INDEPENDENT POWER
TRANSMISSION
OPERATOR

METHODOLOGY

Rules for settlement in case of suspension of market activities

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Rules for settlement in case of suspension of market activities

Article 1. Basic principles

1. In accordance with article 39(3) of Commission Regulation (EU) 2017/2196 of 24 November 2017 establishing a network code on electricity emergency and restoration, the rules for settlement in case of suspension of market activities shall:

   a) ensure the financial neutrality of each Transmission System Operator (hereinafter referred to as "TSO") and relevant third party,

   b) avoid distortions of incentives or counterproductive incentives to Balance Responsible Parties, Balance Service Providers and TSOs,

   c) incentivise Balance Responsible Parties and Balance Service Providers to help the system to restore its balance,

   d) avoid any financial penalties imposed on Balance Responsible Parties and Balancing Service Providers due to the execution of the actions requested by the TSO,

   e) discourage the TSO from suspending market activities, unless strictly necessary, and incentivise the TSO to restore the market activities as soon as possible; and

   F) incentivise Balance Service Providers to offer services to the TSO that helps restore the system to normal state.

Article 2. Rules and methodologies applied in case of suspension of market activities

1. If during the Settlement, the Metering Data or other information that is needed for the calculation of payments and charges is not available, the TSO shall make a reasonable estimate of the non-available data, taking into account their historical evolution and any other information that is needed for this purpose, as specified in the Hellenic Electricity Transmission System Operator Grid Code.
2. If it is not possible to provide the schedules referred to in article 111(1) and (2) of Commission Regulation (EU) 2017/1485 of August 2017 establishing a guideline on electricity transmission system operation by the Scheduling Agent, (ODAIE - Electricity Market Operator) the calculations of articles 84, 86, 87 and 89 of the Balancing Market Rulebook (hereinafter referred to as "BMR") shall be made for $MS = 0$.
3. In the cases of suspension of market procedures as set out in the "Rules for suspension and restoration of market activities", the rules for settlement shall be as follows:

   In particular:

   i. In accordance with article 25 of the BMR, the Balancing Market Fee shall include the Fixed Participation Cost and the Proportional Balancing Cost.

      In the event of exceptional circumstances that result in the poor operation of the Balancing Market System (hereinafter referred to as "BMS"), the

Fixed Participation Cost shall not change, whereas the Proportional Balancing Cost shall be once again calculated as set out in article 25 of the BMR, but the input data (monthly energy volume and imbalances) shall be calculated as set out in these rules.

ii. In the event of exceptional circumstances that result in the non-execution of the Integrated Scheduling Process (ISP) due to the inability to calculate the supplied quantity of Balancing Capacity (Upward and Downward Balancing Capacity for Frequency Containment Reserve (hereinafter referred to as "FCR"), automatic Frequency Restoration Reserve (hereinafter referred to as "FRR) and manual FRR), the TSO shall follow the methodology for the implementation of articles 90 and 91 of the BMR, as follows:

Taking into account the Required Total Upward Balancing Capacity for each individual service (Balancing Capacity for FCR, automatic FRR and manual FRR) for each Imbalance Settlement Period, the TSO shall go back to the last available Upward Balancing Capacity Offers for each particular service (Balancing Capacity for FCR, automatic FRR and manual FRR) submitted by the Balancing Service Entities for an equivalent Settlement Period.

Subsequently, taking into account any recently updated availability data, the various segments of the offers that refer to a specific service and Imbalance Settlement Period t shall be ranked in ascending order from the cheapest to the most expensive offer. The marginal segment shall then be determined, on the basis of the Required Total Upward Balancing Capacity, so that the sum of all the individual Balancing Capacity quantities below that segment equals the Required Total Upward Balancing Capacity. If the prices of the Balancing Capacity Offers are the same, the selection of the offer segments shall be made in order of priority, as set out in article 59(3) of the BMR.

