



ART Autorità
di Regolazione
dei Trasporti

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REVISION OF THE CRITERIA FOR SETTING CHARGES FOR ACCESS AND USE OF THE RAILWAY INFRASTRUCTURE APPROVED BY DECISION NO. 96/2015 AND THEIR EXTENSION AND SPECIFICATION FOR INTERCONNECTED REGIONAL NETWORKS

Regulatory act

Annex “A” to decision no. 95/2023 of 31 May 2023

ART

SOMMARIO

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LIST OF ABBREVIATIONS

ART	<i>Autorità di regolazione dei trasporti</i>
MIT	<i>Ministry of Infrastructure and Transport</i>
MEF	<i>Ministry of Economy and Finance</i>
IM	<i>Infrastructure manager</i>
RU	<i>Railway undertakings</i>
RFI	<i>Rete Ferroviaria Italiana S.p.A.</i>
MAP	<i>Minimum Access Package</i>
PSO	<i>Public service obligations</i>
NS	<i>Network Statement</i>
WACC	<i>Weighted Average Cost of Capital</i>
ETCS	<i>European Train Control System</i>

TITLE 1. GENERAL FEATURES

Chapter I. Charging principles and criteria

Measure 1. Regulatory scope

1. Pursuant to the powers conferred upon the Authority under article 37 (2) (b) and (c) and (3) (b) of Decree-Law No 201/2011 and in accordance with Legislative Decree No 112/2015, this regulatory act is aimed at establishing principles and criteria concerning the economic conditions of supply, including regulatory accounting obligations, for:
 - a) access charge for the use of the national railway infrastructure (so-called "*Minimum Access Package*" or MAP services), as defined under article 13 (1) of Legislative Decree No 112/2015);
 - b) charges and payments for access to service facilities and use of rail services related to the national railway infrastructure, which do not fall under the MAP (extra-MAP services), subject to regulation pursuant to the provisions of Legislative Decree No 112/2015 and Regulation (EU) 2017/2177;
 - c) access charge for use of the railway infrastructure relating to interconnected regional rail networks, referred to under article 1 (4) of Legislative Decree No 112/2015, as well as charges and payments for access to service facilities and use of rail services related to such networks.

Measure 2 Regulatory Model

1. Without prejudice to the specific measures set out in Title 2 and Title 3, the criteria for the setting of charges for access and use of the railway infrastructure, and for the charges and payments of services referred to in Measure 1, are based on a regulatory model characterized by:
 - a) a five-year regulatory period, upon full implementation, except as otherwise provided for;
 - b) identification of the perimeter of the relevant costs by the IM or by the operator of the service facility, and related valuation;
 - c) efficiency targets for operating costs;
 - d) for the MAP, identification of the most relevant segments of supply and demand, based on the existing situation and the developments which can be presently estimated;
 - e) procedures for the setting of charges by the IM or of payments by the operator of the service facility, starting from specified costs;
 - f) for the national infrastructure manager, managers of interconnected regional networks and operators of service facilities meeting the prerequisites, rules for verification procedures by the Authority to check the correct application of the criteria for setting charges;
 - g) effective and optimal use of the railway infrastructure.

Measure 3 Regulatory period

1. The setting of
 - i) charges for the MAP (and for access to the infrastructure connecting service facilities) by the IM, pursuant to article 17 (2) of Legislative Decree No 112/2015, as well as
 - ii) charges for services other than the MAP, by the operator of the service facility under Type A (as further set out in Measure 38), pursuant to article 17 (10) and (11) of Legislative Decree No 112/2015, in accordance with the regulatory model indicated by the Authority:

- a) shall be related to the relevant and efficient costs of the regulatory period under consideration, in compliance with the criteria set by the Authority;
- b) shall be carried out starting from the costs relating to the so-called **Base Year**, i.e. the accounting year for which approved financial statements are available, drafted according to statutory requirements and certified by external audit firms, on the basis of which the IM or operator of the service facility has consistently drafted audited regulatory accounts in compliance with the criteria set by the Authority.

If, due to exceptional circumstances, that may be attributed to a declaration of a state of emergency, to be adequately justified and attested by acts of the competent authorities, the Base year is not representative of ordinary operations, for the purpose of the development of the charging system, the Authority may assess, on the basis of documented justifications:

- i) appropriate adjustments to the regulatory accounts for the Base year that are made and described by the IM or operator of service facility, as well as certified by auditing firms, and made in accordance with the principles of reasonableness and proportionality, having regard to the actual costs on a historical basis, so that the year is actually representative of the costs that, upon full implementation, are attributed to the individual charging centre.

In such case, it is within the Authority's remit to impose the necessary remedies, including, alternatively, the adoption for the Base year of regulatory accounting relating to the year preceding the unrepresentative year;

- (ii) appropriate adjustments to the production volumes of reference for the charge construction, compared to the corresponding final figures of the Base year;

- c) shall take place in the so-called **Bridge year**, i.e. the year between the Base year and the first year of the regulatory period, during which the IM or operator of the service facility fulfils the requirements concerning the preparation and, as for the IM, the submission to the Authority of the documents on the setting of the above charges, as well as their publication in the NS.

2. The first regulatory period of application of these Measures:

- (a) for the IM of the national railway infrastructure, is 2024-2028;
- (b) for the IMs of interconnected regional railway infrastructure, is 2025-2029.

The provisions of paragraph 42.1 (1) shall apply in the case of operators of service facilities falling under Type A.

TITLE 2. NATIONAL RAILWAY INFRASTRUCTURE – MINIMUM ACCESS PACKAGE (MAP)

Chapter 1 General features of MAP regulation

Measure 4 Procedure for verification of compliance of the charges with the principles and criteria set by the Authority

4.1 General features

1. With due regard to the independence of the IM, and with reference to the setting of charges for access and use of the railway infrastructure, the Authority provides for the adoption of a special procedure for verification of the compliance of the charging scheme laid down by the IM in accordance with the principles and criteria set by the Authority, pursuant to the functions conferred upon the Authority by article 37 (2) (b) and (c) and (3) (b) of Decree-Law No 201/2011 and in accordance with Legislative Decree No 112/2015.
2. Upon full implementation, this procedure provides for the following definitions and the steps for processing, verification and entry into force of the new charging scheme.

4.2 Definitions

1. The following relevant periods are identified:
 - a) **Base year (T_{-1}):** the IM's balance sheet data of this year are taken as a reference for the construction of the regulatory accounts for the purpose of setting the new charge for each year of the five-year Regulatory period, in accordance with the criteria set by the Authority and subject to the exceptions under Measure 3;
 - b) **Bridge year (T_0)** in which the new charge is set by the IM in accordance with the criteria established by the Authority, verified by the latter and published in the NS with respect to the first year of the five-year regulatory period (T_1), as well as for the remaining years;
 - c) **first year of the five-year regulatory period (T_1),** in which the new charge is formally already in force, but is not applied for the charging of the train paths included in the timetable that entered into force in mid-December of the previous year (T_0): the charges in force in year (T_0), increased by the planned inflation rate, shall transitorily apply to such paths;
 - d) **remaining years of the five-year regulatory period (T_2 - T_5)** in which the new charge is regularly in force and the higher/lower revenues of the IM related to the application for year (T_1) of the transitional charging scheme are recovered.

4.3 Procedure for development, verification and entry into force of the new charge

1. For the verification of compliance, by the **30th of June of the bridge year (T_0)**, the IM presents to the Authority the charging scheme for the years T_1 through T_5 , as drawn up in accordance with the criteria set by the Authority and accompanied by the following documents, to be provided in digitally signed, editable electronic form, as further detailed in the measures below:
 - a) explanatory report, including in disclosable form, of the choices made – highlighting their consistency with the Business Plan – with respect to:
 - (i) perimeter and allocation of costs, (showing, *inter alia*, the inclusion of costs directly connected to the performance of the rail service and the exclusion of costs referred to in article 4 of Commission Implementing Regulation (EU) 2015/909);

- (ii) traffic growth;
- (iii) quantification and temporal dynamics of charge-related quantities, including:
 - direct costs referred to in Measure 7;
 - average unit charges and traffic forecasts referred to in Measure 8;
 - operating costs, capital costs and notional items under Measure 10;
 - other components of the economic equilibrium of management under Measure 6;
- (iv) sub-segmentation of markets, sub-classification of network types, time sub-classification of services;
- (v) application of principles and criteria for charge calculation, with particular reference to the parameters adopted for the modulation of the charge components referred to in Chapter 3 of this Title;
- (vi) application of the regulatory sustainability criteria in relation to market segments, as referred to in Measure 31, and possible adoption of the derogations provided for therein.

The report shall be accompanied by a note explaining, for those parts that may not be disclosed, the relevant commercial confidentiality requirements;

- b) regulatory accounting dossier relating to the Base year of the regulatory period (T_{-1}), drawn up on the basis of formats provided by the Authority (Annex 2), with detailed documentation (including the list of assets and fixed assets underlying the regulated services), also with reference to the Register of assets referred to in Article 15 (8) of Legislative Decree No 112/2015);
- c) regulatory financial plan relating to the regulatory period, drawn up based on the format provided by the Authority (Annex 1/a), together with an explanatory report, with particular reference, *inter alia*, to the criteria used to define the calculation parameters;
- d) economic and financial forward plan covering the Bridge year and the entire regulatory period, drawn up *ex ante* based on the same format as the summary table of the Regulatory Accounting under Measure 59;
- e) document on efficiency performance, setting out:
 - (i) planning and measuring of efficiency performance, with reference to the new regulatory period, including the activities that are intended to be carried out for the purpose of achieving the prescribed efficiency targets, with details of individual actions and quantitative evidence, for each of them, of the performance, including economic performance, that is intended to be achieved;
 - (ii) reporting, with reference to the ending regulatory period, of the activities carried out for the purpose of achieving the prescribed efficiency objectives, with details of individual actions and quantitative evidence, for each of them, of the achieved economic results;
- f) final traffic data for the Base year, broken down according to the supply and demand parameters adopted in the charging scheme, subject to the exceptions set out in Measure 3;
- g) traffic forecasts on the railway network for the Bridge year and for each year of the entire regulatory period, broken down according to the supply and demand parameters adopted in the charging system, differentiated by RU and including the outputs of the demand forecast model referred to in Measure 8, the relevant supplementary documentation, and the results of the consultation of the RUs and entities awarding PSO services referred to in Measure 8;
- h) for each year of the entire regulatory period, list of unit charges for each type of service arising from the supply and demand parameters adopted in the charging system, based on the principles and criteria established by the Authority, drawn up in accordance with drafting criteria that ensure maximum ease of consultation for the RUs, providing, *inter alia*, for adequate applications to be made available online to the interested parties for the pre-determination of the charge for the individual train;
- i) output of the simulation scheme under Measure 32 (1);
- j) explanatory report concerning traffic growth strategies under Measure 34 (2) that the IM intends to adopt in the regulatory period, and the underlying reasons;

- k) documentation referred to in Measure 7 pertaining to the calculation of *Direct Costs* through econometric or cost engineering models;
 - l) documentation, including in disclosable form, referred to in Measure 31 concerning the sustainability analysis of charges for market segments, supplemented, as of the second regulatory period of application of these Measures, by an analysis of the impact of the charges, including in a time-evolution perspective. The documentation shall be accompanied by a note explaining, for those parts that may not be disclosed, the relevant commercial confidentiality requirements;
 - m) document on the state of implementation of investments, with particular reference to those estimated for 2016-2021.
2. At the same time, the IM, as part of the procedure for the ordinary update of the NS, that is governed by ART Decision No. 104/2015, shall make public the changes to the essential elements of the charging system, including:
 - a) the disclosable version of the report referred to under 1 (a);
 - b) the traffic forecasts referred to under 1 (g) in aggregate form;
 - c) the list referred to under 1 (h);
 - d) the disclosable version of the documentation referred to under 1 (l).
 3. The charging scheme enters into force on **1 January of year T_1** , which is the starting date of the multi-year regulatory period; however, a "provisional scheme" will be applied from that date until 31 December of the same year, with application of the same charge in force in the Bridge year (T_0), increased by the planned inflation rate, as available at the date of submission of the documents referred to under paragraph 1.
 4. With respect to year T_1 , the IM shall identify a **notional item PF_1** to be calculated as the difference, if any, between:
 - a) the amount of charges obtained by applying the "provisional scheme" provided for year T_1 , taking as the basis of calculation the traffic forecasts developed for the construction of the charge for the same period;
 - b) the amount of charges related to the same year T_1 and the same traffic quantity, calculated as specified under paragraph 1 above.

For the purpose of the charge construction, the value of the notional item, calculated as above, is used to determine an additional (positive or negative) charge component to be assigned to the expected traffic volumes for the remaining part of the four-year regulatory period while ensuring financial neutrality, with a breakdown of market segments consistent with that adopted by the IM for the charge calculated for that period, in accordance with paragraph 1 above.

5. By **30 November of the Bridge year (T_0)**, following the necessary verifications, the Authority adopts a decision on the compliance of the charging scheme with its principles and criteria (requiring amendments, where necessary) and authorizes its publication.
6. By the deadline laid down for the Bridge year (T_0) in article 14 (5) of Legislative Decree No 112/2015, the IM publishes its NS, including therein the charges resulting from the application of the charging scheme, as well as, with respect to year (T_1), the charges resulting from the application of the provisional scheme referred to under paragraph 4.

Measure 5 Scope

1. With regard to Measure 1 (a), the Authority intends to regulate:
 - a) the criteria for defining the "*cost directly incurred as a result of operating the train service*", in accordance with article 17 (4) of Legislative Decree No 112/2015 and on the basis of the calculation procedures laid down by Commission Implementing Regulation (EU) 2015/909;

- b) the functional criteria to enable the IM to fully recover the relevant efficient costs associated with access and use of the railway infrastructure and with connecting service facilities, pursuant to article 17 (1) of Legislative Decree No 112/2015;
- c) the criteria, pursuant to article 17 (5) of Legislative Decree No 112/2015, for including a cost which reflects the scarcity of capacity of an identifiable section of the infrastructure during periods of congestion;
- d) the criteria, pursuant to article 17 (6) of Legislative Decree No 112/2015, on the basis of the calculation procedures defined in Commission Implementing Regulation (EU) 2015/429 – where applicable after 31 December 2021 - , to take into account the environmental effects caused by train operation, in order to encourage the retrofitting of wagons with low-noise braking technology;
- e) the criteria for the application of incentives aimed at equipping trains with control-command and signalling system, i.e. "European Train Control System" (ECTS), pursuant to article 18 (9) of Legislative Decree No 112/2015;
- f) the criteria for the application of reductions of the charges to be paid for services provided in specific Regions or Autonomous Provinces, as a result of special regulations, to take account of any charges borne by local entities to improve the infrastructure;
- g) the criteria concerning the procedures by which the IM may establish or maintain higher charges, pursuant to article 18 (8) of Legislative Decree No 112/2015, for the high-speed/high-capacity system and other specific investment projects, that are to be implemented in the future or have been completed after 1988, on the basis of the total long-term costs of these projects.

Measure 6 Cost-orientation principle

1. The charges for the MAP (and for access to the infrastructure connecting service facilities) are related to the relevant and efficient costs, in line with the need:
 - a) to ensure that the operation of MAP services, under efficient conditions and net of public contributions, is not a source of economic and financial imbalance for the IM;
 - b) to prevent misuse of MAP charges for the purpose of covering inefficient or non-relevant costs, or loss of income from other sources.

The charges will be calculated according to the following equation:

$$R_c + E_{cdp} + E_{fpp} + E_{ec} = C_o + C_a + C_{rc}$$

where:

R_c revenue from MAP charges;

E_{cdp} Government contributions as defined in programme contracts, referred to the relevant costs of the activities underlying MAP services;

E_{fpp} non-refundable revenues from private and public sources, to the extent attributable to the activities underlying MAP services, net of the charges borne by Regions and Autonomous Provinces for infrastructure upgrading, which are subject to the charge reductions referred to in paragraph 30.5;

E_{ec} surpluses arising from other commercial activities, as defined hereunder:

- 100% of the gross margin (revenues minus costs, including depreciation) of other business activities, qualified by the IM as ancillary, deriving from the use of the railway infrastructure or in any case associated with such infrastructure, pursuant to article 13 of Legislative Decree No 112/2015;

- 50% of the excess over a reasonable profit - approximated as equal to the rate of return on invested capital under Measure 20 – of the net margin of other business activities (revenues minus costs, net of depreciation), qualified by the IM as not connected to the railway infrastructure;

C_o relevant and efficient operating costs relating only to MAP services;

C_a depreciation of the net book value of the assets underlying MAP services, determined net of public contributions;

C_{rc} Return on Net Invested Capital (net of public contributions) related to MAP services.

There follows that:

$$R_c = C_{nt} = C_o + C_a + C_{rc} - (E_{cdp} + E_{fpp} + E_{ec})$$

i.e., in order not to cause imbalances of the IM accounts, the expected revenues from MAP charges must equal the **Efficient total cost** C_{nt} connected with the related services, calculated as the algebraic sum of the following four components:

- a) relevant and efficient **operating costs**, as outlined in Measure 10, paragraph 10.2;
- b) **depreciation** of the value of self-financed relevant activities, as outlined in Measure 10, paragraph 10.3;
- c) **return on** relevant self-financed **net invested capital**, as outlined in Measure 10, paragraph 10.3;
- d) with minus sign, the sum of the values related to **Government contributions** agreed upon in the Programme Contracts, **non-refundable revenues** from public and private sources and **surpluses** from other commercial activities, as defined above.

The component referred to in (a) is identified with the so-called *opex*, while the components referred to in (b) and (c) with the so-called *capex*.

Measure 7 Regulatory Model: *Direct Cost*

7.1 General framework

1. Based on the regulatory provisions, within the efficient total cost relating to MAP services, for charging purposes it is necessary to take into account the "*cost that is directly incurred as a result of operating the train service*" (*Direct costs*) referred to in Measure 13, by applying the rules provided for in Commission Implementing Regulation (EU) 2015/909.
2. *Direct costs* on a network-wide basis shall be calculated as the difference between, on the one hand, the costs for providing the services of the minimum access package and for access to the infrastructure connecting service facilities and, on the other hand, the non-eligible costs referred to in Article 4 of the Regulation.
3. Accordingly, *direct costs* on a network-wide basis can be identified according to the following formula:

$$C_d = C_{nt} - C_{nma}$$

where:

C_d *Direct costs*: costs that are directly incurred as a result of operating the train service;

C_{nt} *Efficient total cost* related to MAP services, as defined under Measure 6;

C_{nma} non-eligible residual net costs, i.e. those listed in article 4 of Implementing Regulation (EU) 2015/909, assessed net of the sum of values, as defined in Measure 6, related to Government contributions agreed

upon in Programme Contracts, non-refundable revenues from public and private sources and surpluses from other commercial activities.

4. Notwithstanding the provisions of paragraph 2, the IM may directly calculate direct unit costs by means of econometric or cost engineering models, duly tested and verified, in accordance with the provisions of paragraph 7.2.

7.2 Option for econometric or cost engineering models

1. Upon the exercise of the option set forth in paragraph 7.1 (4) with respect to the procedure for *Direct cost* calculation, as of the first regulatory period of application of these Measures, the IM shall directly calculate direct unit costs by means of econometric or cost engineering models, provided that, pursuant to Implementing Regulation (EU) 2015/909, it can prove to the Authority that:
 - (i) the direct unit costs include only the direct costs incurred for providing the rail service;
 - (ii) in particular, the direct unit costs do not include any of the costs referred to in Article 4 of Implementing Regulation (EU) 2015/909;
 - (iii) the econometric or cost engineering models used are based on international best practices to calculate the marginal costs of use of the infrastructure, as referred to in Recital 13 of the Regulation.
2. Pursuant to Article 6 of Implementing Regulation (EU) 2015/909, the IM shall in all cases calculate, for the comparison with the cost modelling referred to in paragraph 1, direct unit costs in accordance with Articles 3 (1) and 5 (1) of the Regulation.
3. In the event that the verification of compliance with the conditions referred to in paragraph 1 produces a negative result, the Authority reserves the right to impose on the IM the necessary remedial measures, including the requirement to calculate the Direct Costs with the procedures referred to in paragraph 7.1.

