

SSE Code Modifications Appeal 2021

Appendix and glossary

Appendix

Appendix: CUSC Connection Charges and TNUoS Charges levied on Generators

Glossary

Appendix: CUSC Connection Charges and TNUoS Charges levied on Generators

1. This Appendix provide summary information about connection charges and TNUoS charges in so far as they affect Generators.
 - (a) Table 1 below compares and contrasts the three broad types of charges Generators face, namely Connection Charges, Locational Charges and Residual Charges.
 - (b) Table 2 provides further detail on the two broad types of locational charges that Generators face on an ongoing basis, namely Local Charges and Wider Locational Charges.

Appendix Table 1: The three broad types of charges levied on Generators under the CUSC

BROAD TYPES	Connection Charges	Locational Charges	Residual Charges¹
Purpose of charges²	To recover fully the costs incurred by the TO in respect of those of the assets deemed to be connection assets under the CUSC (see below) which were deployed in order to connect a particular Generator to the NETS.	To ensure network users receive signals that reflect the costs of how and when they use the networks. These cost-reflective signals can encourage users to be flexible in their use of the network, which increases the overall network efficiency whilst reducing their own electricity bills. This benefits all users. ³ Charges vary according to the characteristics of the Generator, including its location. ⁴	To recover the rest of the relevant TOs' allowed revenues (under their price control) once forward-looking [locational] charges have been levied. These charges are required because forward-looking charges do not usually fully recover the costs of the whole network. ⁵ Since 2014 these have been set by a formula which aims to ensure that average TNUoS charges paid by Generators do not exceed €2.50/MWh in any charging year. ⁶
Forecast level of charges for 2021/22	Total onshore Generator Connection Charges: £52m	Total Generator Locational Charges: £816m	Generator Residual Charges: not applicable; (Demand Residual Charges (£2,716m))
The assets the costs for which (ie installation, maintenance & financing) are intended to be recovered within above charges	Assets up to 2km in length which are used by a particular Generator (and which could not generally be shared with another user), and which were installed to link that Generator to the first substation to which they connect (this may be a local substation or a MITS Node). ⁷	Assets located in the NETS, which comprises the MITS and the local area network taken together. The TO may decide to build capacity in excess of that required by specific generators to anticipate future needs and other strategic requirements. ⁸	
Basis for the recovery of the cost of assets recovered within charges invoiced to Generator	[Historical cost] depreciation, financing and maintenance costs for the [particular] asset[s] [deployed]. ⁹	Forward looking cost-reflective charges related to the GEMA-modelled incremental impact on the need for assets to have been deployed within the NETS arising from the Generator's connection to the NETS. See Table 2 for further description.	Not applicable – Residual Charges recover the rest of the relevant TOs' allowed revenues and from 2021/22 apply only to Demand.
Basis on which a Generator pays these charges	Generator securitises the total charges, [which may be levied over time], thereby guaranteeing that the generator pays for the connection asset[s] [deployed] in full over time. ¹⁰	Generator pays on a pay-as-you-go basis according to the Transmission Entry Capacity (TEC) it has declared for any one particular period.	
Relevant part of CUSC - Section 14 (Charging Methodologies)	Part 1: The Statement of the Connection Charging Methodology Pages 4 to 30.	Part 2 -The Statement of the Use of System Charging Methodology / Section 1 – The Statement of the Transmission Use of System Charging Pages 30 to 123	

Source: CMA analysis based on NoA, CUSC (A5), *Self* and *Graham I* Witness Statements. Numbers are from NGESO Draft TNUoS Tariffs for 2021-22 published in November 2020 (A73), Table 18. See also Table 4.1.

¹ From 2021/22 Generators face no Residual Charges but Demand continue to face Residual Charges.

² We do not consider here compliance with the ITC Regulation.

³ TCR Decision, A20, paragraph 1.8.

⁴ *Self*, paragraph 29.

⁵ TCR Decision, A20, paragraph 1.8.

⁶ *Self*, paragraph 27.

⁷ *Self*, paragraph 24.

⁸ *Graham I*, Table at paragraph 3.4.

⁹ *Graham I*, Table at paragraph 3.15.

¹⁰ *Graham I*, Table at paragraph 4.3.

