relevant to the treatment of transmission losses for interconnectors has been transposed into the BSC;
 - (b) New HVDC⁷ transmission circuits are being built and are expected to become live late in 2017 (such HVDC transmission circuits were not taken into account under P229);
 - (c) Contracts for Difference (CfDs) – which include provisions for adjusting the strike price based on values determined under the BSC – have been allocated to certain low carbon generators.
46. These three points are discussed in turn below, followed by an overview of the content of Schedule 1.

⁷ High voltage direct current.

Treatment of interconnectors

47. As a result of modification proposal [P278](#) 'Treatment of Transmission Losses for Interconnector Users', which was raised on 29 November 2012, Interconnector Users are currently exempted from the allocation of transmission losses. This exemption is the result of the transposition in the BSC of a binding provision existing under EU legislation.⁸ As a result, Interconnector BM Units have a fixed Transmission Losses Multiplier of 1.⁹ The Order does not supersede obligations arising from EU legislation as transposed in the BSC through P278, and therefore does not remove the exemption for Interconnector Users.
48. Modification proposal P278 therefore requires that some changes in the calculation of zonal TLMs be made so that BM Units in a given TLF Zone with Interconnector Users continue to have TLMs applied to them that reflect that TLF Zone's expected Transmission Losses while applying the cost of Transmission Losses due to the Interconnector Users nodes to the entire GB system. Such changes should be made whilst adhering to the principles set out in Schedules 1 and 2 and, more generally, in a manner that would enable the Transmission Company to comply with Article 3 of the Order.

Alternating and direct current transmission circuits

49. Modification proposal P229 described a prescribed method for determining TLMs on an Alternating Current (AC) network. At the time of its initial proposal, the Direct Current (DC) network did not exist, nor was it expected in the foreseeable future. Going forward, a mixed AC and DC network is expected to be in operation as from 2017. While, in order to comply with the Report, the assumptions for the AC parts of the network are to be in all technical aspects identical to modification proposal P229, the CMA believes such assumptions do not need to apply to DC circuits.
50. It follows that in the CMA's view the LFM Specification needs to apply the following assumptions and approximations only in respect of the power flow between adjacent Nodes on an alternating current network:
 - (a) There is no reactive power component.

⁸ Regulation (EC) No 714/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the network for cross-border exchanges in electricity and repealing Regulation (EC) No 1228/2003, *OJ L 211*, 14 August 2009.

⁹ The Transmission Loss Multiplier is the factor applied to a BM Unit in a given Settlement Period in order to adjust such BM Unit for Transmission Losses.

- (b) The ratio of the change of power flow over a circuit to the injection of power at a given Node is not dependent on the overall electrical load on the network.
 - (c) The sine of the voltage phase angle is equal to the phase angle (as measured in radians).
 - (d) The power flow in a circuit is equal to the difference in the voltage phase angles across the circuit multiplied by the circuit susceptance.
51. As regards DC networks, the CMA has not reached any view on what assumptions should be made in the LFM Specification, and whether these should be included in the BSC (through P350 or a parallel or subsequent modification proposal). The CMA believes that additional provisions may be included in the legal text of P350 whilst adhering to the principles set out in Schedules 1 and 2 and, more generally, in a manner that enables the Transmission Company to comply with Article 3 of the Order. It is important however that the approach taken does not jeopardise compliance with the Order by 1 April 2018.

Interaction between the Order and CfDs

52. It was brought to the CMA's attention that there may be a potential interaction between the Order (and P350) and the CfD arrangements. Some CfD contracts contain a provision for adjusting the strike price each year, to protect generators from changes in the TLM(D) Charge. As a result, by adjusting the Transmission Loss Multiplier values through introducing non-zero Transmission Loss Factor values, the Order (and P350) could create unintended strike price changes for CfD generators. At the time of the publication of the Order, the Low Carbon Contracts Company (LCCC) had not been able to confirm the materiality of this issue, and whether it may be possible to avoid such unintended consequences through governance processes specific to the CfD arrangements (eg by amending specific contracts, or by clarifying the definition of TLM(D) within the context of the CfD arrangements).
53. In order to avoid the unintended consequences outlined above, a solution has been developed within the context of the P350 modification process, in consultation with the CMA. Reflecting this solution, and following consultation on a Modified Draft Order, the calculation of the Adjusted Seasonal Zonal Transmission Loss Factor values (ATLF_{ZS}) now includes a new value, the Transmission Loss Factor Adjustment (TLFAs):

