



Postbus 718, 6800 AS Arnhem, Nederland
Autoriteit Consument en Markt
T.a.v. mevr. mr. P.C.M. Bijlenga
Postbus 16326
2500 BH DEN HAAG

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UW REFERENTIE	
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BEHANDELD DOOR	[REDACTED]
TELEFOON DIRECT	[REDACTED]
E-MAIL	[REDACTED]@tennet.eu

BETREFT Aanvraag voor continuering van toepassing dual pricing

Geachte mevrouw Bijlenga,

Hierbij ontvangt u een aanvraag voor de voortzetting van de toepassing van 'dual pricing' voor onbalansverrekening. Deze aanvraag is gebaseerd op de eisen uit artikel 11 van ACER Decision 18/2020 betreffende de harmonisering van de belangrijkste kenmerken van de verrekening van onbalansen overeenkomstig artikel 52, tweede lid van de Verordening (EU) 2017/2195 (GL EB). TenneT moet ACER Decision 18/2020 op 15 december 2021 geïmplementeerd hebben.

De toepassing van dual pricing in Nederland is in overeenstemming met de vereisten uit de GL EB, bijvoorbeeld artikel 55, maar kent zijn keerzijde voornamelijk doordat het financieel ongunstig is voor BRP's, aangezien bij dual pricing zowel positieve als negatieve onbalans tot additionele kosten voor de BRP leiden, in contrast met single pricing waar dat in slechts één richting gebeurt. Om deze reden is de huidige aanvraag voorbereid in dialoog met marktdeelnemers. In 2018, ten tijde van de implementatie van artikel 18 van de GL EB, is informele feedback van marktpartijen verzameld. Ter implementatie van ACER Decision 18/2020 is vervolgens ons dual pricing systeem heroverwogen. Daarin zijn de aandachtspunten van marktpartijen meegenomen. Onze conclusie was dat een ideaal systeem niet bestaat, en dat voortzetting van het huidige systeem met het oog op de systeemveiligheid en marktprikkels de minst ongunstige keuze was.

Dit heeft TenneT richting de markt gecommuniceerd tijdens een workshop op 19 mei 2021. Daaropvolgend heeft TenneT een schriftelijke marktconsultatie gehouden van 4 juni tot en met 3 juli 2021 om onze overwegingen te toetsen en verdere inzichten op te doen. Het volgende materiaal met betrekking tot de consultatie is opgenomen als bijlage bij deze aanvraag:

- het consultatiedocument;
- de ontvangen input van marktpartijen;
- de reactie van TenneT op deze input.

Aangezien marktpartijen grotendeels steun gaven aan ons voorstel, zien we geen reden om het voorstel op basis van deze input aan te passen. Voor de motivatie van deze aanvraag wordt daarom ook verwezen naar het materiaal in het consultatiedocument.

Scope van de aanvraag

Deze aanvraag is van toepassing op alle onbalansverrekeningsperioden (hierna o.b.v. de Engelse benaming afgekort als ISP) waarin TenneT balanceringsenergie activeert in beide richtingen en randvoorwaarden voor de onbalansprijs toepast op basis van artikel 55, zesde lid van de GL EB. Het gaat om een aanvraag voor de toepassing van dual pricing zoals beschreven in hoofdstuk 2 van het consultatiedocument, onder de scope van artikel 11, eerste lid, onderdeel a, van ACER Decision 18/2020. We stellen voor vast te houden aan de huidige praktijk, zoals ook beschreven in artikel 10.29 en 10.30 van de Netcode elektriciteit en in de onbalansprijsystematiek¹ in hoofdstuk 4.3 en 5.

Samengevat is deze systematiek als volgt:

- De regeltoestand wordt bepaald op basis van geactiveerde balanceringsenergie. In principe is regeltoestand 2 van toepassing op het moment dat zowel wordt opgeregeld als afgeregeld tijdens dezelfde ISP, omdat in dat geval niet eenduidig kan worden bepaald welke richting de gunstige richting is.
- In uitzonderingsgevallen bepalen we wel een gunstige richting in deze ISP's. Specifiek geldt: in een situatie waarbij zowel is opgeregeld als afgeregeld binnen een ISP, bepaalt de ontwikkeling van de reeks van balans-delta's binnen de ISP de regeltoestand:
 - o Indien de reeks van balans-delta's binnen de ISP continu stijgt of constant is, geldt regeltoestand +1;
 - o Indien de reeks van balans-delta's binnen de ISP continue daalt of constant is, geldt regeltoestand -1.
 In deze ISP's verkiezen we slechts één van de twee randvoorwaarden uit artikel 55 van de GL EB toe te passen, in contrast met de ISP's met regeltoestand 2 waarin we beide randvoorwaarden toepassen.
- In regeltoestand 2 is de prijs voor negatieve onbalans gelijk aan de prijs voor opregelen, en de prijs voor positieve onbalans gelijk aan de prijs voor afregelen.
- Tijdens regeltoestand 2 wordt in gevallen van reverse pricing de middenprijs gebruikt.
- We monitoren hoe vaak regeltoestand 2 voorkomt, en pogen dit onder de 10% van alle ISPs te houden.

Rechtvaardiging van de aanvraag obv Artikel 11 van ACER Decision 18-2020

Deze aanvraag voor dual pricing gaat, in overeenstemming met artikel 11, tweede en derde lid, vergezeld van een rechtvaardiging op basis van operationele en economische redeneringen, waarin we tevens op basis van artikel 11, eerste lid, moeten laten zien dat het toepassen van single pricing een negatief effect heeft op de FRCE-doelparameters. Verder moeten in de rechtvaardiging de volgende punten worden meegenomen:

- een beoordeling van de negatieve effecten van het niet toepassen van dual pricing (artikel 11, tweede lid, onderdeel a);
- andere mogelijke impact van het toepassen van dual pricing (artikel 11, tweede lid, onderdeel b);
- de doelstellingen van de GL EB en de Verordening (EU) 2017/1485 (GL SO) en de algemene principes voor onbalansverrekening uit de GL EB (artikel 11, derde lid).

Ons inziens zijn hier met name de algemene principes voor onbalansverrekening van belang, aangezien deze de vereisten met betrekking tot prikkels voor deelnemers aan balanceringsmarkten bevatten. De benodigde motivatie hebben we expliciet opgenomen in het consultatiedocument in hoofdstuk 4 en met name paragraaf 4.3.

