ACER Decision on Algorithm methodology: Annex IIIa  (for information only)	Deleted: ¶
<b>Y</b>	Deleted: ¶  Deleted: Proposal for a c
Annex 2 to the Algorithm methodology:  Common set of requirements for the continuous trading matching algorithm	Deleted: used  Deleted: 13 November 2017¶

	¥					Deleted: <#>Whereas¶
		St	ate	Ov	wner	This document is a common proposal developed by all Transmission System Operators (hereafter referred to as "TSOs") and Nominated Electricity Market Operators (hereafter referred to as "NEMOs") for a common set of requirements used for the
		Initial Requirements	Future Requirements	TSO	NEMO	continuous trading matching algorithm (hereinafter referred to as  "ID Algorithm Requirements") in accordance with article 37 of  Commission Regulation (EU) 2015/1222 establishing a guideline  on capacity allocation and congestion management (hereafter  referred to as the "CACM Regulation").¶  According to Article 37: "I. By eight months after the entry into  force of this Regulation: (a) all TSOs shall jointly provide all  NEMOs with a proposal for a common set of requirements for  efficient capacity allocation to enable the development of the price
F	dequirements on functionalities and performance	~ -	S .		l	coupling algorithm and of the continuous trading matching algorithm. These requirements shall specify functionalities and
	eneral requirements					performance, including deadlines for the delivery of single day- ahead and intraday coupling results and details of the cross-zonal
a	The <u>continuous trading matching algorithm</u> shall support the continuous matching of orders as well as the continuous allocation of intraday <u>cross-zonal</u> capacity.	 X		X	X	capacity and allocation constraints to be respected; "¶ In addition to the above common proposal for the TSOs Algorithm Requirements, article 37 of the CACM Regulation requires that "a NEMOs shall jointly propose a common set of requirements for
b	The <u>continuous trading matching algorithm</u> shall ensure equal treatment of orders coming from all NEMOs and from requests for explicit capacity allocation.	 X			X	efficient matching to enable the development of the price coupling algorithm and of the continuous trading matching algorithm" (hereinafter referred to as "NEMOs Algorithm Requirements") within the same deadline.
C	For each bidding zone, the continuous trading matching algorithm					Deleted: Title 1:
·	shall be able to:					Deleted: algorithm  Deleted: interconnection
	(i) support at least the order types included in the ID products:	X			X	Deleted: interconnection
	(ii) support non-standard products (all products besides quarter			-▼-		======================================
	hourly, half hourly and hourly) to the extent this is technically		X	X	X	Deleted: algorithm
	feasible and approved by the competent regulatory authorities;		Λ	Λ	1	Deleted: requests;
	(iii) facilitate different market time units (MTUs) which shall be configurable in each bidding zone;	-X		X	X	Deleted:
						Deleted: algorithm  Deleted: Intraday Product Proposal
	<ul><li>(iv) facilitate configurations with more than one NEMO for a given bidding zone or a scheduling area in accordance to the multiple</li></ul>					Deleted: acommodated
	NEMO arrangement as referred to in Article 57 of the CACM	X		X	X	Deleted: X
	regulation;					<b>Deleted:</b> Market
	(v) support multiple scheduling areas within a bidding zone as	X		X		Deleted: Time
	requested by TSOs;	Λ		Λ		Deleted: Units
	(vi) allocate cross-zonal capacities on a bidding zone border with multiple TSOs on one or both sides of the concerned bidding	X		X	X	Deleted: , meaning matching of orders between multipl(;  Deleted: i
	zone border.					Deleted: Intraday Gate Opening Time (GOT) and Gate ( [
d	<u>Intraday cross-zonal gate opening and intraday cross-zonal gate</u>					Deleted: algorithm
	closure times (IDCZGT), shall be configurable for each bidding	_X		X	_X_	Deleted: algorithm
	zone border <u>.</u>					Deleted: be able to deal with
e	The continuous trading matching algorithm shall aim to ensure that	$\overline{\mathbf{x}}$		X	X	
	economic surplus is maximised, where applicable.	21		21	21	// / Deleted: having obligation or interest
f	The continuous trading matching algorithm shall support one or					Deleted: to
	multiple bidding zones within a country and shall be scalable to cover all bidding zones eligible for participating in SIDC.	X		X	X	Deleted: e
ø	The continuous trading matching algorithm shall be able to provide	F			-	Deleted: ing
5	the net positions of bidding zones and scheduled exchanges between	 _X		X		Deleted: single day ahead coupling
	bidding zones.			Δ_		Deleted: algorithm  Deleted: ign
		1	i .	1		Deleted: 1gn
						Deleted: Scheduled Flow