7.3 Operating procedures for calculation of *Direct Costs*

1. Also for the purpose of the verifications by the Authority on the calculation of *Direct costs* carried out through the option referred to in paragraph 4, with reference to the econometric or cost engineering models adopted, the IM shall comply with the following operating procedures:
 - a) the IM shall carry out the verification referred to in the second sentence of Article 5 (1) of Implementing Regulation (EU) 2015/909 in relation to existing significant differences in the values and parameters referred to in paragraph 2 of that Article for different parts (*g*) of its network. For this purpose, it shall consider at least the classes or sub-classes of the network types referred to in Measure 25;
 - b) the IM shall adopt methodologies to determine an average unit level of *Direct costs* in the Base year, to be used for the purpose of the dynamics of charges referred to in Measure 10;
 - c) the IM shall use time series of data with a time period of reference of at least 5 years, including the Base year. On a provisional basis, for the first regulatory period of application of these Measures, this period falls in the years 2014 through 2019;
 - d) starting from the second regulatory period of application of these Measures, the IM shall ensure full reconciliation of the annual values related to the economic data used in the models with the value of the total *Direct costs* referred to in the accounting schemes under Measure 58;
 - e) the IM shall verify in any case, giving account thereof in the documentation referred to in paragraph 7.4, the significance of variables related to the following infrastructure or train path parameters:
 - i) curve radii;
 - ii) gradients;
 - iii) number of train stops;

- f) based on the relevant international best practices, the IM shall adopt the most appropriate methods and models to estimate the different types of costs that contribute to the determination of *Direct costs*.

7.4 Documentation requirements to be borne by the IM

1. The IM is required to provide the Authority, upon submission of the charging system referred to in paragraph 4.3, the following documentation regarding the models adopted for the calculation of *Direct costs*:
 - (a) with reference to econometric models:
 - (i) description of the chosen methodology and its underlying assumptions, clarifying the specifications of the final models for all functional forms considered, in order to ensure replicability of the results;
 - (ii) description and submission in editable form of the dataset used (units, time periods, number of observations, method of construction and definition, data source used, perimeter of *Direct costs*), as well as its reconciliation with the value of total *Direct costs* as referred to in the accounting schemes under Measure 58;
 - (iii) list of variables in the dataset and their detailed description, including by providing descriptive statistics, as well as criteria and use thereof in the econometric analysis;
 - (iv) list of variables, functional forms and econometric models chosen for the determination of *Direct costs*, accompanied by a brief description of the results obtained and the procedure and criteria of selection of the final models;
 - (v) treatment of any existing temporal trends or variations, as well as structural breaks;
 - (vi) complete results of individual estimates, with relevant statistical indicators of reliability and confidence;
 - (vii) results of tests and sensitivity analyses performed;
 - (viii) quantitative evidence with regard to the difference between:
 - the average direct Cost pursuant to the econometric model and the observed value thereof in the dataset used for the analyses;
 - the total amount of direct costs arising from the regulatory accounts in the Base year and the total amount of direct costs resulting from the econometric model;
 - (b) with reference to the engineering models:
 - (i) description of the methodology used, with particular regard to the definition of the laws that relate the infrastructure wear and tear to the use by rolling stock in operation;
 - (ii) list of the different infrastructure components for which specific wear and tear laws have been defined, and their detailed description;
 - (iii) list of parameters considered in the model, with respect to those mentioned in Article 5 (2) of Implementing Regulation (EU) 2015/909;
 - (iv) list of any additional variables used and their detailed description;
 - (v) information about the types of rolling stock considered in the model, and about any class aggregations thereof, with reference to specific requirements;
 - (vi) information on the outcome of any simulations of the methodology adopted on specific lines of the network, that are considered significant in terms of traffic variety and infrastructure characteristics;
 - (vii) in the case of the option to apply differentiated criteria for different parts of the network, adequate evidence about the significant difference in the values or parameters referred to in sub. iii);

- (c) any information aimed at enabling the Authority to make adequate assessments regarding the suitability of the methods and models used to estimate the different types of costs that contribute to the determination of *Direct costs*;
 - (d) quantitative evidence with regard to the impact of rolling stock types on *Direct costs* and correlation between the latter, including by representative macro-cost items, and:
 - (i) traffic volumes;
 - (ii) network length;
 - (e) outcome of the verifications referred to in paragraph 7.3 (1) (a);
 - (f) evidence of the comparison referred to in paragraph 7.2 (2).
2. The Authority reserves the right to request supplements and further analysis for the purpose of the verifications under its remit.

Measure 8 Regulatory Model: average unit charge

8.1 General features

1. Costs that are directly incurred as a result of operating the train service (*Direct costs*), referred to under Measure 7, assessed on an annual basis, result in an average unit charge of reference, to be applied to undertakings requesting infrastructure capacity.
2. Without prejudice to the modulation referred to in the following measures, the average unit charge of reference for access to the railway infrastructure is in principle determined starting from the amount of direct costs C_d , determined based on the formulas referred to in Measures 6 and 7, according to the following formula:

$$T_{m(t)} = \frac{C_{d(t)}}{P_{(t)}} = \sum_g (C_{d,g(t)}) / \sum_g (P_{g(t)})$$

where:

$T_{m(t)}$ average unit charge of reference, in year t (t);

$C_{d(t)}$ total amount of costs directly related to the provision of rail service (*Direct Costs*), in year (t);

$P_{(t)}$ estimated traffic volumes for year (t).

$C_{d,g(t)}$ total amount of costs directly related to the provision of rail service (*Direct Costs*), in year (t), pertaining to the specific part (g) of the network, as identified according to the criteria of Measure 7;

$P_{g(t)}$ estimated traffic volumes for year (t), pertaining to the same part (g) of the network.

8.2 Traffic forecasts

1. For the purpose of setting the average unit charge of reference, to be applied each year in the context of the infrastructure charging scheme, the IM shall provide annual traffic volume forecasts for the entire regulatory period, which shall be done in the light of the comparison between:
 - (a) the outputs of forecast models of passenger and freight transport demand - which the IM shall adopt by the date of submission of the charging proposal referred to in paragraph 4.3 - based on the analysis of time series trends and development trends, including from an intermodal perspective, of the relevant data accompanied by supplementary documents which clearly show the methodology and procedure of construction, adjustment and ensuing updating, as well as the technical and economic data used for its implementation.

These outputs shall be coordinated with those of the passenger and freight transport simulation models under Measure 31;

- b) the results of a consultation of the entities operating in the national rail services market or intending to operate therein, and of the entities holding/responsible for the planning and scheduling of services characterized by public service obligations (PSO); the consultation is aimed at acquiring reliable but not binding forecasts about traffic volumes, broken down according to the cases identified by the IM for the modulation of charges, carried out on the basis of current charges and foreseeable scenario assumptions on future charges, taking into account the capacity already covered by multi-year agreements.

Measure 9 Regulatory model: modulation of charges

1. Starting from the average unit charge, the IM determines the actual charges to be assigned to each train path or part thereof, by applying the principles and criteria established by the Authority under Chapter 3 of this Title, which provide, *inter alia*, the definition of:
 - a) a component A, based on the *Direct Costs* referred to in Measure 7 and modulated according to criteria aimed at full cost-relatedness with the actual costs of wear and tear of the infrastructure incurred by the operation of each train;
 - b) a component B, aimed at the full recovery of the total net efficient costs referred to in Measure 6, developed starting from the average value of component A and modulated according to criteria that are intended to optimize the use of the infrastructure by enhancing its assets, having regard to the sustainability of the charges for the market;
 - c) a component C, divided into further sub-components aimed at achieving specific objectives in relation to the use of the railway infrastructure.

Measure 10 Regulatory Model: Temporal dynamics of variables related to charges

10.1 General features

1. For the purpose of setting the charges to be applied in the context of the infrastructure charging scheme, the Authority establishes the criteria for a forecast of the dynamics of the variables related to the setting of charges over the regulatory period.
2. The quantification of these variables is carried out by the IM based on the evidence from the Regulatory Accounts in the Base year, subject to the exceptions under Measure 3.

10.2 Operating costs

1. For the calculation of operating costs as defined in Measure 6 (C_o), the IM ensures that the annual value of the total operating costs does not exceed the values calculated based on the following procedure:

$$C_{o,(t)} \leq C_{v(t)} + C_{f(t)} + C_{i,(t)}$$

where:

$C_{o,(t)}$ Total operating costs in year (t).

In the Base Year, the amount of $C_{o,t}$ corresponds to the total operating costs allocated to the MAP in the relevant regulatory accounts, subject to the exceptions under Measure 3 and to those specified below;

$C_{v(t)}$ Variable operating costs in year (t), corresponding to item C_d (*Direct Costs*) referred to under Measure 7, only for the part related to the *opex* component;

- $C_{f(t)}$ Total fixed operating costs in year (t), corresponding, only for the part related to the *opex* component, to the difference between item C_{nt} (*Efficient Total Cost*) in Measure 6, and *Direct Costs* C_d in Measure 7;
- $C_{i,(t)}$ Amount of any incremental operating costs, compared to what was assessed in the Base year, related to the entry into force, in the Bridge year or in each year (t), of new laws and regulations that were expected and documented *ex ante*, by the IM, providing the Authority with complete and comprehensive information, including quantitative.

2. In the Bridge Year, the total level of fixed costs $C_{f(ap)}$ and variable costs $C_{v(ap)}$ is determined as follows:

$$C_{v(ap)} = C_{v,u,coreg(ap)} \cdot P_{(ab)} + \sum_g (C_{v,u,mod(ap),g} \cdot \eta_{mod,g} \cdot (P_{(ap),g} - P_{(ab),g}))$$

$$C_{f(ap)} = C_{f,u(ap)} \cdot R_{(ap)}$$

starting from the corresponding unit costs, as calculated based on the following dynamics:

$$C_{v,u,coreg(ap)} = \frac{C_{v,d,coreg(ab)}}{P_{(ab)}} \cdot (1 + I_{(ap)})$$

$$C_{v,u,mod(ap),g} = C_{v,u,mod(ab),g} \cdot (1 + I_{(ap)})$$

$$C_{f,u(ap)} = \frac{C_{nt(ab)} - C_{v,d,coreg(ab)}}{R_{(ab)}} \cdot (1 + I_{(ap)})$$

where:

- $C_{v,u,coreg(ap)}$ Unit variable operating costs in the Bridge year, derived from the cost dynamics that may be obtained from regulatory accounting in the Base year;
- $C_{v,d,coreg(ab)}$ Variable operating costs in the Base year, that may be obtained from regulatory accounting;
- $P_{(ab)}$ *Ex post* total traffic volumes attributable to the Base year, in train-km;
- $C_{v,u,mod(ap),g}$ Unit variable operating costs in the Bridge year, pertaining to the specific part g of the network referred to in paragraph 7.3, derived from the cost dynamics calculated through econometric or cost engineering models;
- $C_{v,u,mod(ab),g}$ Unit variable operating costs in the Base year, pertaining to the specific part g of the network referred to in paragraph 7.3, calculated through econometric or cost engineering models;
- $\eta_{mod,g}$ Elasticity parameter, i.e. value of elasticity coefficient of operating costs with traffic variations, calculated by econometric or cost engineering models, pertaining to part g of the network.
- $P_{(ap),g}$ Traffic volumes, in train-km, estimated for the Bridge year and pertaining to the specific part g of the network referred to in paragraph 7.3;
- $P_{(ab),g}$ Traffic volumes, in train-km, estimated for the Base year and pertaining to the specific part g of the network referred to in paragraph 7.3;
- $C_{f,u(ap)}$ Fixed unit operating costs in the Bridge year, derived from the cost dynamics that may be obtained from regulatory accounting in the Base year;
- $C_{nt(ab)}$ Total net operating costs in the Base year, as may be obtained from regulatory accounts;

$R_{(ab)}$	Length of rail infrastructure, in track-km, operated by the IM in the Base year;
$I_{(ap)}$	Planned inflation rate for the Bridge year, as resulting from the latest economic and financial planning document approved and published by the national Government on the date of submission of the charging proposal referred to in paragraph 4.3;

3. In each year of the regulatory period, the total level of fixed and variable costs is determined as follows:

$$C_{v(t)} = C_{v,u(t)} \cdot P_{(t-1)} + \sum_g (C_{v,u,mod(t),g} \cdot \eta_{mod,g} \cdot (P_{(t),g} - P_{(t-1),g}))$$

$$C_{f(t)} = C_{f,u(t)} \cdot R_{(t)}$$

starting from the corresponding unit costs, that are determined yearly on the basis of the following dynamics:

$$C_{v,u(t)} = \frac{C_{v(t-1)}}{P_{(t-1)}} \cdot (1 + I_{(t)} - X_{(C_v)}) \cdot (1 + \varepsilon_t)$$

$$C_{v,u,mod(t),g} = \frac{C_{v(t-1)}}{P_{(t-1)}} \cdot \left(\frac{C_{v,u,mod(t-1),g}}{C_{v,u,coreg(t-1)}} \right) \cdot (1 + I_{(t)} - X_{(C_v)}) \cdot (1 + \varepsilon_t)$$

$$C_{f,u(t)} = C_{f,u(t-1)} \cdot (1 + I_{(t)} - X_{(C_f)}) \cdot (1 + \varepsilon_t)$$

where:

$C_{v,u(t)}$	Unit variable operating costs in year (t) ;
$C_{v,u(t-1)}$	Unit variable operating costs in year $(t - 1)$;
$C_{v(t-1)}$	Total variable operating costs in year $(t - 1)$;
$P_{(t-1)}$	Total traffic volumes, in train-km, estimated for year $(t - 1)$;
$C_{v,u,mod(t),g}$	Unit variable operating costs in year (t) , pertaining to the specific part g of the network referred to under paragraph 7.3, resulting from the cost dynamics calculated through econometric or cost engineering models;
$C_{v,u,mod(t-1),g}$	Unit variable operating costs in year $(t - 1)$, , pertaining to the specific part g of the network referred to under paragraph 7.3, resulting from the cost dynamics calculated through econometric or cost engineering models;
$P_{(t),g}$	Traffic volumes, in train-km, estimated for year (t) and pertaining to the specific part g of the network referred to in paragraph 7.3;
$P_{(t-1),g}$	Traffic volumes, in train-km, estimated for year $(t - 1)$ and pertaining to the specific part g of the network referred to in paragraph 7.3;
$C_{f,u(t)}$	Unit fixed operating costs in year (t) ;
$C_{f,u(t-1)}$	Unit fixed operating costs in year $(t - 1)$.
$R_{(t)}$	Length of rail infrastructure, in track-km, managed by the IM in year (t) ;
$I_{(t)}$	Planned inflation rate for year (t) , as resulting from the latest economic and financial planning document approved and published by the national Government on the date of submission of the charging proposal referred to in paragraph 4.3;
$X_{(C_v)}$	Targeted annual efficiency rate on variable operating costs, determined as specified below;

$X_{(C_f)}$	Targeted annual efficiency rate on fixed operating costs, determined as specified below;
ε_t	Reward/penalty parameter that considers the achievement of the performance targets arising from the proceeding referred to in paragraph 10.6, to be applied in year (t); until the date of conclusion of this proceeding, its value is assumed to be 0.

4. If the amount of *Direct Costs* as may be derived from the regulatory accounting in the Base year is below the amount of direct costs arising from the model referred to in paragraphs 7.2, 7.3 and 7.4, the deviation between these amounts does not contribute to the construction of the charge; therefore, in such case, the parameters $C_{v,u,mod(ab),g}$, $C_{v,u,mod(ap),g}$, $C_{v,u,mod(t),g}$, $C_{v,u,mod(t-1),g}$ take on the value arising from the dynamics of the relevant costs that may be obtained from the regulatory accounting in the Base year.
5. The Authority establishes the values of the annual efficiency rates $X_{(C_v)}$ and $X_{(C_f)}$, that may be attributable to the variable and fixed operating costs of the IM, respectively, based on quantitative assessments of the time series of the relevant management data and with reference also to the best international practices in the railway industry, as well as taking into due account the efficiency targets related to the Programme Contracts between the IM and the Government, so as to define annual productivity increases which are consistent with the targeted gradual efficiency rate, that may be differentiated by cost type into *Direct Costs* and *Net Residual Costs*.
6. To set the efficiency rate for the 2024-2028 regulatory period, the Authority applies a methodology based on productivity indices, including partial, calculated on the basis of balance sheet and/or accounting (including regulatory) data to be as disaggregated as possible. Following the application of the above methodology, both annual efficiency rates are set by the Authority at 1.25 percent, to be applied for each year following the Bridge year referred to in paragraph 4.2.
7. In the event of a negative outcome of the verifications referred to in paragraph 7.2 (3), resulting in a requirement to calculate Direct Costs according to the procedures referred to in paragraph 7.1:
 - a) the parameters $C_{v,u,mod(ab),g}$, $C_{v,u,mod(ap),g}$, $C_{v,u,mod(t),g}$, $C_{v,u,mod(t-1),g}$ take on the value derived from the dynamics of the relevant costs that may be obtained from the regulatory accounting in the Base year;
 - b) the value of the elasticity parameter $\eta_{mod,g}$ is replaced by a value η_g set by the Authority in the preliminary assessment, on the basis of specific analyses, that take into account, *inter alia*, historical data and analyses provided by the IM, as well as data derived from international benchmark analyses.

10.3 Depreciation and return on invested capital

1. For the calculation of depreciation and return on invested capital under the Measure 6 (C_a and C_{rc}), the IM ensures that the annual value of total costs does not exceed the values calculated according to the following procedure:

$$C_{a,(t)} \leq C_{a,d,(t)} + C_{a,nr,(t)} = \sum_j a_{j,(t)} \cdot I_{d,j,(t)} + \sum_j a_{j,(t)} \cdot I_{nr,j,(t)}$$

$$C_{rc,(t)} \leq CIN_{(t)} \cdot r$$

where:

- | | |
|----------------|--|
| $C_{a,d,(t)}$ | depreciation costs determined on the basis of the actual wear and tear of the infrastructure attributable to the provision of the rail service and eligible under Article 4 (1) (n) of Regulation (EU) 909/2015, calculated as at 1 January of year (t); |
| $C_{a,nr,(t)}$ | residual depreciation costs, calculated as at 1 January of year (t); |
| $I_{d,j,(t)}$ | Net book value, as at 1 January of year (t), relating to the fixed assets generating in year (t) depreciation costs on the basis of the actual wear and tear on the infrastructure attributable to the provision of the |

rail service and eligible under Article 4 (1) (n) of Regulation (EU) 909/2015, that may be referred to the individual route (j), as established pursuant to Ministerial Decree of 23 July 2007 of the MEF;

$I_{nr,j,(t)}$ Net book value, as at 1 January of year (t), relating to the residual fixed assets, and eligible for depreciation in year (t), that may be referred to the individual route (j), as established pursuant to Ministerial Decree of 23 July 2007 of the MEF;

$a_{j,(t)}$ Variable depreciation rate assumed by the IM for the same year (t) that may be referred to the individual route (j) as established pursuant to Ministerial Decree of 23 July 2007 of the MEF;

$C_{rc,(t)}$ Return on net invested capital, calculated as at 1 January of year (t);

$CIN_{(t)}$ Net invested capital referred to under Measure 18, as at 1 January of year (t);

r Nominal rate of return on invested capital referred to in Measure 20.

- The net book value of fixed assets, which is the basis for the calculation of depreciation and return on invested capital, quantified in the Base year net of all components reported in the above equations, evolves, in principle, according to the following dynamics:

$$I_{a,(t)} = I_{a,(t-1)} + L_{ic,(t-1)} + V_{(t-1)} - C_{a,(t-1)} \pm R_{(t-1)} \pm \Delta_{vr,(t-1)}$$

where:

$I_{a,(t)}$ self-financed fixed assets as at 1 January of year (t);

$I_{a,(t-1)}$ self-financed fixed assets as at 1 January of year ($t - 1$);

$L_{ic,(t-1)}$ increases in fixed assets following works (already in progress), completed and entered into operation in year ($t - 1$);

$V_{(t-1)}$ new fixed assets completed and entered into operation in year ($t - 1$);

$C_{a,(t-1)}$ depreciation costs accounted for in year ($t - 1$);

$R_{(t-1)}$ adjustments (increases and/or decreases in the value of fixed assets) entered in year ($t - 1$)

$\Delta_{vr,(t-1)}$ increase or decrease in the infrastructure residual value at the end of the concession, registered in year ($t - 1$).

10.4 Notional items

- To ensure gradual development of the charges, (positive or negative) notional items may be included in the eligible costs, so as to advance or defer their accounting with respect to the year of accrual.
- The inclusion of notional items in the eligible costs is allowed provided that the principle of economic and financial neutrality is complied with within the regulatory period considered as a whole. In accordance with this principle, the balance of the notional entries shall be cancelled out within the same period.
- In accordance with the provisions of Measure 4, the notional item (PF_1), as defined therein, is applied in any case in the first year of each regulatory period.
- The application of notional items is in any case subject to the Authority's assessment.