Similarly, taking into account the Required Total Downward Balancing Capacity for each individual service (Balancing Capacity for FCR, automatic FRR and manual FRR) for each Imbalance Settlement Period, the TSO shall go back to the last available Downward Balancing Capacity Offers for each particular service (Balancing Capacity for FCR, automatic FRR and manual FRR) submitted by the Balancing Service Entities for an equivalent Settlement Period.

Subsequently, taking into account any recently updated availability data, the various segments of the offers that refer to a specific service and Imbalance Settlement Period t shall be ranked in ascending order from the cheapest to the most expensive offer. The marginal segment shall then be determined, on the basis of the Required Total Downward Balancing Capacity, so that the sum of all the individual Balancing Capacity quantities below that segment equals the Required Total Downward Balancing Capacity. If the prices of the Balancing Capacity Offers are the same, the selection of the offer segments shall then be made in order of priority, as set out in article 59(3) of the BMR.

For the final calculation of the Remuneration for the Upward and Downward Balancing Capacity per service (Balancing Capacity for FCR,

automatic FRR and manual FRR), the prices for each step of the acceptable Upward and Downward Balancing Capacity Offers for each particular Balancing Service Entity shall be taken into account together with the percentage of the timeframe within the Imbalance Settlement Period t during which the Balancing Service Entity e was available to provide the service in question, provided that such a calculation is possible. In the opposite case, it shall be deemed that $T = 100\%$.

If it is deemed necessary, the TSO shall take into account the real circumstances and the principles of article 1 and shall be entitled to request the implementation of an alternative calculation method that shall be compliant with the provisions of this article, and shall notify the Regulatory Authority for Energy (hereinafter referred to as "RAE"), making available all the information that the Authority may request.

iii. If the calculation of Balancing Energy Prices for Upward and Downward Manual FRR is impossible, especially due to an Emergency Situation or poor operation of the BMS or of the other electronic systems of the TSO (article 85 of the BMR), the TSO shall calculate the average prices for Upward and Downward Balancing Energy for Manual FRR corresponding to the working or non-working days of an equivalent Settlement Period in the last thirty (30) days from the Imbalance Settlement Period under examination, depending on whether the day under examination is a working day or not.

For the final calculation of the Remuneration for Upward and Downward Balancing Energy for Manual FRR and of the Remuneration for Upward and Downward Balancing Energy for purposes other than Balancing (article 87 of the BMR), the above prices shall be taken into account. If it is deemed necessary, the TSO shall take into account the real circumstances and the principles of article 1, and shall be entitled to request the implementation of an alternative calculation method which shall be compliant with the provisions of this article, and shall notify RAE, making available all the information that the Authority may request.

Similarly, If the calculation of Balancing Energy Prices for Upward and Downward Automatic FRR is impossible, especially due to an Emergency Situation or poor operation of the Balancing Market System or of the other electronic systems of the HETS Operator, the HETS Operator shall calculate the average prices for Upward and Downward Balancing Energy for Automatic FRR corresponding to the working or non-working days of an equivalent Settlement Period in the last thirty (30) days from the Imbalance Settlement Period under examination, depending on whether the day under examination is a working day or not.

For the final calculation of the Remuneration for Upward and Downward Balancing Energy for Automatic FRR, the above prices shall be taken into account. If it is deemed necessary, the TSO shall take into account the real circumstances and the principles of article 1, and shall be entitled to request the implementation of an alternative calculation method which shall be compliant with the provisions of this article, and shall notify RAE, making available all the information that the Authority may request.

iv. In the event of exceptional circumstances that result in the non-execution of the Integrated Scheduling Process (ISP), no Non-Compliance Charges shall be imposed for:

a. unlawful submission of Non-Availability Declarations (article 96 of the BMR),

b. unlawful submission of Techno-Economic Declarations (article 97 of the BMR),

c. non-submission of Balancing Energy Offers (article 98 of the BMR),

d. significant deviation from the Registered Characteristics (article 99 of the BMR) and

e. non-submission of Balancing Capacity Offers (article 100 of the BMR).

