

METHODOLOGY

of the Infrastructure Manager for establishment of compensations of the licensed Railway Undertakings (RUs) for the restrictions of capacity allocation due to SE NRIC, which are not announced in the Network Statement or are beyond the indicated time intervals and are related to the Performance Scheme, adopted by both the RUs and the SE NRIC

I. Introduction and general definitions

1. The present methodology is elaborated and agreed according to the decision made in a joint meeting held on 21 November 2016 between the RUs and the railway Infrastructure manager (SE NRIC) pursuant to Directive 34/2012/EU and Ordinance No. 41 on access to and use of the railway infrastructure.

2. According to the Performance scheme adopted and published in the Network Statement of SE NRIC, the company compensates some additional costs related to:

- additional costs for working time of the locomotive staff;
- additional costs for working time of the traffic staff;
- additional costs for distributed electricity;
- additional costs for consumed electricity;
- additional costs for diesel fuel.

3. The offered methodology allows for taking into account:

- The specifics of the transport of each RU;
- Equal treatment of the RUs regarding the principle of determination of the cost rates.

4. The main used parameters, on the grounds of which the costs of the RU are determined, are as follows:

- Train kilometers;
- Gross ton-kilometers;
- Train hours;
- Man-hours of the staff depending on the number of the locomotives carrying out the train traffic;
- Cost rates – KWh/grtkm for electricity, litre/grtkm for fuel different for each RU;
- Unit costs – BGN/man-hour for the staff, BGN/KWh for electricity, BGN/l for the fuel.

5. The objective of the present Methodology is the calculation of the compensations due to occurred additional costs for the RU, caused by some restrictions of allocation of capacity by SE NRIC, which are not announced in the Network Statement or are beyond the specified time periods.

6. The compensations for the RU regarding item 5 are for trains with changed routes (redirected trains), additionally assigned trains and isolated locomotives, which have incurred additional costs due to interruption of the train operation in some sections of the railway network, according to the conditions agreed upon between the parties in the Performance scheme, published in the Network Statement of SE NRIC.

7. All prices and infrastructure charges applied in the present Methodology for the calculations of the compensations are according to the values effective by the moment of occurrence of the event until the moment of its expiration.

8. Upon agreement of both parties, the unit rates of the prices for paid diesel fuel and electricity (allocated and consumed) might be averaged for the respective period.

9. The calculation of hour and cost rates, unit costs, etc. is described in the present Methodology.

10. The approved scheme (AS) of the train traffic – this is the route of the train developed by SE NRIC with the respective annual Train Timetable (TT) accepted by the RU and approved with a “List of regular trains” for the respective RU.

11. The changed scheme (CS) of the train traffic – this is the route of the train developed by SE NRIC due to some restrictions of the capacity allocation and a needed change of the agreed route, when the origin and destination stations coincide, which scheme is accepted and approved with a telegram agreed upon with the respective RU/RUs and issued by SE NRIC.

12. The calculations of the compensations are made as a difference between the costs made by the RU under the CS and the costs that would be made in case of train traffic according to the AS, referred to as costs, calculated under AS.

13. The calculations are made for each train separately for AS and CS, depending on the specifics of its movement – change of the rolling stock, change of the number and/or traction of the service locomotives and other specifics related to the costs agreed with the Performance scheme, which are subject to compensations.

14. Unit cost of one man-hour per person of the locomotive staff.

The cost of one man-hour of the locomotive staff is calculated according to the accountancy data provided by “BDZ Cargo” EOOD and approved by the RAEA. A reference for the last fiscal year generated by the company’s salary program is used. The reference is used as grounds for calculation of an hourly rate and social insurance installments charged over it, formed by the listed elements of the working salary. It is determined according to the following formula and includes the following components:

$$\text{Ц}^{\text{ччлп}} = \frac{\text{ОЗ} + \text{ПСПО} + \text{НТ} + \text{ГОКТ} + \text{ПКМ} + \text{ТВОП}}{\text{ГНРЧ}} * \text{К}_{\text{ОБ}}^{\text{лп}}, \text{ (BGN/h)}$$

where:

$\text{Ц}^{\text{ччлп}}$ – unit cost of one man-hour per person of the locomotive staff;

ОЗ – annual amount of a basic salary of a person from the locomotive staff;

ПСПО – annual additional labor remuneration for acquired length of service and professional experience, recognized in accordance with the Collective Labor Agreement (CLA) for a member of the locomotive staff;

НТ – annual additional labor remuneration for night work;

ГОКТ – remuneration for basic annual leave under the Labor Code;

ПКМ – additional remuneration for kilometers traveled in an annual amount;

ТВОП – labour remuneration for work during official holidays;

ГНРЧ – annual rate of the working hours;

$\text{К}_{\text{ОБ}}^{\text{лп}}$ – coefficient reflecting the percentage of social security contributions paid by the employer per person in a locomotive staff.

$$\text{К}_{\text{ОБ}}^{\text{лп}} = 1 + \text{П}_{\text{ОБ}}^{\text{лп}}$$

where:

$\text{П}_{\text{ОБ}}^{\text{лп}}$ – percentage of social security contributions paid by the employer per person in a locomotive staff.