10.5 Annual update of charging levels

- With respect to each year of the regulatory period, in the context of the ordinary updating procedure of the NS, and, in particular, in the framework of the consultation referred to in Article 14 (1) of Legislative Decree No 112/2015, the IM submits to the interested parties the **Annual information document on MAP charges monitoring**, containing the following information, in editable format:

- a) updated incremental level of operating costs ($C_{i,(t)}$), in relation to the actual entry into force, in the year preceding the current year, of new laws and regulations estimated *ex ante*, or of new laws and regulations, not estimated *ex ante*; this shall be accompanied by exhaustive documentation, also in quantitative terms, aimed at assessing variations;
- b) state of progress of self-financed investments estimated *ex ante*, contributing to the dynamics of the net book value of the fixed assets pertaining to the MAP (with separate evidence of the investments entered into operation and of the works in progress) and of the relevant timetable, with details of what has been achieved in each year starting from the Bridge year and until the year preceding the current one, as well as any update of *ex ante* estimations for the remaining years of the regulatory period starting from the current year;
- c) deviation of actual traffic volumes from traffic volumes estimated *ex ante*, in the aggregate for each market segment of the basic structure referred to in Measure 24 and for each railway network class referred to in Measure 25;
- d) updated parameters to determine the level of operating costs and capital costs, as set out below, compared to the forecast values for the regulatory period;
- e) without prejudice to the provisions of paragraph 6 of this paragraph, the actual level of the charges, calculated based on the evidence referred to in (a) and (b) above and the traffic volumes estimated *ex ante*, for the remaining years of the regulatory period starting from the year following the current year, separately for each of the components identified in the relevant price list.

2. At the same time, the IM shall provide the Authority with the following:

- a) data on actual traffic volumes, as well as deviations referred to in letter c) of paragraph 1, in disaggregated form by market segment or sub-segment referred to in Measure 24, network type class or sub-class referred to in Measure 25, and time class or sub-class referred to in Measure 26, also broken down by individual railway undertaking;
- (b) documentation referred to in paragraph 5 of Measure 31 on the persisting ability to pay, in the regulatory period, of the market segments as resulting from the *ex ante* performed analyses;
- c) any useful information aimed at providing evidence of the recalculation of the charges pursuant to the rules contained in this paragraph.

3. The value of operating costs, determined *ex-ante* pursuant to the dynamics set forth in paragraph 10.2, is adjusted annually as a result of the above-mentioned annual monitoring procedure, to take into account the actual incidence of the incremental charges estimated *ex-ante* and resulting from the entry into force of new laws and/or regulations, or from the entry into force of other provisions, not estimated *ex-ante*, according to the following modalities:

$$C_{i(t)}^* = C_{i(t)} + \Delta C_{i(t)}$$

with:

- $C_{i(t)}^*$ incremental operating costs, related to the entry into force in each year (t) of new laws and regulations that are applicable by the IM for year (t);
- $C_{i(t)}$ same component, as set *ex ante*;
- $\Delta C_{i(t)}$ positive or negative deviation between (i) actual value of the incremental cost component related to the entry into force in each year (t) of new laws and regulations, and (ii) corresponding value estimated *ex ante*.

4. Moreover, the planned inflation rate $I_{(t)}$, determined *ex ante* pursuant to the dynamics referred to in paragraph 10.2, is updated annually on the basis of the latest available economic and financial planning document approved and published by the national government.
5. The value of capital costs, determined *ex ante* pursuant to the dynamics set out in paragraph 7, is adjusted as a result of the annual monitoring procedure defined above, to consider the share of actually realised investments compared to what was planned *ex ante*, as follows:

$$C_{a(t)}^* = C_{a(t)} + \Delta C_{a(t)}$$

$$C_{rc(t)}^* = C_{rc(t)} + \Delta C_{rc(t)}$$

where:

$C_{a(t)}^*$ depreciation costs applicable by the IM for year (t);

$C_{a(t)}$ same component as determined *ex ante*;

$C_{rc(t)}^*$ costs of return on net invested capital applicable by the IM for year t ;

$C_{rc(t)}$ same component as determined *ex ante*;

$\Delta C_{a(t)}$ positive or negative deviation of depreciation costs, taking into account the share of actually realised investments compared to what was planned;

$\Delta C_{rc(t)}$ positive or negative deviation of the costs of return on net invested capital, taking into account the share of actually realised investments compared to what was planned.

In particular:

$$\Delta C_{a(t)} = -(1 - \pi_{a(t)}) \cdot C_{a(t)}$$

$$\Delta C_{rc(t)} = -(1 - \pi_{nr,(t)}) \cdot C_{rc(t)}$$

and, in general:

$$\pi_{(t)} = \frac{\sum_{a=1}^{t-1} (I_{R,a})}{\sum_{a=1}^{t-1} (I_{P,a})}$$

with:

$\pi_{(t)}$ relevant share of actually realised investments, accumulated until year ($t - 1$), compared to the amount of investments planned for the same period;

$I_{R,a}$ relevant amount of eligible costs for charging purposes, related to each year (a), pertaining to actually realised investments;

$I_{P,a}$ relevant amount of eligible costs for charging purposes, related to each year (a), pertaining to *ex ante* planned investments.

6. If, as a result of the above-mentioned annual monitoring procedure, the annual variations in traffic volumes recorded in the final balance (valued net of the changes attributable to the IM), compared to those estimated *ex ante*, exceed a threshold of +/- 10% for at least one of the basic market segments referred to in Measure 24, the IM shall submit to the Authority, as part of the ordinary updating procedure of the NS and based on new traffic forecasts, the necessary adjustments to the dynamics of charges referred to herein, to be applied for the remaining years of the regulatory period, so as to reconcile, in accordance with principles of reasonableness, the objectives

of economic equilibrium of the operations and cost containment for the RUs. To avoid double counting, it shall be understood that, in case of application of the provisions set out in this paragraph, the mark-up approach referred to in paragraph 2 (c) of Measure 22 may not be applied for the same purposes.

10.6 Reward/penalty systems on charging levels related to service quality

1. By an *ad hoc* procedure, the Authority introduces reward/penalty systems on the levels of charges, that are related to the measurement of service quality indicators, identified for this purpose, with reference, *inter alia*, to commercial speed, punctuality, network availability, correct sizing of the infrastructure compared to current and future demand, as well as to the operating models adopted and the resulting commercial capacity of the network. The reward/penalty systems under this paragraph may also be applied, upon conclusion of the relevant procedure, during the first regulatory period following the date of publication of these measures.
2. In addition to affecting the temporal dynamics of the operating costs referred to in paragraph 10.2 (3) through the parameter ε_t , these systems may also concern other criteria of charge construction referred to in this Title, including the pricing of each of the tariff components of the charge, referred to in Chapter 3, as well as the frames of maximum charge variability referred to in paragraph 31.2.
3. For this purpose, a minimum set of indicators or elementary data to be provided annually in accordance with the provisions of Measure 59 is supplied as part of the accounting schemes in Annex 2. This minimum set may be updated following the procedure referred to in paragraph 1.
4. Based on the procedure referred to in paragraph 1, the Authority also reserves the right to verify that the priority criteria in the allocation of infrastructure capacity, as set out in the NS, are functional to effective and optimal use of the infrastructure and that they in any case ensure compliance with the criteria set out in Article 26 (1), as well as with the principles under Article 29 of Legislative Decree No 112/2015.

Chapter 2 MAP Costing

Measure 11 Cost categories and economic equilibrium of the IM

1. The regulatory model of the MAP is based, in the first place, on efficient *Direct Costs*, i.e. costs directly incurred as a result of operating the train service, as provided for by Implementing Regulation (EU) 2015/909, and, secondarily, on the full recovery of net *Efficient Total Costs* relating to the provision of the services of the minimum access package and access to infrastructure connecting service facilities, both in the *opex* (operating costs) and *capex* (depreciation and return on invested capital) components, that are determined on the basis of the criteria under Measure 6.

Measure 12 Period of reference for cost calculations

1. *Efficient Total Costs* and *Direct Costs*, as defined above, shall be measured:
 - a) *ex post*, with reference to the Base year of the regulatory period;
 - b) in their dynamic development, starting from the Base year and until the end of the five-year regulatory period, according to the principles and criteria established by the Authority.

Measure 13 *Direct Costs*, pursuant to Implementing Regulation (EU) 2015/909

1. With reference to the *Direct Costs* component, "*cost that is directly incurred as a result of operating the train service*" is identified with the short-term incremental cost directly incurred for effective use of the railway infrastructure, i.e. the cost attributable to an identifiable additional railway service.

2. In calculating this cost, the IM, in the accounting schemes referred to in Title 5, shall take into account at least the operating costs relating to ordinary maintenance and referring to the following parts of the infrastructure:
 - a) track equipment, including tracks, switches, and ballast;
 - b) signalling equipment;
 - c) electric traction equipment, including electric substations and contact wires.
3. In this respect, when identifying the perimeter of *Direct Costs*, the IM shall justify the inclusion of specific cost items in the explanatory report referred to in paragraph 4.3 (1) (a), also in the light of international best practices and on the basis of objective and substantial evidence.
4. Should the IM intend to include, for the purpose of calculating the *Direct Costs* on a network-wide basis, the costs referred to in article 3 (4) of Implementing Regulation (EU) 2015/909, adequate evidence shall be provided that these costs can be transparently, robustly and objectively measured and it shall be proved, *inter alia* on the basis of international best practices, that such costs are directly incurred as a result of operating the train service.

Measure 14 Costs of the IM not covered by direct cost charging

1. Under article 17 (8), second sentence, of Legislative Decree No 112/2015, account is taken of the residual component of *Efficient Total Costs*, not falling into *Direct Costs*, provided it is relevant, efficient and adequately documented, for the purpose of full recovery of total costs related to access and use of the railway infrastructure and connections with service facilities. The IM shall provide evidence of these costs in the accounting schemes under Title 5.

Measure 15 Perimeter of operating costs (*opex*)

1. For the allocation and eligibility for regulatory purposes of the *opex* relating to *Efficient Total Costs* and *Direct Costs*, the IM, in the accounting schemes under Title 5, considers the following costs:
 - a) cost of raw materials, consumables, and freight;
 - b) cost of services;
 - c) cost for use of third-party assets;
 - d) cost of staff;
 - e) other operating costs.
2. These costs shall be valued net of any adjustment entries (such as capitalization for internal works or changes in inventories, reimbursement or compensation), as well as gross of the use or release of previously accrued provisions.
3. By contrast, the costs mentioned below are ineligible costs for regulatory purposes and in no case can be considered in the perimeter of *opex*:
 - a) extraordinary charges;
 - b) any expenses resulting from non-compliance with standards and requirements;
 - c) provisions and depreciations of any kind;
 - d) financial charges;
 - e) taxes, including the regional tax on productive activities (Italian acronym: IRAP) and excluding local taxes and duties;
 - f) charges related to donations;
 - g) insurance charges not required by law;
 - h) court costs in which the party is unsuccessful;
 - i) charges that, in light of the criterion of relevance, are not attributable to the ordinary production process.

4. The IM that prepares its annual financial statements on the basis of IAS/IFRS shall reconcile the financial statements with the accounts prepared on the basis of the accounting schemes referred to in Title 5.

Measure 16 Perimeter of capital costs (*capex*): Net book value of fixed assets

1. For the allocation and eligibility for regulatory purposes of the *capex* relating to *Efficient Total Costs* and (only for eligible depreciation) to *Direct Costs*, the IM, in the accounting schemes under Title 5, refers to the Net Book Value of fixed assets, determined as follows:
 - a) the net book value is represented by historic cost values, if necessary increased for enhancement (including extraordinary improvements and maintenance) or decreased for impairment, net of any public contributions on plant and equipment and net of depreciation allowances;
 - b) in case of debt reduction, whereby all or part of the IM's debts have been taken on by another entity, the IM will use a relevant part of the debt reduction to reduce the assets value and the corresponding costs on a network-wide basis;
 - c) the reference to historic cost values will be maintained, unless such values are no longer available or if current values are lower than those based on historic costs. The IM shall provide adequate evidence in this respect.
 - d) historic cost values of assets must be based on the amounts actually paid and documented by the IM at the time of the acquisition or internal production of these assets;
 - e) the acquisition or production cost may comprise directly attributable additional costs including:
 - i) costs incurred to prepare assets for use;
 - ii) any costs of dismantling and removal operations to be borne under contractual obligations requiring the asset to be returned to its original conditions;
 - f) the cost of purchase or production may include, also for the purpose of determining depreciation rates, expenses related to renewals of the existing railway infrastructure (i.e. upgrading and extraordinary maintenance) actually incurred and expected to be incurred (based on substantiated estimates) throughout the duration of the concession, provided that they are entirely contributed by the State and without any effect on the so-called "regulatory" depreciation allowances which may be related to them;
 - g) on the other hand, the purchase or production cost may not include:
 - i) incremental expenses, not yet incurred, that contribute to the total expected production (thus including also future expansion or development);
 - ii) the costs referred to under (f), for any part not covered by public funding, with resulting effect on the so-called "regulatory" depreciation allowances which may be related to them;
 - iii) financial costs.

These expenses, specifically included in the assets that can be entered into the balance sheet pursuant to Ministerial Decree of 23 July 2007 of the MEF, albeit subject to the limitations imposed by IAS, shall in any case be reported through separate accounting/regulatory evidence.
2. State-sourced share capital increases, whether direct or indirect, do not apply for the purpose of quantifying public contributions related to the Net Book Value of fixed assets.
3. Decreases for impairment losses also include extraordinary devaluations.
4. Assets may be included in the fixed asset value only from the time when they are involved in the production process for the supply of the MAP.
5. The Net Book Value, for the purpose of determining depreciation allowances, must be reduced by the Residual Value of the infrastructure at the end of the concession.

Measure 17 Perimeter of capital costs (*capex*): Depreciation

1. For the allocation and eligibility for regulatory purposes of the *capex* relating to *Efficient Total Cost* and (only for allowed depreciation) to *Direct Costs*, depreciation allowances shall continue to be determined by the IM, in compliance with existing rules and IAS adopted, based on variable quotas depending on the production volumes, measured in train-km.
2. The amount of total production planned during the concession period shall be computed on the basis of the provisions of Ministerial Decree of 23 July 2007 of the MEF.
3. Depreciation relating to the net book value of fixed assets described in (g) of Measure 16, shall be highlighted separately and, if connected to the HS/HC system or other specific investment projects, they shall constitute a cost item outside *Efficient Total Costs* (and hence also outside *Direct Costs*), known as "*Long-term costs*".

Measure 18 Capital costs (*capex*): Net Invested Capital (NIC)

1. For the allocation and eligibility for regulatory purposes of the *capex* pertaining to *Efficient Total Cost*, the Net Invested Capital (NIC), that the IM highlights in the accounting schemes under Title 5, comprises the following components:
 - a) (+) Net fixed assets consisting of tangible and intangible assets in place in the Base year, expressed at their net book value, excluding:
 - i) capitalised financial costs;
 - ii) goodwill;
 - iii) fixed assets under (g) of Measure 16;
 - b) (+) Assets under construction (L_{ic}), including advance payments to suppliers, net of any public contributions and any capitalised financial costs;
 - c) (\pm) Net working capital, given by the balance resulting from inventories, account receivables, other assets and trade payables or other net liabilities, calculated based on the registered average amount in the three years prior to the Bridge year;
 - d) (-) Adjustment entries, given by severance payments or other funds;
 - e) (-) Residual value of the infrastructure, equal to the sum of the cost of land, as an asset which is not subject to deterioration and consumption, and any other tangible and intangible fixed assets (mainly bridges, viaducts, tunnels, station areas) that did not run out of their functionality over the life of the concession;
2. Net Invested Capital for regulatory purposes, for the reasons specified in Measure 25, is determined on a network-wide basis, without drawing any distinction between the values of the network defined as Conventional and those of the network defined as HS/HC.
3. In any case, the part directly attributable to services other than MAP shall be deducted from Net Invested Capital (and consequently reallocated), as described below under Title 3.
4. The IM shall provide for reallocation of the NIC transparently, robustly and objectively, possibly through the use of appropriate drivers.

Measure 19 Capital cost (*capex*): Residual value of the infrastructure

1. As the residual value of the infrastructure is an important adjustment entry of Net Invested Capital, it is assessed in compliance with the principle of consistency of accounting policies referred to in article 2423 bis of the Italian Civil Code, which are appropriately evidenced by the IM.
2. Any exceptions to the above principle of consistency of accounting policies:
 - a) may be adopted only in exceptional cases;
 - b) may only be applied within the framework of the accounting policies set out by the legislator;

- c) will imply an immediate obligation to report and justify the resulting effects to the Authority.

Measure 20 Capital cost (*capex*): WACC for the return on Net Invested Capital

20.1 General principles

1. The Authority determines the return on invested capital due to the IMs according to the methodology of the weighted average cost of invested capital (WACC), based on the following formula:

$$R = g \frac{R_d (1 - t)}{1 - T} + (1 - g) \frac{R_e}{1 - T}$$

where:

- R_d nominal rate of return allowed on debt capital;
 R_e nominal rate of return allowed on equity;
 g % of notional financial debt of the sector (gearing);
 t tax shield;
 T equivalent tax rate;
 R rate of return on net invested capital (WACC) in nominal terms, before tax.

20.2 Rate of return on equity

1. The cost of equity is determined according to the following relation:

$$R_e = RFR + \beta_e \cdot ERP$$

with

- R_e cost of equity;
 RFR risk-free rate;
 β_e equity beta;
 ERP equity risk premium.

20.3 Rate of return on debt capital

1. The rate of return allowed on debt capital is determined according to the following relation:

$$R_d = RFR + p_d$$

with

- p_d premium allowed for debt capital.

20.4 Variables of the rate of return on invested capital

1. WACC variables are divided into: (i) variables endogenous to the set of undertakings considered, i.e. variables that derive in whole or in part from the economic and financial choices of the undertakings in the sector, (ii) exogenous variables that do not depend on such choices, but on the dynamics of national and international markets.
2. Included in the first category are: financial structure (g), debt premium (p_d), beta coefficient (β_e).

3. The second category includes risk-free rate (*RFR*), equity risk premium (*ERP*) and tax rate (*T*).
4. All the variables for WACC calculation are calculated by the Authority in accordance with the criteria set out herein and made available to the IM within 30 days of the date of the relevant request, that is submitted by the IM to the Authority within a deadline consistent with charge construction.

20.5 Risk-free rate (*RFR*)

1. The risk-free rate (*RFR*) is calculated on the basis of the arithmetic average of the daily gross returns of the ten-year BTP (long-term Treasury bond), as observed by the Bank of Italy over a period of 12 months and available at the date of the request.

20.6 Equity risk premium (*ERP*)

1. The equity risk premium (*ERP*) is valued as the difference between the total return on stock market and the return on risk-free financial assets.
2. The *ERP* is calculated, also on account of the *ERP* estimated by other national regulatory authorities, by considering the arithmetic mean and geometric mean of the time series reported in the survey by Dimson, Marsh, and Staunton (DMS).

20.7 Tax rate (*T*)

1. Two corporate taxes are considered:
 - a) IRES, corporate income tax (*imposta sul reddito delle società*) (*t*);
 - b) IRAP, regional tax on productive activities (*imposta regionale sulle attività produttive*) (*t_{irap}*).
2. Given the different nature of the two taxes, referring both to taxable base and to non-deductibility of financial charges for IRAP purposes, the IRES rate is used for the tax shield of financial charges, while the sum of the two taxes is used to calculate the rate on corporate income, according to the following relationship:

$$T = t + t_{irap}$$

3. This is a theoretical rate, which takes into account the IRES rate and the maximum ordinary IRAP rate that can be derived from the existing legislation of the sector.
4. If the undertaking benefits from an even partial tax exemption, the corresponding rate in the above relationship will be set at zero.

20.8 Gearing

1. The *gearing* (*g*) measures the ratio of total financial debts (*D*) to total sources of financing, including the aforementioned debts and equity (*E*), i.e.

$$g = \frac{D}{D + E}$$

2. For the purpose of calculating the return on net invested capital, the Authority adopts the notional gearing, given by the arithmetic average of the gearing values of the main national and European undertakings operating railway infrastructure, considering a five-year time span where:
 - a) the value of financial debt includes bonds or capital loans;
 - b) the equity refers to the corporate book value, excluding third-party assets in the case of consolidated financial statements.

20.9 Cost of debt

1. The cost of notional debt is determined on the basis of the ratio of financial charges to financial debt of the companies referred to in paragraph 20.8. The period of reference is five years; financial debt is defined in paragraph 20.8. With regard to financial charges, the income statement item "*interest and other financial charges*" is taken into consideration, with reference to the financial debts considered. The cost of debt is given by the sum of risk-free rate and debt premium (the latter not exceeding 2%).

20.10 Beta parameter

1. The equity beta parameter (β_e) is estimated on the basis of an analysis of the beta coefficients of a sample, consisting of listed companies operating national or European strategic infrastructure (comparables). Once the equity betas have been identified, they must be stripped of the specific leverage ("delevering") in favour of a notional leverage, aimed at taking into account an efficient financial structure.
2. The asset betas (β_a^i) of each company considered in the sample are then derived by using the standard delevering methodology referred to in the following formula:

$$\beta_a^i = \frac{\beta_e^i}{\left(1 + (1 - t^i) D^i / E^i\right)}$$

where:

β_a^i asset beta of i-th company;

β_e^i equity beta of i-th company;

t^i tax rate actually paid on the income of the i-th company of the sample;

D^i / E^i leverage, where E^i and D^i refer to the i-th company in the sample, equity and gross financial debt, respectively.

