Evaluation of responses to Public consultation pursuant to Art. 12 of Commission Regulation (EU) 1222/2015 (hereinafter CACM Regulation) on Algorithm Methodology review, including algorithm change control and algorithm monitoring, plus SIDC requirements annex amendment for supporting ID auctions, plus SIDC product methodology.

1 Introduction

Pursuant to Article 37(5) of Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management ('CACM Regulation'), and ACER decision 01/2019, all NEMOs and TSOs published on 3rd June 2019, the *"Public consultation pursuant to Art. 12 of Commission Regulation (EU) 1222/2015 (hereinafter CACM Regulation) on Algorithm Methodology review, including algorithm change control and algorithm monitoring, plus SIDC requirements annex amendment for supporting ID auctions, plus SIDC product methodology"*, which closed on 2nd July 2019.

2 Responses

By the end of the consultation period, all NEMOs and TSOs received responses from 7 respondents.

This evaluation paper summarises all the received comments and provides feedback to them. The table below is organised according to the consultation questions and provides the respective views from the respondents, as well as the feedback provided by NEMOs and TSOs to the comments received. All the comments raised beyond the specific questions of the consultation are evaluated in the last section of the table

Most of the respondents focused their comments on IDAs, their relation with the continuous trading matching algorithm and the products to be supported by IDAs.

	In your opinion, are the provisions related to Algorithm Monitoring (See Annexes 3 and 4) appropriate, clear and proportionate? Please, justify any modification that you may deem necessary. - Algorithm Monitoring	
	Respondents' views	**NEMOs and TSOs views**
1	One respondent (7) would welcome the introduction of two indicators: • an indicator that measures the computational power of the IT System that performs the price coupling problems • an indicator for the availability of the IT systems in terms of time in fully available state divided by the length of the respective period.	NEMOs and TSOs acknowledge the proposal raised by the respondent, the proposed indicators are under consideration, but need further assessment before being embedded in the Algorithm Methodology. Specifically: • For the indicator about the computational power of the IT System that performs the price coupling problems, it should be taken into account: the influence of surrounding systems (databases i/o, network storage, network latencies, …) or the existence of different iterations of the same model of CPUs (steps) that can be obtained in the procurement of IT systems. • For the indicator for the availability of the IT system in terms of time in fully available state divided by the length of the respective period is relevant only for ID.
	In your opinion, are the provisions related to Algorithm Change Control content in the Algorithm Methodology (See Title 4) appropriate, clear and proportionate? Please, justify any modification that you may deem necessary. - Algorithm Change Control	
	Respondents' views	**NEMOs and TSOs views**
2	One respondent (7) would welcome the inclusion of market participants or their representatives in the relevant Decision Body(ies).	NEMOs and TSOs want to highlight that the high-level principles for decision making process are established by the CACM Regulation. According to Article 7, NEMOs shall be responsible for the implementation of the MCO function: the duties and responsibilities therein specified cannot be transferred nor delegated. Notwithstanding, NEMOs and TSOs believe that the framework proposed in the Algorithm Methodology facilitates proper stakeholder involvement at several levels.

		The transparency of all the processes concerning the development and operations of the algorithms is ensured by the timely public reporting and by the organization of stakeholder's meeting and consultations in accordance with Article 11 of CACM Regulation. Specifically, as recalled in Article 24 of the AM, all NEMOs shall develop and publish with the relevant periodicity the following reports: • the report on incidents in the operation of the price coupling algorithm and the continuous trading matching algorithm; • the report on research and development activities, which will be published every year after the draft consultation with the relevant stakeholder fora and will provide the status of R&D activity and the planning of future research (Article 11(11)); • the report on the outcome of monitoring of the algorithm performance, which will be published every year and will contain all the relevant indicators to monitor the algorithms, the parameters and thresholds for their calculation, their last period trend with particular attention to cases of performance deterioration, and a presentation of the conclusions made in cooperation with the relevant stakeholder fora (Article 8(5)); • the report on scalability which will be published every year and will include the outcome of assessment of the estimated level of scalability for the following years and the perspective projects scoped for R&D activity (Article 9(4)); • the report on the application of corrective measures, which will be published no later than four weeks after the introduction of a corrective measure (Article 12(12)); • the reports on decisions on request for change, which will be published after the decisions and will indicate the reasons behind them and the assessment report (Article 20(13)).

