

Common opinion
from AEEGSI, CNMC, CRE, EICom, ERSE and OFGEM
on TERRE project design

(Trans European Replacement Reserves Exchange)

This paper provides an NRA review of stakeholders' answers to the TERRE second public consultation as well as their current view on TERRE TSOs' most recent proposal for the design of the TERRE platform. The final endorsement of the design of the platform for the energy exchanges of RR will only be given in the context of the coordinated approval phase foreseen by the EB GL with all the NRAs of the concerned region.

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1. INTRODUCTION

1.1 Context & regulatory framework

1.1.1 Context

In 2009, Regulation (EC) No 714/2009 (Article 6(2)) and Electricity Regulation and Directive 2009/72/E set the framework to integrate, coordinate and harmonise the electricity markets within the EU, with the objective of contributing to non-discrimination, effective competition, completion and efficient functioning of the internal market in electricity and cross-border trade, security of supply, providing benefits for customers, participation of demand response, supporting the achievement of the EU's targets for penetration of renewable generation, as well as ensuring the optimal management and coordinated operation of the European electricity transmission network.

To achieve these objectives, the above mentioned Regulations foresaw the development of Network Codes. In this context, ACER's Framework Guideline on Electricity Balancing (FG EB)¹, the draft network code on electricity balancing developed by ENTSO-E (NC EB)², as well as the recommendation to adopt this code published by ACER (QR on NC EB)³, paved the way to integrate significant parts of national electricity balancing markets. The formal process to develop a Regulation setting binding requirement to fulfil the integration targets has reached completion as the Guidelines on Electricity Balancing are now under translation and has entered into force the 18th December 2017⁴.

In parallel to the formal process to adopt the EB GL, Transmission System Operators and ENTSO-E, supported by National Regulatory Authorities (referred to as "NRAs" in the rest of the text), ACER and national and EU stakeholders, have committed to work on early implementation of the EB GL through the establishment of a dedicated consultative body at European level (the *Balancing Stakeholder Group*⁵) and the setting up of regional pilot projects⁶. ENTSO-E indeed proposed several cross-border pilot projects with the purpose of:

- Testing the feasibility of the European target model and the intermediate steps established in the aforesaid texts (FG EB, NC EB and QR on NC EB);
- Evaluating the associated implementation impact;
- Reporting on the experience gained.

In particular, the cross-border pilot projects on electricity balancing aim to anticipate the early implementation of the EB GL through the development of methodologies (eg. products, pricing methodologies, algorithms principles) required by the EB GL while ensuring stakeholder involvement at an early stage and gaining bottom-up experience. Cross-border pilot projects shed light on implementation barriers as well as impacts on the design of existing markets and the expected benefits in terms of social welfare. They brought insightful experiences that fuelled the process of adoption of the Guidelines on Electricity Balancing.

TERRE, which stands for "Trans European Replacement Reserves exchanges", has ENTSO-E's status of a cross-border balancing pilot project, dedicated to the exchange of balancing energy from replacement reserves (referred to as "RR" in the rest of the text). It is the most advanced pilot project for the exchange of balancing energy.

Other cross-border pilot projects are currently on:

- The *international Grid Control Cooperation* (iGCC), that enables participating TSOs to net their respective needs in automatic frequency restoration reserve when they point in opposite directions;
- The *Platform for the International Coordination of the Automatic frequency restoration process and Stable System Operation* (PICASSO), that intend to implement energy exchanges of aFRR;
- The *Manual Frequency Restoration Reserves* (MARI) project intending to implement energy exchanges of mFRR.

¹ Guideline FG-2012-E-009 of 18 September 2012 the Agency for the Cooperation of European Regulators (ACER): http://www.acer.europa.eu/Electricity/FG_and_network_codes/

² Network Code on electricity balancing published on 16 September 2014 by ENTSO-E: <https://www.entsoe.eu/major-projects/network-code-development/electricity-balancing/Pages/default.aspx>

³ Recommendation of 20 July 2015 by ACER (this is the latest version of the draft EB GL): http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Recommendations/ACER%20Recommendation%2003-2015.pdf

⁴ COMMISSION REGULATION (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R2195&from=EN>

⁵ Terms of Reference : https://www.entsoe.eu/Documents/MC%20documents/balancing_ancillary/150317%20Balancing%20Stakeholder%20Group%20ToR%20final.pdf

⁶ ENTSO-E webpage on electricity balancing pilot projects : <https://www.entsoe.eu/major-projects/network-code-implementation/cross-border-electricity-balancing-pilot-projects/Pages/default.aspx>

1.1.2 Regulatory framework

1.1.2.1 EBGL

As already mentioned, the TERRE project consists in an early implementation of the EBGL. It was started before the EBGL was stabilized into a final version and later voted by Member States. Such parallel processes constituted a challenge in order to ensure the consistency of the TERRE design with the future regulation.

However, considering the already significant progress achieved in the design of the project, TERRE NRAs issued a first opinion paper in October 2016⁷ providing TSOs with early feedback and their common position on the design conclusions. Such preliminary feedback was necessary to allow TSOs to proceed with the project and start the implementation phase.

This second opinion paper aims again at providing TSOs with a feedback on the progressed achieved since this first milestone. However, the final endorsement of the design of the platform for the energy exchanges of RR will only be given in the context of the coordinated approval phase foreseen by the EB GL with all the NRAs of the concerned region⁸.