v. In the event of poor operation of the BMS, no Non-Compliance Charges shall be imposed due to significant deviation in the supply of Upward or Downward Balancing Energy or Energy for purposes other than balancing (article 101 of the BMR).

vi. In the event of poor operation of the BMS, no Non-Compliance Charges shall be imposed for significant systematic imbalances in demand (article 102 of the BMR).

vii. If it is not possible for the Scheduling Agent (ODAIE) to provide the schedules referred to in article 111(1) and (2) of Commission Regulation (EU) 2017/1485, no Non-Compliance Charges shall be imposed for significant systematic imbalances in the actual output of Non-Dispatchable RES Units Portfolios (article 103 of BMR).

viii. If it is not possible for the Scheduling Agent (ODAIE) to provide the schedules referred to in article 111(1) and (2) of Commission Regulation (EU) 2017/1485, (ODAIE), no Non-Compliance Charges shall be imposed for import/export deviations (article 104 of BMR).

Similarly, in the event that the calculation of Cross-Border Energies is impossible, no Non-Compliance Charge for import/export deviations shall be imposed.

ix. If it is not possible for the Scheduling Agent (ODAIE) to provide the schedules referred to in article 111(1) and (2) of Commission Regulation (EU) 2017/1485, no Non-Compliance Charges shall be imposed for infeasible Market Schedule (article 105 of BMR).

x. If it is not possible for the Scheduling Agent (ODAIE) to provide the schedules referred to in article 111(1) and (2) of Commission Regulation (EU) 2017/1485, the debits and credits resulting from the Imbalance Settlement (article 89 of the BMR) shall be calculated for the Balance Responsible Entities as the product of the Measurement/ Metering and the Imbalance Price, $MQ * IP_t$.

Similarly, in the event of poor operation of the BMS, the debits and credits resulting from the Imbalance Settlement shall be calculated for the Balancing Service Entities (Generation) as the product of the difference between the Metered Quantity and the Market Schedule, and the Imbalance Price, $(MQ - INST^*) * IP_t$, where, instead of the non-adjusted

dispatch instruction, the dispatch instruction from the process followed during the emergency situation shall be used.

xi. Pursuant to article 88(3) of the BMR, if the calculation of the Imbalance Settlement Prices is impossible, especially due to an Emergency Situation, or poor operation of the BMS or of the other electronic systems of the TSO, the TSO shall calculate the average imbalance prices of the past year, taking into account the Imbalance Settlement Periods during which the System Load was found to be equal to that of the Period under examination with a maximum deviation of ±5%. For the final calculation of the Debits and Credits from the Imbalance Settlement, the above price shall be taken into account. If it is deemed necessary, the TSO shall be entitled to request the implementation of an alternative calculation method and shall notify RAE, making available all the information that the Authority may request.