X		X				Deleted: For each bidding zone the result from application of the continuous trading matching algorithm shall be one price and one net position for each MTU. For the bidding zones containing several TSOs separating their scope in different scheduling areas, the net position for each MTU shall be calculated for each scheduling area with at least one NEMO bub. For scheduling
						areas where more than one NEMO operates, the net position for each MTU shall be calculated for each NEMO trading hubor each bidding zone the result from application of the algorit [4]
X		X	X			<b>Deleted:</b> algorithmontinuous trading matching algorithm must ensure the/supportrespect of the proprietary rights and the
X		X	X			anonymity of the data (orders, etc) and information submitted and accessed by the parties in their use of the system; [5]  Deleted: algorithmontinuous trading matching algorithm and the data it processes shall be properly secured from unauthorized
						access;
X			X			needs to provide thell necessary information for the Crossross-NEMOs settlement and shipping; [7]
X		X	X		_	Deleted: ; [8]
				<i></i>		Deleted: algorithmontinuous trading matching algorithm must support, but not to [9]
X		X	X			Deleted: Receive
					->	<b>Deleted:</b> Requestequest cross-zonal capacity when pairs of matchable orders are identified; [10]
						Deleted: Algorithmhe continuous trading matching algorithm must support Transactionransaction cancellation functionalities.:Tte system must be able alsoo initiate the required actions on the capacity allocation side and interaction with the NEMOs:.
X			X	 <i>j</i>		with the NEMOs:. [ [11]  Deleted: algorithmontinuous trading matching algorithm shall request cross-zonal capacity in the opposite directi ( [12]
					_	Deleted: to be initiated; [13]
						Deleted: algorithmontinuous trading matching algorithm shall match orders according to price, time priority and, for cross-border trades, allocation constraints andvailable cross-zonal capacity and allocation constraints. The configuration of the matching rules must support, but not toe limited to the following matching rules:.
					_	Deleted: ; ( [15]
X 			X			Deleted: algorithmontinuous trading matching algorithm checks if it can be executedatched; [ [16]
						<b>Deleted:</b> Oon the opposite side,here is an sell (buy)rder by a trading counterpart with an inferior sell (superior buy) price (superior)f equal price;
						F (aperior) equal price).
	x x x x x x x x x x	x	x x x x x x x x x x x x x x x x x x x	x x x x x x x x x x x x x x x x x x x		

4 1 2 (01) 1 1 4 4 1 11						
the aggressor order is not fully <u>matched</u> , then the second bes						Deleted: executed
price order is <u>matched</u> etc.;						Deleted: executed
• there are several orders with the same price on the sell (buy)	,					Deleted: If
side fulfilling the first criterion, the order with the oldes						Deleted: a a) and with the same price
timestamp is matched first and if the aggressor order is no						Deleted: executed
fully matched, then the second oldest is matched, etc.;		. L _				
<ul> <li>the matching respects the cross-zonal capacity and allocation</li> </ul>	ı					Deleted: executed
constraints;						Defeted. executed
• the matching price is within the harmonised maximum and						Deleted: The
minimum clearing prices for SIDC.	· - <mark></mark>	-	- + -			Deleted: The
n case of partial matching of an order, the non-matched par			1			Deleted: of bidding zones
emains in the book (except otherwise specified by the order type)		-				Deleted: execution
s an order with the quantity equal to the non-matched quantity						
he price of the remaining part of order is the one entered initially						Deleted: unexecuted
by the trader except otherwise specified by the order type.						Deleted: unexecuted
The orders are all centralised in a consolidated order book that is						
ised to generate the local views, considering the relevant cross-					X	
onal capacity and allocation constraints,	23				21	Deleted: allocation constraints and available capacity between
All incoming orders and explicit capacity requests are queued in the		+-				the areas
ame queue. The continuous trading matching algorithm shal						Deleted: algorithm
guarantee a first come first serve principle. Only one matching				$\mathbf{X}^{-}$	 X	
nd/or cross-zonal capacity allocation event can occur at the same			1	21	21	
ime.						
The continuous trading matching algorithm supports increase and						Deleted: algorithm
ecrease of capacity. When the capacity available increases due to						Deleted: increased
etting, capacity publication or update, it may lead to a crossed	i T					Defeted. increased
order book. The continuous trading matching algorithm mus				X	X	Deleted: algorithm
nclude a mechanism to solve this situation (pair matching or						
uction).						
'he continuous trading matching algorithm must calculate loca						Deleted: algorithm
riews of order books based on available orders and capacities. The						
onfiguration of the local views must support, but not be limited to	' _ <mark></mark>	-				Deleted: to
he following rules:						
The local view of a bidding zone corresponds to the orders that	- <u>-</u>	. L _				Deleted: area
the market participants of the bidding zone can trade						
) The available capacity corresponds to the maximum flow	,					
between two bidding zones (unless flow-based cross-border					X	Deleted: areas
capacity mechanisms are defined and implemented) taking al	l					Deleted: F
allocation constraints into consideration.						Deleted: B
i) For building the same local view, the same capacity can only be	,					
considered once.						
) Construction of the local view must take into account the	,					
harmonised maximum and minimum clearing prices for SIDC.						Deleted: price limits set per bidding zone
The continuous trading matching algorithm must prevent that			Ŧ			Deleted: algorithm
VEMOs have the information to calculate the local view based or			+		 X	Defeted. algorithm
	Δ				Λ	
he order books from other NEMOs and capacities.						