Indeed, article 19 of the EBGL states that “*by six months after entry into force of this Regulation, all TSOs performing the reserve replacement process [...] shall develop a proposal for the implementation framework for a European platform for the exchange of balancing energy from replacement reserves*”.

The proposal for the implementation framework should include at least:

- the high level design of the European platform;
- the roadmap and timelines for the implementation of the European platform;
- the definition of the functions required to operate the European platform;
- the proposed rules concerning the governance and operation of the European platform;
- the proposed designation of the entity or entities that will perform the functions defined in the proposal;
- the framework for harmonisation of the terms and conditions related to balancing;
- the detailed principles for sharing the common costs;
- the balancing energy gate closure time for all standard products for replacement reserves;
- the definition of standard products for balancing energy from replacement reserves;
- the TSO energy bid submission gate closure time;
- the common merit order lists to be organised by the common activation optimisation function;
- the description of the algorithm for the operation of the activation optimisation function for the balancing energy bids from all standard products for replacement reserves.

All NRAs of the concerned region will then have 6 months after the submission of this proposal to make a common decision to approve or amend this proposal. In case NRAs are not able to reach an agreement within this 6-month period, the decision duty falls to ACER.

This opinion paper is endorsed by AEEGSI, CNMC, CRE, EICOM, ERSE and OFGEM, i.e. the NRAs from those States whose TSOs are members of the TERRE project and participating to the design and implementation of the platform at this stage.

1.1.2.2 Clean energy package

Last year, on the 30th of November 2016, the European Commission published its proposal entitled “Clean energy for all Europeans”. This proposal concerning energy markets consists of a review of different legislative texts. Among these texts, amendments of Directive 2009/72/EC⁹ and Regulation 714/2009¹⁰ have introduced new provisions specific to day ahead, intraday and balancing markets.

⁷ TERRE NRAs’ first opinion paper on the TERRE design to be found on CRE’s website (CRE has the NRA project lead) : <http://www.cre.fr/documents/deliberations/orientation/projet-terre/consulter-le-document-common-opinion-from-aeegsi-cnmc-cre-elcom-erse-and-ofgem-on-terre-project-design>

⁸ At this stage, only a part of the TSOs using replacement reserve are members of the TERRE project. However, once the full perimeter of the EBGL approval is known, all NRAs of the concerned region will work together on the approval of TSOs’ proposition.

⁹ [http://eur-lex.europa.eu/legal-content/FR/TXT/?qid=1497343367833&uri=CELEX:52016PC0864R\(01\)](http://eur-lex.europa.eu/legal-content/FR/TXT/?qid=1497343367833&uri=CELEX:52016PC0864R(01)).

¹⁰ [http://eur-lex.europa.eu/legal-content/FR/TXT/?qid=1497343367833&uri=CELEX:52016PC0861R\(01\)](http://eur-lex.europa.eu/legal-content/FR/TXT/?qid=1497343367833&uri=CELEX:52016PC0861R(01)).

In particular, regarding the intraday cross-zonal gate closure time (IDCZGCT), both proposals of the European Commission as well as the amendments proposed by the European Council are consistent with the enforced current European regulations and make reference to article 59 of Regulation (EU) 2015/1222 (CACM).

The final decision on the timing of the IDCZGCT is now in the hands of ACER and should be known by April 2018. It will have a direct impact on the timeline of the TERRE project and the future European RR platform. More specifically, an IDCZGCT too close to real time will be incompatible with proactive systems whose balancing rely on the use of slow cheaper reserves such as RR.

As such, TERRE NRAs draw the reader's attention on the CEP discussions around the IDCZGCT. In particular, some amendments proposed by the European Parliament aim at redefining the IDCZGCT to allow intraday trades across bidding zones very close to real time. The final result on these discussions will have a direct impact on the feasibility of the European integration of RR markets.

1.2 Scope of the project

According to the Guideline on System Operation (SO GL)¹¹, 'replacement reserves' or 'RR' means the active power reserves available to restore or support the required level of Frequency Restoration Reserves to be prepared for additional system imbalances, including generation reserves. TERRE therefore focuses on the exchange of balancing energy products with an activation time higher than the Time to Restore Frequency (TRF), which is 15 minutes for all TERRE countries.

According to the SO GL, "all TSOs of an LFC block shall have the right to implement a reserve replacement process" which means that the use of RR is not mandatory.

At previous stages, the TERRE project gathered and was developed by TSOs from France (RTE), GB (National Grid), Italy (Terna), Portugal (REN), Spain (REE) and Switzerland (Swissgrid) and so the scope of the project did not cover exchange of balancing capacity from RR.

Nevertheless, according to the documents presented by ENTSO-E on behalf of all TSOs at the Balancing Stakeholder Group meeting on 28 September 2017, all TSOs will approve the list of countries using Replacement Reserves in June 2018 and by that the parties voting on the Implementation Framework for Replacement Reserves.

In particular the TSOs from the following countries have meanwhile joined TERRE project as observers and intend to use RR:

- Romania
- Poland
- Hungary
- Bulgaria

For this reason the Implementation Framework submitted by TSOs under article 19 of the EBGL will be reasonably approved by a group of NRAs significantly different from the ones endorsing this opinion paper. As such the whole content of the Implementation Framework will be discussed among this larger group of NRAs pursuant articles 5 of the EBGL. The currently endorsing NRAs will put their best effort in sharing all information needed with this larger group and explaining all the justifications and the analysis already done to get to the agreement deemed in this opinion paper.

