



European Network of Transmission System Operators for Electricity

GENERATION AND LOAD DATA PROVISION METHODOLOGY (CONSULTATION VERSION)

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PROJECT TEAM COMMON GRID MODEL PROJECT METHODOLOGIES (WP-1)



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3703 **1 INTRODUCTION**

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3705 **1.1 PURPOSE OF DOCUMENT**

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As is explained in more detail in section 1.3 below, the present document meets a legal 3707 3708 obligation set out in Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a 3709 guideline on capacity allocation and congestion management (henceforth GL CACM). The 3710 Generation and Load Data Provision Methodology (henceforth GLDPM) addresses the "delivery of the generation and load data required to establish the common grid model" [GL 3711 3712 CACM Article 16 (1)]. Its legally mandated purpose is to "specify the information to be provided by generation units and loads to TSOs" [GL CACM Article 16 (3)] and it shall 3713 3714 "specify which generation units and loads are required to provide information to their respective TSOs for the purposes of capacity calculation" [GL CACM Article 16 (2)] as well 3715 as state "the deadlines applicable to generation units and loads for providing the information" 3716 3717 [GL CACM Article 16 (4)]. The GL CACM also formulates a number of specific requirements with respect to the GLDPM which the European transmission system operators 3718 (henceforth TSOs) - to whom the obligation to prepare the GLDPM is addressed [GL CACM 3719 Article 16 (1)] - have incorporated into the present methodology. 3720

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A companion methodology, the Common Grid Model Methodology (henceforth CGMM), describes how **individual grid models** (henceforth IGMs) and **common grid models** (henceforth CGMs) are prepared. IGMs are the building blocks of CGMs and TSOs – in addition to their own data - require various kinds of data from third parties to establish these for each type of **scenario** and business process. The principal categories of non-TSO **primary data owners** are described in section 1.7.

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3731 **1.2 GEOGRAPHICAL COVERAGE AND SCOPE OF APPLICATION**

Following approval by "all regulatory authorities" [GL CACM Article 9 (6) (c) (GLPDM) and (d) (CGMM))], the present GLDPM as well as the accompanying CGMM will be binding in all jurisdictions in which the GL CACM is in force. Subject to the exception for "transmission systems on islands which are not connected with other transmission systems via interconnections" set out in GL CACM Article 1 (2), that area corresponds to the member states of the European Union (henceforth EU).

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However, the geographical coverage of the CGM extends beyond the EU. In other words, the present methodology is expected to also be implemented in a number of jurisdictions outside the EU. For the present methodology to be implemented in a jurisdiction means, in a nutshell, that the TSO (TSOs) in that jurisdiction contributes (contribute) its (their) **individual grid model** to the CGM (which is established by merging IGMs; cf. GL CACM Article 28 (5)). This also entails applying the GLDPM in order to obtain the data required.

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3747 The legal definition of an IGM is given by GL CACM Article 2 (1) as "a data set describing 3748 power system characteristics (generation, load and grid topology) and related rules to 3749 change these characteristics during capacity calculation, prepared by the responsible TSOs, 3750 to be merged with other individual grid model components in order to create the common 3751 grid model." To a first approximation, it is sufficient to think of an IGM as a grid model representing a TSO's control area. The distinction between a control area and a bidding 3752 zone (the bidding zone being the relevant area concept with respect to many GL CACM 3753 3754 provisions) will be discussed below.

Many of the obligations in the GL CACM - including the obligation to develop the GLDPM 3756 and the CGMM - are addressed to "all TSOs" or "each TSO". A TSO is any "certified TSO"; 3757 i.e., any natural or legal person certified as such under Article 3 of Regulation (EC) No 3758 3759 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 3760 3761 (EC) No 1228/2003. The designation "TSO" notwithstanding, a certified TSO does not necessarily have a role in system operation and it is not obliged to be a member of ENTSO-3762 E. The principal categories of TSOs of relevance with respect to the CGM are shown in 3763 3764 Figure 1 below:





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Guideline or Network Code requirements addressed to "all TSOs" by definition can only apply to **certified TSOs**; i.e., TSOs from EU member states. All EU TSOs that have a system operator role are ENTSO-E members; in addition to these ENTSO-E also has some members that do not have a system operator role. Section 6.1 in the annex contains a table listing all TSOs certified as such at the time of drafting. That table also shows those EU member states in which more than one TSO has been certified.

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3776 GL CACM Article 1 (3) stipulates that "[i]n Member States where more than one transmission 3777 system operator exists, this Regulation shall apply to all transmission system operators within that Member State. Where a transmission system operator does not have a function 3778 3779 relevant to one or more obligations under this Regulation, Member States may provide that 3780 the responsibility for complying with those obligations is assigned to one or more different, specific transmission system operators." In other words, in multiple-TSO jurisdictions some of 3781 3782 the TSOs certified in that jurisdiction may be exempted from certain GL CACM obligations by 3783 a decision of the Member State (typically the National Regulatory Authority). The draft Commission Regulation (EU) .../... of XXX establishing a guideline on forward capacity 3784 allocation (henceforth GL FCA) (2015-10-30) Article 1 (3) and the draft Commission 3785 Regulation (EU) .../... of XXX establishing a guideline on electricity transmission system 3786 operation (henceforth GL SO) (2015-11-27) Article 2 (3) contain equivalent provisions. 3787 3788

Returning to Figure 1, as noted above some non-EU TSOs are expected to contribute their IGM to the CGM. The latter TSOs may be ENTSO-E members (e.g., Statnett of Norway) or they may not be ENTSO-E members (e.g., TEAIŞ of Turkey). For the avoidance of doubt we note that the present methodology is not binding for non-EU TSOs. However, if such non-EU TSOs wish to contribute their IGM to the CGM without a legal obligation to do so, they have to respect the technical, IT, and related requirements set out in the accompanying CGMM



3795 and they also have to ensure that the data requirements in the present GLDPM are 3796 respected.

3798 GL SO (2015-11-27) Article 13 stipulates that "Where a synchronous area encompasses 3799 both Union and third country TSOs, within 18 months from the entry into force of this 3800 Regulation all Union TSOs in that synchronous area shall endeavour to conclude with the 3801 third country TSOs not bound by this Regulation an agreement setting the basis for their 3802 cooperation concerning secure system operation." It is anticipated that adoption of the 3803 GLDPM as well as the accompanying CGMM will become part of such a synchronous area 3804 agreement.

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3806 In summary, while (subject to GL CACM Article 1 (2)) the area in which the present 3807 methodology is legally binding corresponds to the European Union, the area covered by the 3808 CGM – or "CGM Area" – also includes a number of jurisdictions that are not EU members (but which will effectively be implementing the present methodology nonetheless). Section 3809 3810 6.1 in the annex provides a comprehensive description of the CGM Area in terms of the set of (i) bidding zones whose TSOs contribute their IGM to the CGM plus (ii) the 3811 3812 interconnections linking these bidding zones with bidding zones that do not contribute an 3813 IGM to the CGM (i.e., are not part of the CGM Area).

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3815 Note that the **CGM Area** is defined in terms of "**bidding zones**" – a **bidding zone** being "the largest geographical area within which market participants are able to exchange energy 3816 3817 without capacity allocation" according to Article 2 (3) of Commission Regulation (EU) No 3818 543/2013 of 14 June 2013 on submission and publication of data in electricity markets and amending Annex I to Regulation (EC) No 714/2009 of the European Parliament and of the 3819 Council – because this is the area concept around which the definition of IGMs in Article 19 3820 of GL CACM (as well as other requirements set out in that Guideline) revolves. However, a 3821 bidding zone is by definition not a stable geographical area, so it will often be more 3822 3823 appropriate to use the concept of control area (defined as "a coherent part of the 3824 interconnected system, operated by a single system operator and shall include connected 3825 physical loads and/or generation units if any" in Article 2 (6) of Regulation (EU) No 3826 543/2013). As the table in the annex shows, bidding zones in many cases coincide with 3827 control areas (e.g., The Netherlands), but there are also cases where a single bidding zone contains more than one control area (e.g., the Ireland / Northern Ireland bidding zone 3828 3829 is made up of control areas Ireland and Northern Ireland) and there are cases where a 3830 single **control area** contains more than one **bidding zone** (e.g., Italy).

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Finally, the present methodology aims to anticipate and encompass requirements set out in European legislation that has not yet entered into force. It is relevant to note this here in that, for example, many requirements set out in GL SO refer to "**control area**" as opposed to "**bidding zone**". The following section 1.3 describes the legal requirements in more detail. 3836



3838 1.3 LEGAL REQUIREMENTS

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The present section outlines the requirements formulated with respect to the GLDPM and the GGMM in various items of European legislation. In the context of the present section, the term "requirement" denotes certain legal provisions on content to be included in the methodologies or on the process by which the methodologies are to be prepared. This section sets out the approach used to ensure that requirements were transposed into the methodologies in full and in an appropriate manner.

The preparation of the GLDPM and the CGMM is required by GL CACM Article 16 (1) and GL CACM Article 17 (1), respectively:

- "By 10 months after the entry into force of this Regulation all TSOs shall jointly develop a proposal for a single methodology for the delivery of the generation and load data required to establish the common grid model, (...)." (GL CACM Article 16 (1))
- By 10 months after the entering into force of this Regulation all TSOs shall jointly develop a proposal for a common grid model methodology." (GL CACM Article 17 (1))

In addition to these obligations set out in the GL CACM (which had already entered into force 3856 at the time of drafting), GL FCA (2015-10-30) Article 17 (1) requires that "all TSOs shall 3857 3858 jointly develop a proposal for a single generation and load data provision methodology for delivering the generation and load data required to establish the common grid model for 3859 3860 long-term timeframes." The GLDPM to be prepared under GL FCA is to "take into account 3861 and complement" the present GLDPM being prepared under GL CACM. The requirements set out in GL CACM Article 16 also apply to the GLDPM to be prepared under GL FCA [GL 3862 FCA (2015-10-30) Article 17 (2)]. 3863

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3865 The accompanying CGMM is also required by two draft Guidelines expected to enter into force (possibly after some additional revision) during 2016. Thus GL SO (2015-11-27) Article 3866 3867 67 (1) stipulates that "all TSOs shall jointly develop a proposal for the methodology for 3868 building the year-ahead common grid models" and Article 70 (1) of the same Guideline 3869 requires that "all TSOs shall jointly develop a proposal for the methodology for building the D-1 and intraday common grid models". GL FCA (2015-10-30) Article 18 (1) demands that "all 3870 3871 TSOs shall jointly develop a proposal for a common grid model methodology for long-term 3872 timeframes". Both the GL SO and the GL FCA requirements acknowledge the accompanying CGMM (developed under GL CACM) and demand that the methodologies to be drafted 3873 3874 under GL SO and GL FCA, respectively, "take into account and complement" the CGMM.

When the obligations set out in all three of the aforementioned Guidelines have been met there should only be a single GLDPM and a single CGMM. In other words, the GLDPM will ultimately cover the requirements set out in both the GL CACM and the GL FCA. The accompanying CGMM will eventually cover all requirements from the GL CACM, the GLFCA, and the GL SO.

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As far as the present version of the GLDPM (and the accompanying CGMM) is concerned, 3882 3883 this document meets the TSOs' obligations under GL CACM. However, it does cover more 3884 ground than would be strictly necessary by consistently including, for example, the yearahead time frame. To the extent that obligations set out in items of legislation other than GL 3885 CACM are covered, separate consultation, submission, and approval procedures will, of 3886 course, be required. For the avoidance of doubt, requirements set out in legislation that is not 3887 3888 yet in force are included and referenced for informational purposes and for the sake of consistency, but for the time being they are not binding. When the other Guidelines have 3889 entered into force, the methodologies will be amended accordingly (i.e., based on the 3890 3891 definitive version of the legislation as published in the Official Journal) and re-submitted to 3892 the competent regulatory authorities for approval.

3894 Aside from the above-mentioned, very general obligation to develop the GLDPM and the CGMM, specific requirements with respect to the methodologies are included in a number of 3895 articles in the GL CACM as well as the GL SO and GL FCA. To ensure that all requirements 3896 3897 contained in the GL CACM (and, eventually, the other two Guidelines) are incorporated into 3898 the methodologies in an appropriate manner and to make it easy to check that this has been 3899 done, the TSOs have proceeded as follows: As part of a line-by-line review of the three 3900 aforementioned Guidelines, all relevant articles from each item of legislation were excerpted. 3901 An article was considered relevant if it either describes mandatory requirements (e.g., GL 3902 CACM Article 16 (2) setting out minimum content requirements with respect to the GLDPM; 3903 GL CACM Article 17 (2) setting out minimum content requirements with respect to the CGMM; requirements formulated with respect to IGMs in GL CACM Article 19 etc) or it 3904 3905 contains material which, while not explicitly mandatory, it is useful to reference in the 3906 methodologies (e.g., the provisions on data exchange in GL SO; Article 40 et seq.). Given 3907 the amount of material in the three aforementioned Guidelines, these had to be referenced 3908 selectively. For example, the articles relating to operational security requirements in Part II, 3909 Title 1, of GL SO (2015-11-27) clearly constitute interesting background material, but were 3910 not felt to be relevant enough to warrant their being excerpted.

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3912 These excerpts have been included in the annex to the present methodology; one subsection per Guideline; as section 6.2 ("Relevant Legislation"). For each excerpted passage 3913 3914 the annex indicates how and where in the methodologies the particular provision was used. This documentation ought to make it possible for a reviewer to check that all relevant 3915 3916 requirements in the relevant legislation were transposed in full and in an appropriate manner. 3917 The individual requirements are cross-referenced in the body of the methodologies. In so far 3918 as possible, each requirement set out in the methodologies individually back to a provision in 3919 one of the items of legislation.

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Finally, unless otherwise noted, material included in an annex to the present methodology is not meant to be legally binding and does not, therefore, require approval by all regulatory authorities.

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3925 Times referred to in the present methodology are not local times, but - following the 3926 definition of "market time" in GL CACM Article 2 (15) - "central European summer time or central European time, whichever is in effect". Many of the deadlines stated in the present 3927 3928 methodology are preliminary in the sense that the processes they relate to have not yet been 3929 implemented. Reasonable adjustments to the deadlines proposed by the TSOs in the light of 3930 their experience shall not be considered an amendment in the sense of GL CACM Article 9 3931 (12) and shall not require re-submission of the present methodology for approval. Section 1.5 below provides additional explanations on deadlines stated in the present methodology and 3932 3933 how these are to be interpreted.

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3935 For the sake of completeness, note that GL CACM Article 28 (1) stipulates that

- "For each capacity calculation time-frame (...), each generator or load unit (...) shall provide
 the data specified in the generation and load data provision methodology to the TSO
 responsible for the respective control area within the specified deadlines."
- and that this obligation is detailed in GL CACM Article 28 (2) as follows:
- "Each generator or load unit providing information (...) shall deliver the most reliable set ofestimations practicable."
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As required by GL CACM Article 12, this methodology is being presented for consultation with stakeholders and the relevant authorities of each Member State. The consultation period will last for one month.

- All TSOs shall duly consider the views of stakeholders and relevant authorities resulting from consultation on the methodology. A clear and robust justification for including or not the views resulting from the consultation shall be developed and published in accordance with the requirement specified in GL CACM Article 12 (3).
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Following the consultation process outlined above, and after consideration of the views of stakeholders and others following the consultation process, it should be noted that this methodology may change in advance of presentation of the methodology for approval by all regulatory authorities.

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The changes that are made to the methodology will be dependent on the views expressed as part of the consultation process and may include changes to technical aspects of the methodology. Changes to the format, structure and wording of this methodology may also be undertaken.