vie	pacity and order book updates are used to create updated local ws. Local view updates are continuously broadcasted to the inected NEMOs in a non-discriminatory manner.	X		X	X	
	·					
	e <u>continuous trading matching algorithm</u> must allow, as part of <u>DC</u> , to cross-match the different order types of the <u>ID</u> products					Deleted: algorithm
wit	hin one and between multiple bidding zones, respecting the	X			T	Deleted: to
cap	acity and order restrictions.					Deleted: in the Product Description
	ative requirements with precision and price ranges					Deleted: acommodated
E						Deleted: Bidding
	continuous trading matching algorithm shall provide all market					Deleted: Zones
	ticipants non-discriminatory access to cross-zonal capacity in ordance with Article 3(i) of the CACM Regulation.	X		X	X	Deleted: .1
	**					\ \ Deleted: ¶
	e continuous trading matching algorithm shall aim to ensure that					Deleted: algorithm
	case there are matching opportunities the matching shall always	X		<b>v</b> _	_X_	Deleted: e
tak	e place taking into account the <u>IDCZGT</u> .					Deleted: algorithm
	e continuous trading matching algorithm shall be able to					Deleted: X
	roduce the same results with the same input data coming in	X		X	X	Deleted: intraday cross-border GCT
exa	actly identical sequence and timing					Deleted: algorithm
	e continuous trading matching algorithm shall support 23, 24 or					Deleted: 2
25	hours for a trading day.	X		X	X	Deleted: algorithm
	e continuous trading matching algorithm shall support	-37		37		Deleted: be able to deal automatically and easily with da
	omatically the leap years, i.e. 366 days in a year.	X		X	X	light savings related to winter and summer time changes, i.
	e matching process of the continuous trading matching					Deleted: s
	orithm, including prices and allocated capacities resulting from					Deleted: algorithm
	s calculation process, has to be transparent, auditable, and blainable. This requirement applies also to all the deterministic	X		X	X	Deleted: be able to deal
	es and applied continuous trading matching algorithm heuristics,					Deleted: and easily with
	ny, and occurrence rate of these rules and heuristics.					Deleted: in
g) The	continuous trading matching algorithm shall be well structured					Deleted: algorithm
	well documented. A description of the continuous trading					Deleted: algorithm
	tching algorithm should be made publicly available, and should	X		X	T	Deleted: 1
be l	kept up to date. The documentation shall be written in English.					Deleted: algorithm
h) The	continuous trading matching algorithm shall support negative					
	ces as well as prices with different price boundaries.	X		<b>*</b>	X	Deleted: algorithm
;) Th	a continuous trading metahing algorithm shall be able to deliver	-				Deleted: algorithm
	e continuous trading matching algorithm shall be able to deliver ces and volumes according to bidding zone or/and scheduling	 3/		 W		Deleted: be able to deal with
	a specific ticks and, in case rounding is required, rounding rules.	_X		X_	X	Deleted: X
	TL					Deleted: algorithm
	functionalities related to cross-zonal capacity allocation					Deleted: Scheduling
	continuous trading matching algorithm shall be able to match	X		X-	-X-	Deleted: with at least one NEMO hub
bot	h implicit (NEMOs) and explicit capacity allocation requests.	Λ		Λ	Λ	Deleted: ¶
	e continuous trading matching algorithm shall be able to					Deleted: algorithm
	culate for each MTU the <u>scheduled exchanges</u> between bidding	X		X	X	Deleted: algorithm
zon	es.					Deleted: Scheduled Flow
c) The	e continuous trading matching algorithm shall be able to					Deleted: algorithm
cal	culate for each MTU the scheduled exchanges between	X		X		Deleted: Scheduled Flow
sch	eduling areas		L			Deleted: for each
d) One	ce allocated by the continuous trading matching algorithm, the					Deleted: with at least one NEMO hub
	pacity is firm (cannot be changed by TSOs).	$\bar{X}$			$\mathbf{X}$	Deleted: algorithm