TABLE 1: SUMMARY TABLE OF RULES FOR SETTLEMENT IN CASE OF SUSPENSION OF MARKET ACTIVITIES

	DEBIT & CREDIT CATEGORY	ARTICLE of BMR	VARIABLE	REASON FOR SUSPENSION	METHODOLOGY
1	**Balancing Market Fee**	25	Fixed Participation Cost & Proportional Participation Cost	Balancing Market System Failure	The Fixed Participation Cost shall not change, whereas the Proportional Balancing Cost shall be once again calculated as set out in article 25 of the BMR, but the input data (monthly energy volume and imbalances) shall be calculated as set out in these rules.
2	**Debits and Credits for Balancing Energy**	85-86	Balancing Energy Price for mFRR up and mFRR dn	Balancing Market System Failure	$Price\_BE\_mFRR_{\forall direction} = \frac{1}{n}\sum_{i}^{n} Price\_BE\_mFRR_{\forall direction}\ of\ last\ 30\ days,$ $for\ working\ or\ no\ working\ days, according\ to\ Dispatch\ Day, D$
3	**Debits and Credits for Balancing Energy**	86	Balancing Energy Price for aFRR and aFRR dn	Balancing Market System Failure	$Price\_BE\_aFRR_{\forall direction} = \frac{1}{n}\sum_{i}^{n} Price\_BE\_aFRR_{\forall direction}\ of\ last\ 30\ days,$ $for\ working\ or\ no\ working\ days, according\ to\ Dispatch\ Day, D$
4	**Debits and Credits from the Imbalance Settlement**	88-89	Market Schedule MS	No MS available	$IMBC = MQ * IP_t$
5	**Debits and Credits from the Imbalance Settlement**	88-89	Instructed Energy INST	Balancing Market System Failure	$IMBC = (MQ - INST^*) * IP_t$

	DEBIT & CREDIT CATEGORY	ARTICLE of BMR	VARIABLE	REASON FOR SUSPENSION	METHODOLOGY
6	**Debits and Credits from the Imbalance Settlement**	88-89	Imbalance Price	Balancing Market System Failure	$IP_t = \frac{1}{n}\sum_{i}^{n} IP_{t\,last\ year}\ \ where\ i\ \in \Omega\ \ and\ \Omega = \{All\ Imbalance\ Settlement\ Period\ i\ with\ (System\ Load_i - System\ Load_t) = \pm 5\% * System\ Load_t\}$
7	**Balancing Capacity Remuneration**	90	Balancing Capacity per service (FCR, aFRR, mFRR up)	No ISP executed	Taking into account the Required Total Upward and Downward Balancing Capacity for each individual service (Balancing Capacity for FCR, automatic FRR and manual FRR) for each Imbalance Settlement Period, the TSO shall go back to the last available Upward and Downward Balancing Capacity Offers for each individual service (Balancing Capacity for FCR, automatic FRR and manual FRR) submitted by the Balancing Service Entities for an equivalent Settlement Period. Subsequently, taking into account any updated availability data, the various segments of the offers which refer to a specific service and Imbalance Settlement Period t shall be ranked in ascending order from the cheapest to the most expensive offer. The marginal segment shall then be determined, on the basis of the Required Total Upward and Downward Balancing Capacity, so that the sum of all the individual Balancing Capacity quantities below that segment equals the Required Total Upward and Downward Balancing Capacity. If the prices of the Balancing Capacity offers are the same, the selection of the offer segments shall be made in order of priority, as set out in article 59(3).

	DEBIT & CREDIT CATEGORY	ARTICLE of BMR	VARIABLE	REASON FOR SUSPENSION	METHODOLOGY
8	**Balancing Capacity Remuneration**	91	Balancing Capacity Price per service and direction (FCR, aFRR, mFRR Up and Down)	The calculation of the offer prices for Upward and Downward Balancing Capacity is impossible	For the final calculation of the Remuneration for the Upward and Downward Balancing Capacity per service (Balancing Capacity for FCR, automatic FRR and manual FRR), the prices for each step of the acceptable Upward and Downward Balancing Capacity Offers for each particular Balancing Service Entity shall be taken into account together with the percentage of the timeframe within the Imbalance Settlement Period t during which the Balancing Service Entity e was available to provide the service in question, provided that such a calculation is possible. In the opposite case, it shall be deemed that T=100%.
9	**Non-Compliance Charges due to unlawful Submission of Non-Availability Declarations**	96	Flag for unlawful submission of Non-Availability Declarations	No ISP executed	$NCAV = 0$
10	**Non-Compliance Charges due to unlawful submission of Techno-Economic Declarations**	97	Flag for unlawful submission of Techno-Economic Declarations	No ISP has been executed	$NCTD = 0$
11	**Non-Compliance Charges due to non-submission of Balancing Energy Offers**	98	Flag for non-submission of Balancing Energy Offers	Balancing Market System Failure	$NCBEO = 0$