3962 **1.4 GLOSSARY / DEFINITIONS**

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The present document draws on legal definitions of a number of terms as well as definitions developed by the TSOs themselves which have been collected into a Glossary and included in the present section. The following conventions were applied in the document and in preparing the glossary:

- Every abbreviation used in the document is spelt out the first time it is used.
- Every abbreviation used in the document has been included in the Glossary.
 - Abbreviations are not bolded in the body of the document because they are by default included in the Glossary.
- Terms included in the Glossary that are not abbreviations are bolded each time they are used in the body of the document.

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Sub-	Term	Definition	Source / additional
line			explanations
001	(D-1)	day-ahead	
002	AC/DC net positions	the netted sum of electricity exports and imports of a bidding zone for a given market time unit covering both AC and DC interconnectors	
003	Agreed Measures	remedial actions agreed to be implemented as part of the process of CGM creation	



Sub-	Term	Definition	Source / additional
line			explanations
line 004	Balanced AC/DC net positions and consistent flows on DC interconnectors	Standard phrase that describes a key prerequisite for the building of IGMs: the sum of AC/DC net positions (defined on the level of bidding zones) across all bidding zones of the CGM Area equals the target aggregate AC/DC net position for the entire CGM Area (i.e., the two quantities are in balance) AND both TSOs connected by an HVDC interconnector are using the same flow value (corrected for losses) for that interconnector in their IGMs (i.e., the flows	explanations CGMM, ch. 04 on CGM Alignment
005	Base case	Generally refers to the starting version of a model before modifications are made (the exact nature of which depends on the context). In particular, an IGM prior to merging, implementation of agreed measures etc may be referred to as the base case.	



lineexplanations006Bidding Zonethe largest geographical area within which market participants are able to exchange energy without capacity allocationCommission (EU) June 2013 on sul and publication of electricity market amending Annex Regulation (EC 714/2009 of the E Parliament and Council; Article 2 (3)007Certified TSOnatural or legal personSee additional	egulation 3 of 14 omission data in ts and (I to () No
006Bidding Zonethe largest geographical area within which market participants are able to exchange energy without capacity allocationCommission (EU)Re (EU)007Certified TSOnatural or legal personSeeadditional	egulation 3 of 14 bmission data in ts and ts and ts L to
007Certified TSOnatural or legal personSeeadditional	of the
certified as such underdefiningaArticle3ofthe(transmissionRegulation(EC)Nooperator)714/2009oftheEuropeanParliamentand of the Council of 13July 2009 on conditionsJuly 2009 on conditionsfor access to the networkforcross-borderexchanges in electricityand repealing Regulation(EC) No 1228/2003	entry TSO system
008 CGM Common Grid Model (see additional entry)	
009 CGMA CGM Alignment	
010 CGM Area Area covered by the CGMM; section geographical cover the set of (i) bidding zones whose TSOs contribute their IGM to the CGM plus (ii) the interconnections linking these bidding zones with bidding zones that do not contribute an IGM to the CGM (i.e., are not part of the CGM Area).	n on age
011 CGMES Common Grid Model Exchange Standard	



Sub-	Term	Definition	Source / additional
line			explanations
012	CGMM	Common Grid Model Methodology	
013	Common Grid Model	a Union-wide data set agreed between various TSOs describing the main characteristic of the power system (generation, loads and grid topology) and rules for changing these characteristics during the capacity calculation process	GL CACM; Article 2 (2)
014	Contingency	the identified and possible or already occurred fault of an element, including not only the transmission system elements, but also significant grid users and distribution network elements if relevant for the transmission system operational security	GL CACM Article 2 (10)
015	Control Area	a coherent part of the interconnected system, operated by a single system operator and shall include connected physical loads and/or generation units if any	Commission Regulation (EU) No 543/2013 of 14 June 2013 on submission and publication of data in electricity markets and amending Annex I to Regulation (EC) No 714/2009 of the European Parliament and of the Council; Article 2 (6)
016	EMFIP	Electricity Market Fundamental Information Platform	Also known as "Transparency Platform"



Sub-	Term	Definition	Source / additional
line			explanations
017	ENTSO-E	ENTSO for Electricity or European Network of Transmission System Operators for Electricity	Established in accordance with Article 5 of 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
018	EU	European Union	
019	External commercial trade schedule	a schedule representing the commercial exchange of electricity between market participants in different scheduling areas	GL SO (2015-11-27) Article 3 (80)
020	Generation Shift Key	See entry "Power shift key"	
021	GL CACM	Abbreviationfor:CommissionRegulation(EU)2015/1222ofJuly2015establishing aguidelineoncapacityallocationandcongestionmanagement	
022	GL FCA	Abbreviation for: Commission Regulation (EU)/ of XXX establishing a guideline on forward capacity allocation	
023	GL SO	Abbreviationfor:CommissionRegulation(EU)/ofXXXestablishing a guidelineontransmissionsystemoperation	



Sub-	Term	Definition	Source / additional
line			explanations
024	GLDPM	Generation and Load Data Provision Methodology	
025	GSK	Generation Shift Key (see additional entry)	
026	ID	intraday	
027	IGM	Individual Grid Model (see additional entry)	
028	Individual Grid Model	a data set describing power system characteristics (generation, load and grid topology) and related rules to change these characteristics during capacity calculation, prepared by the responsible TSOs, to be merged with other individual grid model components in order to create the common grid model	GL CACM; Article 2 (1)
029	Interconnected system	'interconnected system' means a number of transmission and distribution systems linked together by means of one or more interconnectors	DIRECTIVE 2009/72/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC; Article 2 (14)
030	Load Shift Key	See entry "Power Shift Key"	· · ·
031	LSK	Load Shift Key (see additional entry)	



Sub-	Term	Definition	Source / additional
line			explanations
032	Market Time	central European summer time or central European time, whichever is in effect	GL CACM Article 2 (15) – note that all times and, in particular, deadlines stated in the CGMM / GLDPM are not stated in terms of local time, but in terms of "market time"
033	NC DC	Abbreviationfor:CommissionRegulation(EU)/ofXXXestablishingaCodeonDemandConnection	
034	NC HVDC	Abbreviation for: Commission Regulation (EU)/ of XXX establishing a network code on requirements for grid connection of high voltage direct current systems and direct current-connected power park modules	
035	NC RfG	Abbreviationfor:CommissionRegulation(EU)/ofXXXestablishingacode on requirements forgridconnectionofgenerators	
036	Net position	the netted sum of electricity exports and imports for each market time unit for a bidding zone	GL CACM Article 2 (5) – note that the CGMM and GLDPM do not use this term, but use the more precise term AC/DC net position (see additional entry)



Sub-	Term	Definition	Source / additional
line			explanations
037	Network reduction	Modelling a part of the network with an electrical equivalent which, however, has been simplified relative to the original model	CGMM; sub-section on describing the grid
038	NRA	National Regulatory	
		Authority	
039	OPDE	Operational Planning Data Environment (see additional entry)	
040	Operational Planning Data Environment	'ENTSO for Electricity operational planning data environment' means the set of application programs and equipment developed in order to allow the storage, exchange and management of the data used for operational planning processes between TSOs	GL SO (2015-11-27) Article 2 (79)
041	Operational security limits	the acceptable operating boundaries for secure grid operation such as thermal limits, voltage limits, short-circuit current limits, frequency and dynamic stability limits	GL CACM Article 2 (7)
042	Physical congestion	any network situation where forecasted or realised power flows violate the thermal limits of the elements of the grid and voltage stability or the angle stability limits of the power system	GL CACM Article 2 (18)



Sub-	Term	Definition	Source / additional
line			explanations
043	PPD	Pre-processing data (see additional entry)	
044	Pre-processing data	The pre-processing data consist of (i) preliminary aggregate AC/DC net positions, (ii) the feasibility range (i.e., minimum and maximum net positions), (iii) expected flows on HVDC links, and (iv) minimum and maximum flows on HVDC links	CGMM chapter on CGM Alignment
045	Primary data owner	'primary owner of the data' means the entity which creates the data	Commission Regulation (EU) No 543/2013 of 14 June 2013 on submission and publication of data in electricity markets and amending Annex I to Regulation (EC) No 714/2009 of the European Parliament and of the Council; Article 2 (23)



Sub-	Term	Definition	Source / additional
line			explanations
046	Power Shift Key	The term "Power Shift	The legal definition of the
		Key" is meant to	term "Generation Shift
		substitute for the term	Key" makes it clear that
		"Generation Shift Key"	this term is meant to
		as defined in the GL	designate changes in both
		CACM.	generation and load. The
			alternative term "power
		GL CACM Article 2 (12)	shift key" makes it clearer
		('generation shift key'	that both generation and
		means a method of	load are covered.
		translating a net position	
		change of a given	
		bidding zone into	
		estimated specific	
		injection increases or	
		decreases in the	
		common grid model).	
		However, this needs to	
		be read in conjunction	
		with GL CACM Article 24	
		(2): "The generation shift	
		keys shall represent the	
		best forecast of the	
		relation of a change in	
		the net position of a	
		bidding zone to a	
		specific change of	
		generation or load in the	
		common grid model.	
		That forecast shall	
		notably take into account	
		the information from the	
		generation and load data	
		provision methodology."	



Sub-	Term	Definition	Source / additional
line			explanations
047	Primary owner of the data (= primary data owner)	the entity which creates the data	Commission Regulation (EU) No 543/2013 of 14 June 2013 on submission and publication of data in electricity markets and amending Annex I to Regulation (EC) No 714/2009 of the European Parliament and of the Council; Article 2 (23)
048	Regional Security Coordinator	the entity or entities with the task of managing regional operation in one or more capacity calculation regions	GL SO (2015-11-27); Article 2 (94)
049	Remedial action	any measure applied by a TSO or several TSOs, manually or automatically, in order to maintain operational security	GL CACM Article 2 (13)
050	RSC	RegionalSecurityCoordinator(seeadditional entry)	
051	Scalability Parameters	The scalability parameters are a subset of the PPD and consist of (i) the feasibility range (i.e., minimum and maximum AC/DC net positions) and (ii) minimum and maximum flows on HVDC links	CGMM chapter on CGM Alignment
052	Scenario	the forecasted status of the power system for a given time-frame	GL CACM Article 2 (4)
053	Scheduled exchange	an electricity transfer scheduled between geographic areas, for each market time unit and for a given direction	GL CACM Article 2 (32)



Sub-	Term	Definition	Source / additional
line			explanations
054	SGU	Significant grid user	
055	Slack node	Special virtual node that	
		serves to balance active	
		and reactive power in	
		load flow studies	
056	Transmission System	a natural or legal person	DIRECTIVE 2009/72/EC
	Operator	responsible for	OF THE EUROPEAN
		operating, ensuring the	PARLIAMENT AND OF
		maintenance of and, if	THE COUNCIL of 13 July
		necessary, developing	2009 concerning common
		the transmission system	rules for the internal market
		in a given area and,	in electricity and repealing
		where applicable, its	Directive 2003/54/EC;
		interconnections with	Article 2 (4)
		other systems, and for	
		ensuring the long-term	See additional entry
		ability of the system to	defining a Certified TSO
		meet reasonable	(transmission system
		demands for the	operator)
0.5-7		transmission of electricity	
057	Iransparency Regulation	Abbreviation for:	
		Commission Regulation	
		(EU) NO 543/2013 OF 14	
		June 2013 on	
		submission and	
		publication of data in	
		amonding Appox I to	
		Population (EC) No.	
		714/2009 of the	
		Furopean Parliament	
		and of the Council	
058	TSO	Transmission System	
		Operator (see additional	
		entry)	
059	(Y-1)	year-ahead	



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3984

1.5 GLDPM DATA PROVISION REQUIREMENTS: GENERAL APPROACH

The GLDPM is supposed to describe "the generation and load data required to establish the common grid model" [GL CACM Article 16 (1)] and it "shall specify which generation units and loads are required to provide information to their respective TSOs for the purposes of capacity calculation." [GL CACM Article 16 (2)]

The inclusion of "for the purposes of capacity calculation" means that, for example, data only 3985 required for outage planning may not be included in the GLDPM. However, "capacity 3986 calculation" cannot be separated from "operational security analysis", the third purpose for 3987 3988 which the CGM will be used. GL CACM Article 21 (1) (a) (ii) includes "operational security 3989 limits" among the inputs for capacity calculation and Article 23 (1) ("Each TSO shall respect 3990 the operational security limits and contingencies used in operational security analysis.") and Article 23 (2) make it clear that capacity allocation is not possible without operational security 3991 analysis. GL CACM Article 29 (2) ("Each coordinated capacity calculator shall perform an 3992 3993 operational security analysis applying operational security limits by using the common grid 3994 model created for each scenario in accordance with Article 28 (5).") and GL CACM Article 29 3995 (3) (c) ("When calculating cross-zonal capacity, each coordinated capacity calculator shall: 3996 (...) ensure that all sets of bidding zone net positions and flows on direct current lines not 3997 exceeding cross-zonal capacity comply with reliability margins and operational security limits 3998 in accordance with Article 21(1)(a)(i) and (ii), (...).") also make the link between "capacity calculation" and "operational security analysis" clear. The implication of this for the GLDPM is 3999 4000 that the methodology not only may, but must also include all data required for operational 4001 security analysis unless TSOs can be sure that these data are available via some other data 4002 source.

4003

As implied by the definition of "**operational security limits**" (GL CACM Article 2 (7): "the acceptable operating boundaries for secure grid operation such as thermal limits, voltage limits, short-circuit current limits, frequency and dynamic stability limits"), data required for dynamic analyses may need to be requested.

4008

This means that the GLDPM has to ask for significantly more data than what is required for establishing a convergent load flow in the CGM (steady state analysis) – the primary use case as explained in the accompanying CGMM and as implied by GL CACM Article 19 (5): "Each TSO shall provide all necessary data in the individual grid model to allow active and reactive power flow and voltage analyses in steady state."

4014

That, for example, dynamic analyses may be required is clearly stated in GL CACM Article 19 (6): "Where appropriate, and upon agreement between all TSOs within a capacity calculation region, each TSO in that capacity calculation region shall exchange data between each other to enable voltage and dynamic stability analyses." In such regions it will typically be the case that dynamic limits are reached before steady-state limits.

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Figure 2 below schematically illustrates the data to be obtained and it also illustrates therelationship between the present GLDPM and the accompanying CGMM.









4026

4027 While the CGMM is primarily addressed to TSOs, the GLDPM encompasses all injections 4028 ("generation") into and withdrawals ("load") from the transmission system. The broad 4029 categories of data providers covered are shown in the figure: generation units (power 4030 generating modules); loads (demand facilities); distribution systems (which are "hybrids" in the sense that they provide data related to both generation and load, as they can have the 4031 4032 behavior of both generation units and loads); and other types of hybrids (e.g., aggregators). The coverage of the various categories of primary data owners is explained in more detail 4033 4034 in section 1.7.

4035

4040

Data required to establish IGMs (and CGMs) will normally have a locational dimension (i.e., it is important where exactly energy is fed into or taken off the grid) and, to the extent that data are not structural but variable, they will also have a time dimension and may need to be provided in a highly granular way (typically per market time unit).

Many of the data required for IGMs/CGMs and operational security analyses are already described in the current (2015-11-27) draft of the GL SO. One of the guiding principles in preparing the present GLDPM has therefore been to use the data requirements set out in GL SO to the maximum extent possible. This is clearly in the interest of everyone concerned (especially parties required to provide data and the TSOs themselves) in that this will minimise duplication of legal requirements. However, as the following Figure 3 illustrates, the 4047





4049 FIGURE 3: OVERLAP BETWEEN GL SO AND GLDPM

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overlap is not complete. The GL SO requires certain data that are not relevant for the
GLDPM (e.g., real-time data) and some of the data required by the GLDPM (such as data on
power exchanges' order books) are out of scope of the GL SO. Still, the overlap is so
substantial that the present methodology is based on the relevant articles in Part II
(Operational Security), Title 2 (Data exchange), Articles 40 to 53 of GL SO (2015-11-27).
Additional material was added as required.