The funds for wages shall be formed in accordance with the current regulatory and internal framework (Labor Code, Collective Labor Agreement, and where applicable - the Ordinance on the Structure and Organization of Wages), which regulates the additional labor remunerations as mandatory payments.

Exception for passenger transport services: due to the shorter daily working hours (7.8 hours) for the locomotive staff, the value obtained by the formula for the unit cost per man-hour shall be multiplied by the coefficient $\text{K} = 8/7.8 = 1.0256$.

14.1. Unit cost of one man-hour per person of the locomotive staff in freight transport services:

$$\text{Ц}_{\text{ТП}}^{\text{ччлп}} = \text{Ц}^{\text{ччлп}}, \text{ (BGN)}$$

14.2. Unit cost of one man-hour per person of the locomotive staff in passenger transport services:

$$\Pi_{\text{лп}}^{\text{члп}} = \Pi^{\text{члп}} * K, \text{ (BGN)}$$

where:

K – coefficient of different duration

K = 1.0256

15. Unit cost of one man-hour per person of the train crew.

The unit cost per one man-hour for the train crew is determined based on reporting data provided by “BDZ – Passenger Services” EOOD and approved by RAEA. The reference is used as grounds for calculation of an hourly rate and social insurance installments charged over it, formed by the listed elements of the working salary. It is determined according to the following formula and includes the following components:

$$\Pi^{\text{члп}} = \frac{\text{ОЗ} + \text{ПСПО} + \text{НТ} + \text{ГОКТ} + \text{ПКМ} + \text{ТВОП}}{\text{ГНРЧ}} * K_{\text{ОБ}}^{\text{лп}}, \text{ (BGN/h)}$$

where:

$\Pi^{\text{члп}}$ – unit cost of one man-hour per person of the train crew;

ОЗ – annual amount of a basic salary of a person from the train crew;

ПСПО – annual additional labor remuneration for acquired length of service and professional experience, recognized in accordance with the Collective Labor Agreement (CLA) for a member of the train crew;

НТ – annual additional labor remuneration for night work;

ГОКТ – remuneration for basic annual leave under the Labor Code;

ПКМ – additional remuneration for kilometers traveled in an annual amount;

ТВОП – labour remuneration for work during official holidays;

ГНРЧ – annual rate of the working hours;

$K_{\text{ОБ}}^{\text{лп}}$ – coefficient reflecting the percentage of social security contributions paid by the employer per person from the train crew.

$$K_{\text{ОБ}}^{\text{лп}} = 1 + \Pi_{\text{ОБ}}^{\text{лп}}$$

where:

$\Pi_{\text{ОБ}}^{\text{лп}}$ – percentage of social security contributions paid by the employer per person from the train crew.

The funds for wages shall be formed in accordance with the current regulatory and internal framework (Labor Code, Collective Labor Agreement, where applicable, and the Ordinance on the Structure and Organization of Wages), which regulates the additional labor remunerations as mandatory payments.

II. Compensation to the respective RU

The compensation to the respective RU represents the difference between the costs for the given train service incurred by the respective RU according to the changed scheme and the costs of the same train according to the approved scheme. The costs subject to compensations are approved

and signed between the RUs and SE NRIC, and are published in the Network Statement, in the Performance scheme.

1. General compensation

$$KOM = P_{nc} - P_{yc}, (BGN)$$

where:

KOM – compensation;

P_{nc} – costs of the RU incurred according to the changed scheme of the train traffic;

P_{yc} – calculated costs of the RU incurred according to the approved scheme of the train traffic;

2. Costs of the RU incurred according to the changed scheme of the train traffic.

$$P_{nc} = P_{nc}^{DBLП} + P_{nc}^{DBПП} + P_{nc}^{pe} + P_{nc}^{ke} + P_{nc}^{дг}, (BGN)$$

where:

$P_{nc}^{DBLП}$ – costs for working time of the locomotive staff;

$P_{nc}^{DBПП}$ – costs for working time of the traffic staff;

P_{nc}^{pe} – costs for distributed electricity;

P_{nc}^{ke} – costs for consumed electricity;

$P_{nc}^{дг}$ – costs for diesel fuel.