	DEBIT & CREDIT CATEGORY	ARTICLE of BMR	VARIABLE	REASON FOR SUSPENSION	METHODOLOGY
12	**Non-Compliance Charges due to significant deviation from the Registered Characteristics**	99	Flag for significant deviation from the Registered Characteristics	No ISP has been executed	$NCDC = 0$
13	**Non-Compliance Charges due to non-submission of Balancing Capacity Offers**	100	Flag for non-submission of Balancing Capacity Offers	No ISP executed	$NCRO = 0$
14	**Non-Compliance Charges due to significant deviation in the supply of Upward or Downward Balancing Energy or Energy for purposes other than balancing**	101	Instructed Energy INST	Balancing Market System Failure	$NCNPBE = 0$
15	**Non-Compliance Charges due to systematic imbalances in demand**	102	Activated upward and downward balancing energy	Balancing Market System Failure	$NCBAL = 0$

	DEBIT & CREDIT CATEGORY	ARTICLE of BMR	VARIABLE	REASON FOR SUSPENSION	METHODOLOGY
16	**Non-Compliance Charges due to systematic imbalances in the actual output of Non-Dispatchable RES Units Portfolios**	103	Market Schedule MS	No MS available	$NCBALR_{e,m} = 0$
17	**Non-Compliance Charges for import/export deviations**	104	Market Schedule MS	No MS available	$NCC\_CIR = NCC\_CER = 0$ $NCC\_CIT = NCC\_CET = 0$
18	**Non-Compliance Charges for import/export deviations**	104	Capacity rights	Inability to Calculate Cross-Border Energies	$NCC\_CIR = NCC\_CER = 0$
19	**Non-Compliance Charges for import/export deviations**	104	Realized Schedule for Imports/Exports	Inability to Calculate Cross-Border Energies	$NCC\_CIT = NCC\_CET = 0$
20	**Non-Compliance Charges for infeasible Market Schedule**	105	Market Schedule MS	No MS available	$NCNAMS = 0$

Examples of application of the Methodologies for Settlement in case of suspension of market activities

A. Calculation methodology for the Supplied Upward and Downward Balancing Capacity in exceptional circumstances

In the following example the Supplied Upward and Downward Balancing Capacity is calculated for all the services (Balancing Capacity for FCR, automatic FRR and manual FRR) for each Balancing Service Entity e, in the case of exceptional circumstances which result in the non-execution of the Integrated Scheduling Process (ISP).

Before the execution of the Integrated Scheduling Process, the Balancing Service Entities shall submit Balancing Capacity Offers within the timeframe provided. The Balancing Capacity Offers for each Dispatch Period of a Dispatch Day shall be submitted separately for Upward and Downward Balancing Capacity and for each individual service (Balancing Capacity for FCR, automatic FRR and manual FRR). Each step shall contain the price of the offer in €/MW for a Balancing capacity quantity in MW, while the relevant technical capacity of the Balancing Service Entities, as per their Registered Characteristics, shall be taken into account together with their most updated availability.

The IPTO shall take into account the Required Total Upward Balancing Capacity and the Required Total Downward Balancing Capacity for each individual service (Balancing Capacity for FCR, automatic FRR and manual FRR) as they are derived from the Transmission System Operation & Control Department (TSOCD), for the Imbalance Settlement Period t, in accordance with the Calculation methodology for Requirements in Balancing Capacity in exceptional circumstances, and shall:

TABLE 2: REQUIRED TOTAL UPWARD BALANCING CAPACITY PER FCR, AFRR, MFRR SERVICE IN EXCEPTIONAL CIRCUMSTANCES

Required Total Upward Balancing Capacity per service (FCR, aFRR, mFRR)	MW
FCRup	60
aFRRup	500
mFRRup	900

TABLE 3: REQUIRED TOTAL DOWNWARD BALANCING CAPACITY PER FCR, AFRR, MFRR SERVICE IN EXCEPTIONAL CIRCUMSTANCES

Required Total Downward Balancing Capacity per service (FCR, aFRR, mFRR)	MW
FCRdn	60
aFRRdn	200
mFRRdn	0

go back to the last available Balancing Capacity Offers submitted by the Balancing Service Entities for each individual service and for an equivalent Settlement Period.