Appendix Table 2: The similarities and differences between the two types of Locational Charges levied on Generators

LOCATIONAL	<i>Local Charges</i>	<i>Wider Locational Charges</i>
The assets the costs for which (ie installation, maintenance & financing) are intended primarily ¹¹ to be recovered within above charges	Assets located within the local network, the non-MITS part of the NETS: <ul style="list-style-type: none"> Local substations Local circuits (See Figure 4.1 at paragraph 4.14) <ul style="list-style-type: none"> Cable between power stations and the local substation where cable is greater than 2km in length.¹² 	Assets located in the wider network, which is referred to as the Main Integrated Transmission System (MITS). ‘MITS Node’, a node on the MITS, refers to a substation which either has four or more transmission circuits connected to it (where those circuits could connect to another MITS Node or to individual power stations), or has two or more transmission circuits connected to it and a Grid Supply Point. ^{13 14}
Degree of meshing of nodes within relevant network	Less meshed, in many cases there would only be one route by which electricity could flow between two points ¹⁵	Heavily ‘meshed’ ie there are multiple paths by which electricity could flow between any two points on the MITS ¹⁶
Tariff type(s) within category / Nov 20 forecast level of charges for 2021/22	<ul style="list-style-type: none"> Onshore local substation tariffs (£11m) Onshore local circuit tariffs (£15) Offshore local tariffs (£423m) 	<ul style="list-style-type: none"> Wider locational element of generator tariffs (£366m)
Objective of signals intended to be sent to generators via pricing structure (according to GEMA)	To reflect the cost required to accommodate generators’ connection design and location ¹⁷	To provide a relative signal to the Generator as to the incremental impact of its connection on the total cost of the MITS in that area ¹⁸
Basis for the recovery of the cost of assets recovered within charges invoiced to Generator	Forward looking cost-reflective charges ¹⁹ based on: <i>in the case of Local Circuit Charges</i> zonal marginal km expansion factors ²⁰ , derived with reference to the incremental power flows along ‘local’ infrastructure circuit assets between the generation node and the next MITS substation. These expansion factors vary by location. ²¹ Offshore expansion factors are Offshore Transmission Owner and circuit specific. ²² <i>in the case of Local Substation Charges</i> the unit costs of relevant design and type of local infrastructure substation assets which are required for each generation connection ²³	Forward looking cost-reflective charges ²⁴ based on zonal marginal km expansion factors ²⁵ These factors are based on the long-run forward-looking costs of connecting an incremental (or decremental) Megawatt (MW) of generation (or demand) at a given point on the [MITS] transmission network. Recovery is based on the generic cost for carrying unit power over unit distance. ²⁶ These expansion factors vary by location and reflect the average for that zone. ²⁷ As that incremental impact is to a large extent determined by the location of demand (ie end users) relative to supply (ie the power stations themselves), charges levied on individual Generators for a given TEC vary considerably, depending on the locational zone (or ‘Generation Zone’) in which the Generator is based. ²⁸
Basis on which charges invoiced to Generators	Charge is levied in proportion to TEC held (a £/kW charge x TEC). ²⁹ The Generator can change the TEC by giving a short period of notice to NGESO. ³⁰ Where the capacity of the Local Assets exceeds a Generator’s TEC, that Generator will pay only for the proportion of the Local Assets that corresponds to its TEC. ³¹	Charge is levied in proportion to TEC held (a £/kW charge x TEC). ³² The Generator can change the TEC by giving a short period of notice to NGESO. ³³

Source: CMA analysis based on NoA, CUSC (A5), *Self* and *Graham* / Witness Statements. Numbers are from NGESO Draft TNUoS Tariffs for 2021-22 (A73), Table 18. See also Table 4.1.

¹¹ For Wider Locational Charges see also discussion of Transmission Residual Charges at paragraphs 4.8–4.11.

¹² *Self*, paragraph 35.

¹³ A Grid Supply Point (GSP) is the intersection between the transmission system and the distribution system. This is generally the point at which power is taken from the transmission system for onward transportation to homes and businesses via the separately owned and operated distribution systems. *Self*, paragraph 15.1.

¹⁴ *Self*, paragraph 15.1.

-
- ¹⁵ *Self*, paragraph 15.2.
- ¹⁶ *Self*, paragraph 15.1.
- ¹⁷ *Self*, footnote 10 to paragraph 30.
- ¹⁸ *Self*, paragraph 33.
- ¹⁹ TCR Decision, [A20](#), paragraph 1.8.
- ²⁰ *Graham I*, paragraph 3.15.
- ²¹ [NoA](#), paragraph 51, where the Appellants cite *2010 Great Britain and Northern Ireland National Reports to the European Commission*, [A40](#), paragraph 53.
- ²² CUSC, [A5](#), paragraph 14.15.80.
- ²³ [NoA](#), paragraph 51, where the Appellants cite *2010 Great Britain and Northern Ireland National Reports to the European Commission*, [A40](#), paragraph 53.
- ²⁴ TCR Decision, [A20](#), paragraph 1.8.
- ²⁵ *Graham I*, paragraph 3.15.
- ²⁶ [NoA](#), paragraph 51, where the Appellants cite *2010 Great Britain and Northern Ireland National Reports to the European Commission*, [A40](#), paragraph 53.
- ²⁷ [NoA](#), paragraph 51, where the Appellants cite *2010 Great Britain and Northern Ireland National Reports to the European Commission*, [A40](#), paragraph 53.
- ²⁸ *Self*, paragraph 33.
- ²⁹ *Graham I*, Table at paragraph 4.3.
- ³⁰ *Graham I*, paragraph 4.1 E.
- ³¹ *Self*, paragraph 31.
- ³² *Graham I*, Table at paragraph 4.3.
- ³³ *Graham I*, paragraph 4.1 E.