e) Cross-zonal capacity shall be allocated to either energy transactions	X		X	X	
or explicit requests, at zero price for market participants.  f) All incoming orders and explicit capacity requests are treated in a non- discriminatory fashion (e.g. single queue). The system must implement the first come first serve principle. Only one matching event can be executed at the same time.	X		X	X	
g) The continuous trading matching algorithm shall allow for non-zero pricing of intraday capacity in accordance with Article 55 of the CACM Regulation, where the pricing intraday cross-zonal capacity shall reflect market congestion and shall be based on actual orders and a proposal for methodology shall be developed by all TSOs.		X	X	 <u>X</u>	Deleted: AlgorithmC
h) For the execution of complementary regional auctions, it shall be possible to stop continuous trading within and between relevant bidding zones for a limited period of time before the intraday cross-zonal gate closure time, which shall not exceed the minimum time required to hold the auction and in any case 10 minutes.	X 		X	X 	Deleted:
<ol> <li>Once one or more pan-European auctions are combined with continuous trading, the continuous trading matching algorithm shall include the necessary mechanisms for:</li> </ol>				 	Deleted: CZIDCP methodology will be in force, combined by the company of the comp
allowing the operational integration with the auctions taking into account the intraday cross-zonal gate opening and closure times,		X	X	X 	Deleted: algorithm  Deleted: , in terms of the gate opening and closing clostimeIDCZGT
(ii) allowing the incorporation of the auctions' results to the continuous trading, in terms of cross-zonal capacity.					umeiDCZG1
Performance		L			Deleted: ¶
a) The continuous trading matching algorithm shall produce and log performance indicators with minimum level of those indicators in order to monitor its performance. This shall include, among others, the report on the number of and the frequency of unmatched feasible					Deleted: AlgorithmC  Deleted: , which
trades and their volumes, the statistics related to the usage of different products with regard to their impact on continuous trading matching algorithm performance and in relation to particular	<b></b>	X	_ <b>_</b>	X = = 	Deleted: X Deleted: s
products. These measurements should include for every bidding zone the number and volume of bids per product and the number and volume of accepted bids per product.	 	 	 	 	Deleted: algorithm  Deleted: ,  Deleted: , to be calculated per market time unit
<ul> <li>All TSOs and NEMOs shall develop performance indicators in order to monitor the performance of the <u>continuous trading</u> <u>matching algorithm</u>.</li> </ul>	_X		X	_X_	Deleted: ,  Deleted: , paradoxically rejected bids per product and the needed for the algorithm to find the final solution. 3
					Deleted: algorithm
Requirements related to cross-zonal capacities					Deleted: ¶
The continuous trading matching algorithm shall be able for each MTU					Deleted: C
to:					Deleted: ¶
a) allow TSOs to set constant cross-zonal capacity and allocation					Deleted: algorithm
constraints for each bidding zone border in case coordinated net		- v -	X-		Deleted: ramping values  Deleted: in accordance with the CACM Regulation
transmission capacity is applied. This cross-zonal capacity value may also be a very high value;		X -	Λ 		Deleted: in accordance with the CACM Regulation  Deleted: ;
, , , ,					Deleted: t
b) constrain <u>scheduled exchanges</u> to the respective cross-zonal	-X		X-		Deleted: Scheduled Flow