		These pieces of information shall be reported and debated in the relevant Fora like MESC and Florence Forum, thus providing a direct chance for discussions with all the relevant Stakeholders. Furthermore, in exceptional cases, such as significant changes on market design, the Decision Body may decide to consult a "preliminary decision", according to Article 20(8) of the AM. For the abovementioned reasons, stakeholders will be continuously updated and fully informed about all the elements underlying the decisions taken by NEMOs and TSOs and will have the opportunity to convey their opinion through the relevant channels.
	Would you propose any modification to the Algorithm requirements for SIDC (See Annex 2 of the draft Algorithm Methodology)? If so, please, justify them. - Algorithm requirements for SIDC	
	Respondents' views	**NEMOs and TSOs views**
3	One respondent (6) acknowledge and recognize the relevance of using the same algorithm for European intraday auctions, as for the single day-ahead coupling. However, he would welcome the inclusion in algorithm documentation of details on the conditions for considering that the auction is failing and switching to the alternate efficient solution for capacity allocation, i.e. the coupled continuous intraday markets. In particular, the respondent highlights that due to restrictive time constraints in the ID time frame, a strict time limit should be set for considering that an ID auction does not deliver and switching to a capacity allocation within SIDC continuous trading instead of maintaining continuous market suspended.	NEMOs and TSOs agree that the interruption of cross-zonal continuous trading shall be kept to a minimum – also in the event of a failure of the IDA. In accordance with ACER Decision 01/2019 *"Establishing a single methodology for pricing intraday cross-zonal capacity"* (afterwards referred ACER Decision 01/2019), Annex I, Article 4(7), in the event of failure of IDA, the fallback solution is to revert to the SIDC continuous trading rather than defining lengthy back-up procedures. Any procedure to be defined for solving potential operational issues with IDA shall have a time limit and, according to Annex I of ACER Decision 01/2019, Article 4(8), shall end in time to allow at least 30 min of cross zonal continuous trading for the first MTU after the publication of the auction results. As an example this will imply that the IDA with deadline for submission of orders at 22:00 will have to publish results or be cancelled at latest

		22:30 in order to allow for 30 min of continuous trading for the MTU starting at 00:00, in accordance with CACM Article 59 (3).
	As regards Intraday cross-zonal capacity pricing auctions (IDAs), do you agree with the proposed framework? (See Articles 5 and 6) In particular, please comment on the timings (GOT, GCT) and the interaction between IDAs and intraday continuous trade. - IDAs	
	Respondents' views on timings	**NEMOs and TSOs views**
4	One respondent (1) stresses the importance of not stopping the continuous algorithm while the auction runs, in order to fulfil its purpose of coupling trading between NEMOs within each bidding zone.	NEMOs and TSOs highlight that, in coherence with the content of ACER's Decision 01/2019 on IDCZCP, the operation of the IDAs does not imply a suspension of continuous trading matching, which continues working during IDAs. It only implies the suspension of the cross-border capacity allocation, in order to avoid the double allocation of capacities between IDAs and continuous trading matching algorithm. This is clearly stated in the SIDC Requirements under TITLE 1 (Requirements for continuous single intraday coupling algorithm), respectively under Article 1.3 (g) (viii) "ensure no double allocation of capacity;", Article 1.3 (l) "Times when suspension, switchover and reactivation into/from IDAs shall allow for automatization and shall be configurable, avoiding double allocation of capacity." and 1.3 (n) "The continuous trading matching algorithm shall support the possibility of continuous matching of orders during the IDA without continuous allocation of intraday cross-zonal capacity." As a result: • The continuous trading matching algorithm shall allow matching between orders belonging to the same bidding zone. • Matching between orders belonging to different bidding zones shall not be possible due to the fact that cross-border capacity allocation in continuous trading is suspended while IDAs are ongoing.
5	Three respondents (2,5,6) do not agree with the suspension of continuous trading 15 minutes before the auction and provide the following additional	NEMOs and TSOs observe that the answers received by the respondents reflect two different positions: some propose to shorten the suspension