¹ https://www.tennet.eu/fileadmin/user_upload/SO_NL/Onbalansprijsystematiek.pdf

Hierin concluderen we onder meer dat verkeerde prikkels voor BRP's die ontstaan bij toepassing van single pricing een negatief effect hebben op de kwaliteit van de frequentieherstelfout (de FRCE kwaliteit), en dat zowel op basis van de prikkels voor BRP's als voor het reflecteren van de real-time waarde van energie de dual pricing optie de beste resultaten geeft.

Tijdslijn

U wordt verzocht deze aanvraag uiterlijk 15 december 2021 goed te keuren.

Indien toepassing van dual pricing op basis van ACER Decision 2020/18 niet mogelijk is, is een aanpassing van de Netcode elektriciteit nodig. Indien goedkeuring van deze aanvraag onverhoopt niet mogelijk is, verzoeken wij u ons dat zo spoedig mogelijk te laten weten, zodat wij dan de procedure in gang kunnen zetten om tot een codewijziging te komen.

Uiteraard zijn wij desgewenst graag bereid tot een nadere toelichting.

Hoogachtend,
TenneT TSO B.V.

b.a.

Head Regulatory Affairs Netherlands



AUTHOR



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Dual pricing for imbalance settlement

Consultation document for continued application after ACER Decision 18-2020

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1. About this consultation

TenneT NL has introduced dual pricing for imbalance settlement as part of the current balancing market design in 2001. In our model the price for imbalance in a given direction is equal to the price for balancing energy in the opposite direction. In imbalance settlement periods (ISPs) in which activations take place in both directions we apply dual pricing. The application of dual pricing is compliant with the requirements in the EB Regulation (eg. Article 55) but has not always been without controversy due to the financial drawbacks for BRPs with imbalances in either direction.

In 2018 the application of dual pricing in some ISPs was discussed as part of the implementation of the national terms and conditions related to balancing (in accordance with Article 18 of EBGL¹). At that time we collected informal feedback from stakeholders, but it was agreed to postpone the review of dual pricing until the finalisation of the methodology on harmonising the main features of imbalance settlement (Article 52(2) of EBGL). This methodology would contain the framework in which dual pricing could take place in the future, so it was relevant for the decision on its continuation. In July 2020 this methodology was approved by ACER in the ISH Decision² (Decision 18-2020).

Taking into account the received stakeholder input, TenneT has subsequently done a review of dual pricing. Based on this review, TenneT proposes to continue the application of dual pricing. This was announced at the BAS workshop organised by TenneT on 19 May 2021³. The considerations for this proposal are included in this consultation document, along with some specific questions to stakeholders. With this consultation we hope to collect stakeholder feedback on the proposal as well as practical concerns with its application.

On 15 July 2021 the proposal for continued application of dual pricing must be finalised and submitted to ACM. The TenneT proposal will apply to all ISPs in which we activate balancing energy in both upward and downward directions. We aim to incorporate as much as the feedback on this consultation as possible, and will at least include responses to all input received. This consultation will run until 04 July 2021 and input can be sent to [REDACTED] [@tennet.eu](mailto:[REDACTED]@tennet.eu).

The document is organised as follows. In Chapter 2 the current practice of dual pricing is described. In Chapter 3 the legal framework is presented. In Chapter 0 the proposal for continued application of dual pricing is explained, presenting TenneT's considerations. This chapter also contains responses to some input received in the workshop of 19 May and earlier stakeholder feedback. Finally, while all input is welcome, Chapter 5 contains some specific questions for stakeholders.

¹ EBGL: the EB Regulation, Regulation (EU) 2017/2195 establishing a guideline on electricity balancing

² ISH Decision: ACER Decision 18-2020 on the harmonisation of the main features of imbalance settlement

³ Video registration of the workshop is available here: <https://vimeo.com/554642225/8592fd21b7>. The slides can be found on MyTenneT.

2. Description of current practice

The current practice of dual pricing is described in the Netcode Elektriciteit in Articles 10.29 and 10.30 and in the imbalance pricing system⁴. Summarised the practice is as follows:

- The regulation state is determined on the basis of activations of balancing energy. In principle when TenneT activates both positive and negative balancing energy in the same ISP regulation state 2 applies, as it cannot generally be determined which is the preferred direction in such a case, at least during this ISP.
- There are exceptions to this rule in which we determine a preferred direction even when balancing energy is activated in both directions. Specifically:
 - o If the series of balance deltas⁵ within the ISP continuously increases or is constant, then regulation state +1 applies, and the upward regulation price (price for positive balancing energy) is applied for imbalances in both directions.
 - o If the series of balance deltas within the ISP continuously decreases or is constant, then regulation state -1 applies, and the downward regulation price (price for negative balancing energy) is applied for imbalances in both directions.

In these ISPs we select to apply only one of the boundary conditions referred to in Article 55 rather than both as in the ISPs in which activations in both directions lead to regulation state 2.

- In regulation state 2 the price for negative imbalance is equal to the upward regulation price, and the price for positive imbalance is equal to the downward regulation price.
- In case of reverse pricing, when the upward regulation price is lower than the mid price or the downward regulation price is higher than the mid price, the mid price is applied for the respective imbalances in regulation state 2. For the analysis presented in this document, this specific situation is considered to be out of scope.
- We monitor the amount of occurrences of ISPs with regulation state 2, and aim to keep it below 10%.

All ISPs in which we activate balancing energy in both directions will be included in the dual pricing request, also those ISPs in which we decide on the basis of the behaviour of the balance delta to go to regulation state +1 and -1. In those ISPs we do not calculate a total system imbalance as the ISH Decision prescribes in case single pricing is applied, but determine which boundary condition (minimum or maximum value of the imbalance price) to apply in accordance with Article 55 of EBGL based on existing criteria on the development of the imbalance during the ISP.

3. Legal requirements

The international legal framework for applying dual pricing is given in EBGL, in particular Article 18(7)(g) and

⁴ https://www.tennet.eu/fileadmin/user_upload/SO_NL/Imbalance_pricing_system.pdf

⁵ The balance delta is the power of the activated upward bids, minus the power of the activated downward bids as published on www.tennet.eu.

Article 55, and in the ISH Decision, specifically Article 11. Further references to EBGL and to SOGL⁶ are made in the mentioned Articles.