1.3 Milestones completed

The concomitance of the EBGL drafting and the TERRE project made vital an early and significant involvement of NRAs in the design process. All along the process, NRAs have contributed to the discussions on the choices to be made by TSOs and have provided informal guidance on the options to be further studied.

This process was formalised in April 2015 by the establishment of a governance structure, the so-called "TERRE Implementation Group" (TERRE IG), gathering TSOs and NRAs belonging to this cooperation. Since the launch of the design phase, TSOs and NRAs have organised 14 IG meetings.

TSOs and NRAs also consider stakeholders' involvement from the early steps of the project as of utmost importance. Since the beginning of the project, TSOs hosted 4 stakeholder workshops in order to present the progress already achieved and to receive their feedback. National workshops have also been organised by TSOs on a case-by-case basis to present all relevant evolutions.

In addition, a first formal public consultation was performed by TSOs in March 2016 in order to gather stakeholders' views on a first design proposal for TERRE. This first public consultation mostly focused on the TSO-TSO design of the project. 22 stakeholders responded from all TERRE member countries¹². Following this public consultation,

¹¹ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R1485&from=EN>

¹² Including one from a non-TERRE Member State

TERRE TSOs published an assessment and a response to stakeholders' answers¹³ and submitted a first approval package to TERRE NRAs. As previously mentioned, TERRE NRAs issued a first opinion paper in October 2016 providing a feedback to TSOs on this proposition.

Finally, TERRE TSOs performed a second public consultation¹⁴ in July 2017 focusing on the TSO-BSP and the TSO-BRP harmonization frameworks but also updating TSOs' first proposition on the TSO-TSO design.

¹³ Project answers to stakeholders' responses to TERRE first public consultation : https://www.entsoe.eu/Documents/Network%20codes%20documents/Implementation/Pilot_Projects/20160614_TERRE_Consultation_Project_Answers_Stakeholders_Version.pdf
¹⁴ TERRE second public consultation : <https://consultations.entsoe.eu/markets/public-consultation-document-for-the-design-of-the/>

2. ADEQUACY OF TSOS' PROPOSALS WITH NRAS' FIRST OPINION PAPER

In the first Opinion Paper, issued on the 3rd October 2016, NRAs considered that taking into account the very promising CBA results, great benefits were to be expected and TERRE's implementation should be done at the earliest possible date.

For the design elements where TSOs provided comprehensive information, NRAs agreed to a majority of the proposed design elements of the TERRE project and requested very few substantial changes.

However, NRAs considered that there were many elements about which TSOs did not provide a sufficient level of information to be able to fully endorse the concerned parts of the design. As outlined below, NRAs expected further information to be provided by the TSOs before the 2nd approval phase, or before the go-live of the TERRE platform when analysis from the parallel run is requested. The following table summarizes those conditions as well as the individual responses provided by the TSOs.

Further information requested to the TSOs on the 1 st Op. Paper	When ¹⁵	Result
Counter-activations		
<p>NRAs consider counter-activations serving a balancing purpose as acceptable and advisable but propose that the TERRE algorithm should avoid counter-activations in the absence of such a purpose. NRAs could reassess their opinion with regards to the results of the required analysis. This analysis should at least provide the following information for each type of counter-activation – meaning with and without balancing purposes:</p> <ol style="list-style-type: none"> 1. The frequency of each type of counter-activations and their volumes, within a bidding zone and at cross-zonal level; 2. The impact of each type of counter-activations on the remaining cross-zonal capacities for further exchanges of mFRR, aFRR and for imbalance netting; 3. A quantitative assessment and analysis of the impact of counter-activations on the marginal price of balancing energy; 4. The impact of the algorithmic restriction of counter-activations in terms of calculation time of the algorithm; 5. The impact of the algorithmic restriction of counter-activations in terms of failures of the algorithm. <p>TSOs should also present a foreseen solution to handle the issue of the impact of counter-activations on the marginal price in the absence of a balancing purpose.</p>	(1)	A thorough analysis of counter-activations is requested, to be provided during the parallel run phase.
TSOs should engage further analysis and discussion with stakeholders on the impact of counter-activations on the liquidity of the intraday market.	(2)	This analysis was not performed. TERRE TSOs are considering NRAs proposal to be implemented and should provide the required analysis.
Unforeseeably accepted and rejected offers		
NRAs expect further explanations and discussions involving stakeholders in order to present the envisaged methodology and rationale to handle UAB and URB.	(2)	Two alternative handling options were presented. Further explanations are expected.

¹⁵ (1) Means following the parallel run, (2) means by the 2nd public consultation and (3) means by the end of 2016 at most