2.1. Costs for working time of the locomotive staff according to the changed scheme.

Costs for the increased working time of the locomotive staff represent the multiplication between the unit cost of one man-hour for the respective position and the additional man-hours of the locomotive staff for the same position along the bypass route and by the additionally assigned trains, in comparison with the route approved with the “List of the regular trains”.

$$P_{nc}^{DBLП} = Ц^{ччлп} (ЧЧЛП_{nc}^{OB} + ЧЧЛП_{nc}^{днз} + ЧЧЛП_{nc}^{ил} + ЧЧЛП_{nc}^{яо}), (BGN)$$

where:

$Ц^{ччлп}$ – unit cost of one man-hour per person of the locomotive staff for the respective position;

$ЧЧЛП_{nc}^{OB}$ – man-hours of the locomotive staff of the main train, when traveling along bypass routes, in comparison with the route approved with the “List of the regular trains”;

$ЧЧЛП_{nc}^{днз}$ – man-hours of the locomotive staff as a result of the assignment of additional trains;

$ЧЧЛП_{nc}^{ил}$ – man-hours of the locomotive staff due to the traffic of isolated locomotives for supplying or which have supplied auxiliary traction;

$ЧЧЛП_{nc}^{яо}$ – man-hours of the locomotive staff from the moment of arrival before departure of the train and release after arrival of the train are formed as an amount of the respective times occurred in the railway stations along the bypass route with the change of the locomotive staff or in case of assignment of an additional train, including the isolated locomotives for auxiliary traction.

2.2. Costs for working time of the traffic staff according to the changed scheme.

Costs for the increased working time of the traffic staff represent the multiplication between the unit cost of one man-hour for the respective position and the additional man-hours of the traffic

staff for the same position along the bypass route and by the additionally assigned trains, in comparison with the route approved with the "List of the regular trains".

$$P_{\text{пс}}^{\text{рвпп}} = \text{Ц}^{\text{чпп}} (\text{ЧЧПП}_{\text{пс}}^{\text{об}} + \text{ЧЧПП}_{\text{пс}}^{\text{днз}} + \text{ЧЧПП}_{\text{пс}}^{\text{ил}} + \text{ЧЧПП}_{\text{пс}}^{\text{яо}}), \text{ (BGN)}$$

where:

$\text{Ц}^{\text{чпп}}$ – unit cost of one man-hour per person of the traffic staff for the respective position;

$\text{ЧЧПП}_{\text{пс}}^{\text{об}}$ – man-hours of the traffic staff of the main train, when traveling along bypass routes, in comparison with the route approved with the "List of the regular trains";

$\text{ЧЧПП}_{\text{пс}}^{\text{днз}}$ – man-hours of the traffic staff as a result of the assignment of additional trains;

$\text{ЧЧПП}_{\text{пс}}^{\text{ил}}$ – man-hours of the traffic staff due to the traffic of isolated locomotives for supplying or which have supplied auxiliary traction.

$\text{ЧЧПП}_{\text{пс}}^{\text{яо}}$ – man-hours of the traffic staff from the moment of arrival before departure of the train and release after arrival of the train are formed as an amount of the respective times occurred in the railway stations along the bypass route with the change of the traffic staff or in case of assignment of an additional train, including the isolated locomotives for auxiliary traction.

2.3. Costs for distributed electricity according to the changed scheme.

Costs for distributed electricity according to the changed scheme represent the multiplication of the unit cost for distribution, the unit cost rate of electricity and the gross ton-kilometers realized with electric traction according to the changed scheme:

$$P_{\text{пс}}^{\text{pe}} = \text{Ц}^{\text{pe}} * C^{\text{ел}} * \text{БРТКМ}_{\text{пс}}^{\text{ел}}, \text{ (BGN)}$$

where:

$P_{\text{пс}}^{\text{pe}}$ – costs for distributed electricity according to the changed scheme;

Ц^{pe} – unit cost for distribution of electricity;

$C^{\text{ел}}$ – unit cost rate of electricity;

$\text{БРТКМ}_{\text{пс}}^{\text{ел}}$ – gross ton-kilometers realized with electric traction according to the changed scheme.