In summary the framework is as follows:

TenneT has to apply for the (continued) application of dual pricing in line with Article 11 of the ISH Decision. This application applies to all ISPs in which TenneT activates balancing energy in both directions and applies boundary conditions for the imbalance price on the basis of Article 55(6) of EBGL.

Application of dual pricing is part of the national terms and conditions related to balancing, which have been implemented in the Dutch Netcode Elektriciteit.

Dual pricing is allowed to be applied only in specific cases. In particular Article 11(1)(a) of the ISH Decision is relevant for the Dutch case, where the justification to avoid negative effects is required for the request for continued application of dual pricing:

For specific ISPs in which the TSO subsequently requests activation of both positive and negative balancing energy from frequency restoration reserves, if dual imbalance pricing is justified as a mitigation measure to avoid negative effects on FRCE target parameters in accordance with Article 128 of the SO Regulation, frequency stability in accordance with Article 3(34) of the SO Regulation and/or the ability to maintain power flows within the power flow limits in accordance with Article 32(1) and (2) of the SO Regulation as a result of BRPs acting on price incentives.

The request to apply dual pricing shall be accompanied by a justification in accordance with Article 11(2) and (3) of the ISH Decision, based on operational and economic reasoning. Importantly this reasoning shall:

- include an assessment of the negative effects of not applying dual pricing (Article 11(2)(a))
- include other possible impacts of applying dual pricing (Article 11(2)(b))
- take into account the objectives of the EBGL, the objectives of the SOGL, and the general settlement principles of the EBGL (Article 11(3)). The general settlement principles are especially important as they contain the requirements on incentives for participants in the balancing markets.

The implementation deadline of the ISH Decision is 15 January 2022. In order for TenneT to continue to apply dual pricing, an approval from ACM by that date is required, leading to a deadline of 15 July 2021 for the request.

⁶ SOGL: the SO Regulation, Regulation (EU) 2017/1485 establishing a guideline on electricity transmission system operation

4. Proposal for continued application of dual pricing

4.1 Proposal and considerations

TenneT proposes not to make any changes to the current practice of applying dual pricing as summarised in Chapter 2. The current chapter presents the general considerations behind this proposal. In paragraph 0 the dual pricing proposal is listed alongside two considered alternatives for pricing methods in regulation state 2. In the further discussion in this chapter these three options will be compared.

In accordance with the ISH Decision, dual pricing can be applied in situations in which there are activations of balancing energy in both the upward and downward direction. In our case, we consider this justified as a mitigation measure to avoid the negative effects associated with BRPs being incentivised to act in a manner that does not support the system balance. Incorrect incentives on BRPs have a detrimental effect on the FRCE target parameters.

In accordance with Article 44(1)(c) of EBGL the settlement processes should incentivise BRPs to maintain their portfolio balance and/or support the system balance. As a general policy TenneT NL aims to incentivise BRPs to support the system balance in all cases. Furthermore, distorting incentives to BRPs should be avoided in line with Article 44(1)(f). In paragraph 4.3 the three options are compared in regards to their incentives for BRPs, and possible effects on the FRCE target parameters are described.

Furthermore, in order to ensure an efficient market, and in accordance with Article 44(1)(b) the imbalance price should reflect the real-time value of energy. Paragraph 4.3 also contains considerations related to how the different options perform in regards to correct reflection of the value of energy.

In paragraph 4.4 we address feedback from stakeholders we received earlier as well as in the workshop on 19 May 2021. This paragraph also contains some mitigation measures we propose to counter the drawbacks of dual pricing.

4.2 Options for pricing in regulation state 2

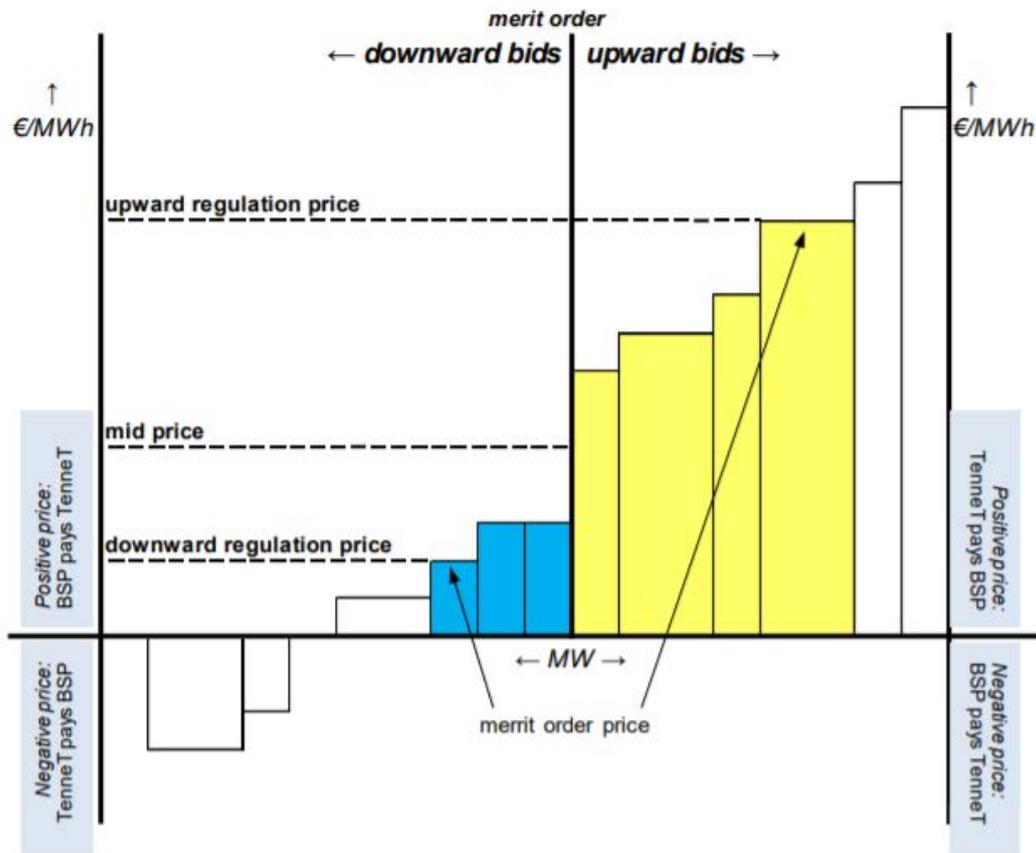


Figure 1: Prices in relation to the merit order list

In order to assess the application of dual pricing, this practice has been compared to two other pricing options that might be applied in regulation state 2. As such, the three considered options are:

1. Applying single pricing in one of the two activation directions

Since single pricing is the default pricing option in EBGL and the ISH Decision, application of single pricing also in the situation in which we currently have regulation state 2 was considered. In this option either the upward or downward regulation price is used as basis for the imbalance price for both positive and negative imbalances.