Assuming that the last available Balancing Capacity Offers submitted by the Balancing Service Entities gbse1, gbse2 and gbse3 for the aFRRdn service and for an equivalent Settlement Period are as follows:

TABLE 4: THE LAST AVAILABLE BALANCING CAPACITY OFFERS SUBMITTED BY THE BALANCING SERVICE ENTITIES FOR THE AFRRDN BALANCING CAPACITY AND FOR AN EQUIVALENT SETTLEMENT PERIOD

	$Offers\ for\ aFRRdn_{gbse}$									
entity name	aFRRdn / price (step MW/ €/MW)									
gbse1	20/0,22	20/0,44	30/0.53	20/0.75	20/0.84	10/0.88	40/1.10	10/1.32	10/1.41	20/1.50
gbse2	20/0.57	10/0.62	10/0.75	10/0.84	20/0.88	20/1.10	15/1.32	10/1.41	10/1.77	5/1.85
gbse3	20/0.31	20/0.53	20/0.66	20/0.79	10/0.88	20/0.93	10/1.06	16/1.19	18/1.32	46/1.37

Subsequently, taking into account any recently updated availability data, the various segments of the offers shall be ranked in ascending order from the cheapest to the most expensive offer. The marginal segment shall then be determined, on the basis of the Required Total Downward Balancing Capacity aFRRdn, so that the sum of all the individual Balancing Capacity quantities equals the Required Total Downward Balancing Capacity aFRRdn.

TABLE 5: RANKING OF BALANCING SERVICE ENTITIES FOR BALANCING CAPACITY AFRRDN

	$Offers\ for\ aFRRdn_{gbse}$									
entity / step	aFRRdn / price (Step MW / €/MW)									
	1	2	3	4	5	6	7	8	9	10
gbse1	20/0,22	20/0.44	30/0.53	20/0.75	20/0.84	10/0.88	40/1.10	10/1.32	10/1.41	20/1.50
gbse2	20/0.57	10/0.62	10/0.75	10/0.84	20/0.88	20/1.10	15/1.32	10/1.41	10/1.77	5/1.85
gbse3	20/0.31	20/0.53	20/0.66	(10)/0.79	10/0.88	20/0.93	10/1.06	16/1.19	18/1.32	46/1.37

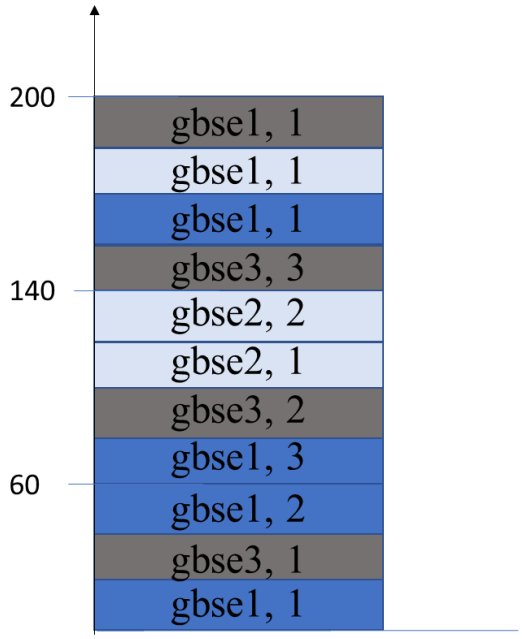

FIGURE 1: SELECTION ON THE BASIS OF THE RANKING OF OFFERS FOR THE INDIVIDUAL CAPACITY STEPS OF EACH UNIT SO THAT THE REQUIRED TOTAL BALANCING CAPACITY IS ATTAINED