- 4057
- 4058The present document will be revised in parallel with future revisions of the draft GL SO and4059again once the definitive version of GL SO has entered into force.
- 4060

The overlap between GL SO and the GLDPM is underlined further by the fact that GL SO (2015-11-27) Article 40 (6) requires TSOs to prepare a separate methodology on key organisational requirements, roles and responsibilities in relation to data exchange by six months after entry into force of GL SO. The ENTSO-E working groups authoring the GL SO methodology on data exchange and the present GLDPM will be liaising closely with a view to ensuring a consistent set of documents.

4067

4068 Referring back to GL CACM Article 19 (6) cited above, the regional nature of certain 4069 requirements underlines the character of the GLDPM as a "maximum list"; a list of all the 4070 data that TSOs are allowed but not obliged to request from the various parties listed below (cf. section 1.7), thus creating a legal basis for TSOs to demand that the data be made 4071 4072 available. The data are not to be provided to a central data repository (such as the Transparency Platform) but are to be made available to the local TSO in a format and using 4073 4074 IT tools to be determined by the local TSO. TSOs will normally draw on the existing IT 4075 infrastructure and data provision processes which should simplify implementation. In fact, it is



4076 expected that many kinds of data described in the GLDPM are already available to TSOs via 4077 established channels under existing national regulation or supra-national agreements of 4078 some kind. It will be up to local TSOs to avoid, to the extent possible, the need for duplicate 4079 data submission by cooperating with their local data suppliers (whether these are the 4080 **primary data owners** or not) and setting up a process that ensures that, ideally, every data 4081 supplier has a single point of contact and has to supply each data set only once.

4082

Avoiding duplication is a particular concern with respect to data required to be made available on the "Transparency Platform" (EMFIP – Electricity Market Fundamental Information Platform). Note, however, that in many cases the overlap between EMFIP requirements and the requirements set out in the present GLDPM is, at most, partial – e.g., the **primary data owners** being required to submit data may not be identical, the timelines for submission may not be the same etc. At any rate, implementation is to be the responsibility of local TSOs and the local NRA is requested to support this process.

4090

In order to make it possible to meet the obligation set out in GL CACM Article 16 (6), by two
weeks after the approval of the generation and load data provision methodology by all
regulatory authorities each TSO shall make available to ENTSO-E

- 4094 (a) a list of the entities required to provide information to the TSO;
- 4095 (b) a list of the information to be provided;
- 4096 (c) deadlines for providing information;

using the template and process to be specified by ENTSO-E. This makes it necessary for
each TSO to start the process of implementation and establish contact with data providers
shortly after the draft of the present methodology has been submitted to the competent
regulatory authorities.

4101

There is a simple criterion that TSOs have to meet: their IGMs have to pass the quality checks required before the models can be made available via the **Operational Planning Data Environment** (henceforth OPDE) described in more detail in the CGMM. With this test in mind, there is no need for the GLDPM to be more prescriptive.

4106

4107 Except where otherwise noted, the ultimate responsibility to provide data under the GLDPM 4108 is with the owner (of, for example, a power generating module) even though in practice it will 4109 be more straightforward to handle this obligation as a task for the primary data owner (i.e., "the entity which creates the data"). The present methodology does not raise objections to 4110 4111 owners / primary data owners delegating their data provision tasks to third parties as long 4112 as the local TSO agrees with this and as long as the responsibility for the data being 4113 provided in time and in the right quality remains with the owner / primary data owner. If the 4114 owner and primary data owner are not identical, the responsibility for providing the data 4115 shall, in principle, be with the owner. However, the owner may, as noted, delegate any and 4116 all tasks related to data provision as long as the data provision obligations are met.



4118 It is a specific requirement under this methodology for all owners / primary data owners to 4119 provide, without this being explicitly requested by their local TSO, the most up-to-date data in 4120 line with the aforementioned GL CACM Article 28 (2). Where data submitted without deadline change, they need to be updated as soon as practicable. Where data submitted before a 4121 4122 deadline change and there is time to provide an update, the owner / primary data owner 4123 shall ensure that the latest information is made available prior to the corresponding deadline. 4124 The requirement set out here is stricter than similar provisions in, for example, GL SO (2015-11-27) Article 43 (4) (which, in the case of structural information on distribution grids only 4125 requires the DSO to "provide the TSO with an update of the structural information (...) at least 4126 4127 every six months.") and supersedes those less strict provisions. However, as explained 4128 above, implementation of the present methodology is to remain a local responsibility, so each 4129 TSO may agree on alternative arrangements with its data providers subject to the TSO 4130 meeting its own responsibilities vis-à-vis the other TSOs.

4131

In the light of the explanations provided above, the deadlines stated in the present document are minimum requirements aligned with the principal steps in the CGM process. An individual TSO may set stricter deadlines; e.g., in order to align the data provision requirements described in the present methodology with local market rules.



4138

1.6 FOCUS OF COVERAGE IN TERMS OF VOLTAGE LEVELS

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The present section aims to provide a general explanation with respect to which voltage levels are to be modelled with which degree of detail.

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GL SO (2015-11-27), Article 41 (3) (a) which refers to "the topology of the 220 kV and higher voltage transmission system within its control area" makes it clear that the grid elements (including SGUs) connected at or included in the 220 kV and higher voltage levels need to be modelled in detail.

4147

Grid elements (including SGUs) connected at or included in voltage levels lower than 220 kV need to be modelled if they have a "significant impact" upon the TSO's own transmission system [GL SO (2015-11-27), Article 41 (3) (b), "a model or an equivalent of the transmission system with voltage below 220 kV with significant impact to its own transmission system"]. In addition to the code provision, such grid elements shall be modelled in detail if they have cross-border impact.

4154

4155 If grid elements (including SGUs) connected at or included in voltage levels lower than 220 4156 kV do not have cross-border impact, it is sufficient to include them in electrical equivalents in 4157 the IGM (such that their relevant electrical characteristics are retained and represented in the 4158 model; this will typically entail aggregating generation units by primary energy source as required by GL SO (2015-11-27) Article 41 (3) (d) which reads "a realistic and accurate 4159 4160 forecasted aggregate amount of injection and withdrawal, per primary energy source, at each 4161 node of the transmission system for different timeframes.") How the aggregation is to be 4162 done is out of scope of the GLDP and CGM methodologies.

4163

There is no lower limit in terms of voltage levels which may be included in the IGM. It is in principle at each TSO's discretion to decide which degree of granularity to implement in its IGM. However, since more granular / detailed modelling increases the computational burden at later steps of the CGM process, TSOs are encouraged to include in their IGM only the degree of detail that is required for the purpose for which the model is being established.



 4171 1.7 CATEGORIES OF GENERATION UNITS AND LOADS COVERED 4172 4173 This methodology is applicable to the following categories of generation units and loads: 4174 4175 Generation 4176 Existing and new power generating modules of type B, C and D in accordance with Article 5 of Commission Regulation No [000/2015 RfG] 4177 [GL SO (2015-11-27) Article 2 (1) (a)] 4180 Load 4181 Existing and new transmission connected demand facilities 4182 [GL SO (2015-11-27) Article 2 (1) (b)] 4183 Existing and new demand facilities, regardless of whether these are connected to the transmission or distribution grid, if these are "relevant demand facilities" in the sense of GL SO (2015-11-27) Article 3 (88) 4186 4187 Hybrids 4188 Existing and new transmission connected closed distribution systems 4189 [GL SO (2015-11-27) Article 2 (1) (c)]
 This methodology is applicable to the following categories of generation units and loads: Generation Existing and new power generating modules of type B, C and D in accordance with Article 5 of Commission Regulation No [000/2015 RfG] [GL SO (2015-11-27) Article 2 (1) (a)] Load Existing and new transmission connected demand facilities [GL SO (2015-11-27) Article 2 (1) (b)] Existing and new demand facilities, regardless of whether these are connected to the transmission or distribution grid, if these are "relevant demand facilities" in the sense of GL SO (2015-11-27) Article 3 (88) Hybrids Existing and new transmission connected closed distribution systems [GL SO (2015-11-27) Article 2 (1) (c)]
 Inis methodology is applicable to the following categories of generation units and loads: Generation Existing and new power generating modules of type B, C and D in accordance with Article 5 of Commission Regulation No [000/2015 RfG] [GL SO (2015-11-27) Article 2 (1) (a)] Load Existing and new transmission connected demand facilities [GL SO (2015-11-27) Article 2 (1) (b)] Existing and new demand facilities, regardless of whether these are connected to the transmission or distribution grid, if these are "relevant demand facilities" in the sense of GL SO (2015-11-27) Article 3 (88) Hybrids Existing and new transmission connected closed distribution systems SO (2015-11-27) Article 2 (1) (c)]
 4175 Generation 4176 Existing and new power generating modules of type B, C and D in accordance with Article 5 of Commission Regulation No [000/2015 RfG] 4177 [GL SO (2015-11-27) Article 2 (1) (a)] 4180 Load 4181 Existing and new transmission connected demand facilities [GL SO (2015-11-27) Article 2 (1) (b)] 4183 Existing and new demand facilities, regardless of whether these are connected to the transmission or distribution grid, if these are "relevant demand facilities" in the sense of GL SO (2015-11-27) Article 3 (88) 4186 4187 Hybrids Existing and new transmission connected closed distribution systems [GL SO (2015-11-27) Article 2 (1) (c)]
 4176 Existing and new power generating modules of type B, C and D in accordance with Article 5 of Commission Regulation No [000/2015 RfG] 4178 [GL SO (2015-11-27) Article 2 (1) (a)] 4180 Load 4181 Existing and new transmission connected demand facilities [GL SO (2015-11-27) Article 2 (1) (b)] 4183 Existing and new demand facilities, regardless of whether these are connected to the transmission or distribution grid, if these are "relevant demand facilities" in the sense of GL SO (2015-11-27) Article 3 (88) 4186 4187 Hybrids Existing and new transmission connected closed distribution systems [GL SO (2015-11-27) Article 2 (1) (c)]
 Article 5 of Commission Regulation No [000/2015 RfG] [GL SO (2015-11-27) Article 2 (1) (a)] Load Existing and new transmission connected demand facilities [GL SO (2015-11-27) Article 2 (1) (b)] Existing and new demand facilities, regardless of whether these are connected to the transmission or distribution grid, if these are "relevant demand facilities" in the sense of GL SO (2015-11-27) Article 3 (88) Hybrids Existing and new transmission connected closed distribution systems [GL SO (2015-11-27) Article 2 (1) (c)]
 4178 [GL SO (2015-11-27) Article 2 (1) (a)] 4179 4180 Load 4181 • Existing and new transmission connected demand facilities [GL SO (2015-11-27) Article 2 (1) (b)] 4183 • Existing and new demand facilities, regardless of whether these are connected to the transmission or distribution grid, if these are "relevant demand facilities" in the sense of GL SO (2015-11-27) Article 3 (88) 4187 Hybrids Existing and new transmission connected closed distribution systems [GL SO (2015-11-27) Article 2 (1) (c)]
 4179 4180 Load 4181 Existing and new transmission connected demand facilities [GL SO (2015-11-27) Article 2 (1) (b)] 4183 Existing and new demand facilities, regardless of whether these are connected to the transmission or distribution grid, if these are "relevant demand facilities" in the sense of GL SO (2015-11-27) Article 3 (88) 4186 4187 Hybrids Existing and new transmission connected closed distribution systems [GL SO (2015-11-27) Article 2 (1) (c)]
 4180 Load 4181 • Existing and new transmission connected demand facilities 4182 [GL SO (2015-11-27) Article 2 (1) (b)] 4183 • Existing and new demand facilities, regardless of whether these are connected to the transmission or distribution grid, if these are "relevant demand facilities" in the sense of GL SO (2015-11-27) Article 3 (88) 4186 4187 Hybrids • Existing and new transmission connected closed distribution systems 4189 [GL SO (2015-11-27) Article 2 (1) (c)]
 Existing and new transmission connected demand facilities [GL SO (2015-11-27) Article 2 (1) (b)] Existing and new demand facilities, regardless of whether these are connected to the transmission or distribution grid, if these are "relevant demand facilities" in the sense of GL SO (2015-11-27) Article 3 (88) Hybrids Existing and new transmission connected closed distribution systems [GL SO (2015-11-27) Article 2 (1) (c)]
 4182 [GL SO (2015-11-27) Article 2 (1) (b)] • Existing and new demand facilities, regardless of whether these are connected to the transmission or distribution grid, if these are "relevant demand facilities" in the sense of GL SO (2015-11-27) Article 3 (88) 4186 4187 Hybrids • Existing and new transmission connected closed distribution systems 4189 [GL SO (2015-11-27) Article 2 (1) (c)]
 Existing and new demand facilities, regardless of whether these are connected to the transmission or distribution grid, if these are "relevant demand facilities" in the sense of GL SO (2015-11-27) Article 3 (88) Hybrids Existing and new transmission connected closed distribution systems IGL SO (2015-11-27) Article 2 (1) (c)]
 4184 transmission or distribution grid, if these are "relevant demand facilities" in the sense 4185 of GL SO (2015-11-27) Article 3 (88) 4186 4187 Hybrids 4188 Existing and new transmission connected closed distribution systems 4189 [GL SO (2015-11-27) Article 2 (1) (c)]
 4185 of GL SO (2015-11-27) Article 3 (88) 4186 4187 Hybrids 4188 • Existing and new transmission connected closed distribution systems 4189 [GL SO (2015-11-27) Article 2 (1) (c)]
 4186 4187 Hybrids 4188 • Existing and new transmission connected closed distribution systems 4189 [GLSO (2015-11-27) Article 2 (1) (c)]
 4187 Hybrids 4188 Existing and new transmission connected closed distribution systems 4189 [GLSO (2015-11-27) Article 2 (1) (c)]
4189 [GLSO (2015-11-27) Article 2 (1) (c)]
4190 • Existing and new high voltage direct current ('HVDC') systems according to the
4191 criteria in Article 3(1) of Commission Regulation No [000/2015 HVDC] where these
4192 are also "interconnectors which are not operated by TSOs certified according to
4193 Article 3 of Regulation (EC) No 714/2009" pursuant to GL CACM Articles 45 and 57.
4194 [subset of GL SO (2015-11-27) Article 2 (1) (f)]
4195 • Existing and new AC merchant interconnections specifically including
4196 "interconnectors which are not operated by TSOs certified according to Article 3 of
4197 Regulation (EC) No 714/2009" pursuant to GL CACM Article 45 and 57.
• Existing and new transmission connected distribution systems (i.e., specifically
4199 including non-closed distribution systems)
4200 • NEMOs, brokers
4201
4203 The definition of generation units narrowly defined follows the definition in GL SO (2015-11-
4204 27) Article 2 (1) (a) which includes "existing and new power generating modules of type B, C
4205 and D in accordance with Anticle 5 of Commission Regulation No [000/2015 Rig] in the 4206 scope of GL SO (2015-11-27) "Relevant power generating modules" in the sense of GL SO
4207 (2015-11-27) Article 3 (93) (i.e. "nower generating module[s] which participate[] in the
4208 outage coordination and the availability status of which influences cross-border operational
4209 security") are likely a sub-set of this category.
4210



4211 As for load (demand facilities) narrowly defined, the category of "existing and new 4212 transmission connected demand facilities" as included in the scope of GL SO (2015-11-27) 4213 via GL SO (2015-11-27) Article 2 (1) (b) is likely, to a very large extent, to be a sub-set of the 4214 category of "existing and new demand facilities, regardless of whether these are connected 4215 to the transmission or distribution grid, if these are "relevant demand facilities" in the sense of GL SO (2015-11-27) Article 3 (88)". However, since the latter category might not cover all 4216 4217 transmission-connected demand facilities, it was decided to retain both categories. With 4218 respect to demand facilities, the scope of the GLDPM is thus considerably wider than that of 4219 GL SO.