	comment: “This limitation does not seem necessary. Indeed, market participants have a continuous visibility on the use of the ATC within XBID and only need to be aware of the relative change (delta and resulting ATC) that will be applied during the auction. The latter can be announced 15 minutes before the auction without stopping the continuous allocation until the auction.” One respondent (3) sustains that, in order to make the provision of algorithm methodology aligned with requirement from ACER Decision on Core CCM, the suspension of continuous trading 15 minutes before the Gate Closure Time, envisaged in Article 5(20), should be extended up to 40 minutes.	time while others propose to extend it. The assessment of stakeholders, who postulate shortening of suspension time in Article. 5(2), is applicable for cNTC capacity calculation without additional publication requirements, however it does not cover (a) implications for CCR using Flow-Based capacity calculation methodology when capacity allocation is performed in cNTC approach and (b) publication requirements set in ACER Decision 02/2019 on the Core CCR TSOs' proposals for the regional design of the day-ahead and intraday common capacity calculation methodologies (afterwards referred as ACER Decision 02/2019). Coexistence of cNTC allocation with FB calculation leads to time penalties due to necessary conversion. This coexistence is unavoidable due to the relation between relevant deadlines: • 01/12/2021 for implementing ID flow-based capacity calculation as set in Decision 02/2019 • 01/08/2023 for implementing handling of FB data in continuous trading algorithm as set in ACER Decision 08/2018 on the NEMOs proposal on DA and ID Algorithms (Afterwards referred as Decision 08/2018). Decision 02/2019 sets up requirement to publish ATC 15 minutes before GCT within CORE Region BZ borders in case SIDC fallback is used (Decision 02/2019, Annex II, art. 23(20(b)(iii)). In case continuous trading (CT) is allowed to continue after publication of ATC then any cross-border trade (in CORE) would invalidate this ATC. It needs to be noted that suspending CT 15 minutes before GCT can still potentially lead to domain that violates security requirements (in CORE CCR). The final steps for calculation of ATC are as follows: 1. Acquiring of most current AAC 2. Update of FB parameters with AAC 3. Extraction with AAC

		In case CT is allowed during step 1-3 there is a possibility that Market Clearing Point (MCP) changes during this process. If MCP is still within domain calculated in step 3, then this domain meets security requirements, however if MCP moves out of this domain, then extracted domain will exceed security domain. In such case the result of capacity calculation process will fail validation and will lead to zero CZC for IDA (possibly for whole CORE CCR). The necessity for longer suspension of continuous trading will be eliminated with implementation of "IDA2/IDC2" requirements. In the interim period it would be possible to relax requirement for suspending CT before GCT by running IDA in FB approach and perform ATC extraction after IDA. However, in such case most probably it won't be possible to allow 30 minutes of CT for the first auction MTU. Taking into account these reasons and responses from consultation, NEMOs in cooperation with TSOs decided to change value in art. 5(20) into 15 min requested by the regulatory authorities for publishing the relevant information ahead of IDA GCT and additional 15 min before that, to extract this information from the continuous SIDC and make it available. It should be reminded that such extension of time will only be applied on regional basis if and when necessary to perform the processes required.
6	Three respondents (2,5,6), recalling Article 63 of CACM Regulation, claim the necessity of stopping the IDA algorithm whether it does not deliver efficient results within 10 minutes, in order to allocate it within SIDC continuous trading.	NEMOs and TSOs highlight that Article 63 of CACM applies to complementary regional intraday auctions and not to IDAs, which are ruled by CACM article 55. This is clearly stated in ACER Decision 01/2019, establishing a single methodology for pricing intraday cross-zonal capacity, Annex I, Article 1(2): "Complementary regional auctions, possible implications on the congestion income distribution methodology and the capacity calculation methodology, pursuant to Articles 63, 73 and