Assuming that there is available data from the SCADA system for Settlement Period t, the Total Activated Downward Balancing Capacity for aFRRdn per Balancing Service Entity and the Total Supplied Downward Balancing Capacity for aFRRdn per Balancing Service Entity shall be derived as follows:

TABLE 6: TOTAL SUPPLIED DOWNWARD BALANCING CAPACITY FOR AFRRDN PER BALANCING SERVICE ENTITY

entity name	$aFRR\_DN\_BC_t^{gbse}$	$T_{e,t}^{aFRRdn}$ (%)	$aFRR\_DN\_PBC_t^{gbse}$
gbse1	90	32.00%	28,800
gbse2	40	46.00%	18,400
gbse3	70	78.00%	54,600
Total:	200		

A similar method shall be followed for each product (FCR, aFRR, mFRR) and direction.

Thus, the overall Supplied Upward and Downward Balancing Capacity for each individual service (Balancing Capacity for FCR, automatic FRR and manual FRR) and for each particular Balancing Service Entity is derived.

If it is deemed necessary, the TSO shall take into account the real circumstances and the principles of article 1, and shall be entitled to request the implementation of another calculation method and shall notify the Regulatory Authority, making available all the information that the Authority may request.

B. Calculation methodology for the Upward and Downward Balancing Capacity in exceptional circumstances

In the following example the Upward and Downward Balancing Capacity Price is calculated for all the services (Balancing Capacity for FCR, automatic FRR and manual FRR), in the case of exceptional circumstances resulting in a situation where the calculation of the offer prices is impossible. Following the methodology used in the previous example, the IPTO shall go back to the last available Balancing Capacity offers submitted by the Balancing Service Entities for each individual service and for an equivalent Settlement Period.

For the calculation of the Remuneration for the Upward and Downward Balancing Capacity per service (Balancing Capacity for FCR, automatic FRR and manual FRR), the prices for each step of the acceptable Upward and Downward Balancing Capacity Offers for each particular Balancing Service Entity shall be taken into account together with the percentage of the timeframe within the Imbalance Settlement Period t during which the Balancing Service Entity e was available to provide the service in question and provided that such a calculation is possible. In the opposite case, it shall be deemed that T=100%.

Taking into account the prices in the previous example, the Remuneration for Supplied Downward Balancing Capacity for aFRRdn shall be:

TABLE 7: REMUNERATION FOR SUPPLIED DOWNWARD BALANCING CAPACITY FOR AFRRDN PER BALANCING SERVICE ENTITY

entity name	$aFRR\_DN\_PBC_t^{gbse}$	$T_{e,t}^{aFRRdn}$ (%)	Remuneration/Credit (€)
gbse1	28,800	32.00%	14.11
gbse2	18,400	46.00%	11.55
gbse3	54,600	78.00%	29.56

If it is deemed necessary, the TSO shall take into account the real circumstances and the principles of article 1, and shall be entitled to request the implementation of another calculation method and shall notify the Regulatory Authority, making available all the information that the Authority may request.

C. Calculation methodology for the Balancing Energy Prices of Upward and Downward Manual and Automatic FRR in exceptional circumstances

If the calculation of Balancing Energy Prices for Upward and Downward Manual FRR is impossible, especially due to an Emergency Situation or poor operation of the Balancing Market System or of the other electronic systems of the HETS Operator, the IPTO shall calculate the average prices for Upward and Downward Balancing Energy for Manual FRR corresponding to the working or non-working days of an equivalent Settlement Period in the last thirty (30) days from the Imbalance Settlement Period under examination, depending on whether the day under examination is a working day or not.