2.3.1. Unit cost for distribution of electricity.

The unit cost for the distribution of electricity is determined as a quotient between the cost of the invoice (invoices) for distribution of electricity to a given RU from all trains for the period of interruption of the train traffic and the amount of electricity consumed by all trains of the same RU for the same period, and it is determined by the following formula:

$$\text{Ц}^{\text{pe}} = \frac{C\Phi^{\text{pe}}}{KE}, \text{ (BGN/MWh)}$$

where:

$C\Phi^{\text{pe}}$ – total cost of the invoice(s) for distribution of electricity of the respective RU for the respective period of interruption;

KE – quantity of electricity consumed by the respective RU for the period of traffic interruption (MWh). It is determined based on the data provided by the Electricity Distribution Division of SE NRIC.

The unit cost thus determined represents an average unit cost for the distribution of electricity from all trains with electric traction of a given RU for the respective period.

2.3.2. Unit cost rate of electricity

The unit cost rate of electricity represents the ratio between the amount of electricity consumed by a given RU during the period of interruption of train traffic and the total gross ton-

kilometers of electricity realized by the same RU during the same period of interruption of traffic, and it is determined by the following formula:

$$C^{e\lambda} = \frac{KE}{PBTKM^{ET}}, (\text{MWh/gtkm})$$

where:

$PBTKM^{ET}$ – total cost of the gross ton-kilometers realized by all trains with electricity traction of a given RU for the respective reporting period of interruption of the train traffic. It is determined according to the data provided by SE NRIC based on the monthly reports on the work performed by a given RU, when calculating the infrastructure charges.

The unit cost rate thus determined represents an average unit cost rate for the electricity consumed by all trains with electric traction of a given RU for the respective period (month) of interruption of the train traffic.

2.4. Costs for the electricity consumed according to the changed scheme.

The costs for the electricity consumed according to the changed scheme represent the multiplication of the unit cost of the electricity consumed, the unit cost rate of electricity and the gross ton-kilometers additionally realized with electric traction according to the changed scheme:

$$P_{\text{nc}}^{\text{ke}} = \Pi^{\text{ke}} * C^{e\lambda} * BPTKM_{\text{nc}}^{e\lambda}, (\text{BGN})$$

where:

$P_{\text{nc}}^{\text{ke}}$ – costs for the electricity consumed according to the changed scheme;

Π^{ke} – unit cost for the electricity consumed;

$C^{e\lambda}$ – unit cost rate of electricity;

$BPTKM_{\text{nc}}^{e\lambda}$ – gross ton-kilometers realized with electric traction according to the changed scheme.

2.4.1. Unit cost for the electricity consumed.

The unit cost for the electricity consumed is determined as a quotient between the cost of the invoice (invoices) for the electricity consumed of a given RU from all trains for the period of interruption of the train traffic and the amount of electricity consumed by all trains of the same RU for the same period, and it is determined by the following formula:

$$\Pi^{\text{ke}} = \frac{C\Phi^{\text{ke}}}{KE}, (\text{BGN/MWh})$$

where:

$C\Phi^{\text{ke}}$ – total cost of the invoice(s) for the electricity consumed of the respective RU for the respective period of interruption;

KE – quantity of electricity consumed by the respective RU for the period of traffic interruption (MWh). It is determined based on the data provided by the Electricity Distribution Division of SE NRIC.

The unit cost thus determined represents an average unit cost for the electricity consumed by all trains with electric traction of a given RU for the respective period.

2.4.2. Unit cost rate of electricity – $C^{e\lambda}$.

It is determined according to item 2.3.2.

2.5. Costs for diesel fuel

The costs for diesel fuel represent the multiplication of the unit cost per a liter diesel fuel and the sum of the multiplications between the technical standard rate of diesel fuel and the realized gross ton-kilometers of diesel traction, according to the changed scheme for each series of diesel locomotives.

$$P_{\text{IC}}^{\text{ДГ}} = \text{Ц}^{\text{ДГ}} * C_{\text{T}}^{\text{ДГ}} * \text{БРТКМ}_{\text{IC}}^{\text{ДГ}}, \text{ (BGN)}$$

where:

$P_{\text{IC}}^{\text{ДГ}}$ – costs for consumed diesel fuel according to the changed scheme;

$\text{Ц}^{\text{ДГ}}$ – unit cost per litter of diesel fuel;

$C_{\text{T}}^{\text{ДГ}}$ – technical standard rate of consumption of diesel fuel per a locomotive of “x” series;

$\text{БРТКМ}_{\text{IC}}^{\text{ДГ}}$ – gross ton-kilometers realized with diesel traction according to the changed scheme.