$$ATLF_{ZS} = (TLF_{ZS} * 0.5) + TLFAs$$

54. The intent of this solution is to remove any unintended effect of the load flow model's slack node on CfD generators, by ensuring that (as far as possible) the 14 different zonal Transmission Loss Factor values have a zero net aggregate effect on Delivering Transmission Losses Adjustment values. It does not change the differentials between the Transmission Loss Factor values for each Zone, and hence does not impact the locational signals provided by P350. It adjusts all the absolute Transmission Loss Factor values up or down as required, so as to ensure the Delivering Transmission Losses Adjustment values seek to recover zero losses. This does not change the resulting Transmission Loss Multipliers.
55. However, the CMA agrees with the views expressed at the Workgroup meeting of 5 December 2016 that a solution under the governance arrangements underpinning CfDs would be preferable (both in terms of preserving the policy intent of CfD arrangements and the objectives of the Order).
56. If the LCCC were to confirm that the risk identified above has been addressed under the CfD arrangements governance processes, the CMA has the power to mandate through a direction, pursuant paragraph 17(e) of Schedule 1, that the Transmission Loss Factor Adjustment shall be equal to 0. In practice, the effect of such a direction would be to cancel the impact of this adjustment factor, therefore returning to the technical solution set out in P229. As noted in paragraph 17(e), the CMA would issue such a direction not later than 23 November 2017. This direction will remain in effect until it is withdrawn by the CMA (or – if Article 5 has been satisfied – until the TLFA_s is removed, amended or replaced through a modification proposal approved by GEMA).

Overview

57. 14 Transmission Loss Factor zones (each a 'TLF Zone') shall be created based on the existing 14 Grid Supply Point (GSP) Groups. A 'Network Mapping Statement' will be established to document the allocation of BM Units to zones. One Transmission Loss Factor value will be calculated per zone per BSC Season. These values will be published three months prior to the start of each BSC Year, and will be based on historical data from a preceding 12-month period (the 'Reference Year'). The Transmission Loss Factor for a given zone will be applied to all BM Units allocated to that zone for all Settlement Periods in the relevant BSC Season. The calculation will be documented in a Load Flow Model Specification document. Interconnector BM Units will continue to receive a fixed Transmission Loss Multiplier of 1 regardless of their Transmission Loss Factor, for the reasons explained in paragraph 47 above.

58. Transmission Loss Factor values will only be used to allocate variable losses. A scaling factor of 0.5 will be applied to the marginal Transmission Loss Factor values, which will have the effect of ensuring that the volume of losses allocated through the Transmission Loss Factor mechanism is approximately equal to the total volume of variable losses.

Load Flow Model

59. A mathematical model of the Transmission System (the 'Load Flow Model') will be built, containing 'Nodes' to represent points where transmission circuits meet or energy flows on or off the Transmission System. Each Node will be identified by the Transmission Company, and allocated to a specific TLF Zone on the transmission network using a 'Network Mapping Statement'. The TLF Zones will be based on the geographic areas covered by GSP Groups. Since there are currently 14 GSP Groups, there would therefore be 14 TLF Zones.