		20 of the CACM Regulation, respectively, are outside the scope of this methodology." In the same ACER Decision, Article 4(8) states that “The IDAs should allow at least 30 minutes of cross-zonal continuous trading for any given MTU after the publication of the auction results.” This allows to have at least 30 minutes to go through the whole process of IDAs after the GCT for IDAs.
7	Should the 10 minutes limitation in previous row 6 be disregarded, two respondents (2,6) consider that the longer time would allow the MCO to inform market participants, 5 minutes before the maximum clearing time is reached, about the likelihood that the auction is cancelled and the capacity released within the continuous intraday allocation.	As stated in the previous paragraph, Article 63 does not apply to IDAs.
8	Three respondents (2,4,6) sustain the phase out of intraday complementary regional auctions (according to article 63 of CACM) in order to avoid distortions with continuous trading and future IDAs.	NEMOs and TSOs highlight that nothing in the methodology prevents a future convergence of the CRIDAs in the IDAs, as currently proposed in some regions where CRIDAs already apply. Anyway the proposed methodology includes no provision on the future evolution of CRIDAs, as this is beyond its scope.
9	One respondent (4) stresses that the national regulation about bidding and nomination formats and rules, GOT, GCT, etc. both in continuous trading and auctions shall not differ from the pan-European rules and the common practices across Europe.	NEMOs and TSOs highlight that the methodologies submitted for the public consultation are intended for setting a pan-European set of rules. While NEMOs and TSOs advocate for a common and harmonised set of rules for operations across Europe, we should take into consideration other factors that may require deviations from a unique rule in order to cope with specific regional restrictions.
10	Two respondents (6,7) oppose to intraday auctions providing the following comments: • (6,7): “the introduction of those auctions will be detrimental to the liquidity of the SIDC platform based on a continuous market” • (6): “Introduction of IDAs is a clear breach of CACM network code, introducing continuous trading as a target model”	The implementation of IDAs is a regulatory obligation for NEMOs and TSOs as per Article 55 of the CACM Regulation and the ACER Decision 01/2019.

	• (6): “Extracting congestions rents is not a prerequisite for non-discriminatory allocation of XZ capacity. A liquid continuous intraday is able to do that through continuous trading and re-trading.” (7): “moving/changing the orders from the continuous trading system to the IDA order book implies operational complications and yields little benefits while hampering the conclusion of deals for the time of standstill on the continuous market.”	
11	One respondent (7) sustains that the 30 min from Art 6 (3) seems a bit overstretched and argues that continuous trading is possible at all times so the market can conclude deals without the eventual extra capacity.	NEMOs and TSOs recall what is stated in the relevant regulation, in particular in Annex I of ACER Decision 01/2019 establishing a single methodology for pricing intraday cross-zonal capacity, Title 2, Article 4(8): "The IDAs should allow at least 30 minutes of cross-zonal continuous trading for any given MTU after the publication of the auction results". In Article 5(2) of the same Decision, it’s said that “One IDA shall be held on the day D-1 for all MTUs of the delivery day D, i.e. from the first auction MTU starting at 00:00 until the end of the delivery day D, with a deadline for bid submission at 22:00 market time D-1” and in paragraph 3 it is said that “One IDA shall be held on the delivery day D for all remaining MTUs of the delivery day D, i.e. from the first auction MTU starting at 12:00 until the end of the delivery day D, with a deadline for bid submission at 10:00 market time D”. The conjunction of the abovementioned paragraphs results in the need to restrict the IDAs process to just 30 minutes after GCT, in order to be able to go through all the required steps after the IDAs: cross border continuous trading for at least 30 min plus one hour for intraday cross zonal gate closure time ahead of the delivery). Furthermore, NEMOs and TSOs stress that, the intra-zonal continuous trading does not have to stop during that period.
	The products to be supported by the IDAs will be in accordance with the products that are available for trading in SDAC. Do you agree with this approach? - Products	
	Respondents’ views	**NEMOs and TSOs views**