Unavailable bids		
TSOs should detail the methodology they expect to use for the determination of unavailable bids. This methodology should be transparent and harmonized to the possible extent among TERRE TSOs.	(2)	The requested methodology was not presented.
CDS Bid conversion		
Stakeholders should be granted a clear view and a clear understanding on both the rationale and the way that the CDS bid conversion process impacts the volume of bids offered by BSPs.	(3)	The way that the CDS bid conversion impacts the volume was provided. Some further information asked in the opinion paper was not provided.
HVDC losses		
NRAs expect TSOs to define the financial responsibility of energy losses and the envisaged methodology to handle losses on borders where both AC and DC connections coexist	(2)	This item is clarified, the same methodology of Day-Ahead market is applied.
HVDC controllability		
TSOs should explain how they expect to calculate the desired flow range and provide NRAs with an assessment of the impact of this controllability on the total welfare of the TERRE project.	(2)	This explanation and the impact on the total welfare were not provided.
Cross-Border capacities management		
TSOs should provide a detailed explanation of the concept of Physical Feasibility regarding cross-border capacity management (use, detailed description and model of variables involved).	(2)	The detailed explanation required was not provided. The TSOs decided not to model Physical Feasibility on the algorithm to decrease the complexity of the algorithm optimisation.
Timing and scheduling		
The TERRE BEGCT should be harmonised across all TERRE members and should minimise the gap between the final point at which BSPs submit their bids and the point when TSOs submit their needs.	(3)	TSOs made a proposal to harmonise the BEGCT across the TERRE perimeter, but the proposal did not include evidence on how it minimises the gap between the BEGCT and real time.. For further information please refer to part 4.2.
TSOs should provide an assessment of the consequences for the TERRE process of intraday market time units of 30 or 15 minutes. This assessment should describe the expected impacts on the TERRE delivery period, frequency of TERRE clearings, and cross-border scheduling steps.	(3)	This assesment was not presented. For further information please refer to part 3.2.3.
TSOs should also provide an implementation plan detailing the intended process to reduce the cross-border scheduling step to 15 or 30 minutes.	(2)	This implementation plan was not presented. For further information please refer to part 3.2.3.

Fallback Plan		
Further details of the fallback plan are requested following the parallel run phase results.	(2)	A description of the fallback plan was presented.
Transparency		
<p>TSOs are requested to produce a 'Transparency Plan' as described in the Regulation of Transparency (543/2013) and the EB GL. With regards to the foreseen publication of data, NRAs request TSOs to respect the standards defined in the EB GL whilst sharing extra information on:</p> <ol style="list-style-type: none"> 6. Unavailable bids from standard products (for both activated and not activated products at local level) and specific RR products which are not shared on the TERRE platform; 7. The frequency and causes of failures of the algorithm during the parallel run phase; 8. The occurrence of indeterminacies; 9. All submitted imbalance needs (volume and price, with NRAs only). <p>In any case, TSOs should achieve a harmonization of the published data in order to ensure a level playing field between BSPs from all TERRE countries.</p> <p>Finally, TSOs should present how they expect to handle their respective local historical balancing systems in parallel with TERRE and provide concrete solutions to do so in a transparent way.</p>	(2)	<p>The Transparency Plan requested was not presented, and most of the items of extra information to share, were not included.</p> <p>The required harmonization of the published data was not addressed.</p> <p>The local historical balancing systems presented a lack of details and no timelines were presented.</p>
Level of harmonization of TSO-BSP exchanges		
<p>At the go-live of the TERRE project, NRAs expect the key features of TSO-BSP settlement to be harmonised across TERRE members and a high level of consistency between TSO-TSO and TSO-BSP settlements.</p> <p>NRAs underline that the TERRE project must be compliant with the EB GL at its go-live. This includes the legal requirements to remove caps and floors. NRAs note that the envisaged solution through settlement may only be implemented up to the entry into force of EB GL.</p>	(2)	<p>There was a significant effort to describe the current situation, but TSOs' harmonization intentions need to be clarified.</p> <p>For further information please refer to part 4.1.</p>
Governance rules		
TSOs should explain the governance arrangements concerning how new members join the TERRE platform.	(2)	Described on the Approval package.

3. TSOS' PROPOSAL AND NRAS' OPINION

3.1 Counter activations

In the first opinion papers, NRAs made it clear to TSOs that the issue of counter-activations needed to be dealt with a pragmatic manner. NRAs stated that if feasible, TSOs should restrict counter-activations that do not serve a balancing purpose, i.e. counter-activations that occur after all the balancing needs are met or when there is no TSO need to meet. NRAs also asked TSOs to perform a thorough analysis¹⁶ during the parallel phase. Finally, NRAs stated that they would reassess their common opinion prior to the go-live of the TERRE platform based on the best interest of stakeholders and the project as well as the role of TSOs.

3.1.1 TSOs proposition in the 2nd public consultation

In the second public consultation, TSOs flagged that it would be difficult to implement the counter-activation restriction in particular if there are also rules for unforeseeably rejected bids. TSOs flagged that they would monitor counter-activations during the parallel run phase and at a first stage of the project. In the approval package, TSOs specified that they will reconsider whether to constrain it based on two criteria: the frequency of counter-activations occurring and the impact on the TERRE clearing price.

TSOs indicated that the impact on the marginal price of restricting counter-activations is uncertain. The impact would depend on whether this constraint would lead to the midpoint between the downward and upward offers taken to meet TSO need to be higher or lower than the spread at the point that an algorithm without these counter-activations would clear the market.

TSOs also explained why they do not believe the allowance of counter-activation would have a negative impact on the intraday market liquidity. Their view is based on two main points:

- EBGL requirements already ensure the well-functioning of the day-ahead, intraday and balancing markets. In their view, compliance with those requirements should ensure there is no negative market liquidity impact. This includes a gate closure time that is not before the gate closure of the intraday market.
- TERRE bids are subject to prequalification and a standard shape. This is more restrictive than the authorised bids in the intraday market.

TSOs then concluded that in their view, it would be inappropriate to introduce restrictions in the balancing market that do not foster market efficiency in order to solve concerns in previous markets.

However, in their assessment of stakeholders' answers, TSOs stated that the parallel run phase should provide additional guidance on the most beneficial approach and the NRA proposal could be implemented following this period of study. TSOs propose to discuss the methodology to monitor Counter Activation with the NRAs.