A challenge here is to determine a direction in which the BRPs' imbalances can be considered to be non-aggravating. The default situation in line with the ISH Decision in this case is to determine the total system imbalances on the basis of activated balancing energy⁷ in line with the ISH Decision

⁷ Since the ISPs with activations in both directions in which we currently apply regulation state -1 or 1 do not necessarily correspond to ISPs in which the total system imbalance is in the corresponding direction, those ISPs are considered as part of the request to apply

which has been as assumption for the analysis below.

It is important to note that the direction of the total system imbalances does not directly indicate whether or not the behaviour of a BRP is in practice aggravating or non-aggravating, regardless of it formally being defined as such. This should become apparent from the description on BRP incentives below and is linked to the difference between power and energy imbalances within an ISP.

2. Applying a single price at the mid price

In case of regulation state 0 we apply the mid price. Since desired incentives on BRPs are similar in regulation state 0 and 2, this option has been included in our analysis in order to gain a better understanding. However, this option does not fulfil the boundary condition of Article 55 of EBGL.

3. Applying dual pricing as today

This option has been described in Chapter 2.

4.3 Operational and market effects of the different options

4.3.1 Incentives on BRPs

In assessing the options in regards to incentives for BRPs through imbalance pricing, two specific points are important:

BRPs should be incentivised to support the system balance (Article 44(1)(c))

Distortive incentives should be avoided (Article 44(1)(f))

Furthermore, negative effects on FRCE target parameters are identified in the assessment below. Only in case single pricing negatively affects FRCE target parameters can dual pricing be applied. Identification of these negative effects of single pricing have to be included in the dual pricing request. We identify negative effects on FRCE target parameters by assessing whether incentives can significantly affect the effort required by the TSO to maintain the power balance of the system.

In regards to incentives to support the system, we can state that in regulation state 2 BRPs best support the system balance by not significantly changing their power output in either direction, as a preferred direction in which to support the system is not readily apparent. However, in the beginning of such ISPs activations will generally have taken place only in one direction and the incentive for BRPs is to support the system by adjusting their dispatch correspondingly. This incentive changes during the ISP, which can have negative financial consequences for BRPs who acted on the original incentive..

dual pricing, with the two prices ending up as being equal.

Single imbalance pricing (imbalance price for surplus equal in sign and size to imbalance price for shortage) results in incentives for BRPs to avoid or reduce aggravating imbalance as strong as incentives to increase non-aggravating imbalance. Single pricing cannot result in a real time incentive to avoid or reduce individual imbalance in both directions at the same time.

There is no perfect solution giving correct incentives in all situations. However, both the single pricing as the mid price option do pose greater risks and negatively affect FRCE target parameters to a higher extent. The benefits and risks of incentives provided to BRPs in the different pricing options are detailed below.

1. Single pricing

Incentive benefit

BRPs who support the selected 'best' direction are rewarded.

Incentive risk

When applying single pricing in accordance with the direction of total system imbalances in accordance with the ISH Decision, at the first moment that positive (or negative) balancing energy is activated in addition to negative (or positive) balancing energy, the total system imbalances up to that point in the ISP are in the opposite direction as the current balancing energy demand. In that situation BRPs would still be incentivised to reduce (or increase) their positive imbalances, though that is not beneficial for the current system state and could lead to additional requests for balancing energy. This is the first distortive incentive introduced by single pricing in such ISPs, an incentive that can result in aggravation of system (power) imbalances contrary to Article 44(1)(c). Should a large incident occur within an ISP that changes the direction of the requested balancing energy, this would mean that the BRPs would not directly be incentivised to solve this imbalance either within their own portfolios or in the system as a whole.

The second distortive incentive may occur later in the ISP when the activated volumes of positive and negative balancing energy get close together. At this point BRPs who know they are long or short may adjust their infeed to try to ensure that the total system imbalances flip over to or stay in the desired direction and they are rewarded rather than punished for their imbalances. This would keep the energy imbalance close to zero, but have negative effects on the power balance and FRCE in real-time. If both long and short BRPs act on this incentive, this can lead to oscillations as they act against each other in real time. This incentive also does not reward BRPs for supporting the system balance, and could have negative effects on frequency behaviour.

These two distortive incentives can be summarised by stating that since there is no firm 'best' direction in regulation state 2 there is a risk of overshoots and oscillations. Especially if both effects occur within the same ISP and total activated balancing energy volumes are relatively large, this can cause problems in the system and negatively affect FRCE target parameters or even frequency stability by creating additional power imbalances within the system, and introducing oscillations.

These effects occur also due to the fact that using the total system imbalances to determine a preferred direction does not take into account that this preferred direction may change during an ISP. Only when the balance delta and energy imbalances can be relied on to have the same preferred direction can BRPs support the system balance by actively changing their power output in real time to benefit from energy imbalance settlements.

2. *Mid price*

Incentive benefit

Settlement at the mid price provides no strong incentives to act in either direction. This is the desired incentive for BRPs to support the system balance in case of activation in two directions insofar as it limits incentives to increase aggravating imbalances

Incentive risk

In this model there is no guard against further imbalances occurring in one of the directions; a larger imbalance will not lead to a price increase. This would reduce incentives on BRPs to correct aggravating imbalances as they occur and negatively affect FRCE target parameters, especially if an incident were to occur during such an ISP and BRPs are not incentivised to respond to correct it for the remainder of the ISP, either within their own portfolios or in the system as a whole.

3. *Dual pricing*

Incentive benefit

BRPs are incentivised not to increase imbalances in either direction – especially the one with the higher price. BRPs may attempt to move back to their portfolio position, which can be beneficial for example in case of an incident occurring that suddenly changed the direction of activation of balancing energy.