Glossary

ACER	Agency for the Cooperation of Energy Regulators
ACOs	Applicable CUSC Objectives - objectives against which modifications of the charging methodology as set out in the CUSC are to be assessed
AFLC SCR	The Electricity Network Access and Forward-Looking Charging Significant Code Review, launched by Ofgem in December 2018
Amendment Regulations	The Electricity and Gas (Internal Markets and Network Codes) (Amendment etc.) (EU Exit) Regulations 2020 SI 2020 No 1006
Ancillary Services Exclusion	The provision in the ITC Regulation that ‘transmission charges’ shall exclude ‘charges paid by producers related to ancillary services’
Appellants	SSE Generation Limited and a number of separate companies within the SSE corporate group that are licensed electricity generators and/or asset owners (Keadby Generation Limited, Medway Power Limited, Griffin Windfarm Limited, SSE Renewables (UK) Limited, Keadby Windfarm Limited)
Appellants’ 10 March 2021 Letter	The Appellants’ letter to CMA dated 10 March 2021 providing clarification information following the Main Hearing and responding to the CMA’s 9 March 2021 request for information
ASE	Ancillary Services Exclusion
Balancing Services	Services provided or procured by NGESO in order to keep the electricity system balanced and to ensure all equipment is operated within safe limits at all times
Baseline	The term used in the FMR to refer to the system of charges under the CUSC before CMP317/327 (or an alternative proposal) is applied. In our decision we refer to this as the status quo’
BGT	British Gas Trading Limited
BSC	Balancing and Settlement Code
BSUoS	Balancing Services Use of System
BTMG	Behind the Meter Generation - generators that are connected directly to a customer’s premises
Centrica	Centrica plc
CfD	Contract for Difference - a generator party to a CfD is paid the difference between the ‘strike price’ (a price for electricity reflecting the cost of investing in a particular low carbon technology) and the ‘reference price’ (a measure of the average market price for electricity in the GB market)
CMA	Competition and Markets Authority
CMA 2018 Decision	The CMA’s decision in <i>EDF and SSE v GEMA</i> dated 26 February 2018

CMP	CUSC Modification Proposal
CMP261	CUSC Modification Proposal 261, dated 8 March 2016, 'Ensuring the TNUoS paid by Generators in GB in Charging Year 2015/16 is in compliance with the €2.5/MWh annual average limit set in [the ITC Regulation]'
CMP261 Decision	The decision by GEMA dated 16 November 2017 to reject CMP261
CMP261 FMR	Final Modification Report on CMP261 received from the CUSC Panel on 30 November 2016
CMP317	CUSC Modification Proposal 317, dated 21 May 2019, 'Identification and exclusion of Assets Required for Connection when setting Generator Transmission Network Use of System (TNUoS) charges'
CMP327	CUSC modification proposal 327, dated 28 November 2019, 'Removing the Generator Residual from TNUoS Charges (TCR)'
CMP317/327	The amalgamated CUSC Modification Proposal of CMP317 and CMP327
CMP339	CUSC modification proposal 339, dated 12 March 2020, 'Consequential changes for CMP317/327 (TCR)'
CMP339 Decision	The decision by GEMA dated 17 December 2020 to approve the Original Proposal of CMP339
Connection Exclusion	The provision in the ITC Regulation that 'transmission charges' shall exclude 'charges paid by producers for physical assets required for connection to the system or the upgrade of the connection'
CUSC	Connection and Use of System Code
CUSC Calculation	The provisions of the CUSC which aim to avoid a breach of the Permitted Range
CUSC Connection Charges	Connection charges pursuant to the CUSC (see Appendix for more detail)
CUSC Direction	The Direction issued by GEMA to NGESO on 21 November 2019 alongside the TCR Decision, requiring it to raise one or more CUSC Modification Proposals
CUSC Panel (or CUSC Modifications Panel)	A panel established under CUSC paragraph 8.3 that meets to evaluate and vote on CMPs .
Decision	The decision by GEMA dated 17 December 2020 to approve the Original Proposal of CMP317/327
Decisions	The Decision and GEMA's CMP339 Decision together
Demand	Suppliers who buy electricity from generators and sell it to end-users, and demand businesses which use electricity and which are directly connected to the transmission system.
EA89	Electricity Act 1989
EA04	Energy Act 2004