3.1.2 Stakeholders views

There were mixed views from stakeholders. A number of stakeholders questioned whether it was the role of the TSO to clear these bids or whether this meant TSOs were now acting as a commercial bids clearer. Others felt that the distinction would complicate the algorithm and make the TERRE process less understandable from a BSP perspective, with some questioning whether this was even feasible. These stakeholders supported the TSO plan of keeping counter-activation under review and to act if the magnitude or impact was significant.

Nevertheless, a majority of stakeholders were opposed to counter-activations as proposed by TSOs.

3.1.3 NRA recommendation

TERRE NRAs welcome TSOs' statement in their assessment of stakeholders' answers that NRAs' proposal could be implemented.

As no additional information has been provided at the moment, NRAs re-express their position provided in the first common opinion paper.

- A pragmatic approach on the treatment of counter-activations is necessary: TSOs must find an appropriate balance between the algorithmic complexity, a focus on their core duties of ensuring security and functioning of the electricity transmission system, and the target of maximising social welfare across all timeframes when doing so.

¹⁶ The content of the required analysis is specified in the NRAs' first opinion paper, part 2.2.2.3.

- TERRE algorithm should avoid counter-activations in an uncongested area when TSOs do not submit any needs and when all TSOs' needs are met. If TSOs demonstrate that NRAs' proposal is not feasible, then NRAs would reassess their common opinion on counter-activations prior to the go-live of the TERRE platform.

NRAs now expect the promised TSO deliverable providing a robust justification and their proposition at the implementation framework stage. NRAs recall that TSOs' proposition will have to be compliant with TSOs roles and obligations under both EBGL and applicable national legislation.

NRAs agree that TSOs should monitor closely and assess any impact on consumers, and the impact on the intraday market of its design choice during the parallel run and once the TERRE platform is operational. NRAs ask that TSOs inform NRAs of the analysis it will conduct and to provide the results and conclusions of the assessment.

NRAs also ask that TSOs have the appropriate governance process to take relevant conclusions forward, including on whether there is a need to alter the way the algorithm operates. This implies to set up a framework ensuring all parties (NRAs and stakeholders) agree with the final option implemented regarding counter-activations (partial authorization, full authorization or suppression of counter-activations).

3.2 Timing and scheduling & GCT frequency

In the first opinion paper, NRAs welcomed the first components of the timing and scheduling processes proposed by TERRE TSOs. However, in order to make an opinion on structural elements of the TERRE project such as the scheduling process, NRAs also requested:

- An assessment of the impact of 30 and 15min MTUs (thus 48 and 96 TERRE GCTs per day) on the TERRE timeline
- An implementation plan detailing the intended process to reduce the XB scheduling step to 15 or 30 min

3.2.1 TSOs proposition in the 2nd public consultation

TERRE TSOs proposed to implement a one hour cross border scheduling step at the beginning of the project. This XB scheduling step will be reduced thereafter. No detailed roadmap is provided by TSOs except that the resolution of XB scheduling step will be moved to 15 minutes at the time of the implementation of the mFRR process.

TSO stated that the gate closure time frequency may increase up to 48 or 96 per day only once the mFRR process is implemented. TSOs mentioned that the GCT frequency should move at the FR-CH border only if other countries are not voluntary.

3.2.2 Stakeholders views

Regarding the targeted cross-border scheduling step, most stakeholders strongly support its reduction to 15 minutes. Apart from those who have not provided any explicit position, only two stakeholders think it is not a priority for the TERRE project.

Among those in favour of such a reduction, a majority of stakeholders asks TSOs to reduce the scheduling step as soon as possible, i.e. before mFRR deadline if technical possible. Some argue that delaying the reduction seems hard to justify considering no such limitation is implemented by the iGCC project. Several stakeholders regret a 15-minute scheduling step is not implemented at the go-live of TERRE project.

Some stakeholders have expressed a need for a clear roadmap, whatever the final disposition adopted on this matter.

3.2.3 NRA recommendation

3.2.3.1 Cross border scheduling step

TERRE NRAs fully support the reduction of the cross-border scheduling step to 15 minutes. Such scheduling step would constitute a significant improvement of the TERRE platform by allowing increased exchanges and a further integration of European markets. Consequently, NRAs consider that TSOs should implement a reduced XB scheduling step at the earliest possible date.

In the first opinion paper, TERRE NRAs requested from NRAs an assessment of the most beneficial approach to reduce the cross border scheduling step. TSOs should provide this assessment to justify their proposal for the

implementation plan of a reduced cross border scheduling step on each border. In any case, a 15-minute XB scheduling step should be implemented on all borders by December 2021 at the latest.

3.2.3.2 Intra-day cross zonal and TERRE gate closure times

In parallel, NRAs note that TSOs did not provide the requested assessment of the impact on the TERRE timeline of an intraday market time unit at 30 or 15 minutes.

TERRE NRAs remind TSOs that according to CACM provisions on market time units, the intraday cross-zonal gate closure time frequency (IDCZGCT) will have to be increased at 48 GCTs per day on some borders. In accordance to articles 24 and 29 of the EB guideline, such increase of the IDCZGCT frequency will have to be accompanied by an increase of TERRE GCTs to 48 or 96 per days to avoid any overlap between intraday and balancing markets. (Cf. Annex)

In addition to this regulatory obligation, TERRE NRAs reckon that such increased IDCZGCT constitute a compromise allowing stakeholders to balance their perimeters closer to real time while maintaining a lead-time of 60 minutes for TSOs.