Incentive risk

BRPs, especially those who have increased their portfolio imbalances to support the system balance at the beginning of the ISP, may attempt to move back to their portfolio position. Depending on the situation, this might cause larger imbalances to occur. This is most likely to happen at the moment when the activation direction first changes. The negative effect of this imbalance is expected to be limited since there is no incentive to go beyond the portfolio (energy) balance. Where related to overshoots on the side of BRPs supporting the system balance this occurrence, along with dual pricing, might be preventable with better information of market participants⁸. Finally, the ability for BRPs to utilise the possibility of ex post notification of schedules and trade their imbalances with market participants who have imbalances in the other direction also limits this effect.

⁸ Please see the specific consultation question on this in Chapter 5

4.3.2 Real-time value of energy

In the ISPs in which we propose to apply dual pricing, activations of balancing energy take place in two directions. In that situation there is no longer a single market for balancing energy, as bids are activated from separate merit order lists in upward and downward directions. This leads to separate prices for positive and negative balancing energy. Since TenneT only applies reactive balancing, we consider these activated bids to best reflect the real-time (=ISP of delivery) values of energy⁹.

This consideration implies a choice has to be made to include the (respectively positive and negative) imbalances in either the market for positive or negative balancing energy. This is related to the decision which boundary condition to apply in accordance with Article 55 of EBGL. The question to be answered becomes whether or not the real-time value of energy in the selected market correctly reflects the value of the energy of the imbalance as well.

With this in mind, the options are compared in the table below.

Option	Representation of real-time value of energy
1. Single pricing	<p>All imbalances are included in one of the markets, based on the direction of total system imbalances. This is somewhat artificial choice. It means the market in the other direction only contains either positive or negative energy, and is basically considered as non-relevant for the price determination in the ISP.</p> <p>This is somewhat flawed in its design, as also this balancing energy was activated as a result of imbalances. If it occurs too often it can reduce incentives on BSPs to place or deliver upon bids, due to the difference between the corresponding imbalance and balancing energy prices.</p> <p>Note that this also applies for those ISPs in which we currently select a prevailing boundary condition.</p> <p>However, generally this option reflects the real-time value of energy assuming that the selected direction for the system balance is the correct one.</p>
2. Mid price	<p>In case of settlement at the mid price, the real-time value of energy following from the activation of balancing energy bids are taken into account in neither direction. The mid price could still be close to the value(s) of energy if</p>

⁹ In case of proactive activation it cannot readily be said that prices of activated energy reflect the real-time value of energy, as the activated volumes are not determined by the real-time situation.

	<p>activated volumes are low, but this could be a practical result of specific situations and is not by design.</p> <p>Therefore we do not consider this option to properly reflect the real-time value of energy.</p>
3. Dual pricing	<p>When considering negative balancing energy to counter positive imbalances, and vice versa, it can easily be concluded that in case of dual pricing both value(s) of energy are applied to imbalances. This is the best possible reflection of the value of energy in case of activations in both directions (and takes into account both boundary conditions of Article 55 in EBGL).</p>

In conclusion, a fully correct reflection of the real-time value of energy would require dual pricing to be applied in all cases where balancing energy is activated in both directions. However, we consider that also the application of single pricing would sufficiently reflect the value of energy assuming the direction of the total system imbalances correctly reflects the system state.

4.3.3 Conclusion

Both option 1 and 3 are acceptable in view of the reflection of the real-time value of energy. However, option 3 is slightly better, as it better ensures correct incentives on BSPs as well. In regards to the incentives, all presented options have benefits and drawbacks. On the basis of the analysis we consider the incentive risk to be too great in option 1 and 2. Therefore, we elect to continue the application of dual pricing.

4.4 Stakeholder feedback and mitigation measures

This paragraph provides a response to stakeholder feedback received prior to this consultation.

In earlier stakeholder discussions the following two (related) points were brought forward for consideration:

1. In some ISPs BSPs are punished for initially supporting the system balance before the activation direction changes
2. The risk of regulation state 2 from occurring limits the incentive to support the system balance even when the real-time signal indicates it to be beneficial

We believe the best way to address both these concerns is by limiting the occurrence of regulation state 2. Already we apply aim for an upper limit of 10% occurrences of regulation state 2. We also intend to include this consideration in an upcoming review of the real-time system state publications.¹⁰ Finally, the introduction of a faster aFRR product might have a beneficial effect.

¹⁰ We would like your feedback in order to prevent regulation state 2 where we can. Please consider the related consultation questions on this topic in Chapter 5.

During the stakeholder workshop on 19 May additional feedback and questions were received.

3. How do TSOs that apply single pricing provide the right incentives?

Other TSOs have less interest in providing the correct incentives and pay less attention to it, mainly as they do not actively wish to incentivise system support or allow freedom of dispatch. This also leads to a lack of real time information, which in itself functions as an incentive to stick to the portfolio balance for those BRPs who do not have other means of assessing the system state (for example through activation of their own balancing energy bids)

4. Can we increase the predictability of regulation state 2?

We will consider this when reviewing the real-time publication. Any input is welcome. See also the consultation questions.

5. In dual pricing the price does not reflect the value of energy
6. Please explain the risk of oscillations in case of single pricing

In response to these last two points we refer to our analysis in the previous paragraph.

5. Specific consultation questions

TenneT appreciates all relevant input from stakeholders on the proposal contained within this consultation document. In this chapter we would additionally like to pose to you some specific questions on which your feedback would be especially appreciated. These questions are as follows:

1. Do you support the reasoning presented in regards to incentives and the effects on FRCE target parameters, and why or why not?
2. Do you support the reasoning presented in regards to the real-time value of energy, and why or why not?
3. Do you have suggestions on how to improve the dual pricing system in the future, taking into account the requirements on incentives and on reflection of the real-time value of energy?
4. Do you have ideas on how to improve the determination of regulation state 2 to reflect the status of the system?
5. Do you have ideas on provision of information that can help on the BRP side in order to reduce occurrences of regulation state 2?
6. Do you have ideas on specific actions TenneT could take to better indicate the possible applicability of regulation state 2 within a specific ISP, compared to current practice
7. Do you consider a maximum amount of occurrences of 10% to be reasonable for regulation state 2? Why or why not? If not, what would a good maximum amount be and how do you envision it could be reached?