Electricity Directive	Common rules for the internal market in electricity adopted by the European Parliament and Council in 2009
Electricity Regulation	The Electricity Regulation 2009
Elxon	Elxon Limited - the not-for-profit body responsible for administering the BSC including the financial settlement process set out within it.
Embedded Generators or Distributed Generators	Those Generators that are connected directly to a distribution network, rather than the transmission network, categorised as Small DG or Large DG (<100MW TEC). Embedded Generators range in size and type, but tend to be lower voltage than Transmission-Connected Generators.
EU	The European Union
FMR	The CUSC Panel's Final Modification Report for CMP317/327 dated 13 August 2020
GB	Great Britain
GEMA	The Gas and Electricity Markets Authority
GEMA 10 March 2021 Response	GEMA's 10 March 2021 written response to CMA's 5 March 2021 request for information
Generation	All Generators (see below).
Generators	Generators that pay TNUoS charges; these are generators connected to the transmission system and large generators connected to the distribution system (>100MW Transmission Entry Capacity)
GOS	Generator Only Spur
Interconnector	The physical link which allows the transfer of electricity across borders
Intervenors	NGESO and Centrica/BGT
ITC Regulation	Inter-Transmission Compensation – EU Commission Regulation 838/2010
Large DG	Larger Distributed Generation or Generators – the large Generation or Generators connected (above 100MW) connected to the distribution network. These generators pay TNUoS charges.
List of issues	List of issues agreed by the Appellants and GEMA, 10 February 2021
Local Assets	Assets needed to connect a power station to the MITS
Local Charges	Charges made up of local circuit charges and local substation charges
Locational Charges	Charges that reflect the cost of transporting power across the transmission system, and vary depending on the location of the person/entity being charged
Main Hearing	Hearing held by the CMA with the Parties and Intervenors on 4 and 5 March, 2021

MIT S	Main Integrated Transmission System – the main part of the GB electricity transmission system (which, together with the Local Network , forms the NETS). The local network ends where it meets the first MIT S node.
MIT S node	A substation which either has four or more transmission circuits connected to it (where those circuits could connect to another MIT S Node or to individual power stations), or has two or more transmission circuits connected to it and a Grid Supply Point
NETS	The National Electricity Transmission System – the GB electricity transmission network to which generators connect, made up of the local network and the wider network
NGESO	National Grid Electricity System Operator Limited
NoA	The Appellants’ Notice of Appeal, dated 12 January 2021
Nol	Notice of Intervention
Ofgem	The Office of Gas and Electricity Markets
OFTOs	Offshore Transmission Owners, which own and maintain offshore transmission assets
Original Proposal	The original NGESO proposal for CMP317/327
P396	The P396 Decision is GEMA’s decision P396, Revised treatment of BSC Charges for Lead Parties of Interconnector BM units dated 6 March 2020
Parties	The Appellants and GEMA
Permitted Range	The ITC Regulation’s range for transmission charges
Recast Electricity Directive	Directive (EU) 2019/944 of the European Parliament and of the Council on common rules for the internal market for electricity and amending Directive 2012/27/EU
Recast Electricity Regulation	Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity (recast).
Reply	GEMA’s reply to the grounds in the NoA , dated 2 February 2021
Residual Charges	Charges on both Generation and Demand which have been used historically to recover the difference between the total of all transmission charges and those recovered from Locational Charges, such that total TNUoS charges meet the amounts allowed under the regulated price caps set by GEMA and OFTO tender revenue streams.
Response	The Appellants’ response to the Reply , dated 9 February 2021
Small DG	Small Distributed Generation or Generators – the small generation or generators (less than 100 MW) connected to the electricity distribution network
SSE	SSE Generation Limited

TCR	GEMA's Targeted Charging Review launched in 2017- a significant code review looking at various aspects of electricity network charging
TCR Decision	The decision GEMA made in the TCR and published on 21 November 2019
Teach-in Slides	Slides SSE v GEMA Teach-in, case 50980, 11 February 2021
TGR	Transmission Generator (or Generation) Residual
TNUoS	Transmission Network Use of System
TOs	Owners of the transmission networks in GB
TEC	Transmission Entry Capacity
Transmission-Connected Generators	Generators connected directly to the transmission system
TSO	Transmission System Operator
WACM	a Workgroup Alternative CUSC Modification