4220

The most diverse group of "significant grid users" (henceforth SGUs) subject to the GLDPM is the "hybrid" group. All categories of SGUs in that group can be both withdrawing electricity from and injecting electricity into the transmission grid; in some cases even at the same time. Two important categories within that group are the

- existing and new transmission connected closed distribution systems (which, pursuant to GL SO (2015-11-27) Article 2 (1) (c), are also within the scope of GL SO (2015-11-27)); and
- existing and new transmission connected distribution systems (i.e., specifically
 including non-closed distribution systems)
- 4230

The first of two major exceptions from the principle of associating reporting obligations with ownership relates to type A power generating modules. While individually small, type A power generating modules may, in aggregate, have a huge impact on operational security. It is therefore essential that TSOs have all necessary information related to these. However, it would not be practical to impose the corresponding reporting obligations on the owners, so these are assigned to the corresponding DSOs instead.

- 4237
- This special data provision responsibility assigned to DSOs is consistent with GL SO (2015-11-27) Article 43 (5) which obliges

"[e]ach DSO [to] provide to the TSO it is connected to, per primary energy sources,
the total aggregated generating capacity of the type A power generating modules
subject to requirements of Commission Regulation No [000/2015 RfG] and the best
possible estimates of generating capacity of type A power generating modules not
subject to or derogated from Commission Regulation No [000/2015 RfG], connected
to its distribution system, and the related information concerning their frequency
behaviour"

In addition to providing the structural data described in the above GL SO (2015-11-27) excerpt, under the present GLDPM DSOs shall also be responsible for providing market and other variable data (such as generation forecasts) related to the above-mentioned type A power generating modules [specifically including power generating modules which use renewable energy sources (henceforth RES) as their primary energy source].

4252

4253 The inclusion of two types of interconnectors, namely



- existing and new high voltage direct current ('HVDC') systems according to the criteria in Article 3(1) of Commission Regulation No [000/2015 HVDC] where these are also "interconnectors which are not operated by TSOs certified according to Article 3 of Regulation (EC) No 714/2009" pursuant to GL CACM Articles 45 and 57; and
- existing and new AC merchant interconnections specifically including "interconnectors
 which are not operated by TSOs certified according to Article 3 of Regulation (EC) No
 714/2009" pursuant to GL CACM Article 45 and 57
- 4262 ensures that these two categories of SGUs are not missed.
- Finally, while NEMOs and brokers are not themselves injecting or withdrawing electricity, their order books are an important input for the CGM Alignment process which, in turn, is an essential component of the CGM process (see the corresponding chapter in the accompanying CGMM). Rather than obtain these orders from the market participants themselves, it is far more efficient for the TSOs to obtain these data in aggregated form from NEMOs and brokers. This is thus the second major exception from the principle of associating reporting obligations with ownership.
- 4271

- 4272 This completes the overview of the various categories of SGUs.
- 4273
- 4274 A description of power generating module types is inserted below for convenience:
- 4275

Power generating module type	Voltage level of connection point	Maximum capacity (except for type A, the thresholds are set by individual TSOs; cf. NC RfG (2015-10-14); Article 5 (3)); the present table gives the maximum threshold values on a synchronous- area level as stated in Article 5 (2))				
		CE	GB	Nordic	IE/NI	Baltic
А	< 110 kV	> 0.8 kW	> 0.8 kW	> 0.8 kW	> 0.8 kW	> 0.8 kW
В	< 110 kV	> 1 MW	> 1 MW	> 1.5 MW	> 0.1 MW	> 0.5 MW
С	< 110 kV	> 50 MW	> 50 MW	> 10 MW	> 5 MW	> 10 MW
D	< 110 kV	> 75 MW	> 75 MW	> 30 MW	> 10 MW	> 15 MW
D	≥ 110 kV					

4276 (For illustration: A TSO in the Continental Europe synchronous area could set the capacity threshold from which a power
 4277 generating module would be considered to be of type B at less than 1 MW, e.g., at 0.5 MW, but would not be able to set a
 4278 higher threshold value)

4279

As for whether a demand facility is relevant or not is to be determined on the basis of the "Methodology for assessing the relevance of assets for outage coordination" pursuant to GL SO (2015-11-27) Article 84. Such a methodology is to be prepared for each synchronous area within 12 months of the entry into force of the GL SO [GL SO (2015-11-27) Article 84 (1)] and by 15 months of the entry into force of the GL SO each outage coordination region is to have established "a single list (...) of relevant demand facilities for the outage coordination." [GL SO (2015-11-27) Article 85 (1)]. This potentially conflicts with the



publication requirement pursuant to GL CACM Article 16 (6) which obliges ENTSO-E to publish "a list of the entities required to provide information to the TSOs" within two months of the approval of the GLDPM. The TSOs shall therefore publish a preliminary list of demand facilities required to provide information by the deadline set in GL CACM Article 16 (6) and update this list in the light of the definitive list of relevant demand facilities if the latter list should not have been established by the deadline.

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4296 **1.8 CONFIDENTIALITY**

TSOs shall ensure the confidentiality of the data being provided to them pursuant to GL CACM Article 13. The same confidentiality requirement shall apply to ENTSO-E in its role as administrator of the OPDE. The confidentiality of data in transit to or being stored via the OPDE shall be ensured using industry standards.

4301 4302

4303 **1.9 Cost-sharing**

4304 For the sake of completeness, the relevant GL CACM provisions on cost-sharing are 4305 restated below. GL CACM Article 78 stipulates that

- 4306 "1. Each TSO shall individually bear the costs of providing inputs to the capacity calculation4307 process.
- 4308 2. All TSOs shall bear jointly the costs of merging the individual grid models. (...)
- 4309 3. Any costs incurred by market participants in meeting the requirements of this Regulation4310 shall be borne by those market participants."
- 4311
- 4312

4313 **1.10 OBJECTIVES OF THE GL CACM AND IMPACT OF THE GLDPM THEREON**

Of all the objectives set out in GL CACM Article 3, the GLDPM aims in particular at the objective of "(f) ensuring and enhancing the transparency and reliability of information." As far as transparency is concerned, the GLDPM and its companion methodology, the CGMM, make it possible for stakeholders to understand how TSOs build grid models and which data are required in order to establish these. As for the reliability of information, the GLDPM creates a legal basis for all TSOs to obtain the data needed for building the IGMs required for the CGM and which they may not yet have had a right to obtain.

4321

4322 Apart from the GL CACM objective cited above, the data described in the GLDPM are the 4323 basis for the CGM so that the objectives advanced by the CGMM (and explained therein) are 4324 also being advanced by the GLDPM.

4325 4326

4327 **1.11 JUSTIFICATION FOR REQUIRING THE INFORMATION**

4328 GL CACM Article 16 (1) stipulates that the GLDPM "shall include a justification based on the 4329 objectives of [the GL CACM] for requiring the information." As is explained in section 1.5, part of the data required by the GLDPM are needed for building IGMs which, in turn, are the 4330 4331 essential building blocks of CGMs. As explained in the section titled "Objectives of the GL CACM and impact of the CGMM thereon" in the accompanying CGMM, the CGMM furthers 4332 the GL CACM objectives of "ensuring optimal use of the transmission infrastructure", 4333 "ensuring operational security", and "optimising the calculation and allocation of cross-zonal 4334 4335 capacity", so the IGM-/CGM-related data requirements in the GLDPM can be said to be 4336 based on these objectives, too.



Those data not required for building IGMs are needed in order to run certain kinds of operational security analyses which, as explained in section 1.5, are essential for capacity calculation. "[O]ptimising the calculation and allocation of cross-zonal capacity" is one of the objectives set out in GL CACM Article 3, so this links the data requirements set out in the GLDPM back to that particular objective. Of course, "ensuring operational security" is an objective in its own right and is clearly also furthered by the corresponding data requirements in the GLDPM.

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Finally, the data requirements in the GLDPM are also very clearly advancing the objective of "ensuring and enhancing the (...) reliability of information".

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4351 **2 STRUCTURAL VS. VARIABLE DATA**

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An important starting point is the **base case**, which sufficiently describes the relation between the different physical quantities in the time frame studied by having the physical network model and the steady state hypothesis of desired accuracy. The physical network model can be either an **individual grid model** or a common grid model. At a minimum, a **base case** consists of the physical network model and the steady state hypothesis information.

4359

4360 The physical network model

The physical network model refers to technical characteristics and capabilities of the power system equipment.

4363

4364 <u>The equipment model part:</u>

The equipment model part contains the information on technical characteristics of power system equipment. It also contains information on connectivity, the way how items of power system equipment are electrically connected to each other, such as the location of energy injections and energy withdrawals by load and generators. Structural data requested in this document are transferred by the relevant TSO into the equipment model part.

4370

4371 The steady state hypothesis information

The steady state hypothesis information contains information about the status, the control settings, limits and energy injections of power system equipment. Variable data requested in

this document are transferred by the relevant TSO into steady state hypothesis information.

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- 4376



4377 **3 DATA REQUIREMENTS**

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4379 3.1 GENERAL REQUIREMENTS RELATED TO DATA PROVISION

The obligation to provide data applies for all relevant time horizons from (Y-1) to intraday and all relevant **scenarios**. Note that this means that in order to appropriately reflect the time dimension, the time granularity of the data will reflect the one of the **scenario** defined in the CGMM, and in particular in principle have to be provided per market time unit for D-2 / D-1 / ID.

4385

4386 The "Timelines / Deadlines" chapter in the accompanying CGMM sets out the standard deadlines for the various steps in the CGM process. These deadlines apply to TSOs who, in 4387 keeping with the general approach set out in section 1.5, will be setting their own, local 4388 deadlines for data providers. The TSOs' deadlines are stated here in order to give the data 4389 4390 providers subject to the GLDPM an indication of the windows within which they will have to 4391 make their data available to the TSO. In other words, if the TSO has to make its IGM available by, for example, 15 July minus 18 business days, it is clear that the input data for 4392 4393 the IGM have to be provided to the TSO well before that date.

4393 4394

4395 The following table restates the deadlines by which the TSOs have to make their IGM available via the OPDE. With respect to those time-horizons for which market schedules are 4396 not available [(Y-1) up to and including (D-2)], the assumption is that TSOs are submitting 4397 their IGM along with their pre-processing data (henceforth PPD); i.e., the deadlines below 4398 refer to step 02 of the CGM process. (The two options available in this respect - providing 4399 4400 the IGM along with the PPD or providing it at a later stage in the process – are described in 4401 more detail in the accompanying CGMM.) For the other time-horizons, the deadlines relating 4402 to step 05 ("IGM available via the OPDE by TSO for all relevant scenarios") have been 4403 used. The data required will have to be provided to TSOs well before the TSOs' own 4404 deadlines.

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- 4406

Time-horizon for preparation of IGM	Deadline for TSO (step 02 / 05 of CGM process)	Comments
Y-1	15 July minus 18 business days	
M-1	33,50	Deadlines for CGM process to be defined at regional level
W-1		Deadlines for CGM process to be defined by the TSOs concerned



Time-horizon for preparation of IGM	Deadline for TSO (step 02 / 05 of CGM process)	Comments
D-2	16:30h on (D-2)	GL CACM Article 14 (3) stipulates that "[f]or the day-ahead market time-frame, the capacity calculation shall be based on the latest available information. The information update for the day-ahead market time-frame shall not start before 15:00 market time two days before the day of delivery."
D-1	18:00h on (D-1)	
ID	[H – n]:00h for	
	delivery hour H	

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4410	3.2 DATA TO BE PROVIDED BY DSOS
4411	
4412	3.2.1 STRUCTURAL DATA
4413	GL SO (2015-11-27) Article 43 applies:
4414	"(1) Each TSO shall determine the observability area of the transmission connected
4415	distribution systems relevant to determine the system state accurately and efficiently,
4416	based on the methodology developed in accordance with the Article 75 [referring to
4417	the methodology for coordinating operational security analysis].
4418	(2) If a TSO considers that a distribution system which does not have a connection
4419	point to the transmission system has a significant influence in terms of voltage, power
4420	flows or other electrical parameters for the representation of the system's behaviour,
4421	such distribution system shall be defined by the TSO as being part of the
4422	observability area in accordance with the Article 75.
4423	(3) The structural information related to the observability area referred to in
4424	paragraphs 1 and 2 provided by each DSO to the TSO shall include at least:
4425	(a) substations by voltage;
4426	(b) lines that connect the substations referred to in point (a);
4427	(c) transformers from the substations referred to in point (a);
4428	(d) SGUs; and
4429	(e) reactors and capacitors connected in the substations referred to in point
4430	(a).
4431	(4) [not applicable]
4432	(5) Each DSO shall provide to the TSO it is connected to, per primary energy
4433	sources, the total aggregated generating capacity of the type A power generating
4434	modules subject to requirements of Commission Regulation No [000/2015 RfG] and
4435	the best possible estimates of generating capacity of type A power generating
4436	modules not subject to or derogated from Commission Regulation No [000/2015
4437	Rigj, connected to its distribution system, and the related information concerning
4438	their frequency benaviour."
4439	Date on distribution systems in the TCO's chear whility area must be included in the TCO's
4440	Data on distribution systems in the TSO's observability area must be included in the TSO's
4441	IGM and must therefore be provided by DSOs. TSOs shall have the right to demand any
4442	additional information necessary to make use of the data. For example, in the case of the
4443	above-mentioned SGUS (GL SO (2013-11-27) Afficie 43 (3) (0)) information on Where exactly
4444	an SGU is connected to the grid must clearly be provided as well in order to be able to
4440	data described in CL SO (2015 11 27) Article 42 (5) which means that DSOs must provide
4440 4117	as precise a breakdown of installed capacity as possible on a nodal level TSOs will also
4447	as previse a preakuowin or installed capacity as possible on a noual level. ISOS will disc



4448 typically request information on expected changes to structural data for the relevant time 4449 horizons.

4450

4451 GL SO (2015-11-27) Article 43 (4) setting a minimum update frequency of six months is 4452 replaced by the general requirement of keeping information up-to-date set out in section 1.5. 4453

4454 **3.2.2 VARIABLE DATA**

The real-time data discussed in GL SO (2015-11-27) Article 44 are, in principle, out of scope of the present methodology. However, some of the data described in that article are also required for the various time-horizons for which CGMs are prepared.

- 4459 DSOs shall provide the following data for the observability area:
- applicable reference topology;
- outages of relevant DSO assets;
- tap positions of transformers connecting to the transmission system (set-points);
- expected use of reactors and capacitors;
- forecast consumption on a nodal level;
- forecast generation by type A power generating modules on a nodal level, broken
 down by primary energy source
- 4468 Restating the general requirement set out in section 3.1, these data will have to be provided 4469 per market time unit.