12	One respondent (1) stresses the importance of having IDAs able to price capacities on 15-minutes basis, in order for the IDAs to live up to the purpose stated in the ACER decision of 24 January 2019: "The IDAs shall price the cross-zonal capacity for all relevant MTUs on the relevant bidding zone borders." One respondent (1) does not agree with the proposed approach as long as the SDAC algorithm will not be able to include 15-minutes products. 15-minutes products are considered a non-deferrable requirement for IDAs. One respondent (1) finds that the IDAs should not include any complex products from SDAC and instead have its own products or use the ones from SIDC and thus being able to trade 15-minutes products from the beginning. Complex products can be included to the extent, that they do not negatively affect the primary purpose of pricing capacity. Three respondents (2,5,6) consider that there should not be any step back with respect to what has been previously allocated with the continuous allocation process. In particular, as SIDC continuous trading makes it possible to allocate cross-zonal capacity with a 15-minute granularity, the re-allocation of cross-zonal capacity with hourly product would significantly reduce the benefits of the auctions and send inconsistent signals to market participants in comparison with prices on the continuous markets. Three respondents (2,5,6) are concerned by the risks that technical issues lead ultimately to major step backs, as it was already experienced before the SIDC continuous trading go-live: the range of complex products actually available for the SDAC and within SIDC continuous trading could be reduced to allow the IDA algorithm to run within a shorter period.	NEMOs and TSOs observe that the respondents present different point of view: some propose to have only simple but 15 minutes products, some others would rather be in favor of having all the products from the beginning. The proposed solution to align the launch of 15 minutes products in IDAs simultaneously with SDAC is a way to anticipate the Go-live of IDAs: indeed 15 min time resolution is currently not supported in the SDAC algorithm, but it will be in the future and IDAs will in the future be based on 15 min time resolution. It should be noticed that the Decision from ACER does not include any timeline for the implementation of IDAs. Algorithm methodology sets deadlines for which the requirements should be available for any party. In principle 15 minutes' products could be provided on a regional basis before the deadlines defined in the algorithm methodology. Anyway, there is no clear definition of what the MTUs are to be used for ATCs: in particular, it is not defined whether the 60 minutes' resolution should be retained or rather replaced by 15 minutes resolution. This is of utmost relevance, because having either regional differences in products MTU or having different time resolutions creates difficulties for solving the cross matching of the orders, as explained below. To understand the rationale of the products supported, it should be considered that in an auction type market as IDA and SDAC, everything is optimized in one matching process and this works best if all orders and all cross zonal input is based on one global MTU. Currently it is one hour time resolution. This is different in continuous trading algorithms, such as in continuous SIDC, where all orders are matched one by one and separate orderbooks can be organized for orders with different MTUs. A partial implementation of 15 min time resolution in the IDA for those areas and borders where a 15 min ISP is implemented would drastically increase complexity because the interaction of differentiating MTUs on orders, areas and borders within the auction also have to be considered.

		This would affect both the time for development and industrialization of the algorithm and subsequently also the time needed for calculation of the matching when it is implemented in operation. Only after further research and development of the algorithm it will be possible to present a timeline for a possible stepwise and full implementation of 15 min time resolution in IDA. Nevertheless, the implementation of 15 minutes products in IDAs should take place not later than the deadline for implementing the 15 minutes products in the SDAC. In practice, this means that no sooner than August 2022 and not later than August 2023, 15 min products shall be available for IDAs (Deadline of August 2022 for SDAC is set out in ACER decision 08/2018). Concerning the variety of products which shall be supported by IDAs, it should be noticed that Blocks and Complex Orders are currently used by market participants in existing regional intraday auctions, and they contribute to provide a proper level of liquidity. For such reason, it is proposed not to discard them.
13	One respondent (4) supports the use of all types of block offers commonly used in Europe as an alternative to complex formats, both in the DA and ID timeframe, stating this could be positive in terms of performance of the algorithm.	Currently, SDAC supports the use of blocks in any bidding zone that requests it. Furthermore, as IDAs have not been yet implemented, NEMOs and TSOs consider that an impact assessment of product types on Algorithm performance may be premature at this stage. It should be noticed that, while products methodologies define the set of products implementable in each bidding zone, the decision of their implementation on a local basis is not directly related to the items of the consultation of the methodology submitted for consultation. All issues that apply to the regional level should be done through locally regulated channels in each country.

	Given the tight timeline and in order to preserve the maximum up-time of continuous cross border single intraday coupling (SIDC) trading, in case an IDA cannot be executed it will be cancelled and the cross-zonal capacity available at that time will be allocated through continuous single intraday coupling trading. Do you agree with this approach? Would you propose a different alternative? - Timeline	
	Respondents' views	**NEMOs and TSOs views**
14	Two respondents (2,5) acknowledge and recognize the relevance of using the same algorithm for European intraday auctions, as for the single day-ahead coupling. However, they stress that, considering the possibility of failure of pan-European auctions, the algorithm documentation should include details on the conditions for considering that the auction is failing and switching to the alternate efficient solution for capacity allocation, i.e. the coupled continuous intraday markets. They highlight that due to even more restrictive time constraints in the ID time frame, a strict time limit should be set for considering that an ID auction does not deliver and switching to a capacity allocation within SIDC continuous trading instead of maintaining continuous market suspended.	In SIDC requirements document, in TITLE 2, Article 6(1)(f) is stated that "The ID auction algorithm shall be reliable, thus able to find a solution within the allowed time limit, including the potential to extend the calculation time in case the allowed calculation time is exceeded;". As previously answered in row 11, for IDAs whose GCT are at 10:00 and 22:00, it's not possible to extend the time for these IDAs. In order to clarify this point in Algorithm Methodology Article 6, two new paragraphs 4 and 5 have been added in order to address, respectively, the requisites stated in the Annex I, article 4 paragraphs 6 and 7 from the ACER Decision 01/2019. The decoupling event of the 7th June has nothing to do with the central algorithm. It was triggered by local contingencies applying on the EPEX platform.
15	Two respondents (6,7) agree with the proposed approach	
	Any other views on the proposals? - Other comments	
	Respondents' views	**NEMOs and TSOs views**
16	Four respondents (2,4,5,6) thank the TSOs and NEMOs for organizing this consultation but two respondents (2,6) regret not all documents are presented in track changes (only some are), and respondent (2) regrets that the consultation does not include an explanatory document highlighting the motivations and approach for the changes.	NEMO and TSOs highlight that all amended documents are reported with evidences of the changes: the parts of text which have been deleted are reported in red cross-over, while the added parts of text are underlined in yellow. Arguments for the changes are reported in the "Whereas" section at the beginning of the Algorithm Methodology document and partially in the PC INFO comments shown on the main text side. New documents (Algorithm monitoring methodologies) are clean, since they do not refer to any previously circulated text.