2.5.1. Unit cost of diesel fuel.

$\text{Ц}^{\text{ДГ}}$ – the unit cost of diesel fuel is the stock exchange price of Lukoil-Bulgaria EOOD, averaged for the period of interruption.

2.5.2. Technical standard rate of consumption of diesel fuel

For calculation of the actual quantity of diesel fuel, the technical standard rate for consumption of diesel fuel during operation is taken into consideration, which is determined as the sum of several values, according to the following relationship:

$$C_{\text{T}}^{\text{ДГ}} = C_{\text{HT}}^{\text{ДГ}} + C_{\text{HПOT}}^{\text{ДГ}} + C_{\text{HПP}}^{\text{ДГ}} + C_{\text{HBM}}^{\text{ДГ}}, \text{ (1)}$$

where:

$C_{\text{T}}^{\text{ДГ}}$ – technical standard rate (l);

$C_{\text{H}}^{\text{ДГ}}$ – fuel consumption rate for traction needs (l);

$C_{\text{HПOT}}^{\text{ДГ}}$ – fuel consumption rate for departure (l);

$C_{\text{HПP}}^{\text{ДГ}}$ – fuel consumption rate for dwelling (l);

$C_{\text{HBM}}^{\text{ДГ}}$ – fuel consumption rate for train shunting (l).

The calculated technical standard rate is valid only for the investigated or identical railway section.

3. Calculated costs of the railway undertaking (RU) incurred according to the approved scheme of the train traffic:

$$P_{\text{yc}} = P_{\text{yc}}^{\text{ДВЛП}} + P_{\text{yc}}^{\text{ДВПП}} + P_{\text{yc}}^{\text{pe}} + P_{\text{yc}}^{\text{ке}} + P_{\text{yc}}^{\text{ДГ}}, \text{ (BGN)}$$

where:

$P_{\text{yc}}^{\text{ДВЛП}}$ – calculated costs for working time of the locomotive staff;

$P_{\text{yc}}^{\text{ДВПП}}$ – calculated costs for working time of the traffic staff;

$P_{\text{yc}}^{\text{pe}}$ – calculated costs for distributed electricity;

$P_{\text{yc}}^{\text{ке}}$ – calculated costs for consumed electricity;

P_{yc}^{df} – calculated costs for diesel fuel.

For the calculation of the costs according to the approved scheme, the steps under item 2 of item II of the Methodology for compensation to the respective RU shall be applied.

4. Procedure for bringing claims to SE NRIC for payment of compensation to the RUs.
- 4.1. Until the end of the month following the reporting month with additional costs incurred by a given RU subject to compensation by SE NRIC according to the present methodology, the respective RU shall submit an official written request to SE NRIC for payment of the due compensations.
- 4.2. The request represents calculations in accordance with the steps of the present Methodology and it should be accompanied with detailed calculations for the respective claimed trains provided on an electronic data storage device (CD, e-mail), together with all formulas and logical dependencies, if they have been used for the calculations until fulfillment of the condition under item 4.3.
- 4.3. Calculation of the compensations shall be made using the algorithm specified between the RUs and SE NRIC.
- 4.4. Within the period of two months after submission of the official written request by the respective RU (the date set out in the SE NRIC reference number of the request shall be effective), SE NRIC shall make the required inspections and, in the absence of remarks or corrections from the Railway Infrastructure Manager, the latter shall prepare and provide to the respective RU a bilateral protocol specifying the cost of the due compensation.
- 4.5. In case of remarks or disagreement on the part of SE NRIC with the request made, consultations shall be held by representatives of the parties. For execution of each consultation, a protocol shall be drawn up and signed.
- 4.6. After signing the bilateral protocol under item 4.4., it shall be approved by the Director General of SE NRIC and the representatives of the respective railway undertaking, and each signature shall be dated. The payment shall be made by bank transfer within the legally established deadlines, which shall begin to run from the date of receipt by SE NRIC, in an official manner, of the protocol approved by both parties.
- 4.7. Amendments and supplements to this Methodology shall be made in the order of its issuance. The amendments shall be agreed upon by the signatures of the representatives of the Manager and the railway undertakings.
- 4.8. The present Methodology shall enter into force after its signing by all railway undertakings and the railway infrastructure manager, completely repealing the current one.
- 4.9. This Methodology shall be published in the Network Statement.
- 4.10. The Methodology might be changed only with the agreement of all parties.

The present methodology is signed in 21 copies, one for each of the parties, contains 11 pages and it becomes effective from the date of its signing, with the date of signatures by all railway undertakings and the Infrastructure Manager as well.

FOR THE RAILWAY UNDRETAKINGS:

FOR SE NRIC:

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