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4473 **3.3 DATA TO BE PROVIDED BY POWER GENERATING MODULES**

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4475 **3.3.1 STRUCTURAL DATA**

The requirements in GL SO (2015-11-27) Article 45 (1), (2), and (3) shall apply to those power generating modules covered by the GLDPM that are connected to the transmission system:

4479	
4480	"(1) Each SGU which is a power generating facility owner of a type D power
4481	generating module shall provide the TSO with at least the following data:
4482	(a) general data of the power generating module, including installed capacity and
4483	primary energy source;
4484	(b) turbine and power generating facility data including time for cold and warm start;
4485	(c) data for short-circuit calculation;
4486	(d) power generating facility transformer data;
4487	(e) FCR data of power generating modules offering or providing this service, in
4488	accordance with Article 154;
4489	(f) FRR data of power generating modules offering or providing that service, in
4490	accordance with Article 158;
4491	(g) RR data for power generating modules that offer or provide that service;
4492	(h) data necessary for restoration;
4493	(i) data and models necessary for performing dynamic simulation;
4494	(j) protection data; and
4495	(k) voltage and reactive power control capability.
4496	
4497	(2) Each SGU which is a power generating facility owner of a type B or a type C
4498	power generating module shall provide the TSO with at least the following data:
4499	(a) general data of the power generating module, including installed capacity and
4500	primary energy source;
4501	(b) data for short-circuit calculation;
4502	(c) FCR data according to the definition and requirements of the Article 173 for power
4503	generating modules offering or providing that service;
4504	(d) FRR data for power generating modules that offer or provide that service;
4505	(e) RR data for power generating modules that offer or provide that service;
4506	(f) protection data;
4507	(g) reactive power control capability; and
4508	(h) data necessary for performing dynamic stability assessment according to Article
4509	38.
4510	



4511 (3) A TSO may request the power generating facility owner of a power generating 4512 module to provide further data where appropriate for operational security analysis in accordance with Title 2 of Part III [referring to Part III (Operational Planning), Title 2 4513 (Operational security analysis) of GL SO (2015-11-27)]." 4514 4515 The requirements in GL SO (2015-11-27) Article 48 (1) shall apply to those power generating 4516 modules covered by the GLDPM that are connected to the distribution system: 4517 4518 4519 "(1) Each power generating facility owner of a power generating module which is a 4520 SGU pursuant to Article 2(1)(a) [...] shall provide at least the following data to the TSO and to the DSO to which it has a connection point: 4521 (a) general data of the power generating module, including installed capacity and 4522 primary energy source or fuel type; 4523 4524 (b) frequency containment reserve data according to the definition and needs of the 4525 Article 173 for power generating facilities offering or providing the FCR service; (c) frequency restoration reserve data for power generating facilities offering or 4526 4527 providing the FRR service; (d) replacement reserve data for power generating modules that offer or provide the 4528 4529 RR service: 4530 (e) protection data; 4531 (f) reactive power control capability; 4532 (g) capability of remote access to the circuit breaker; (h) data necessary for performing dynamic simulation according to the provisions in 4533 4534 Commission Regulation No [000/2015 RfG]; and (j) voltage level and location of each power generating module." 4535 4536

4537 GL SO (2015-11-27) Article 48 (2) setting a minimum update deadline of "not later than the 4538 first commissioning or any changes to the existing installation" is replaced by the general 4539 requirement of keeping information up-to-date set out in section 1.5. 4540

4541 **3.3.2 VARIABLE DATA**

4542

The real-time data discussed in GL SO (2015-11-27) Article 47 (1) (transmission-connected power generating modules) are out of scope of the present methodology; as are those discussed in GL SO (2015-11-27) Article 50 (distribution-connected power generating modules).

4547

The requirements in GL SO (2015-11-27) Article 46 (1) shall apply to those generation units connected to the transmission system:

4550"(1) Each SGU which is a power generating facility owner of a type B, C or D power4551generating module shall provide the TSO with at least the following data:



 ahead and intra-day basis; (b) without any delay, any scheduled unavailability or active power capability restriction; (c) any forecast restriction in the reactive power control capability; and (d) as an exception to points (a) and (b), in regions with a central dispatch system, data requested by the TSO for the preparation of its active power output schedule." The requirements in GL SO (2015-11-27) Article 49 shall apply to those generation units connected to the distribution system: "Each power generating facility owner of a power generating module which is a SGU in accordance with Article 2(1)(a) [] shall provide the TSO and the DSO to which it has the connection point, with at least the following data: (a) its scheduled unavailability, active power restriction and its forecast scheduled active power output at the connection point; (b) any forecasted restriction in the reactive power control capability; and (c) as an exception to paragraphs (a) and (b), in regions with a central dispatch system, data requested by the TSO for the preparation of its active power output schedule." Pursuant to GL CACM Article 16 (3) (d) "relevant available information relating to how generation units will be dispatched" shall also be provided on a (D-2) basis along with any other information that the TSO deems relevant. For example, power generating facility owners might be asked to indicate whether their power generating facility will be dispatched? As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III (Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for outage planning agents to provide availability plans for the following calendar year by 01 August of each year shall be respected. 	4552	(a) active power output and active power reserves amount and availability, on a day-
 (b) without any delay, any scheduled unavailability or active power capability restriction; (c) any forecast restriction in the reactive power control capability; and (d) as an exception to points (a) and (b), in regions with a central dispatch system, data requested by the TSO for the preparation of its active power output schedule." The requirements in GL SO (2015-11-27) Article 49 shall apply to those generation units connected to the distribution system: "Each power generating facility owner of a power generating module which is a SGU in accordance with Article 2(1)(a) [] shall provide the TSO and the DSO to which it has the connection point, with at least the following data: (a) its scheduled unavailability, active power restriction and its forecast scheduled active power output at the connection point; (b) any forecasted restriction in the reactive power control capability; and (c) as an exception to paragraphs (a) and (b), in regions with a central dispatch system, data requested by the TSO for the preparation of its active power output schedule." Pursuant to GL CACM Article 16 (3) (d) "relevant available information relating to how generation units will be dispatched" shall also be provided on a (D-2) basis along with any other information that the TSO deems relevant. For example, power generating facility owners might be asked to indicate whether their power generating facility will be dispatched As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III (Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for outage planning agents to provide availability plans for the following calendar year by 01 August of each year shall be respected. 	4553	ahead and intra-day basis;
4555 restriction; 4556 (c) any forecast restriction in the reactive power control capability; and 4557 (d) as an exception to points (a) and (b), in regions with a central dispatch system, 4558 data requested by the TSO for the preparation of its active power output schedule." 4559 The requirements in GL SO (2015-11-27) Article 49 shall apply to those generation units 4560 The requirements in GL SO (2015-11-27) Article 49 shall apply to those generation units 4561 connected to the distribution system: 4562 "Each power generating facility owner of a power generating module which is a SGU 4563 "Each power generating facility owner of a power generating module which is a SGU 4564 in accordance with Article 2(1)(a) [] shall provide the TSO and the DSO to which it 4565 has the connection point, with at least the following data: 4566 (a) its scheduled unavailability, active power restriction and its forecast scheduled 4567 active power output at the connection point; 4568 (b) any forecasted restriction in the reactive power control capability; and 4570 (c) as an exception to paragraphs (a) and (b), in regions with a central dispatch 4571 schedule." 4572 Pursuant to GL CACM Article 16 (3) (d) "relevan	4554	(b) without any delay, any scheduled unavailability or active power capability
 (c) any forecast restriction in the reactive power control capability; and (d) as an exception to points (a) and (b), in regions with a central dispatch system, data requested by the TSO for the preparation of its active power output schedule." The requirements in GL SO (2015-11-27) Article 49 shall apply to those generation units connected to the distribution system: "Each power generating facility owner of a power generating module which is a SGU in accordance with Article 2(1)(a) [] shall provide the TSO and the DSO to which it has the connection point, with at least the following data: (a) its scheduled unavailability, active power restriction and its forecast scheduled active power output at the connection point; (b) any forecasted restriction in the reactive power control capability; and (c) as an exception to paragraphs (a) and (b), in regions with a central dispatch system, data requested by the TSO for the preparation of its active power output schedule." Pursuant to GL CACM Article 16 (3) (d) "relevant available information relating to how generation units will be dispatched" shall also be provided on a (D-2) basis along with any other information that the TSO deems relevant. For example, power generating facility owners might be asked to indicate whether their power generating facility will be dispatched as a function of the spot market price and might also be asked to provide an indicative estimate of marginal cost. As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III (Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for outage planning agents to provide availability plans for the following calendar year by 01 August of each year shall be respected. 	4555	restriction;
 (d) as an exception to points (a) and (b), in regions with a central dispatch system, data requested by the TSO for the preparation of its active power output schedule." The requirements in GL SO (2015-11-27) Article 49 shall apply to those generation units connected to the distribution system: "Each power generating facility owner of a power generating module which is a SGU in accordance with Article 2(1)(a) [] shall provide the TSO and the DSO to which it has the connection point, with at least the following data: (a) its scheduled unavailability, active power restriction and its forecast scheduled active power output at the connection point; (b) any forecasted restriction in the reactive power control capability; and (c) as an exception to paragraphs (a) and (b), in regions with a central dispatch system, data requested by the TSO for the preparation of its active power output schedule." Pursuant to GL CACM Article 16 (3) (d) "relevant available information relating to how generation units will be dispatched" shall also be provided on a (D-2) basis along with any other information that the TSO deems relevant. For example, power generating facility owners might be asked to indicate whether their power generating facility will be dispatched as a function of the spot market price and might also be asked to provide an indicative estimate of marginal cost. As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III (Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for outage planning agents to provide availability plans for the following calendar year by 01 August of each year shall be respected. 	4556	(c) any forecast restriction in the reactive power control capability; and
4558 data requested by the TSO for the preparation of its active power output schedule." 4559 The requirements in GL SO (2015-11-27) Article 49 shall apply to those generation units 4561 connected to the distribution system: 4562 "Each power generating facility owner of a power generating module which is a SGU 4563 "Each power generating facility owner of a power generating module which is a SGU 4564 in accordance with Article 2(1)(a) [] shall provide the TSO and the DSO to which it 4565 has the connection point, with at least the following data: 4566 (a) its scheduled unavailability, active power restriction and its forecast scheduled 4567 active power output at the connection point; 4568 (b) any forecasted restriction in the reactive power control capability; and 4570 c) as an exception to paragraphs (a) and (b), in regions with a central dispatch 4571 schedule." 4572 Pursuant to GL CACM Article 16 (3) (d) "relevant available information relating to how 4573 Pursuant to GL CACM Article 16 (3) (d) "relevant available information relating to how 4574 generation units will be dispatched" shall also be provided. Therefore, data on forecast active 4576 power output and active power reserves shall also be provided on a (D-2) basis along with	4557	(d) as an exception to points (a) and (b), in regions with a central dispatch system,
 The requirements in GL SO (2015-11-27) Article 49 shall apply to those generation units connected to the distribution system: "Each power generating facility owner of a power generating module which is a SGU in accordance with Article 2(1)(a) [] shall provide the TSO and the DSO to which it has the connection point, with at least the following data: (a) its scheduled unavailability, active power restriction and its forecast scheduled active power output at the connection point; (b) any forecasted restriction in the reactive power control capability; and (c) as an exception to paragraphs (a) and (b), in regions with a central dispatch system, data requested by the TSO for the preparation of its active power output schedule." Pursuant to GL CACM Article 16 (3) (d) "relevant available information relating to how generation units will be dispatched" shall also be provided. Therefore, data on forecast active power output and active power reserves shall also be provided on a (D-2) basis along with any other information that the TSO deems relevant. For example, power generating facility owners might be asked to indicate whether their power generating facility will be dispatched as a function of the spot market price and might also be asked to provide an indicative estimate of marginal cost. As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III (Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for outage planning agents to provide availability plans for the following calendar year by 01 August of each year shall be respected. 	4558	data requested by the TSO for the preparation of its active power output schedule."
 The requirements in GL SO (2015-11-27) Article 49 shall apply to those generation units connected to the distribution system: "Each power generating facility owner of a power generating module which is a SGU in accordance with Article 2(1)(a) [] shall provide the TSO and the DSO to which it has the connection point, with at least the following data: (a) its scheduled unavailability, active power restriction and its forecast scheduled active power output at the connection point; (b) any forecasted restriction in the reactive power control capability; and (c) as an exception to paragraphs (a) and (b), in regions with a central dispatch system, data requested by the TSO for the preparation of its active power output schedule." Pursuant to GL CACM Article 16 (3) (d) "relevant available information relating to how generation units will be dispatched" shall also be provided. Therefore, data on forecast active power output and active power reserves shall also be provided on a (D-2) basis along with any other information that the TSO deems relevant. For example, power generating facility owners might be asked to indicate whether their power generating facility will be dispatched as a function of the spot market price and might also be asked to provide an indicative estimate of marginal cost. As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III (Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for outage planning agents to provide availability plans for the following calendar year by 01 August of each year shall be respected. 	4559	
 4561 connected to the distribution system: 4562 4563 "Each power generating facility owner of a power generating module which is a SGU 4564 in accordance with Article 2(1)(a) [] shall provide the TSO and the DSO to which it 4565 has the connection point, with at least the following data: 4566 (a) its scheduled unavailability, active power restriction and its forecast scheduled 4567 active power output at the connection point; 4568 (b) any forecasted restriction in the reactive power control capability; and 4569 (c) as an exception to paragraphs (a) and (b), in regions with a central dispatch 4570 system, data requested by the TSO for the preparation of its active power output 4571 schedule." 4572 4573 Pursuant to GL CACM Article 16 (3) (d) "relevant available information relating to how 4576 generation units will be dispatched" shall also be provided. Therefore, data on forecast active 4577 power output and active power reserves shall also be provided on a (D-2) basis along with 4578 any other information that the TSO deems relevant. For example, power generating facility 4579 owners might be asked to indicate whether their power generating facility will be dispatched 4579 as a function of the spot market price and might also be asked to provide an indicative 4579 estimate of marginal cost. 4580 4581 As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III 4582 (Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for 4584 outage planning agents to provide availability plans for the following calendar year by 01 4586 	4560	The requirements in GL SO (2015-11-27) Article 49 shall apply to those generation units
45624563"Each power generating facility owner of a power generating module which is a SGU4564in accordance with Article 2(1)(a) [] shall provide the TSO and the DSO to which it4565has the connection point, with at least the following data:4566(a) its scheduled unavailability, active power restriction and its forecast scheduled4567active power output at the connection point;4568(b) any forecasted restriction in the reactive power control capability; and4569(c) as an exception to paragraphs (a) and (b), in regions with a central dispatch4570system, data requested by the TSO for the preparation of its active power output4571schedule."45724573Pursuant to GL CACM Article 16 (3) (d) "relevant available information relating to how4576generation units will be dispatched" shall also be provided on a (D-2) basis along with4577owners might be asked to indicate whether their power generating facility4578as a function of the spot market price and might also be asked to provide an indicative4579estimate of marginal cost.458045814581As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III4582(Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for outage planning agents to provide availability plans for the following calendar year by 014584August of each year shall be respected.45854586	4561	connected to the distribution system:
4563"Each power generating facility owner of a power generating module which is a SGU4564in accordance with Article 2(1)(a) [] shall provide the TSO and the DSO to which it4565has the connection point, with at least the following data:4566(a) its scheduled unavailability, active power restriction and its forecast scheduled4567active power output at the connection point;4568(b) any forecasted restriction in the reactive power control capability; and4569(c) as an exception to paragraphs (a) and (b), in regions with a central dispatch4570system, data requested by the TSO for the preparation of its active power output4571schedule."457245724573Pursuant to GL CACM Article 16 (3) (d) "relevant available information relating to how4574generation units will be dispatched" shall also be provided. Therefore, data on forecast active4575power output and active power reserves shall also be provided on a (D-2) basis along with4576as a function of the spot market price and might also be asked to provide an indicative4579estimate of marginal cost.458045814581As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III4582(Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for4583outage planning agents to provide availability plans for the following calendar year by 014584August of each year shall be respected.45854586	4562	
 4564 in accordance with Article 2(1)(a) [] shall provide the TSO and the DSO to which it has the connection point, with at least the following data: 4566 (a) its scheduled unavailability, active power restriction and its forecast scheduled 4567 active power output at the connection point; 4568 (b) any forecasted restriction in the reactive power control capability; and 4569 (c) as an exception to paragraphs (a) and (b), in regions with a central dispatch 4570 system, data requested by the TSO for the preparation of its active power output 4571 schedule." 4572 4573 Pursuant to GL CACM Article 16 (3) (d) "relevant available information relating to how 4574 generation units will be dispatched" shall also be provided. Therefore, data on forecast active 4575 power output and active power reserves shall also be provided on a (D-2) basis along with 4576 any other information that the TSO deems relevant. For example, power generating facility 4579 owners might be asked to indicate whether their power generating facility will be dispatched 4580 As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III 4582 (Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for outage planning agents to provide availability plans for the following calendar year by 01 4586 4586 	4563	"Each power generating facility owner of a power generating module which is a SGU
4565has the connection point, with at least the following data:4566(a) its scheduled unavailability, active power restriction and its forecast scheduled4567active power output at the connection point;4568(b) any forecasted restriction in the reactive power control capability; and4569(c) as an exception to paragraphs (a) and (b), in regions with a central dispatch4570system, data requested by the TSO for the preparation of its active power output4571schedule."457245734573Pursuant to GL CACM Article 16 (3) (d) "relevant available information relating to how4574generation units will be dispatched" shall also be provided. Therefore, data on forecast active4575power output and active power reserves shall also be provided on a (D-2) basis along with4576any other information that the TSO deems relevant. For example, power generating facility4579owners might be asked to indicate whether their power generating facility will be dispatched4579as a function of the spot market price and might also be asked to provide an indicative4580estimate of marginal cost.4581As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III4582(Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for4583outage planning agents to provide availability plans for the following calendar year by 014584Asges can year shall be respected.45854586	4564	in accordance with Article 2(1)(a) [] shall provide the TSO and the DSO to which it
 (a) its scheduled unavailability, active power restriction and its forecast scheduled active power output at the connection point; (b) any forecasted restriction in the reactive power control capability; and (c) as an exception to paragraphs (a) and (b), in regions with a central dispatch system, data requested by the TSO for the preparation of its active power output schedule." Pursuant to GL CACM Article 16 (3) (d) "relevant available information relating to how generation units will be dispatched" shall also be provided. Therefore, data on forecast active power output and active power reserves shall also be provided on a (D-2) basis along with any other information that the TSO deems relevant. For example, power generating facility owners might be asked to indicate whether their power generating facility will be dispatched 4578 As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III (Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for outage planning agents to provide availability plans for the following calendar year by 01 August of each year shall be respected.	4565	has the connection point, with at least the following data:
4567active power output at the connection point;4568(b) any forecasted restriction in the reactive power control capability; and4569(c) as an exception to paragraphs (a) and (b), in regions with a central dispatch4570system, data requested by the TSO for the preparation of its active power output4571schedule."457245734573Pursuant to GL CACM Article 16 (3) (d) "relevant available information relating to how4574generation units will be dispatched" shall also be provided. Therefore, data on forecast active4575power output and active power reserves shall also be provided on a (D-2) basis along with4576any other information that the TSO deems relevant. For example, power generating facility4577owners might be asked to indicate whether their power generating facility will be dispatched45804581As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III4581As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III4582(Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for4583outage planning agents to provide availability plans for the following calendar year by 014584August of each year shall be respected.45854586	4566	(a) its scheduled unavailability, active power restriction and its forecast scheduled
 (b) any forecasted restriction in the reactive power control capability; and (c) as an exception to paragraphs (a) and (b), in regions with a central dispatch system, data requested by the TSO for the preparation of its active power output schedule." Pursuant to GL CACM Article 16 (3) (d) "relevant available information relating to how generation units will be dispatched" shall also be provided. Therefore, data on forecast active power output and active power reserves shall also be provided on a (D-2) basis along with any other information that the TSO deems relevant. For example, power generating facility owners might be asked to indicate whether their power generating facility will be dispatched as a function of the spot market price and might also be asked to provide an indicative estimate of marginal cost. As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III (Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for outage planning agents to provide availability plans for the following calendar year by 01 August of each year shall be respected. 	4567	active power output at the connection point;
 (c) as an exception to paragraphs (a) and (b), in regions with a central dispatch system, data requested by the TSO for the preparation of its active power output schedule." Pursuant to GL CACM Article 16 (3) (d) "relevant available information relating to how generation units will be dispatched" shall also be provided. Therefore, data on forecast active power output and active power reserves shall also be provided on a (D-2) basis along with any other information that the TSO deems relevant. For example, power generating facility owners might be asked to indicate whether their power generating facility will be dispatched as a function of the spot market price and might also be asked to provide an indicative estimate of marginal cost. As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III (Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for outage planning agents to provide availability plans for the following calendar year by 01 August of each year shall be respected. 	4568	(b) any forecasted restriction in the reactive power control capability; and
 4570 system, data requested by the TSO for the preparation of its active power output 4571 schedule." 4572 4573 Pursuant to GL CACM Article 16 (3) (d) "relevant available information relating to how 4574 generation units will be dispatched" shall also be provided. Therefore, data on forecast active 4575 power output and active power reserves shall also be provided on a (D-2) basis along with 4576 any other information that the TSO deems relevant. For example, power generating facility 4577 owners might be asked to indicate whether their power generating facility will be dispatched 4578 as a function of the spot market price and might also be asked to provide an indicative 4579 estimate of marginal cost. 4580 4581 As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III 4582 (Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for outage planning agents to provide availability plans for the following calendar year by 01 4585 4586 	4569	(c) as an exception to paragraphs (a) and (b), in regions with a central dispatch
 4571 schedule." 4572 4573 Pursuant to GL CACM Article 16 (3) (d) "relevant available information relating to how 4574 generation units will be dispatched" shall also be provided. Therefore, data on forecast active 4575 power output and active power reserves shall also be provided on a (D-2) basis along with 4576 any other information that the TSO deems relevant. For example, power generating facility 4577 owners might be asked to indicate whether their power generating facility will be dispatched 4578 as a function of the spot market price and might also be asked to provide an indicative 4579 estimate of marginal cost. 4580 4581 As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III 4582 (Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for outage planning agents to provide availability plans for the following calendar year by 01 4585 4586 	4570	system, data requested by the TSO for the preparation of its active power output
 4572 4573 Pursuant to GL CACM Article 16 (3) (d) "relevant available information relating to how generation units will be dispatched" shall also be provided. Therefore, data on forecast active power output and active power reserves shall also be provided on a (D-2) basis along with any other information that the TSO deems relevant. For example, power generating facility owners might be asked to indicate whether their power generating facility will be dispatched as a function of the spot market price and might also be asked to provide an indicative estimate of marginal cost. 4580 4581 As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III (Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for outage planning agents to provide availability plans for the following calendar year by 01 August of each year shall be respected. 	4571	schedule."
 4573 Pursuant to GL CACM Article 16 (3) (d) "relevant available information relating to how generation units will be dispatched" shall also be provided. Therefore, data on forecast active power output and active power reserves shall also be provided on a (D-2) basis along with any other information that the TSO deems relevant. For example, power generating facility owners might be asked to indicate whether their power generating facility will be dispatched as a function of the spot market price and might also be asked to provide an indicative estimate of marginal cost. 4580 4581 As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III (Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for outage planning agents to provide availability plans for the following calendar year by 01 August of each year shall be respected. 	4572	
 4574 generation units will be dispatched" shall also be provided. Therefore, data on forecast active 4575 power output and active power reserves shall also be provided on a (D-2) basis along with 4576 any other information that the TSO deems relevant. For example, power generating facility 4577 owners might be asked to indicate whether their power generating facility will be dispatched 4578 as a function of the spot market price and might also be asked to provide an indicative 4579 estimate of marginal cost. 4580 4581 As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III 4582 (Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for 4584 August of each year shall be respected. 4585 4586 	4573	Pursuant to GL CACM Article 16 (3) (d) "relevant available information relating to how
 power output and active power reserves shall also be provided on a (D-2) basis along with any other information that the TSO deems relevant. For example, power generating facility owners might be asked to indicate whether their power generating facility will be dispatched as a function of the spot market price and might also be asked to provide an indicative estimate of marginal cost. As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III (Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for outage planning agents to provide availability plans for the following calendar year by 01 August of each year shall be respected. 	4574	generation units will be dispatched" shall also be provided. Therefore, data on forecast active
 4576 any other information that the TSO deems relevant. For example, power generating facility 4577 owners might be asked to indicate whether their power generating facility will be dispatched 4578 as a function of the spot market price and might also be asked to provide an indicative 4579 estimate of marginal cost. 4580 4581 As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III 4582 (Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for 4583 outage planning agents to provide availability plans for the following calendar year by 01 4584 August of each year shall be respected. 	4575	power output and active power reserves shall also be provided on a (D-2) basis along with
 owners might be asked to indicate whether their power generating facility will be dispatched as a function of the spot market price and might also be asked to provide an indicative estimate of marginal cost. As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III (Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for outage planning agents to provide availability plans for the following calendar year by 01 August of each year shall be respected. 	4576	any other information that the TSO deems relevant. For example, power generating facility
 as a function of the spot market price and might also be asked to provide an indicative estimate of marginal cost. As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III (Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for outage planning agents to provide availability plans for the following calendar year by 01 August of each year shall be respected. 4586 	4577	owners might be asked to indicate whether their power generating facility will be dispatched
 estimate of marginal cost. As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III (Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for outage planning agents to provide availability plans for the following calendar year by 01 August of each year shall be respected. 	4578	as a function of the spot market price and might also be asked to provide an indicative
 4580 4581 As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III 4582 (Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for 4583 outage planning agents to provide availability plans for the following calendar year by 01 4584 August of each year shall be respected. 4585 4586 	4579	estimate of marginal cost.
 As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III (Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for outage planning agents to provide availability plans for the following calendar year by 01 August of each year shall be respected. 	4580	
 4582 (Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for 4583 outage planning agents to provide availability plans for the following calendar year by 01 4584 August of each year shall be respected. 4585 4586 	4581	As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27). Part III
 4583 outage planning agents to provide availability plans for the following calendar year by 01 4584 August of each year shall be respected. 4585 4586 	4582	(Operational Planning) Title 3 (Outage coordination) and especially, the obligation for
 4584 August of each year shall be respected. 4585 4586 	4583	outage planning agents to provide availability plans for the following calendar year by 01
4585 4586	4584	August of each year shall be respected
4586	4585	
	4586	
4587	4587	