The asset beta of the sector is the arithmetic average of the values obtained from each comparable.

3. The average asset beta as identified above is then re-levered, so as to derive the notional equity beta of the sector.
4. The re-levering is carried out, based on the D/E ratio derived for gearing, according to the following formula:

$$\beta_e = \beta_a \cdot \left[1 + (1 - t) \cdot \left(\frac{D}{E}\right)\right]$$

20.11 Summary table

Table 1 – WACC calculation

WACC CALCULATION		
1	g	$D/(D+E)$
2	$1-g$	$E/(D+E)$
3	RFR	risk-free rate
4	p_d	debt premium
5	$R_d = RFR + p_d$	allowed cost of debt
6	ERP	equity risk premium
7	β_a	asset beta
8	β_e	equity beta
9	$R_e = RFR + \beta_e \cdot ERP$	cost of equity
10	t	tax shield (IRES rate)
11	T	total tax rate
12	$R (nom, net) = (R_d \cdot (1-t) \cdot g) + R_e \cdot (1-g)$	post-tax nominal WACC
13	$R (nom, gross) = R (nom, net) / (1-T)$	pre-tax nominal WACC

Chapter 3 MAP pricing

Measure 21 Cost-relatedness

1. On the basis of the relevant and efficient costs underlying the services of the Minimum Access Package and for the access to the infrastructure connecting service facilities (articles 17 and 18 of Legislative Decree No 112/2015), the IM sets the relevant charges.
2. The cost components to be considered for this purpose are as follows:
 - a) "**cost directly incurred as a result of operating the train service**" (*Direct Costs*), in connection with the MAP, whose method of calculation is described in Measure 7;
 - b) **relevant and efficient residual costs**, the recovery of which is aimed at ensuring that the provision of the services of the Minimum Access Package and for the access to the infrastructure connecting service facilities does not produce an economic imbalance for the accounts of the IM, in accordance with the principle set out in Measure 6; these costs are determined by the difference between *Efficient Total Costs* ("*for providing the services of the Minimum Access Package and for the access to the infrastructure connecting service facilities*", net of Government contributions defined in Programme Contracts, non-refundable revenues from public and private sources and share of surpluses from other commercial activities) on the one hand, and the costs referred to in under (a) on the other.
 - c) any costs relating to:
 - i) **scarcity of capacity**, for identifiable infrastructure sections in periods of congestion;
 - ii) **environmental effects** and, in particular, those encouraging the retrofitting of wagons with low-noise braking technology, if the relevant rule is applicable after 31 December 2021;
 - iii) **encouraging the introduction of the ETCS system** ("European Train Control System"), in case such incentives are not covered by adequate public funding;

- iv) loss of revenue related to the application of **charge reductions for services provided within certain Regions or Autonomous Provinces**, as a result of special regulations, to take account of any burdens borne by local entities to improve the infrastructure;
- d) "**long-term costs**", for "*the high-speed/high-capacity system and other specific investment projects*" (article 18 (8)), where they have not been already considered for the purposes of the economic equilibrium of the IM under (b), as determined according to the procedure described in Measure 17.

Measure 22 Components of the charge

1. For the purpose of relating infrastructure charges to costs, pursuant to the provisions of article 37 (2) (b) of Decree-Law No 201 and of article 17 (1) of Legislative Decree No 112/2015, the charge for the Minimum Access Package and for the access to the infrastructure connecting service facilities is determined in accordance with the criteria specified below and divided into the following macro-components:

- a) **component A (Basic Charge)**, so designed that the related total revenues allow, pursuant to article 17 (4) of Legislative Decree No 112/2015, to obtain the recovery of *Direct Costs* referred to in Measure 7;

As to this component, the IM proposes a modulation of the charge so as to take into account the different wear and tear produced to the infrastructure in relation to one or more of the parameters mentioned in article 5 (2) of Implementing Regulation (EU) 2015/909, and according to the criteria set in Measure 28 below.

- b) **component B**, so designed, according to the criteria set out in Measure 29, that the related total revenues allow - when added to component A and to components C2, C3 and C4, if any - to obtain recovery of the relevant and efficient total costs, valued on a network-wide basis and net of relevant Government contributions, as planned in the framework of Programme Contracts, of non-refundable revenues from public and private sources, as well as of surpluses from other commercial activities ("*Efficient Total Costs*" referred to in Measure 6), in line with the need to ensure that the MAP does not produce economic imbalances for the IM.

In order to ensure consistency of the charging scheme, the Authority establishes the criteria for the determination of this component by the IM, by taking as a reference the general provisions of article 32 (1) of Directive 2012/34/EU, that is by adopting the "mark-up" approach outlined therein (in connection with the pairs referred to in Annex VI, paragraph 1 of the Directive) and by:

- i) having regard to market sustainability;
- ii) applying efficient, transparent, and non-discriminatory principles;
- iii) ensuring at the same time optimal competitiveness of rail market segments;
- iv) providing that the charging scheme complies with the productivity increases achieved by railway undertakings.

In particular, in this context, mark-ups are aimed at increasing the value of component A, calculated on the basis of *Direct Costs*, so as to obtain a set of mark-ups (component B) differentiated by market segment, type of network and time class of the service, such that the sum of components A and B and components C2, C3 and C4, if any, allows (once each value is applied to the quantity of demand for each segment) to obtain full recovery of the *Efficient Total Costs*.

- c) **component C1**, applied in accordance with the criteria under paragraph 30.2, for specific paths and for well-identified time periods, related to a cost that reflects the scarcity of capacity on those paths;
- d) **component C2**, if any, applied in accordance with the criteria under paragraph 30.3, related to the environmental effects, and, in particular, to those caused by the operation of specific rolling stock;
- e) **component C3**, if any, applied in accordance with the criteria under paragraph 30.4, for rail corridors under Commission Regulation (EU) 2016/919 of 27 May 2016, concerning incentives to equip trains with the control-command and signalling system known as European Train Control System (ECTS), whose application does not globally affect the revenues of the IM;

- f) **component C4**, if any, applied in accordance with the criteria under paragraph 30.5, for services provided in specific territories, related to the application of charge reductions for services supplied in Regions or Autonomous provinces, in relation to specific legislation, in order to consider any charges borne by such entities to improve the infrastructure;
 - g) negative **component C5**, applied in accordance with the criteria set out in paragraph 30.6, for optimisation of the travel time of scheduled train paths upon allocation of infrastructure capacity.
2. Access charges may be increased on the basis of the following specific regulatory provisions:
- a) Based on the powers conferred under article 18 (8) of Legislative Decree No 112/2015 and subject to the conditions specified therein, the IM may set higher charges related to the recovery of any long-term residual costs, which have not already been repaid by the component B of the charge. It follows that any such sub-component of the charge is related to a cost that cannot exceed the value of Long-term costs determined as described in Measure 17;
 - b) The MIT, in agreement with the MEF, after consultation with the Authority, may adopt a decree establishing a mark-up on the charge provided for in article 12 (12) of Legislative Decree No 112/2015, in line with the need to ensure coverage of the charges for universal rail transport services of national interest, covered by public service contracts;
 - c) The MIT, in agreement with the MEF, subject to verification of sustainability by the Authority, may adopt a decree providing for mark-ups to be applied in case of serious economic imbalances of the accounts of the IM, produced by extraordinary and unpredictable events, the impact of which has not been already calculated in the context of the Authority's charging model; in the application of these mark-ups, the competent Ministries will take into account the regulatory accounting statements drawn up by the IM in accordance with the principles and criteria set out by the Authority.

The above-mentioned mark-ups shall form the **component D** of the charge, if any. This component, where applied pursuant to the provisions of Legislative Decree No 112/2015, complies with the same breakdown and segmentation as defined for component B of the charge.

Measure 23 Basic principles for modulation of charges

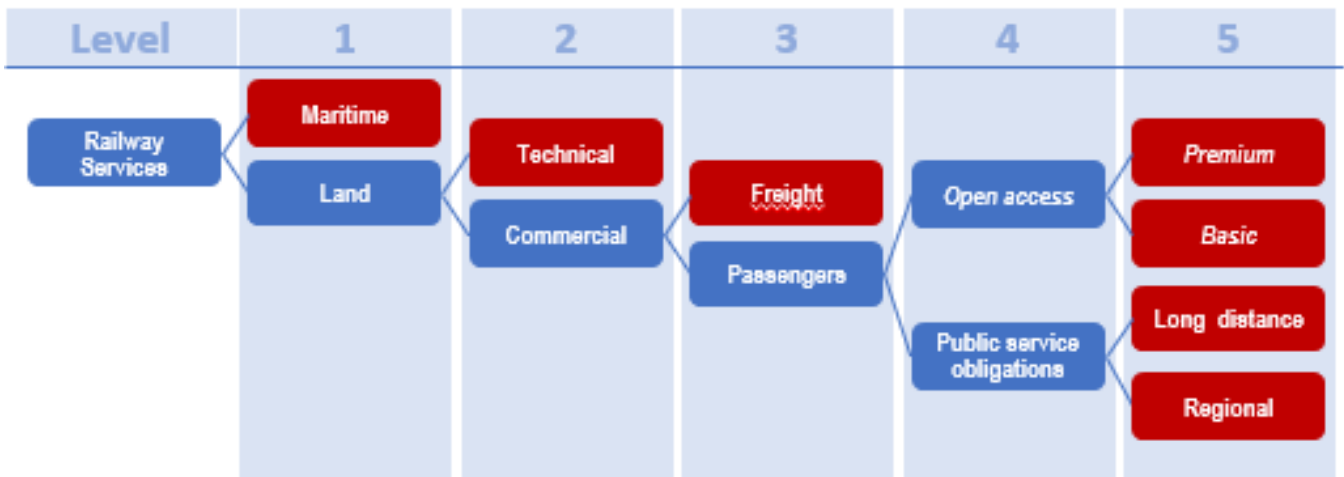
1. The principles of breakdown and modulation of the charge which the IM shall refer to for the determination of MAP charges are the following:
- a) **TRANSPARENCY:** the charge is, in general, oriented towards reflecting the costs pertaining to the actual train routing, on account of technical differences and different value of the railway infrastructure used. Any deviation from this orientation, including taking into account the need to ensure the sustainability of the charging levels for the different market segments, must be adequately justified by the IM.
 - b) **SIMPLICITY:** the main components of the charge (A and B) are characterized by a single fixed basic charge relating to the relevant average cost. Starting from this average charge, by applying appropriate adjusting coefficients, identified by the IM based on timely and reasoned justifications and in consideration of the variables related to the type of costs to be covered, the actual charge is determined that is applicable to the individual path or part thereof, where the path involves parts of the network that are individually relevant for the modulation of the charge.
 - c) **PRE-DETERMINATION:** RUs may pre-determine the charge relating to the path of each of their trains.
 - d) **MODULAR STRUCTURE:** threshold values for the classification of variables and numerical values of the relevant coefficients provide a wide range of modulation tools, that is suitable for the necessary "fine-tuning" to optimize charges according to the targeted economic objectives.
 - e) **COST-BASED AND MARKET-BASED APPROACH:**
 - i) components A, C2 and C3, mainly related to technical factors (wear and tear of the network and externalities, respectively), are modulated according to a cost-based approach;

- ii) components C1 and C5 are based on the opportunity cost criterion;
 - iii) component C4 derives from *ad hoc* agreements between the IM and territorial entities;
 - iv) component B and component D, if any, are market-based, taking into account the sustainability criteria set by the Authority under Measure 31, also by reference to European and national objectives and policies for sustainable mobility and ecological transition - including the objectives of the National Recovery and Resilience Plan as set out in Regulation (EU) 2021/241 of 12 February 2021 – as well as by considering: (i) public funding of regional and national passenger services through the imposition of public service obligations; (ii) actual competition in individual markets, including between different modes of transport.
- f) **COMPENSATION BETWEEN COMPONENTS:** component B of the charge is modulated, through the targeted use of the mark-ups provided for therein, so that the overall level of charges, set also following the modulation of component A and the application of components C2, C3 and C4, is consistent with the sustainability of the railway market, as defined in Measure 31.

Measure 24 Market segments

1. Considering the pairs proposed by Directive 2012/34/EU, the Authority sets out, with respect to the MAP, the following basic structure of railway services:

Figure 1 – Basic structure of railway services



2. Therefore, the pairs to consider shall be, at least, the following:

Table 2 – Pairs to consider in the structure of railway services

Level	Segment 1	↔	Segment 2
1	maritime services (ferries)	↔	land services (rail, in a narrow sense)
2	commercial services (freight-passengers)	↔	technical services (shipping of material, testing, etc.)
3	passenger transport	↔	freight transport
4	open access passenger transport	↔	passenger transport subject to public service obligations (PSO)
5	<i>Premium open access</i> passenger transport	↔	<i>Basic open access</i> passenger transport
5	long-distance passenger transport subject to PSO	↔	regional passenger transport subject to PSO

3. As for the pair *premium-basic national open access* passenger transport, the IM refers to the use of the infrastructure by transport services showing significant differences in terms of level of service provided to customers, with particular reference to frequency and commercial speed.
4. As a result, the market of railway services is basically divided into the following main segments:

Table 3 – Market segments of basic structure

Basic structure of market segments
maritime services
technical services
Commercial freight transport services
<i>Premium open access</i> passenger transport commercial services
<i>Basic open access</i> passenger transport commercial services
long-distance passenger transport commercial services subject to PSO
regional passenger transport commercial services subject to PSO

5. The basic structure, broken down into the above levels, may be improved by the IM by adding additional pairs, in accordance with the following rules:
 - a) each pair belonging to a specific level shall derive from a single pair component placed at the higher level;
 - b) it is not possible for multiple pairs to derive simultaneously from the same pair component placed at the higher level.
6. The IM is required to assess the opportunity of considering at least the pairs listed in Annex VI, paragraph 1 of Directive 2012/34/EU, choosing the relevant ones. With regard to freight and passenger transport services, the IM may also further differentiate market segments on the basis of the freight or passengers transported.
7. For the *Premium open access* market segment, the IM shall consider introducing a further pair, related to the number of seats offered to passengers (*services with fewer seats offered* ↔ *services with more seats offered*), and shall define a threshold value for the number of seats offered, to define homogeneous service clusters.
8. The addition of additional pairs by the IM must be adequately justified, in the report referred to in paragraph 4.3 (1) (a), on the basis of thorough inquiries on the segmentation of the rail services market, accompanied by complete and as exhaustive quantitative information as possible, which the IM shall obtain with every possible effort, including the documented involvement of the stakeholders, also in relation to the retail demand for services and to intermodal competition.
9. The breakdown of rail services resulting from the combined application of basic structure of market segments referred to in this measure, classification of the rail network referred to in Measure 25 and time class of service referred to in Measure 26, is an essential element for the modulation of component B of the charge, as specified in Measure 29.
10. The basic structure referred to in paragraph 4, if necessary improved with the sub-classes referred to in paragraph 5, is a useful reference for the purpose of verifying the priority criteria for the capacity allocation set out in the NS, in the context of the procedure referred to in paragraph 10.6.

Measure 25 Types of railway networks

1. For the sole purpose of the modulation of the charges, the IM submits to the Authority's approval, together with the charging system referred to in paragraph 4.3, an overall reclassification of the network, so as to highlight the lines having the same characteristics in terms of level of service, based on the criteria set by the Authority.
2. The level of service is to be understood in relation to capacity offered, guaranteed commercial speed and quality of railway traffic, which is also assessed, with particular reference to freight transport, in relation to the

characteristics of the railway sections in terms of module, gauge and axle mass, as well as availability of parking areas, with particular regard to the transport of dangerous goods, and taking into account the capacity of the connected facilities.

3. The rail network is understood as a system, i.e. a set of lines and facilities characterized by relations and mutual influences, aimed at ensuring the mobility of people and freight throughout the country. For this reason,
 - a) a unitary concept of rail network;
 - b) network solidarity;
 - c) full integration of HS/HC network and conventional network should be safeguarded.
4. Regarding MAP, the Authority outlines the following basic classification of the railway network:

Table 4 – Basic classes by network type

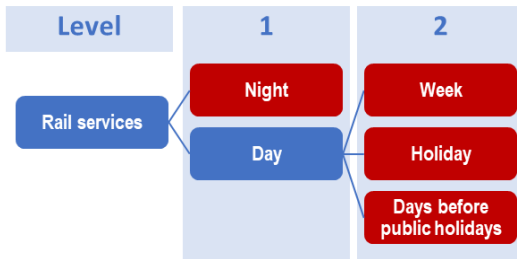
Class	Definition of class
1	Metropolitan network , consisting of the main national metropolitan nodes;
2	High-service network , consisting of high-speed/high-capacity lines and lines with maximum higher speed class over 200 km/h;
3	Medium-service network , consisting of national corridors (North-Centre and South-Centre), main international lines and other lines of the existing core network;
4	Basic-service network , consisting of the remaining lines.

5. Each basic section of the network can be included in one category only.
6. The basic classification may be improved by the IM with additional sub-classes, by justifying its choice in the report referred to in paragraph 4.3 (1) (a), based on appropriate inquiries on the level of service of the railway infrastructure, in accordance with the rule that each sub-class shall derive from a single class placed at the higher level.
7. Concerning the metropolitan network, the IM shall provide the Authority, in the report referred to in paragraph 4.3 (1) (a), with adequate documentary evidence, accompanied by complete and exhaustive quantitative information, concerning its assessments about the desirability, for charging purposes, of:
 - a) revising the perimeter of individual metropolitan nodes, in relation to the actual level of service;
 - b) sub-classifying the nodes, on the basis of their respective structural complexity and/or existing infrastructure sections characterised by significantly different levels of service (such as any link sections for long-distance services);
 - c) defining specific clusters, for charging purposes, for significant parts of the metropolitan nodes, characterised by peculiarities in terms of capacity offered and traffic quality (e.g., due to existing terminal stations).
8. The breakdown of rail services resulting from the combined application of basic structure of the market segments referred to in Measure 24, classification of the rail network referred to in this Measure and time class of service referred to in Measure 26, is an essential element for the modulation of component B of the charge, as further specified in Measure 29.
9. The basic classification referred to in paragraph 4, that may be improved with the sub-classes referred to in paragraph 6, may be a useful reference for the verification of the priority criteria for the capacity allocation set out in the NS, in the context of the procedure referred to in paragraph 10.6.

Measure 26 Definition of time classes of service

1. Having regard to the need to ensure optimal use of infrastructure capacity, the Authority defines the following basic time structure of rail services with regard to the MAP:

Figure 2 – Basic time structure of rail services



2. As a result, the regulatory period is basically divided into the following main classes:

Table 5 – Time classification of regulatory period

Level	Time	Day	Definition
1	Night	Every day	Every day of the year, from 10 p.m. to 6:00 a.m.
2	Day	Weekdays	Weekdays (usually Mondays through Fridays), from 6:00 a.m. to 10 p.m.
		Holidays	Sundays and holidays, from 6:00 a.m. to 10:00 p.m.
		Days before public holidays	Saturdays, from 6:00 a.m. to 10:00 p.m.; If provided for by the IM on the basis of objective justifications, eve of public holidays, from 6 a.m. to 10 p.m.

3. Each day of the regulatory period may be included only in one of the basic daily classes defined above.
4. The basic classification may be improved by the IM with additional sub-classes, by justifying this choice in the report referred to in paragraph 4.3 (1) (a), on the basis of appropriate inquiries on the use of railway infrastructure capacity, in accordance with the rule that each sub-class shall derive from a single class placed at the higher level.
5. Concerning the combination of daily and hourly classification, the IM is required to consider the temporal dynamics of the degree of network use, on account of the experience gained with regard to the infrastructure capacity allocation procedure.
6. In the time classification of the service, with reference to the freight market segment, the IM shall:
- adopt additional sub-classes aimed at taking into account the outcome of the proceeding concluded by ART Decision No. 58/2021 of 6 May 2021, in order to ensure adequate extensions of the night-time slot relating to the freight market segment, in all cases in which planned interruptions of service (PIS) are arranged in this time slot;
 - consider, *inter alia*, the opening hours of the relevant connected facilities and the calendar of traffic bans that is annually established by the MIT for industrial road vehicles with a gross vehicle weight over 7.5 tonnes.
7. The breakdown of rail services resulting from the combined application of basic structure of the market segments as set out in Measure 24, classification of the rail network as set out in Measure 25 and time class of service as set out in this Measure, is an essential element for the modulation of the component B of the charge, as further specified in Measure 29.
8. The basic classification under paragraph 2, that may be improved with the sub-classes referred to in paragraph 4, may be a useful reference for the verification of the priority criteria for the capacity allocation set out in the NS, in the context of the procedure referred to in paragraph 10.6.