flow directions, in case the coordinated net transmission capacity approach is applied;					Deleted: (CNTC)
c) where applicable, allow setting a default value for cross-zonal capacity for each bidding zone border and for each direction in case coordinated net transmission capacity approach is applied;		X	X		
d) constrain, where appropriate, an aggregated set of cross-zonal interconnectors with one global cross-zonal transmission capacity limit (cumulative <u>net transmission capacity</u> ), i.e. a <u>general boundary</u> constraint. This constraint shall be applicable also to a predefined set of bidding zone borders in order to limit for example the net position of a bidding zone(s);		X	X		Deleted: NTC
e) allow the processing of flow-based parameters, if provided at the defined MTU, when allocating cross-zonal capacities for each bidding zone border;		X	X		Deleted: ;  Deleted: the contribution of 1 MW of a net position change the Scheduled Flowscheduled exchanges over the network element
<ul> <li>allow definition and application of the following flow-based parameters for each network element of a given bidding zone for flow-based approach;</li> </ul>		X	X		Deleted: (RAM)
(i) power transfer distribution factor (PTDF) as <u>defined in</u>	=	X	X		Deleted: or the remaining allowable Scheduled Flowscheduled exchange on the critical network element
Regulation (EU) 543/2013; and  (ii) available margin on critical network element as referred to in					Deleted: RAM for each network element and net positions concerned by the flow-based parameters for the flow-based approach
Regulation (EU) 543/2013		X	X		Deleted: remaining available marginRAM of critical branches
g) ensure that the PTDF matrix multiplied by the net position is less					Deleted: remaining available marginRAM of critical branche
than or equal to the available margin for each critical network element;		X	X 		Deleted: facilitate the following hybrid couplings:¶ standard hybrid coupling, where the algorithm is able to accomodate coordinated net transmission capacity approach and flow based approach on different bidding zone borders and the
in) allow the reception of the flow-based parameters as:     (i) "zero balanced" meaning that the <u>available margin on critical network elements applies from zero exchanges and that preexisting exchanges are transmitted aside; or     (ii) "not zero balanced" meaning that the <u>available margin on critical</u></u>		X	X		mutual impact of cross-zonal capacity allocation between these borders is taken into account in capacity calculation and not within the algorithmstandard hybrid coupling, where coordinate net transmission capacity approach and flow based approach coexist within different capacity calculation regions and the mutual impact of cross-zonal capacity allocation between two capacity calculation regions is taken into account in capacity calculation and not within the continious trading matching
network elements applies from pre-existing exchanges; ) allow the coexistence of both flow-based and coordinated net transmission capacity approaches within the coupled regions, i.e. hybrid coupling;		X	X		algorithmcross-zonal capacity values for the coordinated net transmission capacity approach and flow-based parameters for the flow based approach coexist, implying that interdependent effects on each other are taken into account ex-antein capacity calculationTSOs shall reserve margins ex-ante on flow-based critical branches; and¶
) allow the use of virtual bidding zones to model how the critical network elements of a CCR applying the flow-based approach are impacted by cross-zonal exchanges on HVDC interconnectors within a CCR or by cross-zonal exchanges on bidding zone borders outside the CRR that are applying the coordinated net transmission		X	X		advanced hybrid coupling, where realized sheduled exchanges of the biddign zone borders with coordinated net transmission capacity approach cross-zonal capacity transactions are impactit the available margin on critical network element taken into account in the margin of the flow-based critical branches within the continious trading matching algorithm.
capacity approach,					Deleted: <pre></pre> Deleted: <pre><pre><pre><pre><pre><pre><pre><pre></pre></pre></pre></pre></pre></pre></pre></pre>
c) facilitate change of cross-zonal capacity values or flow-based parameters, which among other things might be a consequence of netting, capacity publication or update of capacity value or flow-based parameter. In such a case, if a crossed order book is produced, the continuous trading matching algorithm shall match the relevant orders with the aim of maximizing economic surplus.		X	X	<u>X</u>	borders and the mutual impact of cross-zonal capacity allocation between these borders is taken into account within the price coupling algorithmadvanced hybrid coupling, where coordinate net transmission capacity approach and flow based approach coexist within different capacity calculation regions and the mutual impact of cross-zonal capacity allocation between two capacity calculation regions is taken into account within the continious trading matching algorithm.
) allow configuring the moment when the <u>cross-zonal capacity</u> update					Deleted:
is applied or becomes effective;	X		X-		Deleted: algorithm
** *		1	i i	1	