4589 **3.4 DATA TO BE PROVIDED BY INTERCONNECTORS**

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4591 3.4.1 STRUCTURAL DATA

4592 The requirements in GL SO (2015-11-27) Article 45 (4) and (5) shall apply:

- 4593 "(4) Each HVDC system owner or interconnector owner shall provide the TSO with 4594 the following data regarding the HVDC system or interconnector:
- 4595 (a) name plate data of the installation;
- 4596 (b) transformers data;
- 4597 (c) data on filters and filter banks;
- (d) reactive compensation data;
- 4599 (e) active power control capability;
- 4600 (f) reactive power and voltage control capability;
- 4601 (g) active or reactive operational mode prioritization if exists;
- 4602 (h) frequency response capability;
- 4603 (i) dynamic models for dynamic simulation;
- 4604 (j) protection data; and
- 4605 (k) fault ride through capability.
- 4607 (5) Each AC interconnector owner shall provide the TSO with at least the following4608 data:
- 4609 (a) name plate data of the installation;
- 4610 (b) electrical parameters;
- 4611 (c) associated protections."
- 4612

4606

4613 **3.4.2 VARIABLE DATA**

4614 The requirements in GL SO (2015-11-27) Article 46 (2) and (3) shall apply: 4615 "(2) Each HVDC system operator shall provide the TSOs with at least the following 4616 4617 data: (a) its active power schedule and availability on a day-ahead and intra-day basis; 4618 (b) without delay its scheduled unavailability or active power restriction; and 4619 4620 (c) any forecast restriction in the reactive power or voltage control capability. 4621 4622 (3) Each AC interconnector or line operator shall provide its scheduled unavailability 4623 or active power restriction data to the TSOs." 4624 As for longer-term unavailabilities, the requirements set out in GL SO (2015-11-27), Part III 4625 (Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for 4626



4627 outage planning agents to provide availability plans for the following calendar year by 014628 August of each year shall be respected.

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4629

4630 The real-time data discussed in GL SO (2015-11-27) Article 47 (2) are out of scope of the 4631 present methodology.

4632



4635 **3.5 DATA TO BE PROVIDED BY DEMAND FACILITIES**

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4637 **3.5.1 STRUCTURAL DATA**

- 4638 GL SO (2015-11-27) Article 52 (1) and (4) shall apply:
- 4640 "(1) Each transmission connected demand facility shall provide the following4641 structural data to the TSO:
- 4642 (a) electrical data of the transformers connected to the transmission system;
- 4643 (b) characteristics of the load of the demand facility; and
- 4644 (c) characteristics of the reactive power control."
- 4646 "(4) Each demand facility directly connected to the transmission system shall describe
 4647 to its TSO its behaviour at the voltage ranges referred to in Article 27 [referring to
 4648 voltage limits]."
- 4650 Relevant demand facilities (as defined in section 1.7) shall also provide these data.
- 4651

4652 **3.5.2 VARIABLE DATA**

4653 Real-time data pursuant to GL SO (2015-11-27) Article 52 (3) are out of scope of the present4654 GLDPM.

4655

4656 However, GL SO (2015-11-27) Article 52 (2) shall apply with respect to both transmission-4657 connected demand facilities and relevant demand facilities (as defined in section 1.7):

- 4658 4659
- "(2) Each [...] demand facility shall provide the following data to the TSO:
- 4660 (a) its scheduled active and forecast reactive consumption on a day-ahead and 4661 intraday basis, including any changes of those schedules or forecast;
- (b) any forecasted restriction in the reactive power control capability;
- 4663 (c) in case of participation in demand side response, a schedule of its structural 4664 minimum and maximum power to be curtailed; and
- 4665(d) by exception to point (a), in regions with a central dispatch system, the data4666requested by the TSO for the preparation of its active power output schedule."
- As for unavailabilities, the requirements set out in GL SO (2015-11-27), Part III (Operational Planning), Title 3 (Outage coordination) and, especially, the obligation for outage planning agents to provide availability plans for the following calendar year by 01 August of each year shall be respected.



4673	
4674	3.6 DATA TO BE PROVIDED BY NEMOS AND BROKERS
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4676	3.6.1 STRUCTURAL DATA
4677	None.
4678	
4679	3.6.2 VARIABLE DATA
4680	NEMOs and brokers shall provide their anonymised historical spot market order books (PX
4681	and OTC, respectively) which are an important input for the CGM Alignment process.
4682	
4683	Further, GL SO (2015-11-27) Article 111 (2) shall apply:
4684	"(2) Each scheduling agent of a market coupling operator shall submit to the TSOs
4685	operating a scheduling area covered by market coupling, the following schedules as
4686	requested by the concerned TSOs:
4687	(a) net positions related to the scheduling area;
4688	(b) external commercial trade schedules as:
4689	(i) multilateral exchanges between the scheduling area and a group of other
4090	(ii) bilateral exchanges between the scheduling area and another scheduling
4091	
4693	(c) internal commercial trade schedules between scheduling agents of market
4694	coupling operators and scheduling agents of nominated electricity market operators."
4695	
4696	In order to achieve complete coverage of external commercial trade schedules, all
4697	scheduling agents shall submit these to TSOs for all relevant time horizons.
4698	



4700 **4 DATA QUALITY ASSURANCE**

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In keeping with the general approach outlined in section 1.5, data quality assurance isprimarily a task for each individual TSO building an IGM.

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GL CACM Article 19 (2) makes it clear that "[e]ach individual grid model shall represent the best possible forecast of transmission system conditions for each scenario specified by the TSO(s) at the time when the individual grid model is created." GL CACM Article 28 (2) extends this quality standard to input data from generation units and loads by stipulating that "[e]ach generator or load unit providing information (...) shall deliver the most reliable set of estimations practicable."

4711

Based on these legal provisions, each individual TSO can and shall demand from its generation units and loads that they respect the TSO's implementation rules including specific requirements related to data quality. Specifically, TSOs shall have the right to assess the accuracy of, for example, forecast and schedule data, by, inter alia, applying standard statistical techniques to samples of appropriate size (e.g., comparing forecasts against realised values etc). TSOs shall have the right to sanction insufficient data quality in an appropriate manner.