TLF calculation

60. TLFs will be calculated on an ex-ante basis (ie calculated before the relevant year) for each BSC Year (1 April – 31 March), using Metered Volumes and Network Data for Sample Settlement Periods from the Reference Year. The required Metered Volumes and Network Data will be collected by the Transmission Company or an agent appointed for this purpose.
61. Prior to the start of each BSC Year, the Load Flow Model will be run so as to calculate how an incremental increase in power injection at each Node would affect the total variable losses on the Transmission System. The output of the Load Flow Model will be a TLF value for each Node in each of the Sample Settlement Periods.
62. Positive TLF values will be produced for Nodes where an incremental increase in generation (or reduction in demand) were to have the effect of decreasing variable losses.
63. Negative TLF values will be produced for Nodes where an incremental increase in generation (or reduction in demand) were to have the effect of increasing variable losses.
64. For example, if an extra 1 kWh injection at a Node increased variable losses by 0.02 kWh, the TLF for the Node in that Settlement Period would be -0.02. The Nodal TLFs will be averaged across all Nodes in each TLF Zone by volume-weighted averaging, to give a zonal TLF value for each TLF Zone for each Sample Settlement Period. These Zonal TLF values will be converted to Seasonal Zonal TLFs by time-weighted averaging, calculating four Seasonal

Zonal TLFs for each TLF Zone – one for each BSC Season, as defined in Section K of the BSC:

- (a) BSC Spring: 1 March to 31 May inclusive;
- (b) BSC Summer: 1 June to 31 August inclusive;
- (c) BSC Autumn: 1 September to 30 November inclusive; and
- (d) BSC Winter: 1 December to 28 February inclusive (or 29 February in a leap year).

Adjusted Seasonal Zonal TLFs

65. The Seasonal Zonal TLFs will be adjusted by a scaling factor of 0.5 such that the net volume of energy allocated via the TLFs is comparable to the volume of variable losses calculated by the Load Flow Model ('Adjusted Seasonal Zonal TLFs'). These Adjusted Seasonal Zonal TLFs would be published no less than three months prior to the start of the BSC Year in which they will be used in Settlement.

Treatment of BM Units

66. Each BM Unit will be allocated to a TLF Zone using the Network Mapping Statement. A TLF value is to be applied to each BM Unit in the TLM Settlement calculation for the applicable BSC Season (ie the Adjusted Seasonal Zonal TLF value for the relevant TLF Zone). All BM Units in a Zone will receive the same TLF value for every Settlement Period in a BSC Season. A positive TLF will increase the TLM value used to scale a BM Unit's Metered Volume. A negative TLF will decrease the TLM value.

BM Unit-Specific TLFs

67. The Adjusted Seasonal Zonal TLF that applies to, and is registered against, a particular BM Unit is referred to in this Schedule as a 'BM Unit-Specific TLF'. All BM Units in the same Zone and for a particular Season will be assigned the same BM Unit-Specific TLF. The BM Unit-Specific TLFs will be registered in BSC Systems by the Central Registration Agent. The BM Unit-Specific TLFs will be used by the Balancing Mechanism Reporting Agent in the Balancing Mechanism Reporting Service and the Settlement Administration Agent in Settlement calculations.

Offshore nodes

68. As noted above, TLF Zones will be based on the geographical areas of GSP Groups. For offshore Nodes which are part of the Transmission System (AC offshore transmission networks, including those connected to distribution systems), the onshore GSP Group to which the network is connected will be the basis for allocating Nodes to TLF Zones. The criteria for determination of the allocation of offshore Nodes is not defined. The aim is that offshore Nodes are allocated to the onshore GSP Group to which they are connected.

Offshore networks connected via a Distribution System

69. Losses over Distribution Systems are not Transmission Losses and therefore will be excluded from the TLF calculation. This will be achieved by modelling the onshore connection point of an offshore network (which is connected to a Distribution System) as connected to the GSP via which that Distribution System is connected to the Transmission System. If the Distribution System is connected to the Transmission System via multiple GSPs the onshore connection point could be modelled as connected to multiple GSPs as appropriate, with a proportion of its flow allocated to each GSP. Assignment of onshore connection points to GSPs, and the allocation of proportions of their flows to these GSPs, would be done using Distribution System data provided by the pertinent Licensed Distribution System Operator (LDSO). Any LDSO to whose Distribution System an offshore network connects will be required to provide data that identifies which GSP(s) the energy from the offshore system's onshore connection Node(s) should be considered to flow to. This information will include an estimate of the percentage of the flow that goes to each GSP, ie a single assumed value for each Reference Year.