	m) enable to halt/unhalt one bidding zone, one border, one instrument, and one NEMO. In case of halting of one bidding zone, one instrument and one NEMO, all the relevant orders will be halted or inactivated.	X		X	X	
	n) handle situations for relevant bidding zone borders where the calculated cross-zonal capacity value applying coordinated net transmission capacity approach is less than the current level of exchange so that no more capacity is allocated in the direction of this exchange until level of exchange is below the calculated cross zonal capacity value; and	X		X		
	<ul> <li>o) handle situations for relevant bidding zone borders where for continuous intraday trading applying flow-based approach an initial market clearing point is outside flow-based domain by allowing only trades moving the clearing point towards the flow-based domain.</li> </ul>		X	X		
2.2	Multiple flow-based approaches, i.e. plain, intuitive, bilaterally intuitive, may be used for different capacity calculation regions.		X	X		
3	Requirements related to allocation constraints					Deleted: ¶
3.1	The continuous trading matching algorithm shall allow to:					Deleted: ¶
	a) constrain the increase/decrease of scheduled exchanges over one					Deleted: algorithm
	direct current (DC) interconnector and/or a combination of DC interconnectors from a MTU to the following MTU or between the last MTU from the day before and the first MTU of the following day. The constraint shall take into account the nominations of long term capacity allocations, i.e. physical transmission rights, and day-					Deleted: for direct current (DC) interconnectors  Deleted: Scheduled Flow
	ahead scheduled exchanges, where applicable. The constraint shall be handled on a single DC interconnector and multiple DC interconnectors in combination (i.e. ramping):		X	X		Deleted: Scheduled Flow
	b) constrain the increase/decrease of net positions of a single bidding zone from a MTU to the following MTU within a day or between the last MTU from the day before and the first MTU of the following day; and					
	c) incorporate losses on interconnector(s) between bidding zones during capacity allocation, if requested by the owner(s) of the <a href="relevant">relevant</a> interconnector after approval by <a href="the-relevant">the-relevant</a> NRAs					
3.2	For the DC interconnectors, the <u>scheduled exchanges</u> shall <u>not be</u> below the minimum stable flow (MSF), other than at zero. The MSF will be given for the DC interconnector, if requested by the owner(s) of the interconnectors after approval by relevant NRAs. The capacity allocation shall take into account the nominations of long term crosszonal capacity and day ahead cross-zonal capacity, where applicable. The constraints shall be handled on a DC interconnector-by-DC interconnector, multiple DC interconnectors and on a net position (regional) basis.		X	X		Deleted: Scheduled Flow
3.3	The continuous trading matching algorithm shall allow to set a					Deleted: algorithm
	minimum price difference between adjacent bidding zones when <u>a DC</u> interconnector is used for power exchange. For this requirement, the		X	X		
	continuous trading matching algorithm shall model the costs incurred					Deleted: algorithm
	for each MWh passing through a DC interconnector as a "flow tariff,".					Deleted: s

This "flow tariff" shall be treated as a threshold for the price between the bidding zones connected by the DC interconnector. If the price difference between the relevant bidding zones is less than the "flow Deleted: Scheduled Flow tariff", the scheduled exchanges will be set to zero. If there is a Deleted: Scheduled Flow scheduled exchange, the price difference will equal the "flow tariff", unless there is a congestion. Once the price difference exceeds the Deleted: s "flow tariff", the congestion income becomes positive. This Deleted: algorithm functionality shall be incorporated in the continuous trading matching Deleted: algorithm algorithm if requested by the owner(s) of the interconnector after Deleted: Scheduled Flow approval by relevant NRAs. Deleted: Scheduled Flow 3.4 The continuous trading matching algorithm shall allow for adverse Deleted: algorithm scheduled exchanges, i.e. scheduled exchanges from higher price X  $\mathbf{X}$ Deleted: ¶ bidding zone to lower price bidding zone. Deleted: algorithm The continuous trading matching algorithm shall aim to minimize the Deleted: ¶ number of bidding zone borders on the path between the matched X X Deleted: algorithm orders and allow for route prioritisation by the use of interconnector specific cost coefficients. Deleted: rounded and unrounded net position for each bidding zone, which is defined as the difference between matched supply and demand orders within a bidding zone, where rounding shall follow the rounding rules defined for each bidding zone.; ¶ Where applicable, the rounded and unrounded net position for Requirements on continuous trading matching algorithm each NEMO trading hub in bidding zones with several NEMOs shall be provided; output for the delivery of single intraday coupling results **Deleted:** the information which enables the execution status of Regarding the quantities for each MTU the output of the continuous orders to be determined trading matching algorithm shall be: Deleted: and paradoxically rejected orders, if any a) rounded and unrounded net position for each bidding zone, which Deleted: X is defined as the difference between matched supply and demand  $\textbf{Deleted:} \ Where \ required \ regarding \ the \ quantities \ f$ X X orders within a bidding zone, where rounding shall follow the Deleted: with the output of rounding rules defined for each bidding zone; Deleted: algorithm b) where applicable, the rounded and unrounded net position for each **Deleted:** , an ex-post process which shall not interfere with the market coupling results calculation, NEMO trading hub in bidding zones with several NEMOs shall be X Deleted: Scheduled Flow c) the execution status of orders and prices per trade; Deleted: d) number and volume of matched block orders for each bidding zone; Deleted: X X Deleted: X For each relevant MTU, the continuous trading matching algorithm, Deleted: shall provide scheduled exchanges resulting from intraday market = coupling in the form of; Deleted: :¶
Scheduled Flowscheduled exchanges between Scheduling a) scheduled exchanges between scheduling areas: X. Scheduled Flowscheduled exchanges between Bidding bidding b) scheduled exchanges between bidding zones; X X Scheduled Flowscheduled exchanges between NEMO trading c) scheduled exchanges between NEMO trading hubs; X X and pursuant to the Methodology for calculation of scheduled exchanges resulting from market coupling. This is to support the scheduled exchanges calculation and/or multi-NEMO arrangements function and pursuant to the Methodology for calculation of scheduled exchanges resulting from market coupling. This is to support the scheduled exchanges calculation and/or multi-NEMO arrangements Deleted: with at least one NEMO hub Deleted: X Regarding the calculation results, the output of the continuous trading Deleted: algorithm matching algorithm shall be the output necessary for monitoring in X X. X Deleted: accordance with Article 82(2) and (4) of the CACM Regulation. Deleted: that output The continuous trading matching algorithm shall provide NEMOs and X X Deleted: X TSOs with information necessary to comply with the monitoring Deleted: algorithm Deleted: NEMOS