Measure 27 Structure of the charge

1. The charge P for the path of each train (tr) is determined by the sum of the three components A, B and C according to the following formula:

$$P_{tr} = A_{tr} + B_{tr} + C_{tr}$$

2. The criteria identified by the Authority for the application of each component are described below.
3. Any increases in the charge resulting from the application of component D shall be calculated separately.

Measure 28 Criteria for the application of component A of the charge

28.1 General features

1. The component A of the charge must be so designed that the related total revenues allow the recovery of costs directly attributable to the provision of the services of the minimum access package and the access to infrastructure connecting service facilities, as determined on the basis of the criteria established by the Authority.
2. For this component, the IM defines a modulation of the average unit charge so that, in the light of the estimated traffic volumes for each year of the regulatory period, the total annual traffic revenue deriving from its application to each individual part of the train path (z) running on the part of the network (g) identified in accordance with the criteria set out in Measure 7, with the rolling stock (x), does not exceed the level of the total annual *Direct Costs*, as determined by applying the provisions set out in Chapter 1 and Chapter 2 of this Title, according to the following formula:

$$\sum_z \left[\sum_g (A_{t,z,g,x} \cdot P_{g,z}) \right] \leq C_{d(t)}$$

where:

$A_{t,z,g,x}$ average unit charge for component A, calculated for each part of the train path (z) running on the part of the network (g), identified according to the criteria of Measure 7, with the rolling stock (x), in year t ;

$P_{g,z}$ length in km of the path of each train (z) running on the same part of the network (g);

$C_{d(t)}$ costs directly related to the provision of rail service (*Direct Costs*), in year t , determined in accordance with paragraph 8.1;

3. In the modulation of component A for the part of the network concerned and rolling stock used, the IM takes into account the different levels of wear and tear caused to the infrastructure according to one or more of the parameters set out in Article 5 (2) of Implementing Regulation (EU) 2015/909, as listed below:
 - a) train length and/or number of train vehicles;
 - b) train mass;
 - c) type of vehicle, in particular its unsprung mass;
 - d) train speed;
 - e) traction power of the motorised unit;
 - f) axle weight and/or axle numbers;
 - g) recorded number of wheel flats or effective use of equipment to protect against wheel slips;
 - h) longitudinal stiffness of vehicles and horizontal forces impacting on track;

- i) consumed and measured electric power or dynamics of pantographs or contact shoes as a parameter to charge the wear and tear of overhead wire or electric rail;
 - j) track parameters, in particular radii;
 - k) any other cost-related parameters where the IM can prove to the Authority that the values for each of such parameters (including variation to each of such parameters, where relevant) are objectively measured and recorded.
4. The traffic distribution in relation to one or more of the above parameters is carried out by the IM according to equitable and non-discrimination criteria and is also oriented towards reflecting the technical and operating characteristics of rolling stock, rewarding, in particular, its efficiency in terms of less wear and tear of the infrastructure, separately for passenger and freight services.

28.2 Applicable criteria in case of option for econometric or cost engineering models

1. By exercising the option referred to in paragraph 4, concerning the calculation of *Direct Costs* through econometric or cost engineering models, the IM may modulate the component A of the charge in accordance with the methodology resulting from such models, while ensuring compliance with the general criteria set out in Measure 7 and paragraph 28.1.

28.3 Applicable criteria in the other cases

1. In the event of a negative outcome of the verifications referred to in paragraph 7.2 (3), involving a requirement to arrange for the calculation of Direct Costs in accordance with paragraph 7.1, the component A is broken down into three additive sub-components, by using two factors (γ and δ), established by the IM on the basis of justified technical and economic choices, to be included in the report referred to in paragraph 4.3 (1) (a), that are linked to the concept of wear and tear of the railway infrastructure, so that:

$$A_{tr} = (A_1 \cdot W_1 + A_2 \cdot W_2 + A_3 \cdot W_3) \cdot P_{tr}$$

with:

$$A_1 = A_{(t)} \cdot \gamma$$

$$A_2 = A_{(t)} \cdot \delta$$

$$A_3 = A_{(t)} \cdot [1 - (\gamma + \delta)]$$

and, pursuant to Measure 8, for each year (t) of the regulatory period:

$$A_{(t)} = T_{m(t)} = \frac{C_{d(t)}}{P_{(t)}}$$

where:

A_{tr}	total path charge, relating to component A of the charge, in €;
A_1	basic charge in €/train-km, related to sub-component A1 of the charge based on the class of total train mass;
A_2	basic charge in €/train-km, related to sub-component A2 of the charge, based on the speed class of the train path;
A_3	basic charge in €/train-km, related to sub-component A3 of the charge, based on the class of wear and tear of the contact wire by rolling stock;

$A(t)$	basic charge in euro/train-km, related to component A of the charge, for year (t);
W_1	coefficient function of the class of total train mass;
W_2	coefficient function of line speed class;
W_3	coefficient function of the class of wear and tear of the contact wire by rolling stock;
P_{tr}	length in km of train path of each train;
γ	factor (greater than or equal to 0.50) for the weight of sub-component A1 on the total component A of the charge;
δ	factor (between 0 and 0.50) for the weight of sub-component A2 on the total component A of the charge;
$[1 - (\gamma + \delta)]$	factor (between 0 and 0.50) for the weight of sub-component A3 on the total component A of the charge;
$C_{d(t)}$	costs directly connected to the performance of the rail service (<i>Direct Costs</i>), in year (t);
$P(t)$	traffic volumes estimated for year (t);

2. The choice of coefficient values is made by the IM pursuant to the following technical specifications:

- a) coefficient $W_{1,x}$, set for each of the (n) classes of total train mass, at least 3, into which the rolling stock operated on the network is divided, is calculated appropriately for each class, so that its application to the annual traffic volumes ($P_{A1,x}$) estimated for each class (x), compared with the total annual traffic volumes (P_{A1}), complies with the following relation:

$$P_A = \sum_{x=1}^n (P_{A1,x} \cdot W_{1,x})$$

The traffic distribution into classes of total train mass, carried out by choosing appropriate threshold values, is made by the IM according to principles of equity and non-discrimination based on the different impact in terms of *Direct Costs*, and is aimed at reflecting the technical and operating characteristics of rolling stock, rewarding, in particular, its efficiency in terms of reduced wear and tear of the infrastructure, separately for passenger and freight services.

In this respect, the IM is specifically obliged to adequately justify its choices, in the report referred to in paragraph 4.3 (1) (a), based on thorough inquiries, accompanied by complete and exhaustive quantitative information.

- b) coefficient $W_{2,x}$, set for each of the (n) speed classes, at least 3, into which the rolling stock operated on the network is divided, is calculated appropriately for each class, so that its application to the annual traffic volumes ($P_{A2,x}$) estimated for each class (x), compared with the total annual traffic volumes (P_{A1}), complies with the following relation:

$$P_A = \sum_{x=1}^n (P_{A2,x} \cdot W_{2,x})$$

The calculation of the average speed value, for the purpose of the construction of the charge, and verification of the class of each train (tr), is carried out according to the following formula:

$$V_{m,tr} = \frac{P_{tr}}{(H_{A,tr} - H_{P,tr}) - \sum(S_{tr})}$$

where:

$V_{m,tr}$ travel speed of train path by each train (tr), in km/h;

P_{tr} length of train path of each train (tr), in km;

$H_{A,tr} - H_{P,tr}$ travel time of train path of each train (tr), obtained as the difference between departure and arrival time, in hours;

$\Sigma(S_{tr})$ sum of stopping times along the path route of each train (tr), in hours;

The traffic distribution into classes of travel speed, carried out by choosing appropriate threshold values, is made by the IM according to principles of equity and non-discrimination based on the different impact in terms of *Direct Costs*, and is aimed at reflecting the technical and operational characteristics of the operating rolling stock and allocated path, through groupings based on as homogeneous as possible macro-categories. In this respect, the IM is specifically obliged to adequately justify its choices in the report referred to in paragraph 4.3 (1) (a), based on thorough inquiries, accompanied by complete and exhaustive quantitative information.

- c) coefficient $W_{3,x}$, set for each of the (n) wear and tear classes of the contact wire into which the railway network is divided following the classification by the IM based on the criteria set out by the Authority, is calculated appropriately for each class, so that its application to the annual traffic volumes ($P_{A3,x}$) estimated for each class (x), compared with the total annual traffic volumes (P_{A1}), complies with the following relation:

$$P_A = \sum_{x=1}^n (P_{A3,x} \cdot W_{3,x})$$

The coefficient is grouped into three classes, of which: (i) the first for non-electric traction rolling stock (in this case the coefficient equals zero); (ii) the remaining two, through the application of equitable, non-discriminatory, transparent and easy-to-apply criteria, to be adopted by the IM to introduce appropriate differentiation for electric traction rolling stock, based on the lower or higher level of wear and tear of the contact wire, including in relation to the number of contact pantographs.

Measure 29 Criteria for application of component B of the charge

29.1 General features

1. The component B of the charge:
 - a) is so designed that the related total revenues allow, when added to component A and to components C2, C3 and C4, where appropriate, to obtain recovery of the C_{nt} (*Efficient Total Cost*), as determined on the basis of the criteria set by the Authority, relating to the provision of services of the Minimum Access Package and access to the infrastructure connecting service facilities;
 - b) is related to *Direct Costs*, in accordance with the provisions of article 17 (4) of Legislative Decree No 112/2015;
 - c) takes as a reference, for the purpose of ensuring the consistent structure of the charging scheme, the general provisions of article 32 (1) of Directive 2012/34/EU, adopting the "mark-ups" approach outlined therein.
2. Therefore, the component B results in a market-based variable charge:
 - a) based on the average kilometric amount, defined starting from the cost related to the component A of the charge;
 - b) adjusted, by applying a mark-up coefficient (α), based on the amount of the residual costs for the recovery of the *Efficient Total Cost* as defined above;

- c) modulated, for each train, according to the characteristics of each specific part of the train path, as resulting from the combination of market segments, network type and time classification, on the basis of what has been established by the IM according to the criteria set out in this measure, as well as to justified technical and economic choices, to be included in the report referred to in paragraph 4.3 (1) (a).

3. Thus, the general formula to determine the component B includes the following steps:

29.2 Mark-up α

1. The mark-up α is determined, which corresponds to the ratio of the residual costs to obtain the *Efficient Total Cost* (residual costs, i.e. net of *Direct Costs*) to *Direct Costs*:

$$\alpha_{(t)} = \left(\frac{C_{nt(t)} - C_{d(t)}}{C_{d(t)}} \right)$$

where:

$\alpha_{(t)}$ mark-up applicable for year (t);

$C_{nt(t)}$ *Efficient total cost*, calculated as described under Measure 6 and referred to year (t);

$C_{d(t)}$ cost directly incurred as a result of operating the train service (*Direct costs*), in year (t).

2. The annual average unit level of the component B (B_t) is calculated as the product of mark-up $\alpha_{(t)}$ and basic unit charge $T_{m(t)}$ of reference in year (t):

$$B_t = \alpha \cdot T_{m(t)}$$

29.3 Market segment

1. The average unit level of the component B ($B_{j,t}$) specific to each market segment or sub-segment (j), as resulting from the application of the pairs relating to the basic structure, where appropriate improved by the IM with the addition of further pairs, referred to in Measure 24, is determined according to the following formula:

$$B_{j,t} = B_t \cdot J_j$$

2. Each market segment or sub-segment (j) is characterized by a single coefficient J_j , originated from the product of the individual coefficients calculated on the basis of the specifications described below, according to the following formula:

$$J_j = \prod_{i=1}^n J_{j,i}$$

3. The individual coefficients $J_{j,i}$ are relevant to individual market segments or sub-segments, as provided for by article 32 (1) of Directive 2012/34/EU and are determined starting from the pairs relating to the basic structure, improved, where appropriate, by the IM with the addition of further pairs, as defined in Measure 24, based on the hierarchical order of the relevant levels.
4. These coefficients are determined *ex ante*, with reference to the entire regulatory period, on the basis of the distribution by market segment or sub-segment resulting from the respective traffic estimates taken for the construction of the charge.
5. In particular, within each pair, the IM calculates the value of the coefficients as follows:
- a) by setting the value $J_{j,i,1}$, relating, in the individual pair, to one of the two market segments or sub-segments composing the pair;

- b) by setting the value of coefficient $J_{j,i,2}$, relating to the other market segment or sub-segment composing the pair, with application of the following formula:

$$J_{j,i,2} = \frac{(P_{j,i,1} + P_{j,i,2}) - (J_{j,i,1} \cdot P_{j,i,1})}{P_{j,i,2}}$$

where:

$P_{j,i,1}$ traffic volumes pertaining to the entire regulatory period, in train-km, relating to component 1 of pair i , to which coefficient $J_{j,i,1}$ applies;

$P_{j,i,2}$ traffic volumes pertaining to the entire regulatory period, in train-km, relating to component 2 of pair i , to which coefficient $J_{j,i,2}$ applies.

6. The values of coefficients $J_{j,i,1}$ and $J_{j,i,2}$ are then weighted on an annual basis, to achieve full proportionality with the respective annual traffic volumes of reference, as follows:

$$J_{j,i,1,(t)} = J_{j,i,1} + \frac{1}{2} \cdot \left[\frac{(P_{j,i,1,(t)} + P_{j,i,2,(t)}) - (J_{j,i,2} \cdot P_{j,i,2,(t)})}{P_{j,i,1,(t)}} - J_{j,i,1} \right]$$

$$J_{j,i,2,(t)} = J_{j,i,2} + \frac{1}{2} \cdot \left[\frac{(P_{j,i,1,(t)} + P_{j,i,2,(t)}) - (J_{j,i,1} \cdot P_{j,i,1,(t)})}{P_{j,i,2,(t)}} - J_{j,i,2} \right]$$

where:

$P_{j,i,1,(t)}$ annual traffic volumes, in train-km, relating to component 1 of pair i , to which coefficient $J_{j,i,1}$ applies;

$P_{j,i,2,(t)}$ annual traffic volumes, in train-km, relating to component 2 of pair i , to which coefficient $J_{j,i,2}$ applies.

7. The values of coefficients $J_{j,i,1}$ and $J_{j,i,2}$ are determined by the IM so that, for the purpose of the full recovery of the *Efficient Total Cost*, their overall application is carried out on the basis of effective, transparent and non-discriminatory principles and is consistent with the sustainability of the railway market, while ensuring an optimal competitiveness of the market segments and respecting the productivity increases achieved by the RUs.
8. In this respect, the IM is subject to a specific obligation to adequately justify its choices, in the report referred to in paragraph 4.3 (1) (a), on the basis of in-depth analyses, including those referred to in Measure 31, aimed at determining the competitive levels of the individual market segments of the basic structure, accompanied by complete and exhaustive quantitative information, including in relation to the retail service demand.
9. With particular reference to the pair concerning maritime services, the IM takes into account the share of the costs relating to ferry services that is attributable to the MAP, that shall be evidenced by means of appropriate accounting separation in the context of the MAP.

29.4 Combination of market segment and network type

1. The average unit level of component B ($B_{j,k,t}$) specific to the combination of each market segment or sub-segment (j) referred to in Measure 24 and to each class or sub-class of network type (k) referred to in Measure 25 is determined by applying the following formula:

$$B_{j,k,t} = B_t \cdot J_j \cdot K_{j,k}$$

2. Coefficient $K_{j,k}$, established for each of the (n) classes and sub-classes into which the rail network is divided following the classification made by the IM based on the criteria set by the Authority under Measure 25, is calculated appropriately for each class or sub-class so that its application to the traffic volumes pertaining to the entire regulatory period ($P_{j,k}$) estimated for each class or sub-class (k) with reference to each market segment or

sub-segment (j), compared to the total annual traffic volumes (P_j) relating to the same market segment or sub-segment (j), complies with the following relation:

$$P_j = \sum_{k=1}^n (P_{j,k} \cdot K_{j,k})$$

3. The values of $K_{j,k}$ coefficients are then weighted on an annual basis, with a view to full proportionality with the respective annual traffic volumes of reference, as follows¹:

$$K_{j,1,(t)} = K_{j,1} + \frac{1}{n} \cdot \left[\frac{\sum_n (P_{j,k,(t)}) - \sum_{(k \neq 1)}^n (K_{j,k} \cdot P_{j,k,(t)})}{P_{j,1,(t)}} - K_{j,1} \right]$$

where:

$P_{j,k,(t)}$ annual traffic volumes, in train-km, relating to k class or sub-class, to which coefficient $K_{j,k}$ applies.

4. The values of coefficients $K_{j,k}$ are determined by the IM by providing that, for the purpose of full recovery of the *Efficient Total Cost* relating to the market segment or sub-segment (j), their overall application:
- is made based on principles of equity, non-discrimination and sustainability for market operators, being consistent with the level of service referred to in Measure 25 which is estimated for each class or sub-class of network type, as well as with the valuation of the underlying asset;
 - takes due account of the different requirements, in terms of level of service, between passenger and freight transport.
5. In this respect, the IM is subject to a specific obligation to adequately state the reasons for its choices, in the report referred to in 4.3 (1) (a), on the basis of thorough inquiries, accompanied by full and exhaustive quantitative information.

29.5 Combination of market segment, network type and time class

1. The unit average level of component B ($B_{j,k,h,t}$) specific to the combination of each market segment or sub-segment (j) referred to in Measure 24, of each network type class or sub-class (k) referred to in Measure 25, and of each time class or sub-class (h) referred to in Measure 26, is determined by applying the following formula:

$$B_{j,k,h,t} = B_t \cdot J_j \cdot K_{j,k} \cdot H_{j,k,h}$$

2. Coefficient $H_{j,k,h}$, established for each of the m classes and sub-classes into which the regulatory period is divided, following the classification made by the IM based on the criteria set by the Authority under Measure 26, is calculated appropriately for each time class or sub-class, so that its application to the traffic volumes related to the entire regulatory period ($P_{j,k,h}$) estimated for each time class or sub-class (h) with reference to each market segment or sub-segment (j) and to each class or sub-class of network type (k), compared to the total annual traffic volumes ($P_{j,k}$) relating to the same market segment or sub-segment (j) and to the same class or sub-class of network type (k), complies with the following relation:

$$P_{j,k} = \sum_{h=1}^m (P_{j,k,h} \cdot H_{j,k,h})$$

¹ The model formula applies to $k=1$, but is similarly applicable to any other k value between 2 and n .

3. The values of coefficients $H_{j,k,h}$ are then weighted on an annual basis, with a view to full proportionality with the respective annual traffic volumes of reference, as follows²:

$$H_{j,k,1,(t)} = H_{j,k,1} + \frac{1}{n} \cdot \left[\frac{\sum_m (P_{j,k,h,(t)}) - \sum_{(h \neq 1)}^m (H_{j,k,h} \cdot P_{j,k,h,(t)})}{P_{j,k,1,(t)}} - H_{j,k,1} \right]$$

where:

$P_{j,k,h,(t)}$ annual traffic volumes, in train-km, relating to h class or sub-class to which coefficient $H_{j,k,h}$ applies.

4. The values of coefficients $H_{j,k,h}$ are determined by the IM by providing that, for the purpose of full recovery of the *Efficient Total Costs* related to the market segment or sub-segment (j), their overall application is based on principles of equity, non-discrimination and sustainability for market operators, being consistent with an optimal allocation of infrastructure capacity, taking into account the actual availability of the infrastructure itself, including in relation to planned interruptions of service (PIS).
5. In this respect, the IM is subject to a specific obligation to adequately state the reasons for its choices, in the report referred to in 4.3 (1) (a), based on thorough inquiries, accompanied by full and exhaustive quantitative information.

29.6 Modulation of component B of the charge for each train

1. The unit average level of component B is modulated for each train (tr), depending on the characteristics of its path, by applying a specific unit level $B_{j,k,h,t}$ to each part (q) of the path, characterised by a homogeneous classification in the light of the combination between:
- market segment or sub-segment (j) referred to in paragraph 29.3, which characterises the entire path;
 - class or sub-class of network type (k) referred to in paragraph 29.4 which characterises each part of the path;
 - time class or sub-class (h) referred to in paragraph 29.5 which characterises each part of the path.
2. Consequently, the level of component B of the charge applicable to a specific train is as follows:

$$B_{t(tr)} = \sum_q (B_{j,k,h,t,q,(tr)} \cdot L_{q(tr)})$$

where:

$B_{t(tr)}$ total level of component B of the charge applied to a specific train tr in year (t);

$B_{j,k,h,t,q,(tr)}$ unit level of component B of the charge, calculated as specified in the following paragraphs, applicable to the specific part (q) of the train path (tr), with homogeneous classification by reference to market segment or sub-segment (j), network type class or sub-class (k) and time class or sub-class (h);

$L_{q(tr)}$ length, in train-km, of part q of the train path (tr).

² the model formula applies to $h = 1$, but is equally applicable to each other h value between 2 and m .