3.2.3.3 Conclusions

Hence, TERRE NRAs ask TSOs to implement 96 TERRE GCT by December 2021 as this target matches the EBGL implementation date of the platform for the exchanges of mFRR energy.

NRAs consider TSOs must work for the introduction of the TERRE platform at 24 TERRE GCT as early as possible so that consumers can take advantage of the benefits that TERRE will bring to them. As such, and considering the remaining unknowns on the compatibility of the 96 GCT target with the TERRE timeline, TERRE NRAs request from TERRE TSOs to provide an assessment of the feasibility of the implementation of 96 TERRE GCTs by Q4 2019 i.e. 6 months after the go-live of the platform for the exchanges of RR energy. If the target of 96 TERRE GCTs cannot be reached by December 2021, TERRE NRAs ask TERRE TSOs to implement instead 48 TERRE GCT by December 2021 and to provide a clear roadmap to reach 96 TERRE GCTs per day by January 2025 at the latest.

By then, some NRAs will consider implementing an intermediate step –before 2021- of 48 IDCZGCT per day. This is the case of the FR-CH border as CRE and EICOM consider:

- TSOs will benefit from such provision since it will grant them the opportunity to explore an early operational implementation of an increased GCT frequency before the implementation of the mFRR platform;
- This will allow to benefit more rapidly from an enhanced liquidity on the French and Swiss intraday markets.

Besides these elements, the intermediate step is a necessity at this border to be compliant with the regulation obligation mentioned in 3.2.3.2. Indeed, MTUs are set at 30 minutes for both bidding zones, which should lead to an IDCZGCT every 30 minutes for the FR-CH border.

NRAs reckon that this intermediate step may result in non-optimized exchanges. NRAs ask TSOs that, when submitting the Implementation Framework, they explain what the impact of such non-uniform IDCZGCT frequency on the TERRE platform will be and how they plan to deal with it.

3.3 Local implementation of TERRE

The topic was not explicitly addressed in the first NRAs' opinion paper since it is related to the implementation phase dealt with in an exhaustive manner only in the second approval package.

3.3.1 TSOs proposition in the 2nd public consultation

TSOs provided a brief description of:

- the local balancing market rules applied in each member state participating in TERRE project;
- the main changes to be implemented in each country to accommodate TERRE product.

3.3.2 Stakeholders views

Most stakeholders welcome the presentation of the different rules across different TERRE countries, but they complain that the description was on high level one and many details are missing along with a proper timeline for the local implementation.

The involvement of stakeholders is of utmost importance for the success of TERRE project: public consultations and regular meetings with stakeholders in each country focusing on technical details for the local implementation are much welcomed.

Some stakeholders provide also country-specific comments.

Moreover some stakeholders highlight that:

- portfolio bidding should be allowed;
- the link between TERRE product and the review of local ancillary services is not clearly addressed;
- it's not clear how imbalances will be computed.

Moreover some stakeholders express some concerns about the unavailability of bids: they understand the TSOs' need to tag some bids as unavailable for cross border exchange and, thus, to not share them in RR platform, but more transparency on the criteria to be used by TSOs to identify such bids is of utmost importance; otherwise the market participants cannot understand how their resources are offered in the platform. The concerns refer mainly to CDS, but transparency on this process is needed in self-dispatch systems too.

3.3.3 NRA recommendation

3.3.3.1 Local implementation

NRAs deem it very important to involve as many stakeholders as possible in the local implementation of TERRE project: this will encourage the stakeholders to bid in the TERRE platform, improving its liquidity, and thus the benefit of RR cross border exchange.

In particular each TSO should locally:

- report the timetable for local implementation of TERRE project, along with the detailed rules for bidding, RR activation, TSO-BSP clearing and TSO-BRP clearing (imbalances); these rules shall take into account all the information already available about the methodologies on balancing energy pricing, developed pursuant to article 30(1) of EB GL, and on imbalance settlement, developed pursuant to Article 52(2) of EB GL;
- clarify the criteria used to compute the need to be submitted in TERRE platform and the relevant price to be used;
- clarify whether it intends or not to evaluate the introduction of balancing specific products, according to article 26 of EB GL; NRAs do know that such a proposal is due only once the Implementation Framework for exchange of standard products is approved, nonetheless a first disclosure about the possibility to introduce specific products may be given even at an earlier stage.

3.3.3.2 Unavailability of bids

Unavailability of bids (i.e. bids that are not shared in the TERRE platform) is not related only to CDS (as some stakeholders highlight in their concerns), but it is a topic to be dealt with by all TSOs. In particular:

- in a CDS tagging a bid as unavailable is a process expected to be run on the basis of ISP parameters and taking into account the results of the co-optimization allocation of the different services (congestions, reserves, etc.).
- in a self-dispatch system, bids may be tagged as unavailable due to transmission constraints or to the need to save resources for local balancing purposes or specific products.
- In both cases a broad level of transparency of the overall process should be granted, allowing market participants to know how and up to which extent their bids are shared in TERRE platform.

3.4 CDS conversion system

In their first opinion paper NRAs asked the TSOs for more details on Central Dispatch System (CDS) and on the rules to be used for the mandatory conversion of Integrated Scheduling Process (ISP) bids in standard RR bids.

3.4.1 TSOs proposition in the 2nd public consultation

TSOs provided a brief description of the main principles undergoing the ISP, along with the main services that are co-optimized.