algorithm shall respect the agreed cross-zoi	Obtained only from the continuous trading matching algorithm.  The continuous trading matching algorithm shall be able to implement a change of bidding zone configurations no later than 4 weeks after a TSO notifies a change subject to the change request procedure.  The continuous trading matching algorithm shall be capable of providing results in order for all post coupling processes to be initiated in 5 minutes after gate closure time of a particular MTU.  Currency  The continuous trading matching algorithm shall only accept matching in Euro, i.e. all input and output currency data shall be in Euros. This should not prevent local currency orders and settlements.  Deleted: under REMIT  Deleted: regulation  Deleted:  X X X X  X X X  Deleted: when algorithm  Deleted: she only feasible source  Deleted: should regulation.  Deleted: should regulation.  Deleted: should regulation.  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### Whereas

This document is a common proposal developed by all Transmission System Operators (hereafter referred to as "TSOs") and Nominated Electricity Market Operators (hereafter referred to as "NEMOs") for a common set of requirements used for the continuous trading matching algorithm (hereinafter referred to as "ID Algorithm Requirements") in accordance with article 37 of Commission Regulation (EU) 2015/1222 establishing a guideline on capacity allocation and congestion management (hereafter referred to as the "CACM Regulation").

According to Article 37: "1. By eight months after the entry into force of this Regulation: (a) all TSOs shall jointly provide all NEMOs with a proposal for a common set of requirements for efficient capacity allocation to enable the development of the price coupling algorithm and of the continuous trading matching algorithm. These requirements shall specify functionalities and performance, including deadlines for the delivery of single day-ahead and intraday coupling results and details of the cross-zonal capacity and allocation constraints to be respected;"

In addition to the above common proposal for the TSOs Algorithm Requirements, article 37 of the CACM Regulation requires that "all NEMOs shall jointly propose a common set of requirements for efficient matching to enable the development of the price coupling algorithm and of the continuous trading matching algorithm" (hereinafter referred to as "NEMOs Algorithm Requirements") within the same deadline.

When both proposals are prepared and after the deadline of eight months, all Nominated Electricity Market Operator (hereafter referred to as "NEMO") and all TSOs will cooperate to finalise the sets of the TSOs and NEMOs Algorithm Requirements. Based on the above two sets of requirements, TSOs and NEMOs Algorithm Requirements, "all NEMOs shall develop a proposal for the algorithm in accordance with these requirements. This proposal shall indicate the time limit for the submission of received orders by NEMOs required to perform the MCO functions in accordance with Article 7(1)(b)." This NEMOs proposal for the algorithm shall be prepared no later than three months after the submission of the TSOs and NEMOs Algorithm Requirements.

In accordance with Article 37(3) of the CACM Regulation the NEMOs proposal for the algorithm "shall be submitted to all TSOs. If additional time is required to prepare this proposal, all NEMOs shall work together supported by all TSOs for a period of not more than two months to ensure that the proposal complies with paragraphs 1 and 2.

According Article 37(4) "The proposals referred to in paragraphs 1 and 2 shall be subject to consultation in accordance with Article 12". The consultation on all proposals, i.e. TSOs and NEMOs algorithm requirements and the NEMOs proposal for the algorithms was prepared in cooperation between all TSOs and all NEMOs and was consulted upon together to ensure efficient assessment of their content by market participants.

In accordance with Article 37(5) of the CACM Regulation the all NEMOs' proposal for the Algorithm Proposal, incorporating the TSOs' and NEMOs' DA and ID Algorithm Requirements and taking into account the comments from the consultation, has been submitted to the regulatory authorities for approval no later than 18 months after the entry into force of the CACM Regulati on - i.e., 14 February 2017.

This Proposal is complemented by the back up and fallback procedures that are referred in the proposal for the back-up methodology.