Measure 30 Criteria for application of component C of the charge

30.1 General information

1. It being understood that the compliance with the principle of economic equilibrium laid down in Measure 22 is ensured by determining the charge components A and B, as well as C2, C3 and C4 referred to below, in accordance with the principles and criteria under this Title, the IM adopts the component C of the charge, to be related to the relevant cost externalities as defined by the regulatory framework; this component is divided into five sub-components, separate from each other and all variable (per train-km), modulated in an equitable and non-discriminatory manner, respectively connected with:

- a) scarcity of capacity (component **C1**, mandatory application),
- b) environmental effects (component **C2**, optional application),
- c) existing ETCS technology (component **C3**, optional application),
- d) existing regional charges to improve the railway infrastructure based on specific regulations (component **C4**, optional application),
- e) optimisation of travel times in capacity allocation (component **C5**, mandatory application).

2. Ultimately:

$$C_{tr} = C1_{tr} + C2_{tr} + C3_{tr} + C4_{tr} + C5_{tr}$$

3. The introduction of any additional sub-components, or any updating of those referred to in paragraphs 30.2 and, 30.6 may be provided by the Authority at the end of the procedure referred to in paragraph 10.6, within the framework of the reward/penalty systems on the charging levels provided for therein, related to the measurement of service quality indicators.

30.2 Scarcity of capacity (C1)

1. Charges for use of the railway infrastructure may include a component to reflect the scarcity of capacity of identifiable sections of the infrastructure during congestion periods.
2. To reduce heterotachy and ensure optimal use of the infrastructure capacity, for sections with limited capacity or congested sections, as defined in the NS, in the time slots with the highest density of use, the IM shall apply a mandatory additional charge component, related to the commercial speed assigned to each requested path. This charge component is applied, as a priority, to network type classes 1 and 2 defined in paragraph 4 of Measure 25 and to additional paths identified by the IM, taking into account operating model of the lines, existing alternative routes that are compatible with the required mobility needs, and results of the experimentation referred to under 5, without prejudice to the Authority's assessments.
3. Further, this additional charge component:
 - a) is quantified by the IM, according to a criterion of proportionality, on the basis of the opportunity cost linked to the increased capacity consumption of each section of the railway infrastructure by trains with commercial speed other than the vocational, current and prospective commercial speed, as identified *ex ante* by the IM for the same route in relation to the regulatory period, taking into account the market segment of the trains operated on the route, and any other elements, including quantitative elements, that the IM considers significant in that regard, in the light of substantiated and documented analyses in relation to rail traffic characteristics.

In this respect, the IM shall:

- provide the Authority, for the assessments under its remit, within the framework of the procedure referred to in paragraph 4.3, with any information, including quantitative information, aimed at explaining the methodology adopted for the identification of the spatial and temporal scope of the charge component in question, as well as for the quantification of the opportunity cost, including:

- i) graphic timetables;
- ii) calculation criteria of commercial speed and any other significant measure for quantification of the above opportunity cost, with determination of any threshold values;
- iii) examples of simulation of the application of component C1, per each train, to significant sections of the infrastructure;
- identify the vocational commercial speed of the concerned sections of the railway infrastructure, as well as the value of any other significant parameter for quantification of the above opportunity cost, in accordance with paragraph 4.3 1, publishing the results in the draft annual update of the NS and forwarding them to the Authority for its assessments, in the context of the procedure referred to in paragraph 4.3.

The above identification is based at least on the appropriately documented assessment of the following:

- i) operating model of the route and related pattern of stops;
 - ii) speed class of the route;
 - iii) actual heterotachy coefficient of the route, calculated according to international best practices;
 - iv) current and prospective prevailing traffic, including based on forecasts made by the IM for the regulatory period in the context of the same procedure referred to in paragraph 4.3;
 - v) specific objectives for optimisation of the use of infrastructure capacity, including after the implementation of requirement 2.4.3.1 of Annex A to ART Decision no 227/2022 of 30 November 2022;
 - vi) existing constraints to the optimisation of capacity in the sections or locations upstream and downstream of the route concerned, based on an operating model aimed at efficient and optimal use of the infrastructure;
 - vii) maximum speed of rolling stock operating on the route. In the case of routes belonging to Class 2 referred to in paragraph 4 of Measure 25, the vocational commercial speed is aimed at reflecting the maximum speed of the relevant rolling stock of the fastest trains operated on the route, with particular regard to the current and foreseeable competition in the market segments concerned, to avoid discrimination against applicants.
- b) is determined in accordance with the principles of transparency, equity, and non-discrimination, having regard to public service obligations and freight transport, providing the Authority with adequate documentary evidence, accompanied by full and comprehensive quantitative information;
 - c) is determined with reasonably simple procedures of application and possibility of pre-determination by the RU;
 - d) is not applied if the longer time of path occupation of the route is not related to choices of the RU, but to needs of the IM with exclusive regard to routings related to temporary unavailability of the infrastructure;
 - e) is accompanied by the annual publication in the NS of a list of the routes concerned, together with the data on available capacity and use, separately by time slots.
4. The IM is also required to publish annually, as part of the documentation supporting the NS, the list of routes subject to incremental pricing, as well as the traffic volumes concerned and the corresponding economic values resulting from the application of the sub-component in question, broken down by route and market segment of the basic structure referred to in Measure 24.
5. For the first regulatory period of application of these measures, the IM shall establish, when submitting the charging proposal, a time schedule for the entry into operation of charge component C1, providing for its gradual extension to the relevant network types under Measure 25, on the basis of:

- a) definition of a pre-operation testing period with no charge impacts, of a reasonable duration and in any case not exceeding 18 months from the deadline referred to in paragraph 4.3 (1), aimed at simulating its effects on the basis of the precise definition of both the spatial and temporal perimeter of progressive application and the methods of application, in accordance with the criteria referred to in this paragraph. For this testing period, the IM shall make available to the Authority any tool that is necessary to verify the effective functioning of the real-time application of the charge component;
 - b) communication to the Authority and stakeholders of the results of the testing – accompanied by any information, including quantitative information, aimed at their description – in the context of the ordinary update procedure of the NS, as regulated by ART Decision no 104/2015, for the issue of any specific indications and requirements in this regard.
6. The revenues related to charge component C1 do not contribute to the economic equilibrium of the IM as defined in Measure 6, but are intended for the financing, for the part not already covered by public contributions, of the capacity enhancement plans referred to in Article 33 of Legislative Decree No 112/2015, or for other projects aimed at increasing infrastructure capacity, with particular reference to routes with limited capacity or congested. Concerning the actual allocation of the revenues in question, the IM shall provide the Authority with adequate and exhaustive documentation, including quantitative documentation, for the assessments under its remit, as part of the procedure for setting, verification and entry into force of the charge of each new regulatory period referred to in paragraph 4.3.
7. The criteria for quantification and application of charge component C1 may be adjusted as a result of the proceeding referred to in paragraph 10.6 to consider both the quality of the services offered by the IM, based on the indicators identified therein, and the likewise planned verification of the priority criteria in the capacity allocation identified in the NS.

30.3 Environmental effects (C2)

1. Where the IM intends to apply this charge component, it shall apply it:
 - a) in the case of noise effects, including by using the bonus/malus formula and the modalities provided for by Commission Implementing Regulation (EU) 2015/429, if this is applicable after 31 December 2021. Its amount may be null (where maluses equal bonuses) or negative (where bonuses exceed maluses);
 - b) in the case of further and different environmental effects, where provided for by specific relevant legislation – also in relation to the objective of reducing greenhouse gas emissions and pollution, as outlined, *inter alia*, in the “Strategic Document on passenger and freight railway mobility” drawn up by the MIT pursuant to Article 5 of Legislative Decree No 152/2021 – in accordance with the procedures laid down in Article 37 (2) (a) of Legislative Decree No 201/2011, with due regard to the following principles:
 - i) production efficiency, including through strict compliance with the purposes of the regulatory system, as defined by these measures;
 - ii) cost containment for users, businesses, and consumers;
 - iii) transparency, equity, and non-discrimination between users.

30.4 ETCS INCENTIVES (C3)

1. Only for rail corridors referred to in Regulation (EU) 2016/919 of the European Commission of 27 May 2016, the IM differentiates the charges so as to grant incentives for the purposes of equipping trains with the control-command and signalling system, i.e. “European Train Control System” (ETCS), pursuant to article 18 (9) of Legislative Decree No 112/2015.

30.5 CHARGES BORNE BY REGIONS FOR INFRASTRUCTURE IMPROVEMENT (C4)

1. Any charges borne by Regions and Autonomous Provinces for infrastructure improvement, in compliance with the conditions of economic equilibrium laid down by the Authority, contribute to reduce the charges for PSO services covered by a Public Service Contract pertaining to the territorial scope of the entity paying the charges for such improvement.
2. This reduction is applicable only if it is clearly expressed, both with regard to its quantification and to the timing of its application, in the contracts for use of the infrastructure concluded between the IM and the RU holding a Public Service Contract, as well as in the relevant Framework Agreements, where provided.
3. The reduction is calculated in €/train-km and applied to trains covered by the Public Service Contract pertaining to the territory of reference.

30.6 Optimisation of travel time (C5)

1. The IM shall apply a mandatory additional charge component, which is negative and cannot be compensated in terms of charges, that is linked to the optimisation of the travel time of the scheduled paths upon allocation of the infrastructure capacity.
2. This negative additional charge component:
 - a) must provide for a reasonable and proportionate reduction of the charge, quantified by the IM based on the opportunity cost, for the applicant, linked to the difference between:
 - i) travel time calculated by the IM, for each train, based on the technical characteristics of the rolling stock used, in the case of a network with no constraints and disturbance related to the operation of other trains, taking into account, where necessary and on the basis of appropriate and exhaustive quantitative information provided by the IM to the Authority in accordance with paragraph 4.3 (1), any slowdowns resulting from maintenance needs planned *ex ante* for the different types of network as regulated in the NS;
 - ii) travel time resulting, for each train, from the planning of the service carried out by the IM upon definition of the timetable and allocation of the infrastructure capacity.
 - b) this reduction of the charge is applied in accordance with gradual criteria, starting from percentage threshold values of the travel time difference referred to under (a), differentiated for passenger and freight traffic; these are determined in accordance with the principles of reasonableness and proportionality by the IM on the basis of appropriate and exhaustive quantitative information which shall be transmitted to the Authority, in accordance with paragraph 4.3 (1), with respect to the actual traffic in the five years ending with the Base year, with reference to the average values of the travel time difference referred to in (a), disaggregated by market segment or sub-segment specified in Measure 24, class or sub-class of network type specified in Measure 25, time class or sub-class specified in Measure 26, also differentiated by individual railway undertaking.
3. As part of the annual capacity allocation process, the IM provides each RU with adequate information on the valorisation of component C5 for each train and on the difference between travel times referred to in (2) (a).
4. Every year, at the end of the capacity allocation process, the IM provides the Authority with all appropriate quantitative evidence to verify the correct application of the charging system referred to in this paragraph.
5. For the first regulatory period of application of these measures, the IM shall define, upon submission of the charging proposal, a timetable for the entry into operation of charge component C5, on the basis of:
 - a) definition of a pre-operation testing period with no charge impacts, of a reasonable duration and in any case not exceeding 18 months from the deadline referred to in paragraph 4.3 (1), aimed at simulating its effects on the basis of the precise definition of both the spatial and temporal perimeter of gradual application and the methods of application, in accordance with the criteria referred to in this paragraph. For this testing

period, the IM shall make available to the Authority any tool that is necessary to verify the effective functioning of the real-time application of the charge component;

- b) communication to the Authority and stakeholders of the results of this testing – accompanied by any information, including quantitative information, aimed at their description – in the context of the ordinary update procedure of the NS, as regulated by ART Decision No 104/2015, for the issue of any specific indications and requirements in this regard.
6. The criteria of quantification and application of charge component C5 may be adjusted as a result of the proceeding referred to in paragraph 10.6 to take into account both the quality of the services offered by the IM, based on the indicators identified therein, and the likewise planned verification of the priority criteria in the capacity allocation identified in the NS.

Measure 31 Regulatory criteria for sustainability of market segments

31.1 Obligations of the IM

1. Under article 32 (1) of Directive 2012/34/EU, the full recovery of the net efficient costs relating to the Minimum Access Package by the IM must be consistent with the sustainability of the railway market, while ensuring optimal competitiveness within the market segments. In addition, the charging scheme must comply with the productivity increases achieved by railway undertakings.
2. In this regard, taking into account the market situation and the productivity increases achieved by the RUs and having regard to the traffic forecasts referred to in paragraph 8.2, for the purposes of the Authority's checks on the charging scheme pursuant to Article 37 (2) (c) of Legislative Decree No 201/2011, as well as in accordance with Article 37 (2) (d), (3) and (6) of Legislative Decree No 112/2015, the IM shall provide any possible evidence of the ability-to-pay of the market segments building the basic structure referred to in Measure 24, *inter alia*, by transmitting to the Authority, within the deadlines for submission of the charging system referred to in paragraph 4.3, the results concerning the following:

- a) application of simulation models of passenger and freight transport suitable for determining, *inter alia*, the elasticity of the demand for retail services in relation to the price variation, also considering the decision-making processes of transport operators, with particular regard to the procedure for transferring their costs on retail prices to users, taking into account the competition conditions between the different modes of transport.

These models, based on the best practices acknowledged at EU level and providing for documented stakeholder involvement, are developed by third parties with respect to the IM and selected by the latter through appropriate procedures, so as to ensure the necessary independence requirements both in the data acquisition and in their processing. Based on operational arrangements agreed with the Authority's offices, these models shall be updated annually, in accordance with the general principles set out in this Measure.

The results of the application of these models, which are developed based on qualitative and quantitative objectives of the infrastructure management, must be accompanied by supplementary documentation clearly showing the methodology, the results, represented by measurable indicators, as well as the methods of development, adjustment and ensuing updating, and – by the entities responsible for their processing – the technical and economic data used for their implementation.

For the same models, full accessibility by the Authority's offices shall be also provided for their verification and control, including the possibility of requesting an appropriate number of specific processing, with costs to be borne by the IM;

- b) supporting direct inquiries (questionnaires, interviews), aimed at establishing the demand function in one or more of the following ways:
 - i) directly requesting the willingness to pay for a specific case of transport (*direct price inquiry*);

- ii) making respondents express their preference in a hypothetical and exogenous market situation (also *stated preferences*);
 - iii) collecting *ex-post* statements or data on behaviour in real market situations (*revealed preferences*);
3. The IM shall provide the Authority – when fully operational, by 15 April of the Bridge year and, for the first regulatory period of application of these measures, within 30 days of the date of their publication – with a non-binding information document setting out the methodology being adopted for the analyses referred to in paragraph 2, including: (i) type of data used (including traffic forecasts) and their sources; (ii) parties involved in the provision of data and modelling; (iii) any preliminary results of the calculations.
4. The IM shall also submit to the Authority, within the time limits for the submission of the charging system referred to in paragraph 4.3, the results of the measurement, broken down by market segment or sub-segment referred to in Measure 24, class or sub-class of network type referred to in Measure 25 and for each year of the regulatory period, of the deviation between:
 - i) (total and unit) traffic revenues resulting from the application of the adopted modulation of charges;
 - ii) (total and unit) costs gathered from the regulatory accounts in the Base year, relating to the real train routing, due to the technical differences and the different value of the railway infrastructure used.
5. To verify the existence, in the regulatory period, of the ability-to-pay of market segments as resulting from the *ex ante* analyses, as part of the procedure for the ordinary update of the NS, the IM shall provide the Authority with an annual update of the results of the application of the tools referred to in paragraph 2.

31.2 Frames of maximum variability of average unit charges

1. In addition to complying with the obligations referred to in paragraph 31.1 for the regulatory period 2024 - 2028, the IM shall apply the following maximum average charging level for the MAP, in compliance with the general constraint for recovery of only relevant, documented and efficient net costs, in accordance with the criteria referred to in Measure 6 and based on the evidence of audited regulatory accounts:
 - a) the average unit charge for the *Open Access Premium* passenger market segment may not exceed that in force in 2022 for the same set of services;
 - b) the average unit charge for the passenger market segment subject to public service obligations may not exceed that in force in 2022 for the same set of services;
 - c) the average unit charge for the freight market segment may not exceed that in force in 2022 for the same set of services.
2. Without prejudice to paragraph 30.2, the maximum average charging levels referred to in paragraph 1 may be departed and increased, including in a differentiated manner for the market segments referred to under (a), (b) and (c), to a maximum amount of 20%, ensuring adequate graduality in the regulatory period, in the light of the results of the analyses carried out by the IM in accordance with the obligations referred to in paragraph 31.1 and the ensuing verifications by the Authority, subject to the following conditions:
 - a) the ability-to-pay of the market segments affected by the frames of variability referred to in paragraph 1 is higher than the charging level resulting from the application of the frames of variability, and
 - b) the ability-to-pay of the market segments excluded from the application of the frames of variability referred to in paragraph 1 is lower than the charging level resulting from the application of the frames of variability to the market segments concerned.
3. The average kilometre charges relating to the maximum average charging levels referred to in paragraph 1, for the purpose of their compliance with the model in the regulatory period, are taken in real terms and therefore adjusted annually to the planned inflation rate, starting from the respective year of reference.
4. With reference to the component B of the charge, referred to in Measure 29, within each market segment or sub-segment referred to in Measure 24, the average unit levels referred to in paragraph 29.5 relating to the component

$B(B_{j,k,h,t})$ may not deviate by more than 100% (in case of increase) and 50 % (in case of decrease) from the overall average unit level referred to in paragraph 29.3 concerning the same segment or sub-segment ($B_{j,t}$).

5. Following the procedure referred to in paragraph 10.6, the application of significant charge increases to each market segment, as compared to the average unit charge in force in 2022, taking into account the provisions of this measure, may be conditional on the achievement of specific objectives for improvement of the quality of services, without prejudice to the Authority's assessments.

Measure 32 Monitoring tools

1. In order to enable the Authority to check and monitor the application of the new charges, the IM prepares, by the date of submission of the charging proposal, an appropriate simulation scheme of the application of the charge, which shows, for each year of the regulatory period, at the same level of disaggregation of the traffic forecasts adopted for the pricing, the effects of the application of the new charge list on the costs for access to infrastructure for each type of service and with reference to the individual RUs, compared to the existing system, in terms of total and unit average amounts of the charges.
2. The Authority annually collects information from the RUs about their revenues and operating costs, for the purpose of monitoring the sustainability of the charges for the different market segments.

Relevant, in this respect, is the information concerning the detail, disaggregated by each basic market segment referred to in Measure 24, of the positive and negative economic components as necessary for the setting of tier 1 and tier 2 contribution margin, such as:

- a) traffic revenues, including revenue from ticket sale;
 - b) production and management costs, as well as commercial and administrative costs, divided into variable costs and direct fixed costs, including machine costs, spare costs, current maintenance costs, cyclical maintenance costs, cleaning costs, traction energy costs, ticket distribution costs, shunting costs, charges, rolling stock depreciation.
3. Also in order to have adequate tools for its checks on the IM's charging proposal, the Authority regularly conducts in-depth analyses into the future mobility needs of rail users, including by requesting information to all possible stakeholders.
 4. The information collected annually according to the forecasts referred to under 2 may be useful for the purpose of verifying the priority criteria identified in the NS for capacity allocation, as part of the procedure referred to in paragraph 10.6.

Measure 33 Revenue sharing

1. As from the regulatory period following the first period of application of this regulatory act, with reference to the MAP:
 - a) where the variation of final traffic revenues resulting at the end of the past regulatory period is positive and greater than a pre-determined threshold of + 2%, a percentage equal to 50% of the amount of the revenues exceeding such threshold shall be entered as a notional item to deduct the costs allowed for the following regulatory period;
 - b) where the variation of final traffic revenues resulting at the end of the past regulatory period is negative and lower than a pre-determined threshold of -2%, a percentage of 50% of the loss of revenue below such threshold may be entered as a notional item to increase the costs allowed for the following regulatory period.
2. This amount shall be calculated as the difference between:
 - a) revenues arising from the charge provided *ex ante* for each year, applied to the actual final traffic;

- b) revenues, increased/reduced by 2 % (threshold revenues) resulting from the charge in force in each year, applied to *ex ante* traffic forecasts.
3. On a transitional basis, for the purposes of submitting the charging system referred to in paragraph 4.3 (1), relating to the first period of application of this regulatory act, the following shall apply:
- a) where the variation of final traffic resulting at the end of the previous regulatory period is positive and exceeds a pre-determined threshold of + 2%, a percentage of 50% of the margins attributable to the traffic exceeding such threshold shall be entered as a notional item to deduct the costs allowed for the following regulatory period;
 - b) where the variation of final traffic resulting at the end of the past regulatory period is negative and lower than a pre-determined threshold of -2%, a percentage of 50% of the lost margins attributable to traffic below such threshold may be entered as a notional item to increase the costs allowed for the following regulatory period.