17	Three respondents (2,4,5) oppose the introduction of intraday auctions and recall the reasons behind their position already explained answering the ACER consultation in November 2018, specifically: 1. the introduction of those auctions will be detrimental to the liquidity of the SIDC platform based on a continuous market, deteriorating therefore the quality of energy price signals in the intraday time frame. Most trading and re-trading is done close before real time. This is the timeframe market parties need all the flexibility to protect them from exposure before the balancing market. 2. extracting congestions rents is not a prerequisite for non-discriminatory allocation of XZ capacity. A liquid continuous intraday is able to do that through continuous trading and re-trading. 3. fear that the technical solution to manage European-wide auctions in the ID time frame would not support the required level of granularity/complexity of bids, leading to a step back with respect to the continuous implicit allocation based on the XBID algorithm.	The Algorithm Methodology addresses the need to provide an algorithm methodology applied to the IDAs, which have been established in compliance with ACER's Decision 01/2019 to comply with the requirement for the pricing capacity in the SIDC, set forth in CACM Article 55. The recalled ACER Decision is binding.
18	Four respondents (2,4,5,6) provide additional comments on the following topics: 1. **Go live:** These challenges are key for the well-functioning of intraday markets, and need to be seriously considered. They recommend to condition the go-live of ID auctions to the achievement of a satisfactory level of performance, including: (i) Aligning the product range on what is actually managed with the continuous trading matching algorithm (ii) And achieving consistent results in less than 10 minutes with a very high level of reliability (e.g. less than 3 auctions failed each year)	1. Regarding the **Go live** point raised by the respondents, please note that: (i) the product set adopted in continuous trading is not necessarily applicable to IDAs, as it includes products designed for continuous trading which find no application in an auction type market; (ii) the operational timing for the IDAs are consistent with the ones included in the ACER's decision on IDAs; (iii) the deadlines for IDAs are set considering the technical readiness of the price coupling algorithm, in coordination

	(iii) They recommend to set a hard dead line (e.g. 2021) for the technical developments rather than for the go-live, and a relative dead line (e.g. 6 months after the achievement of the appropriate level of performance) for the operational go-live. 2. **Governance:** they would welcome the consideration of the market participants in the governance and assessment bodies of the SDAC and SIDC algorithms. Market participants are indeed directly impacted by those developments and their views should be systematically considered before decisions are made. In particular, it would be relevant to organize a stakeholder committee with representatives from the main users' associations that will monitor the performance of the algorithm, potential updates, discuss the possible delays in implementation, and provide feedbacks from the users.	with the DA implementation deadlines and with the technical readiness of the flow-based calculation in continuous trading ID algorithm, in order to guarantee the consistency of the all the involved projects. Nevertheless, the implementation of 15 minutes products functionality in IDAs should not be after the deadline for implementing the 15 minutes products functionality in SDAC, meaning that no sooner than August 2022 and not later than August 2023 shall be available for IDAs. Deadline of August 2022 for SDAC is set out in ACER Decision 08/2018. 2. Regarding the **Governance** point raised by the respondents, the consultation process is guaranteed by the reporting activity and by the organization of stakeholder fora in accordance with CACM Article 11, such as MESC forum. Please refer to the answer 2 above for more details on the accountability processes envisaged by AM.
19	Four respondent (2,4,5,7) provide additional comments on the following topic: 1. **Ownership & funding of the algorithm**: they acknowledge that the technical challenges to achieve an efficient auction algorithm are significant. Addressing those involves major development of the MCO function. From this perspective, they invite other stakeholders (incl. TSOs, NEMOs, and NRAs) to consider the opportunity of having the SDAC and SIDC algorithms developed in open source. This would have major benefits at low cost: - Full transparency on the solution actually used; - Possibility for academics or stakeholders to propose and test new developments;	Currently, ownership issues are not dealt with within CACM and existing solutions are in line with the approved MCO plan. NEMOs are actively contributing to the discussions on improvements in the operation, design and governance of the algorithms.