MEMORANDUM

CLASSIFICATION C1 - Public Information
DATE July 15, 2021

SUBJECT Dual pricing consultation result

On the consultation on dual pricing, held in June 2021, TenneT has received feedback from seven parties. In general the respondents share TenneT's view that dual pricing is not ideal, but is better than the alternatives. However, some parties have shared a clear preference for single pricing.

As some of the respondents have requested to treat their input confidentially, we will not explicitly share the input. The responses we received have been summarised and included here *in italic*, both on the separate questions and the general input, and TenneT's reply is provided in normal font.

1. Do you support the reasoning presented in regards to incentives and the effects on FRCE target parameters, and why or why not?

Consultation feedback

The majority of respondents support the reasoning presented by TenneT, mostly because the dual pricing system provides the best available incentives to reduce imbalances to zero. Some concerns and other comments were shared:

- *Parties who cannot supply aFRR will have less opportunity to provide flexible power as dual pricing limits their participation through the passive imbalance market*
- *The presented disincentives for single pricing are somewhat speculative (may and could happen) even if there is a reduced incentive in single pricing*
- *The incentive at the mid-price is even less than at single pricing.*
- *In regards to the wrong incentive for single pricing with large incidents changing the regulation direction, it was questioned how often this occurs. It was also stated that in such a case the BRP would not actively help solve the problem.*
- *One respondent disagreed that single pricing would provide the wrong incentives. They stated that proper price levels strongly incentivise active system support and estimated that price levels in the Netherlands are such that BRPs are sufficiently incentivised to provide active system support.*
- *BRPs will only respond to system imbalances when they are large, persistent, and lead to sufficiently high imbalance prices.*
- *We have seen in the past that the dual pricing system is contributing to a stable grid.*

TenneT response

We appreciate that we largely have a common view with market participants on the topic of incentives. The reduced incentive to participate through the passive imbalance market is also the reason we wish to limit occurrences of dual pricing as much as we can.

While large incidents that cause activations in the opposite direction and thereby lead to regulation state 2 do

not often occur, the problem with the incentive still applies when they do. This is sufficient for us to desire proper incentives on BRPs also in such a case. We consider the risk that the situation is worsened as more important than the loss of an incentive on BRPs to actively counter the incident through single pricing, as this incentive is delayed, and will return, also with dual pricing, within 15 minutes if the incident persists into the next ISP.

In practice we see fast responses by BRPs to system imbalances, even if they are not persistent. The price seems to be the determining factor. Relatively high/low prices could also occur in case of activations in both directions.

Finally, we are glad to receive the feedback that Dutch price levels are considered to provide good signals for active system support. However, in situations of regulation state 2 it is not clear in which direction this support should be, so we wish to limit active system support in these cases.

2. Do you support the reasoning presented in regards to the real-time value of energy, and why or why not?

Consultation feedback

The majority of respondents support the reasoning presented by TenneT. However, a concern was brought forward that the real-time value of energy is not always a fair representation of market prices. This is related to the increasingly volatile prices on the merit order list, which cause more extreme settlement prices.

It was noted by a respondent that the challenge of properly reflecting the cost of the activated balancing resources in the imbalance price is related to the length of the ISP of 15 minutes and that making the ISP shorter would be the logical solution.

TenneT response

We appreciate that we largely have a common view with market participants on the topic of real-time value of energy. As a TSO we have no influence on the bid prices provided by market participants, but we actively work on lowering entry barriers for BSPs and providing incentives to place balancing energy bids at marginal costs.

We would like to stress that we are not attempting to reflect the cost of the activated balancing resources in the imbalance price, but the value of the energy in the given ISP. The imbalance price in the Netherlands is not a cost-recovery mechanism, but an indication of the scarcity of energy. The suggestion of shortening the ISP is discussed under our response on question 3.

3. Do you have suggestions on how to improve the dual pricing system in the future, taking into account the requirements on incentives and on reflection of the real-time value of energy?

Respondents' suggestions (italic) and TenneT response where applicable:

- *The upcoming FAT of 5 minutes might help prevent periods of overlapping up- and down regulation*

- *Reduce the ISP length to eg. 5 minutes (the shortest period for validated energy measurements) to reduce occurrence of up- and down regulation in the same ISP*

The length of the ISP has relations with both the time to restore frequency (TTRF), which is 15 minutes, and the MTU of wholesale markets. Market participants should be able to, as much as possible, prevent imbalances by trading in wholesale markets. For a 5 minute ISP this would be challenging and create an administrative burden. The length of the TTRF is more important: the TSO has to reduce power imbalances within 15 minutes. By choosing an ISP smaller than the TTRF, the BRP would be taking over part of the power balance responsibility of the TSO. We consider that as undesirable. Reducing the TTRF itself would only be desirable if there was an operational reason to do so, in order to keep costs of balancing manageable.

- *Avoid (too) big price differences between feed-in and take-off. We would question whether the threshold is set correctly and whether bids are called in on regulation speed in the opposite direction. Prices in upward direction of € 300 while applying prices of -€ 100 in the downward direction don't seem reasonable.*

TenneT has little influence on the price differences between the upward and downward direction. These are not a result of parallel activation of the full merit order, and in any case, upon go-live of PICASSO, such parallel activation will no longer occur. The price differences are purely caused by the bid prices combined with the activated bids (and the power imbalances in the system). It is unclear to us to which threshold is being referred.

- *If in three following ISPs the regulation state is up, double sided, up, we wonder why the one in the ISP in the middle should have been double sided.*

We consider subsequent ISPs to be independent, since the BRP is responsible for the energy imbalance in each separate ISP, and the TSO should regulate the FRCE towards zero within 15 minutes as well. Accordingly it is unclear to us how the regulation state of subsequent ISPs should be interrelated.

- *In the event that emergency power in the upward direction is activated and already the second ISP is double sided, either the emergency power is activated incorrectly or the double sided regulation could have been avoided by reducing the R2 call earlier.*

In practice dual pricing is rarely caused by counter activations as a result of mFRRda activation. In general it is our aim to avoid this, and it is also something we are taking into account in defining an updated (reactive) activation strategy for our future mFRR products.

- *Introduction of a threshold volume when determining regulation state 2 (eg. No regulation state to with activated energy <20MW). This way, activated energies of 1MW in the last minute of the ISP can no longer cause regulation state 2. These situations penalize parties helping to reduce system*

imbalance too severely.