This margin is calculated as the difference between:

- a) revenues arising from the charge in force in each year, applied to the actual final traffic;
- b) revenues arising from the charge in force in each year, applied to *ex ante* traffic forecasts as increased/reduced by \pm 2% (threshold revenues).

Measure 34 Incentives

1. Pursuant to Article 18 (3) of Legislative Decree No 112/2015, without prejudice to the economic and financial equilibrium referred to in Measure 6, the IM may apply reductions of the charges imposed on the RUs, in compliance with Article 18 (11), (12), (13) and with the provisions referred to in paragraph 18 (5).
2. The IM shall provide for the *ex ante* definition of the incentive strategies it intends to adopt in the regulatory period, through the drafting of a document, to be transmitted to the Authority in accordance with the provisions of paragraph 4.3 (j), including at least the following information, in accordance with principles of reasonableness and proportionality to be adequately explained and justified therein, and on the basis of the information available to the IM at the time of the proposal:
 - a) list of underutilised lines or routes of its network, providing for grouping by classes in the light of the different level of their underutilisation;
 - b) list of lines or routes that are potentially concerned by the development of new rail services, also in the light of the railway infrastructure development strategy defined by the State, referred to in Article 1 (7) of Legislative Decree No 112/2015.
3. If it intends to apply one or more reductions of the charges provided for in this Measure, the IM shall do so on the basis of the incentive strategies referred to in paragraph 2, and shall publish them annually in the NS in accordance with the following terms and conditions:
 - a) in the context of the ordinary update procedure of the NS, as governed by ART Decision No 104/2015, the IM:
 - i) for the implementation of the *ex ante* incentive strategy for the regulatory period referred to in paragraph 2, defines and publishes, at the same time as the first draft of the NS, the list of network sections concerned and the extent of the charge reductions it intends to apply for the timetable covered by the NS, together with the relevant criteria of application, including all the information necessary to ensure that, in the context of the consultation of interested parties referred to in Article 14 (1) of Legislative Decree No 112/2015, these parties are given the opportunity to express their position in this respect.

For this purpose, the IM provides at least the following information: relevant market segment, railway lines or routes concerned, time classes concerned, type of incentive scheme and its purpose, extent of the planned charge reduction;

- ii) forwards to the Authority, at the same time as the final draft of the NS, the above-mentioned documentation regarding charge reductions, updated following the above-mentioned consultation and accompanied by all the necessary information to allow the Authority to verify their compliance with the criteria set out in this Measure;
- b) in accordance with the deadlines laid down in Article 14 of Legislative Decree No 112/2015, the IM publishes its NS, by including therein the services concerned and the extent of the charge reductions it intends to apply for the working timetable covered by the NS, as well as the relevant criteria of application, taking into account any indications and requirements provided by the Authority in this respect.

TITLE 3 NATIONAL RAILWAY INFRASTRUCTURE– OTHER SERVICES

Chapter 1 General principles

Measure 35 Regulatory purpose

1. With respect to Measure 1 (b), the Authority, in accordance with Legislative Decree No 112/2015, adopts regulatory measures aimed at:
 - a) ensuring effective, equitable, and non-discriminatory access to service facilities and railway services;
 - b) introducing for those services which, for technical or economic reasons, are supplied by a single provider or are otherwise scarcely competitive, methods that encourage cost efficiency by the operators of service facilities;
 - c) establishing a transparent framework of reference that ensures better visibility of the economic terms of the supply to operators of service facilities, railway undertakings and other applicants.

Measure 36 Scope

1. The facilities and services referred to in Measure 1 (b) are divided into the following type classes and sub-classes, based on the provisions of Directive 2012/34 EU in conjunction with the relevant Italian legislation transposing the Directive:
 - a) facilities referred to in paragraph 2 of article 13 of Legislative Decree No 112/2015, listed below, and services supplied therein:
 - i. passenger stations, with respect to the facilities for travel information systems and suitable locations for ticketing services and other facilities functional to and necessary for railway operation;
 - ii. freight terminals;
 - iii. marshalling yards and train formation facilities, including shunting facilities;
 - iv. areas, facilities, and buildings for parking, shelter and storage of rolling stock and freight;
 - v. maintenance facilities, except for heavy maintenance facilities for high-speed trains or other types of rolling stock requiring specific facilities;
 - vi. other technical facilities, including cleaning and washing facilities, and train toilet discharge systems;
 - vii. maritime and inland port facilities which are linked to railway activities;
 - viii. relief facilities and equipment;
 - ix. refuelling areas or facilities, the charges of which shall be shown on the invoices separately.

- b) Services referred to in paragraph 9 of article 13 of Legislative Decree No 112/2015, so-called Additional services:
 - i. traction current, the charges of which shall be shown on the invoices separately from charges for using the electrical supply equipment, without prejudice to the application of Directive 2009/72/EC;
 - ii. pre-heating of passenger trains and water refilling of trains;
 - iii. control of transport of dangerous goods;
 - iv. assistance in running abnormal trains;
 - v. shunting services.
- c) Services referred to in paragraph 11 of article 13 of Legislative Decree 112/2015, so called Ancillary services:
 - i. access to telecommunication networks;
 - ii. provision of supplementary information;
 - iii. technical inspection of rolling stock;
 - iv. ticketing services in passenger stations;
 - v. heavy maintenance services supplied in maintenance facilities dedicated to high-speed trains or to other rolling stock requiring specific facilities.

Measure 37 Level of competition in the management of facilities and in the provision of services

1. In order to determine which facilities are managed and which services are offered under scarce competition, the Authority applies market power test procedures, usually used in other regulated sectors, based, *inter alia*, on the following criteria:
 - a) verification that the person managing the facility or providing the service has, or will probably acquire, a significant market power (this criterion being based on a competitive analysis of the relevant market, both in product and geographic terms, independence of operators from RUs with market power (also in terms of *de facto* control), transparency of the economic and technical conditions for the provision of services, existence of equally valid alternatives, assessment of any barriers to entry, etc.);
 - b) verification that the rules governing competition do not have sufficient deterrent effect to provide protection against the risk of abuse (existence of complaints and their outcomes); and
 - c) verification that the benefits of regulation outweigh the negative effects, in economic terms or otherwise, for the users of services in the market where the undertaking operates.
2. Until full application of the market power test, the entity with a significant market power, with reference to the type sub-classes under Measure 36, shall mean the operator that:
 - a) holds a share of production capacity volumes exceeding or equal to 50% on a national basis, either directly or through other entities that are controlled, also *de facto* (pursuant to the provisions of Article 2359 of the Civil Code), by the operator itself or by the controlling economic entity.
 - b) although not holding a share of production capacity volumes exceeding or equal to 50%, manages facilities or services which, for at least one third of the years since their startup, were subject to saturation, so that it was not possible to properly meet, at least once in each of those years, requests for access or supply.
3. The operator of the service facility (hereinafter, in short, also facility operator) exceeding one or both a.m. thresholds may in any case request more in-depth analysis for specific facilities or services, providing the necessary information to prove that for such facilities or services the criterion referred to in paragraph 1 (a) is not satisfied. To identify the nature of the information to be provided, the facility operator may refer to that required under paragraph 5.1 (b) of Annex A to ART Decision No 130/2019.

4. Within 6 weeks of receipt of the above information, the Authority shall determine whether the conditions to start a specific assessment procedure are in place, at the same time providing, if necessary, for the suspension of the additional obligations for the facility operators with significant market power.

Measure 38 Type of service facility operator

1. For the purpose of regulating the economic conditions of supply, the following two types of facility operator are identified, also in line with the criteria usually applied for market power tests:
 - a) **TYPE A**
 - i) cases where the operator is the only entity which, on the national railway infrastructure operates facilities or provides services falling under one of the type sub-classes referred to in Measure 36, or in segments of those sub-classes whose facilities or services are not mutually replaceable;
 - ii) passenger station managers, as defined in paragraph 2 (c) of Annex A to ART Decision No 130/2019;
 - iii) facility operators of the Ferrovie dello Stato S.p.A. group (FSI) or in any case subject to direct or indirect control by a controlling body within the meaning of Article 3 (7) of Regulation (EU) 2017/2177, which operate facilities or provide services falling under the types referred to under (a), sub. ii), v), vii) and (b), sub. v) of Measure 36, where one or both thresholds referred to in paragraph 2 of Measure 37 are exceeded, without prejudice to the possibility of requesting more in-depth market power analysis within the meaning of Measure 37 (3);
 - iv) additional facility operators whose significant market power is assessed based on the market power test procedure under Measure 37;
 - b) **TYPE B:**
 - i) facility operators not covered by the cases referred to under type A.
2. The same facility operator may fall under type A with reference to some of the facilities it operates or of the services it provides, and under type B for the others.

Measure 39 Regulatory methodology

1. For facility operators falling into Type B, the Authority sets simplified criteria of economic regulation, in terms of procedures and costs of implementation, based on the principle of equitable and non-discriminatory access to service facilities and railway services.
2. For facility operators falling into type A, in addition to the criteria and obligations applied to type B, the Authority sets additional efficient cost-orientation criteria and specific requirements concerning transparency, pre-determination of charges over a five-year period and regulatory accounting.

Measure 40 Regulatory period

1. With regard to the duration of the regulatory period:
 - a) for facility operators falling under Type A, reference is made to the provisions under Measure 3 and Measure 2 (a);
 - b) for facility operators falling under Type B, the publication of information on the charges for a multi-year or annual period is allowed.
2. At each change in the list, the operator of the facility ensure that the new charging levels do not exceed the cost of providing the service, plus a reasonable profit, in case of facilities or services referred to under of Measure 36 a) or in case of facility operators falling under Type A.
3. In the case of a multi-year regulatory period, the operator of the service facility notifies the Authority in advance, and at the same time publishes in the service facility description, or in an annex thereto, the description of the

rules determining the development of the charges for the period at issue, in accordance with the provisions under Measure 41 and Measure 42, where applicable. During the regulatory period, where cost developments point to inefficient management or where non-reasonable profits are generated, the Authority may request to the facility operator the advance review of the charges, pursuant to article 37 of Legislative Decree No 112/2015.

Measure 41 Transparency obligations and notice of charge variation

1. In order to comply with the principles of transparency and non-discrimination, by mid-December of the Bridge year (T_0), as defined in Measure 42, the facility operator of Type A publishes in the service facility description, or in an annex thereto, the general report and the price list referred to in paragraph 42.8 (1) (a) and (e), in accordance with commercial confidentiality requirements, if any.
2. In the event of exogenous or unpredictable variation of unit costs, the facility operator under Type A may modify the charging level even after the expiry of the above-mentioned deadline, communicating the reasons thereof to the Authority and to the applicants that have already requested access to the facility or provision of the service, and by updating accordingly the service facility description, at least three months in advance.

Measure 42 Procedure and methodology for setting the charging dynamics

42.1 General features

1. This measure applies to facility operators falling under Type A. These facility operators adapt their charging systems with effect from 1 January 2024, and comply with the relevant information requirements, taking 2023 as Bridge year (T_0).
2. The dynamics of charges during the relevant regulatory period must be determined, on the one hand, in relation to cost evolution and, on the other, to the level of use of the facilities and to the production volumes of services, by applying the procedure and methodology described below.

42.2 Definitions

1. For the purposes of this Title, the following relevant periods are identified:
 - a) Base year (T_{-1}): year for which the balance sheet data of the facility operator are taken for the construction of the regulatory accounts, for the purpose of drawing up the charging system for each year of the five-year regulatory period, in accordance with the criteria set by the Authority and subject to the exceptions provided for in Measure 3;
 - b) Bridge year (T_0): year in which the charging system is drawn up by the facility operator in accordance with the criteria set by the Authority, as communicated to the Authority and published in the service facility description referred to in Implementing Regulation (EU) 2017/2177, both with regard to the first year of the regulatory period (T_1) and to the remaining years;
 - c) first year of the five-year regulatory period (T_1), in which the charges in force in year (T_0) are applied on a provisional basis, increased by the planned inflation rate;
 - d) remaining years of the five-year regulatory period (T_2-T_5), in which the charging system is regularly in force, ensuring the overall cost orientation for the facility operator over the regulatory period, considering the application of the provisional regulatory regime for year T_1 .

42.3 Procedure for establishment and entry into force of the charging system

1. The charging system enters into force on 1 January of year T_1 , starting date of the multi-annual regulatory period; however, the "provisional scheme" applies from that date until 31 December of the same year, with the application of the charges already in force in the Bridge year (T_0), increased by the planned inflation rate, as

resulting from the economic and financial planning documents approved and published by the national government by the end of June of year T_0 .

2. The facility operator shall identify, in respect of year T_1 , a notional item PF_1 , consisting of any difference between:
 - a) amount of the charges obtained by applying the "provisional scheme" for year T_1 , taking as the calculation basis the forecasts on use of capacity and production volumes of the services that are developed in the construction of the charge for the same period;
 - b) amount of charges for the same year T_1 and for the same levels of use and production, calculated according to the methodology described in this Measure.
3. For the purposes of the charge construction, this value of the notional item is then used to determine an additional (positive or negative) component of the charge, to be distributed on the levels of use and production volumes planned for the remaining four years of the regulatory period, by ensuring financial neutrality, with a modulation that is consistent with that adopted by the facility operator for the charges calculated for that period.

42.4 Forecasts of level of use of the facilities and volumes of service production

1. The evolution of the level of use of the facility and of the production volumes of the services shall be estimated for the entire regulatory period by the operator of the service facility on the basis of:
 - a) for the IM in its function as facility operator, the methodology set out in Measure 8;
 - b) for the other facility operators, a thorough analysis considering, where available, the traffic estimates adopted by the IM for the setting of the MAP charges referred to in Title 2, and made public pursuant 4.3 (6).

42.5 Operating costs

1. Without prejudice to paragraph 42.8, the facility operator ensures that the annual estimate of the operating costs, for each year of the regulatory period, does not exceed the calculated value, starting from the quantification in the previous year, in accordance with the following procedure:

$$C_{o,(t)} \leq \left[C_{v,(t-1)} \cdot \frac{U_{o,(t)}}{U_{o,(t-1)}} + C_{f,(t-1)} \right] \cdot (1 + I_{(t)} - X_{(t)})$$

in which:

$$C_{v,(t-1)} + C_{f,(t-1)} = C_{o,(t-1)}$$

where:

- $C_{o,(t)}$ total operating costs in year t ;
- $C_{o,(t-1)}$ total operating costs in year $(t-1)$;
- $C_{v,(t-1)}$ variable operating costs in year $(t-1)$;
- $C_{f,(t-1)}$ fixed operating costs in year $(t-1)$;
- $U_{o,(t)}$ billing units planned for year t (according to the specific activity performed: e.g. square meters, hours, etc.);
- $I_{(t)}$ planned inflation rate for year t , resulting from the economic and financial planning documents approved and published by the national government on the date of submission to the Authority of the documentation referred to in paragraph 42.8 or, for the national railway infrastructure manager, in paragraph 42.9;

$X_{(t)}$ targeted annual efficiency rate on operating costs.

2. Until further determination by the Authority, the value of $X_{(t)}$ is assumed equal to the minimum value between 50 % of the planned inflation rate, for each year of the regulatory period, and the annual efficiency rate set for the national railway infrastructure manager under Measure 10.
3. The difference between variable and fixed operating costs (with respect to changes in production levels) is based on an analytical examination of the nature of the cost components and production process in which they are generated.

42.6 Capital costs

1. With regard to capital costs $C_a + C_{rc}$, the operator of the service facility ensures that the corresponding annual estimate is such to equal the following values:

$$C_{a,(t)} = \sum_{i=1}^n I_{i,(t)} \cdot a_{i,(t)}$$

$$C_{rc,(t)} = CIN_{(t)} \cdot r$$

where:

$C_{a,(t)}$ depreciation costs, calculated as at 1 January of year t ;

$I_{i,(t)}$ net book value, as at 1 January of year t , relating to the specific type of fixed assets (i), and eligible for depreciation in year t ;

$a_{i,(t)}$ depreciation rate applicable to the same type of fixed assets (i), taken by the facility operator for the same year t based on the criteria set out in Measure 46;

$C_{rc,(t)}$ return on net invested capital, calculated as at 1 January of year t ;

$CIN_{(t)}$ value of net invested capital, quantified as provided for under Measure 45, as at 1 January of year t ;

r nominal rate of return on invested capital referred to in Measure 44.

2. The net book value of fixed assets, which is a reference for the calculation of depreciation and net invested capital, quantified at the Base year in accordance with Measure 45, evolves annually, in general, according to the following dynamics:

$$I_{a,t} = I_{a,(t-1)} + L_{ic,(t-1)} + V_{(t-1)} - C_{a,(t-1)} \pm R_{(t-1)} \pm \Delta_{vr,(t-1)}$$

where:

$I_{a,t}$ self-financed fixed assets as at 1 January of year t ;

$I_{a,(t-1)}$ self-financed fixed assets as at 1 January of year $t - 1$;

$L_{ic,(t-1)}$ fixed assets increases following works (already in progress), completed and entered into operation in year $(t - 1)$;

$V_{(t-1)}$ new fixed assets completed and entered into operation in year $(t - 1)$;

$C_{a,(t-1)}$ depreciation costs recorded in year $(t - 1)$;

$R_{(t-1)}$ adjustments (increases and/or decreases in fixed assets) entered in year $(t - 1)$;

$\Delta_{vr,(t-1)}$ increase or decrease in the infrastructure residual value at the end of the concession (if any), entered in year $(t - 1)$.

42.7 Charge component related to notional items

1. To ensure a gradual evolution of charges, it is possible to provide *ex ante* for the inclusion, for each year of the regulatory period, of positive or negative notional items, so as to anticipate or postpone the economic effect of the allocation of the eligible costs with respect to the year of accrual, provided that the principle of economic and financial neutrality within the regulatory period is complied with. In accordance with that principle, the balance of the notional items shall equal zero within the same period, discounting the corresponding annual amounts at the nominal rate of return on capital.
2. In accordance with the provisions of paragraph 42.3 of this Measure, only the notional entry PF_1 , as defined therein, is applicable in the first year of each regulatory period.

42.8 Information obligations towards the Authority

1. Without prejudice to the provisions under paragraph 42.9 concerning the IM, by mid-December of the Bridge year T_0 the facility operator submits to the Authority, for the purposes of monitoring the application of the criteria set out in this Chapter, the charging system for the years T_1 through T_5 , developed in accordance with the criteria set by the Authority and accompanied by the following documentation, provided in digitally signed, editable electronic form:
 - a) general report describing how the charges and fees requested in the regulatory period have been determined, also in disclosable form, including:
 - i) summary information on the reporting of costs and revenues resulting from the regulatory accounts of the Base year, sent to the Authority pursuant to Measures 60 and 63, and in particular: indication of the main cost items (operating costs, depreciation, return on invested capital) and total revenues for each service, facility or group of facilities subject to accounting separation;
 - ii) in the event that the operator provides access to service facilities and it is excessively burdensome to draw up separate accounts for each service facility or for categories of facilities identified in accordance with the provisions under Measure 58 and Measure 62: report explaining, on the basis of the analysis of the production process and of the relations between costs and easily measurable parameters (such as surface of the areas used or number of employees), as well as of the distribution of demand, whether it is possible to estimate significant differences in unit costs between one service facility and the other, and in this case quantify those differences;
 - iii) summary information on the level of use and actual production volumes for the Base year, planned for each year of the regulatory period, as well as on the estimation methodologies adopted;
 - iv) explanation of the assessments carried out in accordance with paragraph 42.5 of this Measure on the fixed or variable nature of operating costs;
 - v) explanation of the choices to determine the adopted charges, and the criteria used for that purpose, giving evidence of the consistency with the provisions of Measure 48;
 - vi) in the event that the facility operator provides both access to service facilities and services in such facilities: information on the possible self-supply of services and on the applicable economic conditions, with regard to the entire regulatory period;
 - vii) where, due to the specific characteristics of the production process, the formula referred to in paragraph 42.5 does not adequately reflect the dynamics of operating costs: report detailing the changes made to the formula and reasons for these changes;
 - viii) with reference to the dynamics of operating costs, in the case of production factors for the prices of which a significantly different development can be expected other than that of the inflation rate, and for which the operator of the service facility does not consequently consider that the methodology described in this Measure is applicable: description of the changes made to this methodology and explanation of the underlying reasons;

- b) report setting out, for the parts of the general report referred to under (a) that are deemed not to be disclosable, the related commercial confidentiality requirements;
 - c) regulatory financial plan for the regulatory period, drawn up for each type sub-class referred to in Measure 36 on the basis of the format set by the Authority, including a report on its contents, with particular reference, *inter alia*, to the criteria used to define the calculation parameters;
 - d) document on efficiency performance, outlining:
 - i) planning and measurement of efficiency performance, with reference to the new regulatory period, including the activities to be carried out in order to achieve the required efficiency objectives, with details of the individual actions and quantitative evidence, for each of them, of the economic performance to be achieved;
 - ii) reporting, with reference to the regulatory period that is coming to an end, of the activities carried out to achieve the required efficiency objectives, with details of the individual actions and quantitative evidence, for each of them, of the economic results achieved;
 - e) list of charges for each year of the regulatory period, including the individual unit charging components determined by the operator for each facility or service, and reduction schemes offered to applicants;
 - f) forecasts on the level of use and production volumes of services for each year of the regulatory period referred to in paragraph 42.4, set out at the necessary level of disaggregation to reconstruct the process of revenue determination starting from the individual unit charge components set by the operator for each facility or service, and accompanied by a report on the methodology adopted; this report shall also contain data comparing the forecasts made for the previous regulatory period with the actual levels of use or production volumes and, in case of significant deviations, an analysis of the causes of such deviations;
 - g) simulation of the effects of the application of the charging system on the costs for individual applicants, based on the level of use and actual volume of production in the Base year, and comparison with the existing system.
2. In the event of a change in the charges during the regulatory period, pursuant to Measure 41 (2), the facility operator transmits to the Authority, within three months as provided for therein, updates of the documentation referred to in (1) as deemed necessary.