	- No proprietary issue, when contracting service providers for the development of specific modules	
20	Three respondents (2,4,5) provide additional comments on the following topics: 1. **Flow-Based** (Art 6): they do not see any relevant obstacle to the implementation of the flow-based capacity allocation in ID auction, even if such advanced capacity allocation is not managed with the continuous allocation; they therefore recommend that this development is made before the go-live of the intraday auctions. 2. **Miscellaneous:** The annex on SDAC refers to the "total number of bidding zone lines". They do not understand the exact nature of such information, and to which extent this is a meaningful indicator in a zonal market setting where all relevant constraints are to be summarized in cross-zonal capacities between interconnected bidding zones.	1. Regarding the **Flow-based** point raised by the respondents, please note that: as it was explained in row 5 running IDA in FB approach and Continuous Trading in cNTC approach leads to additional time penalty – which with current IT systems most probably would not allow for required 30 minutes of continuous trading for first auction MTU. 2. Regarding the **Miscellaneous** point raised by the respondents, please note that**:** the biding zone lines mentioned in the annex are not the tie-lines. These are constructs used by price coupling algorithm – in most cases there is exactly one bidding zone line per bidding zone border, however in some cases – when there are parallel interconnectors operated by different TSO, there are more lines per border. This indicator is relevant for assessing complexity of problem solved by algorithm.
21	One respondent (7) disagrees with "Whereas" (19) and (20) of the AM, stating that 'time' is not a basic dimension for calculation, while the basic dimension is computational power and the 'time' will scale according to the computational dedicated resources. Furthermore, the respondent wonder why "Whereas" (20) states that a concept of repeatability would "drastically reduce such benefits".	It should be noticed that time is a key indicator for the price coupling algorithm, because: 1) there exists the need to provide at least one solution that fulfills all the requirements (this situation would correspond to a stressed situation) and 2) the time available to find it is limited, due to the need of adjusting the calculation process with other processes around it (reception of orders, sharing results, data validation, portfolio allocation, …)

		As stated in Whereas (19), the complex combinatorial calculations to compute a number of alternative solutions requires not only pure computational power (which could be easily measured in FLOPS), but also the capacity of coordinating calculations in a multi-parallel environment, with intensive usage of communication between CPU and memory. NEMOs, in coordination with the price coupling algorithm provider, perform the adequate investigations in order to search the processors and servers that fit best to the needs of the price coupling algorithm, with the purpose of achieving the best performance. This process is repeated each time the machines running the price coupling algorithm are renewed, which is done following the common practices the industry. Regarding the repeatability issue detailed in Whereas (20), it should be stressed that multi-threading approach has been introduced in the price coupling algorithm with the aim of improving scalability. In order to guarantee also reproducibility, synchronization mechanisms – able to ensure that calculation steps are done in the same order – should be implemented, to the detriment of the speed of calculation. A critical trade-off between the scalability and repeatability is then related to the contrasting needs of calculation speed and reproducibility of results.

3 List of respondents

	Received at	Organisation	Orgatisation details								Country
1	NEMO committee	Danish Utility Regulator							Others	Regulator	Denmark
2	ENTSO-E	Eurelectric	Association								Belgium
3	ENTSO-E	PSE							Others	TSO	Poland
4	ENTSO-E	Iberdrola		Generation		Power Supply	Storage	Aggregator			Spain
5	ENTSO-E	EDF		Generation		Power Supply	Storage	Aggregator			France
6	ENTSO-E	CEZ, a.s.		Generation		Power Supply					Czech Republic
7	ENTSO-E	TIWAG - Tiroler Wasserkraft AG		Generation	Power Consumers	Power Supply	Storage	Aggregator			Austria