4719

As for the TSOs themselves, as was noted in section 1.5 there is a simple criterion that they have to meet: their IGMs have to pass the quality checks required before the models can be made available via the OPDE.



4726 **5** TIMESCALE FOR IMPLEMENTATION

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The starting point for implementation is the submission of the draft GLDPM to the competent regulatory authorities and ACER. Unless there is a request for amendments [GL CACM Article 9 (12)] or the NRAs cannot find a consensus [GL CACM Article 9 (11)], the NRAs have a maximum of six months to make a decision [GL CACM Article 9 (10)].

4732

Once the GLDPM has been approved, it shall be published on the internet pursuant to GLCACM Article 9 (14).

4735

According to GL CACM Article 16 (6), "[n]o later than two months after the approval of the generation and load data provision methodology by all regulatory authorities, ENTSO for Electricity shall publish: (a) a list of the entities required to provide information to the TSOs; (b) a list of the information referred to in paragraph 3 to be provided; (c) deadlines for providing information."

4741

4742 In order to be able to meet that deadline, once the draft GLDPM has been submitted for approval each TSO shall - based on the provisions in the draft GLDPM - begin local 4743 4744 implementation. TSOs shall specifically approach those entities which are likely to be 4745 required to provide information and ensure that these entities make the preparations necessary in order to provide the data required in sufficient quality, in a timely manner, and 4746 following any other requirements (data formats, IT interfaces etc) that the TSO may set. As 4747 4748 part of this control area - level coordination process, each TSO shall establish local implementation rules that, if implemented, enable all parties to meet their respective 4749 4750 obligations under the GLDPM. Separate but possibly overlapping data provision requirements under GL SO (2015-11-27), Part II (Operational Security), Title 2 (Data 4751 exchange), Articles 40 to 53, as well as other items of legislation (both European - such as 4752 4753 the Commission Regulation (EU) No 543/2013 of 14 June 2013 on submission and 4754 publication of data in electricity markets and amending Annex I to Regulation (EC) No 714/2009 of the European Parliament and of the Council; Article 2 (6) - and national) shall be 4755 4756 taken into account so as to avoid duplicate requests for the same data if at all possible.

4757

By two weeks after the approval of the GLDPM by all regulatory authorities, each TSO shallmake available to ENTSO-E

- 4760 (a) a list of the entities required to provide information to the TSO;
- 4761 (b) a list of the information to be provided;
- 4762 (c) deadlines for providing information;
- using the template and process to be specified by ENTSO-E.
- 4764 Allowing two weeks for clarification (discussions between TSOs and ENTSO-E), ENTSO-E
- should be able to prepare a preliminary list by four weeks after the approval of the GLDPM.
- 4766 That leaves another four weeks in order to finalise and publish the list as required.



To the extent that the demand facilities required to provide data under the GLDPM are "relevant demand facilities" as defined in GL SO (2015-11-27) Article 3 (88) as "a demand facility which participates in the outage coordination and the availability status of which influences cross-border operational security", irrespective of whether they are connected to a transmission or distribution grid, special arrangements are necessary, because the full list of "relevant assets" will only be known at a later stage.

4774

4775 Whether a power generating module or demand facility is relevant or not is to be determined 4776 on the basis of the "Methodology for assessing the relevance of assets for outage coordination" pursuant to GL SO (2015-11-27) Article 84. Such a methodology is to be 4777 prepared for each synchronous area within 12 months of the entry into force of the GL SO 4778 4779 [GL SO (2015-11-27) Article 84 (1)] and by 15 months of the entry into force of the GL SO 4780 each outage coordination region is to have established "a single list (...) of relevant power 4781 generating modules and relevant demand facilities for the outage coordination." [GL SO 4782 (2015-11-27) Article 85 (1)]. This potentially conflicts with the publication requirement pursuant to GL CACM Article 16 (6) which obliges ENTSO-E to publish "a list of the entities 4783 required to provide information to the TSOs" within two months of the approval of the 4784 4785 GLDPM. The list published by the deadline set by GL CACM Article 16 (6) shall therefore be 4786 updated in the light of the definitive list of relevant demand facilities if the latter list should not 4787 have been established by the earlier deadline.

4788

4797

4789 Entities required to provide data under the GLDPM should then have about one year - twelve 4790 months - from the date of publication of the list required by GL CACM Article 16 (6) in order to provide the first set of the data required. Noting that GL SO (2015-11-27) Article 192 4791 ("Articles 41 to 53 shall apply [18 months after the entry into force of this Regulation]".) sets 4792 4793 out a possibly concurrent deadline, the deadline under the GLDPM is stated as "fourteen 4794 months after the approval of the GLDPM except for data also required by GL SO. For data 4795 also required by GL SO the deadline shall be the earlier of (i) fourteen months after the approval of the GLDPM and (ii) 18 months after the entry into force of GL SO". 4796

A number of obligations in GL SO (2015-11-27) will need to be addressed in parallel. 4798 Specifically, as part of the preparation of the methodology on "key organisational 4799 4800 requirements, roles and responsibilities in relation to data exchange" pursuant to GL SO (2015-11-27) Article 40 (6), the latter methodology and the GLDPM will have to be aligned. 4801 4802 One objective in this is to avoid duplication of data provision requirements. Related to this is the requirement formulated in GL SO (2015-11-27) Article 40 (7) according to which "[b]y [18 4803 4804 months after entry into force of this Regulation], each TSO shall agree with the relevant DSOs on effective, efficient and proportional processes for providing and managing data 4805 4806 exchanges between them, including, where required for efficient network operation, the 4807 provision of data related to distribution systems and SGUs."

4808

4809 This completes the overview of the timescale for implementation of the GLDPM.



4811 6 ANNEXES

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4814 Disclaimer applicable to all annexes included in the present GLDPM

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The annexes are not meant to be legally binding. They are included in the present version of the document (for public consultation) for the sake of convenience. However, in order to make the non-binding character clear, the annexes will likely be split off into "Supporting Documents" prior to submission of the Methodologies to the competent regulatory authorities.

4823

6.1 CGM AREA IN TERMS OF COVERAGE OF BIDDING ZONES (AS OF 2016-01)

- The following table comprehensively describes the geographical coverage of the CGM on the
 level of **bidding zones**. It should be read in conjunction with the explanations in section 1.3
 of the present methodology. Unless noted otherwise, the **bidding zones** listed below are
 part of the CGM Area.
- 4829

In the case of TSOs managing more than one **bidding zone**, the TSO provides a single IGM for the whole **control area** and the TSO's website provides additional information about the composition of the **bidding zones**. Additional information of interest may also be found in the "All TSOs' proposal for Capacity Calculation Regions (CCRs) in accordance with Article 15(1) of the Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a Guideline on Capacity Allocation and Congestion Management" published on the ENTSO-E website.

As explained in section 1.2, only TSOs from an EU member state are considered "certified
TSOs". In multiple-TSO jurisdictions, Member States may have assigned responsibilities
among the TSOs in a particular manner. The present overview table does <u>not</u> aim to provide
details on this.

4842

SUB-	Synch.	Bidding	TSO(s)	EU	ENTSO-E	Comments
LINE	Area	zone		member?	member?	
01	CE	AL	Operatori i Sistemit	No, but	No	Albania provides its
			të Transmetimit	Energy		IGM and <u>is</u> part of the
			(OST)	Community		CGM Area.
				member		



SUB-	Synch.	Bidding	TSO(s)	EU	ENTSO-E	Comments
LINE	Area	zone		member?	member?	
02	CE	AT / DE / LU	Austrian Power Grid AG Vorarlberger Übertragungsnetz GmbH Eneco Valcanale S.r.l. 50Hertz Transmission GmbH Amprion GmbH TenneT TSO GmbH TransnetBW GmbH Creos Luxembourg S.A.	Yes	Yes (except Eneco Valcanale S.r.l.)	Biddingzoneconfigurationasof2016-01.Giventhatsplittingupthisbiddingzoneintoseparate"AT"and"DE/LU"biddingzonesisbeingenvisaged,the presentoverview table shall bereviewedpriortosubmissionofthecompetentregulatoryauthorities.
03	CE	BA	Nezavisni operator sustava u Bosni i Hercegovini (NOS BiH)	No, but Energy Community member	Yes	
04	CE	BE	Elia System Operator SA	Yes	Yes	
05	CE	BG	Electroenergien Sistemen Operator EAD (ESO)	Yes	Yes	
06	Baltic	BY	Belenergo Holding / Belarus TSO	No	No	BelarusnotpartofCGMArea;interconnectionstoBelarustobeincorporatedasinjectionsbybythSObyof Lithuaniaand Poland



SUB-	Synch.	Bidding	TSO(s)	EU	ENTSO-E	Comments
LINE	Area	zone		member?	member?	
07	CE	CH	Swissgrid AG	No	Yes	Switzerland <u>is</u> part of the CGM Area ; legal questions related to Article 1 (4) and (5) of the GL CACM are out of scope of the present document
08	CE	CZ	ČEPS a.s.	Yes	Yes	
09	CE	DK1	Energinet.dk	Yes	Yes	
10	Nordic	DK2	Energinet.dk	Yes	Yes	
11	Baltic	EE	Elering AS	Yes	Yes	
12	CE	ES	Red Eléctrica de España S.A.	Yes	Yes	
13	Nordic	FI	Fingrid Oyj	Yes	Yes	
14	CE	FR	Réseau de Transport d'Electricité	Yes	Yes	
15	GB	GB	National Grid Electricity Transmission plc	Yes	Yes	
			Scottish Hydro Electric Transmission plc		Yes	
			Scottish Power Transmission plc		Yes	
			BritNed		No	
			National Grid Interconnectors Ltd.		No	
			Moyle IC		No	
			Offshore Transmission Owners (OFTOs – not individually listed)		No	



SUB-	Synch.	Bidding	TSO(s)	EU	ENTSO-E	Comments
LINE	Area	zone		member?	member?	
16	CE	GR	Independent Power Transmission Operator S.A.	Yes	Yes	
17	CE	HR	HOPS d.o.o.	Yes	Yes	
18	CE	HU	MAVIR Magyar Villamosenergia- ipari Átviteli Rendszerirányító Zártkörűen Működő Részvénytársaság	Yes	Yes	
19	IE / NI	IE/NI	EirGrid plc System Operator for Northern Ireland Ltd	Yes	Yes	
20	CE	IT1 (NORD)	Terna - Rete Elettrica Nazionale SpA	Yes	Yes	
21	CE	IT2 (CNOR)	Terna - Rete Elettrica Nazionale SpA	Yes	Yes	
22	CE	IT3 (CSUD)	Terna - Rete Elettrica Nazionale SpA	Yes	Yes	
23	CE	IT4 (SUD)	Terna - Rete Elettrica Nazionale SpA	Yes	Yes	
24	CE	IT5 (FOGN)	Terna - Rete Elettrica Nazionale SpA	Yes	Yes	
25	CE	IT6 (BRNN)	Terna - Rete Elettrica Nazionale SpA	Yes	Yes	
26	CE	IT7 (ROSN)	Terna - Rete Elettrica Nazionale SpA	Yes	Yes	
27	CE	IT8 (SICI)	Terna - Rete Elettrica Nazionale SpA	Yes	Yes	



SUB- LINE	Synch. Area	Bidding zone	TSO(s)	EU member?	ENTSO-E member?	Comments
28	CE	IT9 (PRGP)	Terna - Rete Elettrica Nazionale SpA	Yes	Yes	
29	CE	IT10 (SARD)	Terna - Rete Elettrica Nazionale SpA	Yes	Yes	Not included in CGM according to Terna (not relevant from a technical point of view)
30	Baltic	LT	Litgrid AB	Yes	Yes	
31	Baltic	LV	AS Augstsprieguma tÏkls	Yes	Yes	
32	CE	MA	ONEE	No	No	MorocconotpartofCGMArea;interconnectiontoMoroccotobeincorporatedasinjectionby the TSO ofSpainSpain
33	CE	MD	Moldelectrica	No, but Energy Community member	No	Moldova <u>not</u> part of CGM Area
34	CE	ME	Crnogorski elektroprenosni sistem AD	No, but Energy Community member	Yes	
35	CE	МК	Macedonian Transmission System Operator AD	No, but Energy Community member	Yes	