Schedule 2 – Provision to be implemented by 1 April 2018 for the purposes of Article 5

70. Article 5 will be satisfied upon implementation of a modification proposal – such as modification proposal P350 – which is identical in all technical details to Schedule 1, and includes a provision granting to the Transmission Company powers of 'step-in' if the BSCCo or any agent (eg the Transmission Loss Factor Agent) fails to fulfil their role under the BSC. In this case, the Transmission Company will assume responsibility for the calculation of Transmission Loss Factors (and may appoint one or more third parties for that purpose), with a view to ensuring that Trading Charges are calculated pursuant to the technical details, and within the timeframe, set out in the BSC. For the avoidance of doubt, Article 5 does not require the Transmission Company to set up contingency plans to deal with unexpected events.

71. Decisions relating to the legal text of any BSC modification proposal are the responsibility of the BSC Panel and GEMA, and the CMA has decided not to suggest any specific legal drafting for the purpose of Article 5.
72. In practice, the CMA expects the legal text of modification proposal P350 to be substantially identical (in both the technical and non-technical details) to the legal text developed by the industry within the context of modification proposal P229, subject to the four following changes.
73. Firstly, the CMA expects the Transmission Company to be granted in the BSC powers that reflect the principles listed in Schedule 2, in line with the remedy set out in paragraph 20.22(a)(iii) of the Report. This will allow the Transmission Company to intervene if, for any reason, the BSCCo or any agent were to fail to fulfil any function it has under the BSC in relation to the calculation of the Transmission Loss Factor.
74. Secondly, the CMA expects some amendments to be made in order to reflect the exemption for interconnectors set out in the BSC following transposition of EU legislation, for the reasons set out in paragraphs 47 to 48.
75. Thirdly, for the reasons set out in paragraph 49, the CMA expects that the proposed legal text developed within the context of modification proposal P229 will be amended so as to clarify that the assumptions listed in paragraph 2.2(b) of Annex T-2, only relates to AC transmission circuits (since modification proposal P229 did not provide any technical solution in relation to DC transmission circuits). The CMA's view is that the treatment of DC transmission circuits should be modelled pursuant to the actual characteristics of the DC networks. To the extent appropriate, such characteristics should be identified in the LFM Specification.
76. Fourthly, for the reasons set out in paragraphs 52 to 56, the CMA believes that the calculation of the Adjusted Seasonal Zonal Transmission Loss Factor values should include an adjustment factor in order to avoid unintended consequences on the CfD arrangements.

Schedule 3 – Modification to the Transmission Licence

77. This Schedule shows the modifications to Condition C3 of the Transmission Licence. The purpose of this modification is to give effect to the provisions made by the Order.
78. Among other amendments, the CMA has included a new 'applicable BSC objective' (as defined in the Transmission Licence) in paragraph 3 of Condition C3 of the Transmission Licence: "*compliance with the Transmission Losses Principle*".

79. As a result, pursuant to paragraph 1.2.2 of Section F of the BSC, the Panel must endeavour at all times to operate the Modification Procedures with a view to ensuring that the BSC facilitates achievement of the Applicable BSC Objective(s), including compliance with the Transmission Losses Principle.

Schedule 4 – Modification to the Supply Licence and Generation Licence

80. This Schedule shows the modifications to Condition 11 of the Supply Licence and Condition 9 of the Generation Licence. The purpose of this modification is to take account of the provisions made by the Order, and in particular ensure that Transmission Loss Factors are calculated at all times in compliance with the Transmission Losses Principle (set out in Article 3 of the Order) and in compliance with the provisions of Schedule 1 until a modification proposal that meets the requirements the provisions set out in Article 5.3 has been implemented (see above paragraph 35).