Similarly, if the calculation of Balancing Energy Prices for Upward and Downward Automatic FRR is impossible, especially due to an Emergency Situation or poor operation of the Balancing Market System or of the other electronic systems of the HETS Operator, the IPTO shall calculate the average prices for Upward and Downward Balancing Energy for Automatic FRR corresponding to the working or non-working days of an equivalent Settlement Period in the last thirty (30) days from the Imbalance Settlement Period under examination, depending on whether the day under examination is a working day or not.

In the following example the Balancing Energy Prices for Upward and Downward Manual FRR in case of exceptional circumstances is calculated.

As regards the last thirty (30) days, it is assumed that the Balancing Energy Prices for Upward and Downward Manual FRR for a similar Imbalance Settlement Period t are the ones presented in the following table.

TABLE 8: BALANCING ENERGY PRICES

Dispatch Day	Price mFRR_up (€/MWh)	Price mFRR_dn (€/MWh)
…		
D-30	105	20
D-29	89	15
D-28	90.5	17
D-27	92	19
D-26	95	25
D-25	107	22
D-24	87	17
D-23	92	19
D-22	96	22
D-21	94	28
D-20	103	33
D-19	91	28
D-18	91.5	19
D-17	94	15
D-16	98	22
D-15	87	31
D-14	85	17
D-13	82	19
D-12	94	22
D-11	103	34
D-10	102	28
D-9	99	20
D-8	87	19
D-7	85	22
D-6	83	24
D-5	82	27
D-4	99	28
D-3	100.5	33
D-2	99	32
D-1	86	19
D	…	…

The Imbalance Settlement Period under examination corresponds to a working day D. The Balancing Energy Price for Upward and Downward Manual FRR shall be calculated as follows:

$$Price\_mFRR\_up_t = AVERAGE\ \{Price\_mFRR\_up_t\ for\ working\ days\} = 91{,}52\ {}^{€}/_{MW}$$

$$Price\_mFRR\_dn_t = AVERAGE\ \{Price\_mFRR\_dn_t\ for\ working\ days\} = 23{,}33\ {}^{€}/_{MW}$$

A similar methodology is followed for the calculation of the Balancing Energy Price for Upward and Downward Automatic FRR in exceptional circumstances.

If it is deemed necessary, the TSO shall take into account the real circumstances and the principles of article 1, and shall be entitled to request the implementation of another calculation method and shall notify the Regulatory Authority, making available all the information that the Authority may request.

D. Calculation methodology for the Imbalance Price in exceptional circumstances

If the calculation of the Imbalance Settlement Prices is impossible, especially due to an Emergency Situation or poor operation of the Balancing Market System or of the other electronic systems of the HETS Operator, the IPTO shall go back to the Imbalance Prices of the past year and shall calculate the average, taking into account only the Imbalance Settlement Periods during which the System Load was found to be equal to that of the Examined Period with a maximum deviation of ±5%.

It is assumed that the Imbalance Prices are as follows:

TABLE 9: TABLE OF IMBALANCE PRICES WHERE THE SYSTEM LOAD IN THE LAST YEAR WAS FOUND TO BE EQUAL TO THAT OF THE EXAMINED PERIOD WITH A MAXIMUM DEVIATION OF ±5%.

Imbalance Price €/MWh									
	52.45	53.03	51.18	52.94	53.01	52.79	52.98	54.77	58.07
	54.48	57.48	63.22	66.54	57.94	54.83	53.18	53.20	54.86
	58.20	66.56	66.56	66.20	66.10	54.72	52.94		

The Imbalance Price in the Examined Period shall be derived by calculating the average of the above:

$$IP_t = \frac{1}{25} * 1428{,}23 = 57{,}13\ {}^{€}/_{MWh}$$

For the final calculation of the Debits and Credits from the Imbalance Settlement, the above price shall be taken into account.

If it is deemed necessary, the TSO shall take into account the real circumstances and the principles of article 1, and shall be entitled to request the implementation of another calculation method and shall notify the Regulatory Authority, making available all the information that the Authority may request.