LINEAreazonemember?member?member?36CEMTEnemaltaYesNoMalta is not part of the CGM Area as it only has a distribution network, not a a transmission metwork. Following the commissioning of the interconnection infixion metwork, mathematical is incorporated in the IGM of Terma, the Italian TSO, as an injection.37CENLTenneT TSO B.V. BritNedYesYes38<NordicNO1Statnett SFNoYes40NordicNO2Statnett SFNoYes41NordicNO3Statnett SFNoYes42NordicNO3Statnett SFNoYes43CEPL PolskieSieci S.A.YesYes44CEPTRede Eléctrica Nacional, S.A.YesYes45CEROC.N. Transelectrica SrbijeYesYesYes47BalticRUFGCNoNoNoRussia not part of CGM Area; interconnection schip and part of CGM Area; interconnection schip and part of CGM Area; interconnection schip and part of CGM Area; interconnection a single schip and part of the schip48NordicSE1Svenska KraftnätYesYes	SUB-	Synch.	Bidding	TSO(s)	EU	ENTSO-E	Comments
36CEMTEnemaltaYesNoMalta is not part of the CGM Area as it only has a distribution network, not a transmission network. Following the interconnection linking Malta with Sicily, Malta is incorporated in the IGM of Terna, the Italian TSO, as an injection.37CENLTenneT TSO B.V.YesYes38<NordicNO1Statnett SFNoYes39NordicNO2Statnett SFNoYes30NordicNO2Statnett SFNoYes40NordicNO3Statnett SFNoYes41NordicNO5Statnett SFNoYes43CEPLPolskieSieci Elektroenergetyczne S.A.YesYes44CEROC.N. Transelectrica S.A.YesYes47BalticRUFGCNoNo48NordicSE1Svenska KraftnätYesYes	LINE	Area	zone		member?	member?	
36 CE MT Enemalta Yes No Malta is not part of the CGM Area as it only has a distribution network, not a transmission network, not a transmission network, not a transmission network. 37 CE NL TenneT TSO B.V. Yes Yes Yes 37 CE NL TenneT TSO B.V. Yes Yes Yes 38 Nordic NO1 Statnett SF No Yes Yes 38 Nordic NO2 Statnett SF No Yes Yes 39 Nordic NO2 Statnett SF No Yes Yes 40 Nordic NO3 Statnett SF No Yes Yes 41 Nordic NO3 Statnett SF No Yes Yes 43 CE PL Polskie Sieci Yes Yes Yes 44 CE PT Rede Elektroenergetyczne S.A. Yes Yes 47 Baltic RU FGC No No Yes Yes 48 Nordic SE1							
CCM Area as it only has a distribution network, not a transmission network, Following the commissioning of the interconnection linking Mata with Sicily, Mata is incorporated in the Italian TSO, as an injection.37CENLTenneT TSO B.V. BritNedYes38NordicN01Statnett SFNo38NordicN01Statnett SFNo39NordicN02Statnett SFNo40NordicN03Statnett SFNo41NordicNO4Statnett SFNo42NordicNO5Statnett SFNo43CEPLPolskieSleci S.A.44CEPTRedeEléctrica S.A.45CEROC.N. Transelectrica S.A.Yes46CERSJPElektromreža S.A.47BalticRUFGCNo48NordicSE1Svenska KraftnätYes48NordicSE1Svenska KraftnätYes	36	CE	MT	Enemalta	Yes	No	Malta is <u>not</u> part of the
has a distribution network, not a transmission network, Following the commissioning of the interconnection linking Malta with Sicily, Malta is incorporated in the IGM of Terna, the Italian TSO, as an injection.37CENLTenneT TSO B.V.YesYes38NordicN01Statnett SFNoYes39NordicN02Statnett SFNoYes39NordicN03Statnett SFNoYes40NordicN03Statnett SFNoYes41NordicN03Statnett SFNoYes42NordicN03Statnett SFNoYes43CEPLPolskieSieci S.A.YesYes44CEPTRedeEléctrica S.A.YesYes46CERSJPElektromreža S.A.No, but YesYes47BalticRUFGCNoNoNo48NordicSE1Svenska KraftnätYesYes							CGM Area as it only
Image: Second stateNoYesNo37CENLTenneT TSO B.V.YesYes37CENLTenneT TSO B.V.YesYes37CENLTenneT TSO B.V.YesYes38NordicNO1Statnett SFNoYes39NordicNO3Statnett SFNoYes39NordicNO3Statnett SFNoYes40NordicNO3Statnett SFNoYes41NordicNO5Statnett SFNoYes42NordicNO5Statnett SFNoYes43CEPLPolskleSieciYes44CEPTRedeEléctroicaYesYes5.A.45CEROC.N. TranselectricaYesYes46CERSJPElektromrežaNo, but Energy Community memberYes47BalticRUFGCNoNoRussia not part of CGM Area; interconnections to Russia to be incorporated as injections by the TSOS48NordicSE1Svenska KraftnätYesYes							has a distribution
Image: Section of the section of th							network, not a
AllNordicNO1Statnett SFNoYes37CENLTenneT TSO B.V.YesYes37CENLTenneT TSO B.V.YesYes38NordicNO1Statnett SFNoYes39NordicNO2Statnett SFNoYes40NordicNO2Statnett SFNoYes41NordicNO3Statnett SFNoYes42NordicNO3Statnett SFNoYes43CEPLPolskieSici< Elektroenregetyczne S.A.YesYes44CEPTRedeEléctrica Nacional, S.A.YesYes45CEROC.N. Transelectrica SrbijeYesYes47BalticRUFGCNoNoNo48NordicSE1Svenska KraftnätYesYes48NordicSE1Svenska KraftnätYesYes							transmission network.
37CENLTenneT TSO B.V.YesYes37CENLTenneT TSO B.V.YesYes37CENLTenneT TSO B.V.YesYes38NordicNO1Statnett SFNoYes39NordicNO2Statnett SFNoYes39NordicNO2Statnett SFNoYes40NordicNO3Statnett SFNoYes41NordicNO4Statnett SFNoYes42NordicNO5Statnett SFNoYes43CEPLPolskieSieci Elektroenergetyczne S.A.YesYes44CEPTRedeEléctrica Nacional, S.A.YesYes45CEROC.N. Transelectrica SrbijeYesYesYes46CERSJPElektromreža SrbijeNo, but Energy Community memberYesYes47BalticRUFGCNoNoRussia not part of CGM Area; interconnections to Russia to be incorporated as injections by the TSOS of Finland, Estonia, Latvia, Lithuania, and Norway.48NordicSE1Svenska KraftnätYesYes							commissioning of the
AllNordicNLTenneT TSO B.V.YesYes37CENLTenneT TSO B.V.YesYes38NordicN01Statnett SFNoYes39NordicN02Statnett SFNoYes40NordicNO3Statnett SFNoYes41NordicNO5Statnett SFNoYes42NordicNO5Statnett SFNoYes43CEPLPolskieSieciYesYes44CEPTRedeEléktroenergetyczne S.A.YesYes45CEROC.N. Transelectrica S.A.YesYes46CERSJPElektromreža SrbijeNo, but Energy Community memberYes47BalticRUFGCNoNoRussia not part of CGM Area; interconnections to Russia to be incorporated as injections by the TSOIs48NordicSE1Svenska KraftnätYesYes							interconnection linking
37CENLTenneT TSO B.V.YesYes37CENLTenneT TSO B.V.YesYes38NordicNO1Statnett SFNoYes39NordicNO2Statnett SFNoYes39NordicNO3Statnett SFNoYes40NordicNO3Statnett SFNoYes41NordicNO4Statnett SFNoYes42NordicNO5Statnett SFNoYes43CEPLPolskieSieci Elektroenergetyczne S.A.YesYes44CEPTRedeEléctrica S.A.YesYes45CEROC.N. Transelectrica SrbijeYesYes46CERSJPElektromreža SrbijeNo, but Energy Community memberYes47BalticRUFGCNoNoRussia not part of CGM Area; interconnections to Russia to be incorporated as injections by the TSOs48NordicSE1Svenska KraftnätYesYes							Malta with Sicily, Malta
Image: Second							is incorporated in the
37CENLTenneT TSO B.V.YesYes37CENLTenneT TSO B.V.YesYes38NordicNO1Statnett SFNoYes39NordicNO2Statnett SFNoYes40NordicNO3Statnett SFNoYes41NordicNO4Statnett SFNoYes42NordicNO5Statnett SFNoYes43CEPLPolskieSieciYesYes44CEPTRedeEléctrica Nacional, S.A.YesYes45CEROC.N. Transelectrica S.A.YesYes46CERSJPElektromreža SrbijeNo, but Energy Community memberYes47BalticRUFGCNoNoNo48NordicSE1Svenska KraftnätYesYes							IGM of Terna, the
37CENLTenneT TSO B.V.YesYesYes38NordicNO1Statnett SFNoYes39NordicNO2Statnett SFNoYes40NordicNO3Statnett SFNoYes41NordicNO5Statnett SFNoYes42NordicNO5Statnett SFNoYes43CEPLPolskieSieciYesYes44CEPTRedeEléctricaYesYes45CEROC.N.TranselectricaYesYes46CERSJPElektromrežaNo, but Energy Community memberYes47BalticRUFGCNoNoNo48NordicSE1Svenska KraftnätYesYes							Italian TSO, as an
37 CE NL TenneT TSO B.V. Yes Yes No 38 Nordic NO1 Statnett SF No Yes 39 Nordic NO2 Statnett SF No Yes 40 Nordic NO3 Statnett SF No Yes 41 Nordic NO4 Statnett SF No Yes 42 Nordic NO5 Statnett SF No Yes 43 CE PL Polskie Sieci Yes 44 CE PT Rede Eléctrica Yes Ascional, S.A. Yes Yes 45 CE RO C.N. Transelectrica Yes 5rbije Srbije No, but Yes 47 Baltic RU FGC No 48 Nordic SE1 Svenska Kraftnät Yes							injection.
Image: Second systemBritNedNoNo38NordicNO1Statnett SFNoYes39NordicNO2Statnett SFNoYes40NordicNO3Statnett SFNoYes41NordicNO4Statnett SFNoYes42NordicNO5Statnett SFNoYes43CEPLPolskieSieci Elektroenergetyczne S.A.YesYes44CEPTRedeEléctrica Nacional, S.A.YesYes45CEROC.N. Transelectrica SrbijeYesYesYes46CERSJPElektromreža SrbijeNo, but Energy Community memberYesKussia not part of CGM Area; interconnections to Russia to be incorporated as injections by the TSOs of Finland, Estonia, Latvia, Lithuania, and Norway.48NordicSE1Svenska KraftnätYesYes	37	CE	NL	TenneT TSO B.V.	Yes	Yes	
BritNedNo38NordicNO1Statnett SFNoYes39NordicNO2Statnett SFNoYes40NordicNO3Statnett SFNoYes41NordicNO4Statnett SFNoYes42NordicNO5Statnett SFNoYes43CEPLPolskieSieciYesYes44CEPTRedeEléctrica Nacional, S.A.YesYes45CEROC.N.Transelectrica S.A.YesYes46CERSJPElektromreža SrbijeNo, but Energy Community memberYes47BalticRUFGCNoNoRussia not part of CGM Area; interconnections to Russia to be incorporated as injections by the TSOs of Finland, Estonia, Latvia, Lithuania, and Norway.48NordicSE1Svenska KraftnätYesYes							
38NordicNO1Statnett SFNoYes39NordicNO2Statnett SFNoYes40NordicNO3Statnett SFNoYes41NordicNO4Statnett SFNoYes42NordicNO5Statnett SFNoYes43CEPLPolskieSieciYesYes43CEPIPolskieSieciYesYes44CEPTRedeEléktroenergetyczne S.A.YesYes45CEROC.N. Transelectrica S.A.YesYes46CERSJPElektromreža SrbijeNo, but Energy Community memberYes47BalticRUFGCNoNoNo48NordicSE1Svenska KraftnätYesYes				BritNed		No	
39NordicNO2Statnett SFNoYes40NordicNO3Statnett SFNoYes41NordicNO4Statnett SFNoYes42NordicNO5Statnett SFNoYes42NordicNO5Statnett SFNoYes43CEPLPolskieSieciYesYes43CEPLPolskieSieciYesYes44CEPTRedeEléctricaYesYes45CEROC.N. Transelectrica S.A.YesYes46CERSJPElektromreža SrbijeNo, but Energy Community memberYes47BalticRUFGCNoNoRussia not part of CGM Area; interconnections to Russia to be incorporated as injections by the TSOs of Finland, Estonia, Latvia, Lithuania, and Norway.48NordicSE1Svenska KraftnätYesYes	38	Nordic	NO1	Statnett SF	No	Yes	
40 Nordic NO3 Statiett SF No Yes 41 Nordic NO4 Statnett SF No Yes 42 Nordic NO5 Statnett SF No Yes 43 CE PL Polskie Sieci Yes Yes 44 CE PL Polskie Sieci Yes Yes 444 CE PT Rede Electrica Yes Yes 45 CE RO C.N. Transelectrica Yes Yes Yes 46 CE RS JP Elektromreža No, but Yes 47 Baltic RU FGC No No No Russia not part of CGM 48 Nordic SE1 Svenska Kraftnät Yes Yes injections by the TSOs of Finland, Estonia, Latvia, Lithuania, and Norway.	39	Nordic	NO2	Statnett SF	No	Yes	
Hordic Notice No <	40	Nordic	NO3	Statnett SF	No	Yes	
42NordicNOSStatiliet SFNoTes43CEPLPolskieSieciYesYes44CEPTRedeEléctricaYesYes44CEPTRedeEléctricaYesYes45CEROC.N. TranselectricaYesYes46CERSJPElektromrežaNo, but Energy Community memberYes47BalticRUFGCNoNoRussia not part of CGM Area; interconnections to Russia to be incorporated as injections by the TSOs of Finland, Estonia, Latvia, Lithuania, and Norway.48NordicSE1Svenska KraftnätYesYes	41	Nordic	NO4	Statnett SF	No	Yes	
HosFLFoskeFesFesElektroenergetyczne S.A.S.A.YesYes44CEPTRede Nacional, S.A.YesYes45CEROC.N. Transelectrica S.A.YesYes46CERSJP SrbijeElektromreža SrbijeNo, but Energy Community memberYes47BalticRUFGCNoNoRussia not part of CGM Area; interconnections to Russia to be incorporated as injections by the TSOs of Finland, Estonia, Latvia, Lithuania, and Norway.48NordicSE1Svenska KraftnätYesYes	42			Polskie Sieci	Vec	Vec	
44CEPTRedeEléctricaYesYes44CEPTRedeEléctricaYesYes45CEROC.N. TranselectricaYesYes46CERSJPElektromrežaNo, butYes46CERSJPElektromrežaNo, butYes47BalticRUFGCNoNoRussia not part of CGM Area; interconnections to Russia to be incorporated as injections by the TSOs of Finland, Estonia, Latvia, Lithuania, and Norway.48NordicSE1Svenska KraftnätYesYes	J	CL	ΓL	Flektroenergetyczne	105	105	
44CEPTRede Nacional, S.A.YesYes45CEROC.N. Transelectrica S.A.YesYes46CERSJP SrbijeIektromreža SrbijeNo, but Energy Community memberYes47BalticRUFGCNoNoNo48<				S.A.			
Image: second	44	CE	PT	Rede Eléctrica	Yes	Yes	
45CEROC.N. Transelectrica S.A.YesYes46CERSJPElektromreža SrbijeNo, but Energy Community memberYes47BalticRUFGCNoNoRussia not part of CGM Area; interconnections to Russia to be incorporated as injections by the TSOs of Finland, Estonia, Latvia, Lithuania, and Norway.48NordicSE1Svenska KraftnätYesYes				Nacional, S.A.			
46CERSJPElektromreža SrbijeNo, but Energy Community memberYes47BalticRUFGCNoNoRussia not part of CGM Area; interconnections to Russia to be incorporated as injections by the TSOs of Finland, Estonia, Latvia, Lithuania, and Norway.48NordicSE1Svenska KraftnätYesYes	45	CE	RO	C.N. Transelectrica	Yes	Yes	
46CERSJPElektromreža SrbijeNo, but Energy Community memberYes47BalticRUFGCNoNoRussia not part of CGM Area; interconnections to Russia to be incorporated as injections by the TSOs of Finland, Estonia, Latvia, Lithuania, and Norway.48NordicSE1Svenska KraftnätYesYes				S.A.			
47BalticRUFGCNoNoRussia not part of CGM Area; interconnections to Russia to be incorporated as injections by the TSOs of Finland, Estonia, Latvia, Lithuania, and Norway.48NordicSE1Svenska KraftnätYesYes	46	CE	RS	JP Elektromreža	No, but	Yes	
47BalticRUFGCNoRussia not part of CGM Area; interconnections to Russia to be incorporated as injections by the TSOs of Finland, Estonia, Latvia, Lithuania, and Norway.48NordicSE1Svenska KraftnätYesYes				Srbije	Energy		
47BalticRUFGCNoNoRussia not part of CGM Area; interconnections to Russia to be incorporated as injections by the TSOs of Finland, Estonia, Latvia, Lithuania, and Norway.48NordicSE1Svenska KraftnätYesYes					Community		
47 Baltic RU FGC No No Russia not part of CGM Area; interconnections to Russia to be incorporated as injections by the TSOs of of Finland, Estonia, Latvia, Lithuania, and Norway. Yes	47	D 111	D.L.	500	member		
Area, interconnections to Russia to be incorporated as injections by the TSOs of Finland, Estonia, Latvia, Lithuania, and Norway.48NordicSE1Svenska KraftnätYesYes	4/	Baltic	RU	FGC	NO	NO	Russia <u>not</u> part of CGM
48NordicSE1Svenska KraftnätYesYes							Area, interconnections
AllNordicSE1Svenska KraftnätYesYes							incorporated
48NordicSE1Svenska KraftnätYesYes							intertions hv the TSOc
48 Nordic SE1 Svenska Kraftnät Yes Yes							of Finland. Estonia
48 Nordic SE1 Svenska Kraftnät Yes Yes							Latvia, Lithuania, and
48 Nordic SE1 Svenska Kraftnät Yes Yes							Norway.
	48	Nordic	SE1	Svenska Kraftnät	Yes	Yes	



SUB- LINE	Synch. Area	Bidding zone	TSO(s)	EU member?	ENTSO-E member?	Comments
49	Nordic	SE2	Svenska Kraftnät	Yes	Yes	
50	Nordic	SE3	Svenska Kraftnät	Yes	Yes	
51	Nordic	SE4	Svenska Kraftnät	Yes	Yes	
52	CE	SI	ELES, d.o.o.	Yes	Yes	
53	CE	SK	Slovenská elektrizačná prenosová sústava, a.s.	Yes	Yes	
54	CE	TR	TEIAS	No	No	Turkey provides its IGM and <u>is</u> part of the CGM Area .
55	CE	UA_W	WPS	No, but Energy Community member	No	Western Ukraine provides its IGM (six timestamps) and <u>is</u> part of the CGM Area
56	CE	ХК	KOSTT	No, but Energy Community member	No	Kosovo provides its IGM and <u>is</u> part of the CGM Area

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4847 6.2 RELEVANT LEGISLATION

4848

The relevant passages of the three Guidelines referred to in the section on legal requirements have been excerpted into a separate document distributed in parallel with the present Methodology.