TSOs also clarified that:

- the RR bid volumes are determined on the basis of the ISP parameters relevant for each unit and on the corresponding binding injection programs;
- RR bid prices will be provided by market participants for TERRE clearing process.

TERRE TSOs highlighted that the RR bid volumes may be reduced in case such reduction is needed to avoid endangering system security.

3.4.2 Stakeholders views

Only an Italian stakeholder explicitly makes some comments about the conversion, welcoming the description reported in the public consultation and the possibility for the operators to set a price, but complaining that the description is too high-level and that details about the relevant formulas are missing.

3.4.3 NRA recommendation

NRAs welcome the description of the CDS main principles given by the TSOs.

NRAs share the concern expressed by the Italian stakeholder about the need that all the relevant formulas should be provided: at least a local public consultations and meetings with stakeholders are needed to allow market participants to have a complete panorama on how their capacity will be shared in the TERRE platform. In particular the process should be replicable by all the operators, in order to grant a proper level of transparency.

3.5 Unforeseeably accepted and rejected offers

3.5.1 TSOs proposition in the 2nd public consultation

Unforeseeably rejected bids (URBs) are those bids below the marginal clearing price that are rejected. In the second public consultation, TSOs indicated two options on how to deal with URBs. Under the first option, TSOs would introduce no rule in the algorithm on which of these bids could be rejected. In this way, any bid could be unforeseeably rejected and the choice would be made on which rejection would maximise the social welfare in the function. The second option would be to introduce a constraint that only indivisible bids could be rejected.

TSOs support option 2, i.e. to introduce a rule that only indivisible bids could be rejected. TSOs believe that the main advantages would be to ensure consistency with the previous timeframes and to create an incentive for BSPs to submit divisible bids. The disadvantages of this approach in TSOs opinion are that the social welfare is not optimised, there are additional constraints in the algorithm, and it creates the need for additional transparency to stakeholders on the reasons for rejections.

TSOs propose to make a final decision on this during the parallel run phase. TSOs propose that the final decision would be based on three criteria: the complexity of the implementation, the computation time of the algorithm, and the impact on the algorithms ability to maximise social welfare.

3.5.2 Stakeholders views

The majority of stakeholders supported Option 2. They noted that this incentivised divisible bids, and improved transparency in that no divisible bids would be rejected below the marginal price. Stakeholders that supported option 1, noted that this approach reduced algorithm complexity and treats all types of bids equally.

3.5.3 NRA recommendation

NRAs are supportive of the transparency that option 2 provides to the market as it will send an incentive to BSPs to submit divisible bids and is consistent with treatments implemented on other timeframes.

NRAs agree with TSOs' proposal to monitor in the parallel run phase the calculation time and the welfare impact of option 2 and to take action if there is a material detrimental impact. NRAs remind this question is tightly linked to the maximum offer size allowed to indivisible offers.

3.6 Elastic needs

In the first opinion paper, NRAs evaluated positively the use of elastic needs in TERRE as a tool that enable TSOs to achieve an economic optimization of the balancing process by, depending on the guidance provided at local level

by each NRA, arbitrating among the different types of reserve (aFRR, mFRR and RR), based on the likelihood of an event and the prices of these reserves.

Besides, NRAs underlined that this arbitrage is already performed by all TSOs of the project who have a proactive approach. Thus, the use of elastic needs in TERRE will provide transparency to this practice.

3.6.1 TSOs proposition in the 2nd public consultation

TSOs maintain their position regarding the use of flexible and elastic imbalance needs because of its multiple positive effects: flexibility would reduce the number of URBs (unforeseeably rejected bids) and result in a higher social welfare, elasticity would help TSOs to optimize the system on an economical scale across time and mitigate the risk of uncertainty, also elastic needs would provide transparency to a practice already in use.

TSOs do not specify the principles they will apply to determine elasticity and flexibility, although they undertake to coordinate with the NRAs the level of transparency needed.

3.6.2 Stakeholders views

Most of the stakeholders who participated in the second public consultation agree with the TSOs flexibility proposal or do not express a position against it, although they ask for transparency.

Nevertheless, many stakeholders (46%) are opposed to allowing TSOs to submit elastic imbalance needs. Their main concern is that by means of elasticity TSOs would be directly active on the market they operate, TSOs would be able to react to the market evolution and thus generate market distortions. Specifically, they underline that TSOs could impose de-facto price caps on the market. Besides, stakeholders point that could be a breach to the unbundling principles from EU legislation.

3.6.3 NRA recommendation

TERRE NRAs understand the opposition of some stakeholders, given that an improvement in the economic optimization of the balancing process would favour the system as a whole but could cause a reduction in the income obtained by balancing service providers. However, as already expressed in the first opinion paper, TERRE NRAs support the implementation of elastic needs in the TERRE platform, both for the consequent benefit in efficiency as for the increase in transparency with regard to current TSOs practice. The actual use of elastic need by each TSO will be dependent to guidance provided at local level by each NRA.

Notwithstanding the foregoing, TERRE NRAs understand stakeholders concern about the effect of TSOs performance on the market, especially with regard to the pricing of reserves. Because of this, TERRE NRAs ask TSOs to provide them with an analysis listing all the justifications undergoing the usage of elastic needs and how they are going to benefit the system alongside with the foreseen precise implementation of the optimization strategy and its compliance with European and national regulations.