The suggestion of a threshold volume is an interesting one, that we would like to investigate further after the implementation of PICASSO and MARI. The main challenge seems to be to determine a threshold MW value that is not fully arbitrary.

Thank you for your suggestions.

4. Do you have ideas on how to improve the determination of regulation state 2 to reflect the status of the system?

Respondents' ideas (*italic*) and TenneT response where applicable:

- *It could be argued that all ISPs with both upwards and downwards regulation should be marked as regulation state 2, as this would make the system more simple and would make it easier for market parties to predict the regulation state. However, we feel that the current definition is a good compromise as argued by TenneT.*
- *In order to answer this question we would need to better understand how the regulation state is determined at the moment and which parameters are used. Also we wonder how the incident limit values are determined. We invite TenneT for a follow up on this question.*

Thank you for your input. To better understand the determination of the regulation state and its relation to our real-time publications we primarily refer you to the documentation on our website:

The imbalance pricing system (onbalansprijsystematiek), available on:

<https://www.tennet.eu/electricity-market/dutch-ancillary-services/general-documents/> (EN)

<https://www.tennet.eu/nl/elektriciteitsmarkt/ondersteunende-diensten-nederland/documenten-algemeen/> (NL)

Descriptions of real-time publications found under explanation (toelichting) on the balance delta pages found here:

https://www.tennet.org/english/operational_management/System_data_relatng_implementation/system_balance_information/index.aspx (EN)

https://www.tennet.org/bedrijfsvoering/Systeemgegevens_uitvoering/Systeembalans_informatie/index.aspx (NL)

If there is anything unclear in the provided documentation, please let us know.

- *Introduction of a threshold volume when determining regulation state 2 (eg. No regulation state to with activated energy <20MW) This way, activated energies of 1MW in the last minute of the ISP can*

no longer cause regulation state 2. These situations penalize parties helping to reduce system imbalance too severely.

As mentioned, we are interested in further investigating the possibility of using a threshold volume after implementation of PICASSO and MARI.

5. Do you have ideas on provision of information that can help on the BRP side in order to reduce occurrences of regulation state 2?

Thank you for your ideas. *A number of respondents stressed the importance of transparency.* We also recognise the importance of transparency and will consider all suggestions in our upcoming review of the real-time publications that we will perform in relation to the implementation of PICASSO and MARI. Where we have specific comments they are included below.

Respondents' suggestions (italic) and TenneT response (italic) where applicable:

- *The market should be informed earlier about an upcoming change of the system imbalance state. To avoid an overshoot of supporting the imbalance an estimation of the system imbalance state in 5 minutes or for the next QH can be given.*

We cannot predict changes of the regulation state and only respond to the current, real-time situation in our balancing energy activations. The expectation for the next ISP is that it will be in balance insofar as energy is concerned, as BRPs are incentivised to reduce imbalances ahead of time.

- *Furthermore, the real-time imbalance should be published as well as the desired correction and the incident limit value.*
- *Increase of transparency of the data on which balancing decisions take place at the TSO.*
- *Real time representation of the system imbalance on the TenneT website. This will allow BRP's to assess the possibility of two sided regulation better.*
- *Remove/reduce the delay of 3 minutes in publishing the balance delta. This will help BRPs to assess the possibility of two sided regulation earlier and stop overshoot in time.*

We have some concerns in regards to gaming when it comes to remove the publication delay. However, a reduction will be considered in our upcoming review of the real-time publication.

- *We furthermore wonder whether the cross-border exchange can have an influence on the regulation state 2.*
- *Even faster publication, also publish ACE (input to balancing controls). We do have some concerns on available information on NL activations/ACE when XB balancing will become active / when Mari/Picasso with individual marginal pricing mechanisms.*

In regards to cross-border exchanges: participation in IGCC can reduce the occurrences of regulation state 2 and dual pricing, as it leads to less activation of balancing energy. We do not currently foresee that activations of the MARI product by other TSOs will influence the regulation state. The effect of PICASSO is unfortunately difficult to predict.

- *Improve the way Emergency power is published by indicating what volume, which direction and possibly for which period.*

We agree that the volume for incident reserve (noodvermogen) should be included in the publication, and will take this into account in our upcoming review of the real-time publication.

- *We miss a high-resolution (preferably 1 MW) anonymized merit order curve of the energy bids for balancing. Such a price ladder would give BRPs the chance to make an accurate risk assessment of how the imbalance price might evolve when TenneT activates certain amounts of balancing energy.*
- *There is a mismatch in information available to BRPs who are also BSPs providing aFRR, and other BRPs*
-

We aim to reduce any information gap between different types of BRPs.

- *We also miss information about the impact of congestion on the activation of bids in the merit order. We see that TenneT sometimes skips bids due to congestion issues, which lead to totally unpredictable jumps in imbalance prices.*

We do not skip bids based on congestion. It is unclear to us where this assumption originates.

6. Do you have ideas on specific actions TenneT could take to better indicate the possible applicability of regulation state 2 within a specific ISP, compared to current practice

Respondents' ideas (italic) and TenneT response:

- *There is a 3 minute delay in providing the information regarding the system status. If information would be shared quicker, market parties would be able to identify ISPs with regulation state 2 quicker. This would help to balance the system, as they would stop their passive steering 3 minutes earlier.*
- *As suggested before, be more transparent in sharing more information about the current state and in which direction it is going.*

For the comments on real-time publication we refer you to our response on question 5.

- *The regulation state of an ISP should always be deductible from the published balance delta (with 3 minute delay). Today, this is the case in approx 95% of the times. It is unclear what causes the*

difference.

In regards to the ISPs in which the regulation state is not deductible: this is related to the method of publication. We take snapshots that we publish every minute. It is possible that differences in the activation occur in the period between two snapshots that do then not show up on the webpage. We will take into account the comment on the deductibility of the regulation state in our upcoming review of the real-time publication.

- *Furthermore, it was asked whether the activated power publication included or excluded the earlier activated power that is no longer needed but is being withdrawn within its ramping limits.*

The published activated power consists of the sum of upward activation signals, and includes the earlier activated power that is no longer needed and being withdrawn within its ramping limits. For more information on the published information we refer you to the 'explanation' on the balance delta pages linked under question 4.

Thank you for your feedback.