The timeline for the implementation of the ID functionalities mentioned in this document is settled in the Algorithm Proposal, Article7.

The current set of ID Algorithm Requirements is based on the current coupling solutions, either implemented or under development and updated or amended where seen appropriate by the TSOs and/or NEMOs.

Future evolution of capacity calculation methodologies in accordance with the CACM regulation may require additional input parameters, e.g. remedial action variables. In this case, all TSOs shall send a request for amendments of the algorithm to the NEMOs and later on for all NRAs' approval. An assessment of the additional algorithm functionalities shall take place at the latest when the proposal for the capacity calculation methodology in every capacity calculation region (CCR) in accordance with the CACM Regulation is being developed by the TSOs. All TSOs and all NEMOs shall cooperate to propose any amendments if deemed necessary when the above proposals for the capacity calculation methodology is submitted for approval to the national regulatory authorities (ten months after the approval of the all TSOs CCR Proposal).

Decisions of the NEMO Committee in this proposal refers to decisions of All NEMOs coordinated via the NEMO Committee.

### TITLE 1

## **General provision**

# **Article 1**

### **Definitions**

For the purpose of this proposal, terms used in this document have the meaning of the definitions included in Article 2 of the CACM Regulation and Regulation 543/2013, definitions included in Section 2 of MCO Plan and the definitions included in Article 2 of the Algorithm Proposal.

In addition, hereafter following definitions apply:

**NEMO Trading hub** means the set of orders submitted by the market participants to a specific NEMO within a Bidding Zone.

### **Article 2**

# **Approach**

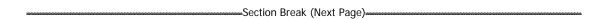
The table below sets out the ID Algorithm Requirements to be complied with for the SIDC. Each requirement has been classified according to the following criteria:

**Owner**: owner of the requirement for a given functionality (TSOs, NEMOs, or joint TSOs and NEMOs) with meaning as defined in the MCO Plan.

### Nature:

MCO Function: a requirement that relates to the joint responsibility of NEMOs to carry out MCO functions in accordance with Article 7(2) of the CACM Regulation.

Scheduled Exchange Calculation ("SEC") Function: a requirement that relates to the joint responsibility of TSOs to calculate and publish scheduled exchanges on borders between bidding zones in accordance with Article 8(2)(g) of the CACM Regulation, where such requirement shall be supported by the continuous trading matching Algorithm (i.e., the SOB and/or CMM). In many cases these requirements are not yet specified ("Future") and it may be that the calculations will be performed outside the continuous trading matching Algorithm – e.g., as a separate post-matching process, or a local/regional process. The solution shall be agreed between the relevant NEMOs and TSOs.



### **Article 3**

# **Continuous trading matching Algorithm requirements**

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, meaning matching of orders between multiple NEMOs in one bidding zone and between multiple bidding zones

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Intraday Gate Opening Time (GOT) and Gate Closure Time (GCT)

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For each bidding zone the result from application of the continuous trading matching algorithm shall be one price and one net position for each MTU. For the bidding zones containing several TSOs separating their scope in different scheduling areas, the net position for each MTU shall be calculated for each scheduling area with at least one NEMO hub. For scheduling areas where more than one NEMO operates, the net position for each MTU shall be calculated for each NEMO trading hub.

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For each bidding zone the result from application of the continuous trading matching algorithm shall be one price and one net position for each MTU. For the bidding zones containing several TSOs separating their scope in different scheduling areas, the net position for each MTU shall be calculated for each scheduling area with at least one NEMO hub. For scheduling areas where more than one NEMO operates, the net position for each MTU shall be calculated for each NEMO trading hub.

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advanced hybrid coupling, where the algorithm is able to accomodate coordinated net transmission capacity approach and flow based approach on different bidding zone borders and the mutual impact of cross-zonal capacity allocation between these borders is taken into account within the price coupling algorithmadvanced hybrid coupling, where coordinated net transmission capacity approach and flow based approach coexist within different capacity calculation regions and the mutual impact of cross-zonal capacity allocation between two capacity calculation regions is taken into account within the continious trading matching algorithm.

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rounded and unrounded net position for each bidding zone, which is defined as the difference between matched supply and demand orders within a bidding zone, where rounding shall follow the rounding rules defined for each bidding zone.;

Where applicable, the rounded and unrounded net position for each NEMO trading hub in bidding zones with several NEMOs shall be provided;

wWhere applicable, the rounded and unrounded net position for each NEMO trading hub in bidding zones with several NEMOs shall be provided;

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The algorithmcontinuous trading matching algorithm shall respect the agreed cross-zonal GOT and GCT in accordance with the all TSOs proposal in accordance with Article 59 of the CACM Regulation.