In addition, once the platform is implemented, NRAs should be able to monitor and evaluate its operation. For that purpose, a broad level of transparency is required concerning elastic needs. Each NRAs should have knowledge of the principle and criteria used by the concerned TSO to fix the elastic price, if this is the case, as well as the curves submitted to the RR platform and the obtained results.

4. HARMONIZATION FRAMEWORK

4.1 TSO-BSP and TSO-BRP settlement

4.1.1 TSOs' proposal

In its consultation, TSOs have noted that some level of harmonisation in the TSO-BSP engagement was needed. TSOs however, noted that TSO-BRP arrangements were subject to other articles under EBGL and as a result, were beyond the scope of project TERRE. TSOs have proposed three main areas for harmonisation at this stage:

- To incentivise the delivery of the balancing energy in the format of a trapeze in almost all of the TERRE region so as to avoid power imbalance caused by differences between the delivered profile and the cross-border exchange;
- To settle BSPs on pay-as-clear;
- To settle BSPs on the requested balancing energy

TSOs propose that the remaining harmonisation needs occur under the terms and conditions of article 18 of EB GL, which while a national decision, provides for coordination amongst TSOs and DSOs affected by it.

4.1.2 Stakeholders' answers

Most stakeholders were concerned that the current level of harmonisation between markets could lead to structural distortions that could impact a party's commercial position. Stakeholders also noted that plants that could not deliver the 10 minute ramp would have to price the extra costs into their bids, making the overall market favour flexible plants.

4.1.3 NRAs' opinion

NRAs see a level-playing field for participants in the TERRE market to be of fundamental importance to extract the value the service can bring to consumers. NRAs believe that TSOs proposals at the implementation framework stage need to provide evidence on how its design choices, including the proposed level of harmonisation maximises value of the TERRE platform for consumers, and avoid structural distortions that prevent the well-functioning of the TERRE market. TSOs should also provide evidence on how they took into account stakeholder concerns regarding structural distortions in their draft proposals.

NRAs believe that TSOs should always maintain the design choices under review, continue engaging with stakeholders on their experiences using the platform, and take action if the design choices impact how well the market performs. NRAs also believe that TSOs should set out how they will assess the need for further harmonisation once the platform is operational. This should include the criteria it will use to decide whether an area needs to be harmonised, the process that it will go through to agree the harmonised parameters, and how it will seek stakeholder input to their proposals.

4.2 BEGCT

In the first opinion paper, NRAs asked TSOs to propose a harmonized BEGCT and to minimize the gap between the BEGCT and the TSOGCT.

4.2.1 TSOs' proposal

TERRE TSOs propose to set the balancing energy gate closure times one hour before the start of the delivery period, i.e. strictly simultaneously with the intraday cross-zonal gate closure time.

TSOs justify their proposal by the reduction of the balancing window and a required-15 minute of internal process to submit the needed Libra inputs.

4.2.2 Stakeholders' answers

A large majority of stakeholders disagree with TSOs' proposal to put a BEGCT at H-60. They explain that in such case, BSPs would not be able to take into account the results from XBID and thus, they would have to arbitrate between XBID and TERRE. Stakeholders underline that such arbitrage would result in an inefficient loss of liquidity in both markets. Beside, market participants have underlined that in practice, such decision would move the intraday cross-zonal gate closure time (IDCZGCT) before H-60, which may not compliant with CACM provisions.

Stakeholders have proposed alternative timings. Several BSPs consider that moving the BECGT to H-55 would be sufficient. In any case, some stakeholders argue that the final decision should take into account BSPs' constraints and not only TSOs' constraints.

Different stakeholders have made suggestions to move the BECGT closer to delivery time. In particular, it was suggested that the pre-tendering phase and specific tasks of the tendering process could run in parallel.

In case many stakeholders consider TSOs' proposal was not sufficiently justified. They requested a more thorough analysis and a new opportunity to give their position once TSOs have provided such justification.

4.2.3 NRAs' opinion

TERRE NRAs welcome TSOs' efforts to propose a harmonized BECGT. TERRE NRAs believe that this is fundamental to allow a level-playing field in the TERRE market. Nevertheless, NRAs are concerned as TSOs maximized the gap between the BECGT and the TSOGCT while failing to provide sufficient justification to such proposal.

NRAs consider that a net sequencing of market timeframes is a prerequisite to avoid undue opportunity losses on the intraday market for stakeholders willing to participate to TERRE. Indeed, in case the BECGT and IDCZGCT are simultaneous, there is a risk that market participants would have to choose between TERRE and the last minutes of the intraday markets, resulting in a loss of liquidity and efficiency for both markets and for market participants.

NRAs understand TSOs' concerns on the system security and the challenges posed by a BECGT later than IDCZGCT. However, NRAs consider that TSOs should evaluate all possible improvements (e.g regarding pre-processing and processing phases) that could reduce the time needed by TSOs to guaranty maximum system security. Such alternatives are of the essence as TSOs are currently discussing with the service providers responsible for the IT developments of the RR platform.

Hence, NRAs ask TSOs to propose a BECGT strictly after the IDCZGCT allowing BSPs to update their bids after receiving the results of the XB intraday markets. For example, a BECGT at 55 minutes before the beginning of the delivery period would address the above-mentioned challenges. If TSOs consider such BECGT is not compatible with operational security standards, they shall provide well-evidenced justifications alongside the submission of the implementation framework, in line with the requirements of Article 24. In such case, NRAs will review their request upon review of the TSO evidence.