- 7. Do you consider a maximum amount of occurrences of 10% to be reasonable for regulation state 2? Why or why not? If not, what would a good maximum amount be and how do you envision it could be reached?**

Consultation feedback

Opinions on a maximum amount of occurrences of 10% varied between reasonable and too high. Alternative values that were proposed were 0% (applying only single pricing) and around 5-6%.

Respondents questioned what influence TenneT has on the percentage of regulation state 2 occurrences. It was stated that no comprises should be made in operational balancing procedures to reach an arbitrary threshold. It was also proposed we should instead monitor whether the downsides of regulation state 2 offset the occurrences of regulation state 2. The average spread between long and short prices was also mentioned as a key indicator.

TenneT response

Although it is true that the occurrence of regulation state 2 is initially caused by the occurrence of positive and negative FRCE in the same ISP, TenneT does have some influence on the amount of occurrences, albeit limited. This can be done by influencing the responses of the load-frequency controller to an observed power imbalance.

By tuning specific controller parameters, we can influence the controller sensitivity and hereby influence the occurrence of dual pricing. As correctly observed by the respondents, this requires us to find a balance between FRCE quality and the amount of occurrences. When seeking this balance we will always ensure that we will still reach FRCE quality target parameters as described in the SO Regulation. Therefore also the

current threshold of 10% is not fully arbitrary, but reflects experiences on an achievable balance.

Since the FAT for aFRR will be shortened to 5 minutes in the foreseeable future, we expect the FRCE quality to increase. This might help reduce the amount of occurrences of regulation state 2. However, without operational experience this cannot be confirmed.

In regards to the proposal to monitor whether the downsides of regulation state 2 offset their occurrences: while we consider this a good suggestion, at first glance it is not clear how this can easily be monitored and on the basis of which parameters. However, we consider it part of our task to regularly review whether market incentives are still functioning as desired, and perhaps such a check can be part of this review. One option is to include the spread between long and short prices as a parameter in this.

General comments

Aside from the answers to our consultation questions, some general comments were received that we have tried to summarise here on a topic by topic basis. Several of the general comments have been included under a corresponding question above.

Cost causation principle

One respondent indicated that keeping the current system is the best way forward also because it fits best with the cost causation principle. The underlying costs for both regulating up and down are allocated to the responsible party and therefore the system fits best with the actual costs that were made to balance the system.

TenneT supports this consideration.

Incentive to bid

One respondent indicated that dual pricing contributes to the incentive to place non-contracted aFRR bids. Without the risk of dual pricing occurring, there would be less incentive for BSPs to meet the requirements necessary to be able to deliver aFRR. This could reduce the aFRR bids that are needed to balance the grid. To compensate for this TenneT might need to offer additional (availability) revenues for aFRR participants.

TenneT supports this consideration. We see that this could influence the costs of balancing in the long run, also because any BSPs qualified for aFRR energy bids may also elect to become participants in the balancing capacity market.

Comparison with other TSOs

One respondent indicated disagreement with TenneT's comparison with other TSOs. They presented the Belgian single pricing system introduced last year as an example of a single pricing system that provides the correct incentives.

TenneT would like to note that there are several important design differences between the Belgian and

Dutch system that impact the incentives, most notable the application of pay-as-bid for aFRR balancing energy, and the application of a weighted average price for the imbalance price that makes a comparison only focused on dual pricing less meaningful.

Another respondent mentioned that the Netherlands faces higher imbalance oscillations between quarter hours than for example Germany or Belgium, despite the existence of dual pricing in the Netherlands. They lack the evidence and requested a comparative analysis with other countries in order to support our claim that dual pricing would lead to more system imbalances than single pricing.

Unfortunately, as explained above for Belgium, in the view of TenneT it is not possible to make meaningful comparisons with other countries as the differences in the pricing methodologies between them are much larger than solely whether or not dual pricing or single pricing is applied. Furthermore we would like to note that proper incentives for BRPs would lead to effective independency of imbalances between subsequent ISPs and fewer imbalances that persist over quarter hours, so we consider the observation that the Netherlands faces higher oscillations between quarter hours as supporting the effectiveness of the Dutch incentives on BRPs in comparison to those in the other countries.

Pass through contracts

One respondent commented that a growing part of the larger electricity users and producers have contracts where the imbalance is their own risk. For energy suppliers such customers are very profitable in ISP's with regulation state 2; one customer might have a negative imbalance volume in a certain ISP whilst the other has a positive imbalance volume. They then both are penalized in R2 ISP's. When the two volumes are equal, the supplier however is not penalized at all.

TenneT is concerned that in these situations the affected electricity users cannot make use of ex-post notification of schedules, where a BRP under the same circumstances would be able to do so. This may negatively affect the willingness of those users to take action that would support the system in a direction away from their portfolio position due to an increased risk associated with dual pricing in comparison to a BRP.

Other comments

- *Respondents mentioned the spread between upward and downward prices as a point of attention. This spread has increased in the past years and it disincentivises a BRP to trade on intraday and aftermarket (ex post).*

In regards to the spread between upward and downward prices TenneT will assess what can be done in terms of transparency when reviewing the real-time publications for the implementation of PICASSO and MARI.

- *Dual pricing is creating a portfolio effect for PV parties who have a large enough portfolio of decorrelated assets like Wind, Solar, Industrial or Residential consumption. This gives an unfair*

advantage to incumbent and major players in the market towards smaller or more specialized parties.

- *Dual pricing is putting an extra cost on non/less dispatchable asset like solar and wind production. This can deter pure renewable traders to enter the NL market while being very successful to manage such assets in other jurisdictions like Germany or the Nordics.*
- *Due to hourly trading in the day-ahead market, parties with solar portfolios have higher imbalances in the first and last quarter hour of the D-1 MTU, which also coincide with a higher occurrence of regulation state 2, especially at the beginning and end of the day.*

It is unfortunately not clear to us what is meant by the portfolio effect, or to which unfair advantage is being referred. In regards to renewable assets: the BRP is and will remain financially responsible for its imbalances. When he lacks the means to manage these imbalances either ex ante or in real time the BRP faces the imbalance risk. This is desired. It is not the aim of TenneT to shield BRPs from the imbalance risk associated with their portfolio.

We would like to note, however, that we fully support and strive towards the introduction of 15 minute products in the day-ahead markets on all our borders.