42.9 Procedure of setting and verification of the charges set by the IM

1. The determination of the charges set by the IM for the regulatory period, in its function as facility operator under Type A, follows the procedure described in this Measure, supplemented as follows:
- a) the deadline by which the IM submits to the Authority the charging system for the years T_1 through T_5 , drawn up in accordance with the criteria established by the Authority and accompanied by the documentation referred to in paragraph 42.8, is 30 June of the Bridge year (T_0); by the same date, the IM, in the context of the procedure for the ordinary update of the NS, as governed by ART Decision No 104/2015, publishes the general report and the price list referred to in paragraph 42.8 (1) (a) and (e), in compliance with commercial confidentiality requirements, if any;
 - b) by 30 November of the Bridge year, the Authority, having carried out the necessary checks, delivers its decision on the compliance of the charging system with the Authority's principles and criteria (prescribing, if deemed necessary, any remedial measures) and authorises its publication;
 - c) by the deadline laid down in Article 14 (5) of Legislative Decree No 112/2015, the IM publishes its NS, including the list of charges resulting from the application of the methodology referred to in this Measure, as well as, with regard to year T_1 , the list of charges resulting from the application of the provisional scheme referred to in paragraph 42.3. Where necessary, it shall update the general report referred to in paragraph 42.8 (1) (a), with a view to its publication, as required under Measure 41.

42.10 Annual update of the charging levels

1. In each year of the regulatory period, within 60 days of the approval of the financial statements, the facility operator re-assesses the dynamics of the operating costs referred to in paragraph 42.5, for the remaining years of the regulatory period following the current year, updating the planned inflation rate $I_{(t)}$ on the basis of the latest available Economic and Financial Document, and recalculates the targeted annual efficiency rate on operating costs, as well as the level of charges for the same years. The service facility description is updated accordingly.
2. For the IM, in its function as facility operator under Type A, the deadline for the application of the provision under (1) is 30 June of each year of the regulatory period.

Chapter 2 Costing

Measure 43 Cost of providing the service and reasonable profit

1. Without prejudice to the provisions under Measure 45 (4), the Measures of this Chapter shall apply to facility operators falling under Type A.
2. The provision in the first sentence of Article 17 (11) of Legislative Decree No 112/2015, according to which the charges requested for the provision of additional and ancillary services by a single supplier may not exceed the cost of their supply, plus a reasonable profit, applies even if those services are offered by other facility operators under Type A.
3. The cost of providing the service includes operating costs pertaining to the production of the service, in accordance with the allocation and eligibility criteria set out in Measure 15, as well as depreciation calculated on fixed assets associated with the production; their values of reference are determined in accordance with the criteria set out in this Chapter.
4. The measure of reasonable profit, as defined under Article 3 (aa) of Legislative Decree No 112/2015 is the value of the rate of return on net invested capital (NIC) that is set by the Authority according to the provisions below.

Measure 44 Rate of return on invested capital

1. The Authority determines the return on invested capital payable to the facility operators referred to in this Chapter by applying the weighted average cost of invested capital (WACC) methodology under Measure 20. Notional parameters are estimated with reference to national or European undertakings operating in rail service facilities or in comparable sectors.
2. All variables for WACC calculation shall be calculated by the Authority in accordance with the criteria set out in this Act and made available to the facility operator within 30 days of the date of the relevant request, which the operator shall submit to the Authority within a deadline that is consistent with the charge construction.

Measure 45 Values of reference for calculation of capital costs

1. For the allocation and eligibility of capital costs for regulatory purposes (depreciation and return on invested capital), the operator of the service facility refers to the Net Book Value of fixed assets, i.e. cost values on a historical basis, increased by any increases (including improvements and extraordinary maintenance) or decreased due to impairment losses, net of any public contributions and depreciation allowances. The provisions of Measure 16 (1) (e) and (3) shall apply. The remaining provisions of Measure 16 shall apply only to the IM, and are justified with the need for harmonisation with the criteria adopted for the minimum access package.

2. For the calculation of the Net Invested Capital, reference is made to Measure 18 (1), except for the provisions under (a) iii) and (e), which apply only to the IM and are justified with the need for harmonization with the criteria adopted for the minimum access package.
3. Notwithstanding the provisions under (1), when determining capital costs, fixed assets financed by public contributions may be taken into account in the following cases:
 - a) if the public contribution was paid in the form of (direct or indirect) increase in share capital;
 - b) if the date of granting of the public contribution is prior to the date of access of private entities – in return for consideration – to the capital of the operator of the service facility and this access took place before the entry into force of Decision No 96/2015. In fact, in this case, the purchase price of the shares by private parties - based on the discounted flow of the expected profits - includes part of the value of the assets financed by public contributions.
4. With reference to the assets transferred from Rete Ferroviaria Italiana S.p.A. (RFI) to Trenitalia S.p.A. and FS Logistica S.p.A., pursuant to Directive of 7 July 2009 of the President of the Council of Ministers, the cost of capital related to such assets may be taken into consideration to determine the charges for the services, taking into account, as a deduction, any contributions on plant and equipment to RFI, for the realisation of assets or improvements/extraordinary maintenance prior to the transfer. The service facility operators managing the above assets publish, at each change of their list, separate and detailed accounting evidence of such assets, their transfer value and net and depreciation values, also highlighting the part of historical cost and increases in value that may have been deducted to take account of public contributions, including those prior to the above-mentioned transfer. For these facilities, separate accounts are prepared annually to be included in an additional column, for each type of service supplied therein, in the accounting schemes referred to in Annex 3.
5. The identification of eligible fixed assets should take account of the actual use of the facilities.
6. In the case of operators of service facilities carrying out also other activities (e.g. in the case of the IM RFI), the identification of the fixed assets associated with the production of the service requires the operator of the service facility to implement separate regulatory accounts not only for operating costs, but also for balance sheet items, so as to allocate the assets to the different services provided and split any common assets according to appropriate allocation criteria.

Measure 46 Depreciation rates and service lives

1. Operators of service facilities refer to the methods and depreciation rates according to the domestic (OIC) or international (IAS-IFRS) accounting principles applied.
2. For reasons of harmonization with the criteria applied for the minimum access package, the RFI operator of the service facility applies the same depreciation method provided for therein.

Chapter 3 Pricing

Measure 47 Cost orientation

1. For all facilities and services referred to under Measure 36 (a), and for services referred to under (b) and (c) of the same Measure provided by operators of service facilities falling under type A, the charges are determined on the basis of the relevant costs underlying the operation of the facility or the provision of the service.
2. For the RFI operator of the service facility, charges are determined by applying the same method referred to in Measure 6.

Measure 48 Options concerning criteria for setting charges

1. For the facilities and services referred to in Measure 47, it is allowed to modulate the charges or set charges other than those determined on the basis of the costs resulting from the accounting or estimated in accordance with paragraph 42.8 (1) (a) sub ii), where applicable, subject to the following conditions:
 - a) that the total charges set for each type sub-class of facility or service referred to in Measure 36, operated or provided by the same facility operator, do not exceed the cost of supply plus a reasonable profit;
 - b) that such charges are non-discriminatory;
 - c) that modulation or deviation is justified based on at least one of the following reasons:
 - i) differences in unit cost between specific services, measurable on the basis of a similar analysis to that provided, with regard to facilities, in paragraph 42.8 (1), (a), sub ii);
 - ii) need to ensure a better use of the capacity of the service facility, as defined in Article 3 (4) of Regulation (EU) 2017/2177;
 - iii) setting of a homogeneous charge even if there are differences in costs between individual facilities or services, for reasons of simplification and cost containment of the charging system and collection thereof;
 - d) that this modulation or deviation does not, for some facilities or services, result in charges lower than the direct costs associated with the actual use of the facilities or services, made possible by the application of charges higher than those costs for other facilities or services.

For facility operators falling under Type A, the justifications referred to in (c) shall result from a quantitative analysis, which is included in the report under paragraph 42.8, (a), sub v), together with a description of the methodology used.

2. The provisions referred to in (1) shall apply with regard to the charges in force from 1 January 2024.
3. Charges may be differentiated by reducing them in relation to the level of use of the facilities or production volume of the service provided by each applicant, to the extent that such reduction:
 - a) takes into account the lower costs incurred;
 - b) is applied in a transparent and non-discriminatory manner;
 - c) is not based on predatory pricing.

TITLE 4 INTERCONNECTED REGIONAL RAILWAY INFRASTRUCTURE

Chapter 1 General features

Measure 49 Specific regulatory purpose and scope

1. In line with the objective of ensuring, also for the interconnected regional networks identified by MIT Ministerial Decree of 5 August 2016, the compliance with the principles established by the Authority for setting infrastructure access charges, the measures referred to in this Title identify specific details of the general criteria laid down in Title 2 and Title 3 for the national railway infrastructure.
2. Taking into account the particular structure of the governance measures applied to these networks to date, for which the tasks of planning the development and services of the LPT carried out therein fall within the competence of the respective regions and autonomous provinces, the specific criteria set by the Authority in this Title are aimed at ensuring equitable and non-discriminatory access to these infrastructure and to the related services, in addition to the RUs holding the relevant public service contracts for local public transport, also to other persons who may request capacity on these networks to carry out further types of service, passengers and/or freight.
3. The regulatory measures under this Title also take into account the provisions of Article 11 (11) of Legislative Decree No 112/2015 concerning the assignment, by regional IMs that are not legally separate from the RU carrying out transport services on the same network, in favour of a third party that is independent in its legal structure and decision-making from the RU (hereinafter: *Allocation Body* or AB), of the tasks of carrying out the essential functions referred to in Article 3 (1) (b-septies) of the same Legislative Decree No 112/2015.

Measure 50 Economic equilibrium of the IM

1. The determination of the charges by the regional IM or the AB takes into account the need that:
 - a) the economic equilibrium of management is ensured, as provided for in Article 17 (1) of Legislative Decree No 112/2015;
 - b) the level of charges for the services does not exceed the cost of providing them, plus a reasonable profit.
2. The economic equilibrium of management is verified according to the same criteria as those laid down for the national railway infrastructure in Article 16 of Legislative Decree No 112/2015, which are explained below by specifying the definition of the relevant economic components for the particular context of the regional rail networks:

$$R_c + E_{cdp} + E_{fpp} + E_{ec} = C_o + C_a + C_{rc}$$

where:

R_c revenue from the charges for access to regional railway infrastructure, related service facilities, and from the charges for the use of the services supplied therein, which the regional IM is required to apply to all rail services operated on the railway network under its remit.

For the MAP, this revenue is determined by the IM or AB so as to reflect at least the costs directly related to the provision of the rail service referred to in Measure 7, which is identified in component A of the charge.

The IM or *Allocation Body* are entitled to determine, in agreement with the Region, an additional component of the charge (component B, with its modulations), equal to a part of the total amount of the operating costs not included in direct costs, depreciation and return on capital.

It is understood that the charging level applied to RUs, developed based on effective, transparent and non-discriminatory principles, must be consistent with the sustainability of the rail market, while ensuring optimal competitiveness of the market segments and further complying with the productivity increases achieved by the RUs.

For the purposes of this assessment of consistency, the IM or AB shall take as the minimum and maximum eligible value (i) the average unit amount of component A of the existing charge for the national railway infrastructure, (ii) the average unit amount of components A+B of the existing charge for the same national railway infrastructure, respectively. Both amounts are appropriately adjusted to take into account, based on principles of reasonableness and proportionality, the different scale of application, according to the following formulas:

$$T_{min} = T_{base,A,IFN} \cdot (1 + \omega)$$

$$T_{max} = (T_{base,A,IFN} + T_{base,B,IFN}) \cdot (1 + \omega)$$

where:

T_{min} minimum allowed limit for the average unit charging level applicable to the interconnected regional rail network;

T_{max} maximum allowed limit for the average unit charging level applicable to the interconnected regional rail network;

$T_{base,A,IFN}$ average unit amount, in EUR/train-km, which is the basic charge related to component A of the charge for the national railway infrastructure, referred to in Measure 28, considering that, for the purpose of reclassification of the railway network referred to in Measure 25, the entire infrastructure falls into Class 4;

$T_{base,B,IFN}$ average unit amount, in EUR/train-km, which is the basic charge related to component B of the charge for the national railway infrastructure referred to in Measure 29;

ω mark-up coefficient, aimed at adapting the unit charging level to the scale of the specific regional network, determined by linear interpolation on the basis of the length in km of the regional rail network (R_{reg} , in km), according to the following formula:

$$\omega = 0,10 + \left[0,10 \cdot \frac{500 - R_{reg}}{500 - 10} \right]$$

E_{cdp} State contributions as provided for under programme contracts, referring to the costs that are related to the management activities of the regional railway infrastructure;

E_{fpp} non-refundable revenue from private and public sources, in so far as it is related to the management activities of the regional railway infrastructure. This revenue includes the amount of the contribution provided, by the competent territorial authority, for the management of the specified infrastructure and determined by reference to the total amount of the planned charge. Due to the existence of a non-zero revenue from charges (see R_c), they cannot cover all costs;

E_{ec} surpluses arising from any other commercial activities carried out by the regional IM;

C_o relevant and efficient operating costs relating to the management of regional railway infrastructure, related service facilities and services supplied therein;

C_a depreciation relating to the net book value of fixed assets concerning regional railway infrastructure, and related service facilities, which is determined net of public contributions;

C_{rc} return on Net Invested Capital relating to the management of regional railway infrastructure, and related service facilities, which is determined net of public contributions.

3. In light of the above:
 - a) the regional IM or the AB determines, in accordance with the measures set out in this Title and in agreement with the competent regional authority, the level of charges (component A and component B, if any, with a view to partially covering costs in addition to direct costs) and the charges to be applied to rail services on the relevant network, disregarding the public contribution from regional sources, having regard to the minimum and maximum levels defined above and taking into account the level of contribution to the infrastructure management provided by the competent territorial authority, which is necessary to ensure the financial equilibrium;
 - b) if the amount of the contribution of the Region to the management of the regional infrastructure, prior to the adoption of the measures under this Title, was quantified so as to ensure full coverage of the costs of managing the infrastructure, it is necessary to remove therefrom the amount of charges determined in accordance with (a).
4. In view of the provisions of the preceding paragraph, the entities awarding the public service contracts, within the Bridge year of the first regulatory period of application of this Regulatory act, shall update the a.m. public service contracts to provide for the acknowledgement of the charges incurred by the RUs holding those contracts for the payment of the charges for access to railway infrastructure, service facilities and services provided therein, as well as to additional and auxiliary services as defined in Article 13 (9) and (11) of the above Legislative Decree, which the IM is required to report pursuant to Measure 5 of Decision No 120/2018. In this respect, each awarding entity adapts, where necessary, the public service contract in accordance with the provisions of ART Decisions Nos 16/2018, 120/2018 and 154/2019 concerning minimum quality service requirements, content of the economic and financial plan and relevant contractual provisions, respectively.
5. In view of the provisions of (3), the regional authorities, within the Bridge year of the first regulatory period of application of this Regulatory act, update the contracts concluded with the managers of the regional networks, in order to clarify the amount of the public contribution allocated to the direct financing of those managers.

Measure 51 Documentation requirements

1. Pursuant to Article 11 (11) of Legislative Decree No 112/2015, entities who have not carried out a legal separation between the manager and the undertaking carrying out the rail transport service, entrust the tasks of carrying out the essential functions referred to in Article 3b-septies) of Legislative Decree No 112/2015 to an independent third party.
2. Essential functions include those relating to the adoption of decisions concerning to charges for the use of the infrastructure, comprising the calculation and collection of charges in accordance with the criteria set out in this document.
3. In cases where the above party is identified, in order to carry out the essential activities, the IM transmits to the above third party, in due time and according to agreed procedures, the regulatory accounts referred to in Title 5.
4. In the aforementioned cases of identification of the third party, who also performs the functions of Allocation Body, the performance of the activities relating to the application of the Measures referred to in the following Chapter 2 and Chapter 3 of this Title shall be understood as to be carried out by the said party.

52.1 Regulatory period

1. The five-year regulatory period for regional railway infrastructure is delayed by one year compared to that set for national railway infrastructure. Therefore, the setting of the charges for access to and use of the regional railway infrastructure is carried out during the first year of the five-year regulatory period laid down in Measure 4 for the national railway infrastructure. This year represents, for the regional railway infrastructure, the so-called Bridge year, i.e. the year between the Basic year and the first year of the regulatory period, during which the IM of the regional network or the AB, within the scope of their respective responsibilities, carry out the tasks related to the drawing up and submission to the Authority of the documentation concerning the levying of charges.

52.2 Procedure for development, verification, and entry into force of the new charge

1. For the purpose of verifying compliance, by **30 June of the Bridge year (T_0)** the IM shall submit to the Authority the charging system for the years (T_1) through (T_5) developed by the IM – or, where applicable, by the AB and signed by the IM – in accordance with the criteria set by the Authority and accompanied by the following documentation, provided in digitally signed, editable electronic form:
 - a) explanatory report on the choices made in relation to: perimeter and allocation of costs (showing, *inter alia*, the inclusion of costs directly related to the provision of the rail service and the exclusion of costs referred to in Article 4 of Implementing Regulation (EU) 909/2015), traffic developments, application of principles and criteria for calculation of the charge;
 - b) regulatory accounting dossier relating to the Base year of the regulatory period (T_{-1}), drawn up based on the formats provided by the Authority (Annex 4), with detailed documentation (including the list of assets and fixed assets underlying the regulated services, also with reference to the Register of assets referred to in Article 15 (8) of Legislative Decree No 112/2015);
 - c) regulatory financial plan for the regulatory period, drawn up on the basis of the format provided by the Authority (Format 1/c Regulatory Financial Plan for MAP for the manager of the regional network), together with an explanatory report, with particular reference, *inter alia*, to the criteria used to define the calculation parameters;
 - d) traffic forecasts of the railway network for the Bridge Year and for each year of the entire regulatory period, broken down according to the supply and demand parameters adopted in the charging system, differentiated by RU, (excluding the outputs of the demand forecast model referred to in Measure 8), as well as the results of the consultation of the RUs and entities awarding PSO services referred to in Measure 8;
 - e) for each year of the entire regulatory period, list of unit charges for each type of service arising from the supply and demand parameters adopted in the charging system, based on the principles and criteria laid down by the Authority, drawn up in accordance with drafting criteria that ensure maximum ease of consultation for the RUs, providing, *inter alia*, for adequate applications to be made available online to the interested parties to pre-set the charge for each train;
 - f) the charging system shall enter into force on 1 January of the year T_1 , which is the starting date of the multi-year regulatory period; however, a provisional scheme will be applied from that date until 31 December of the same year, with application of the same charge in force for the Bridge Year (T_0), increased by the planned inflation rate, as available at the date of submission referred to under (1).
 - g) The IM or, where applicable, the AB, shall identify, in respect of year (T_1), a notional item PF_1 , to be calculated as the difference, if any, between:
 - i) the amount of charges obtained by applying the provisional scheme provided for year (T_1), taking as the basis of calculation the traffic forecasts developed for the construction of the charge for the same period;

- ii) the amount of charges related to the same year (T_1) and to the same traffic, calculated in accordance with (1).
- h) For the purpose of the charge construction, the value of the notional item, calculated as above, is used to determine an additional (positive or negative) charge component, to be assigned to the expected traffic volumes for the remaining part of the four-year regulatory period while ensuring financial neutrality, with a breakdown of market segments that is consistent with that adopted by the IM for the charge calculated, for that period, in accordance with (1).
- i) By 30 November of the Bridge year (T_0), following the necessary verifications, the Authority adopts a decision on the compliance of the charging scheme with its principles and criteria (requiring amendments, where necessary) and authorises its publication.
- j) By the deadline laid down for the Bridge year (T_0) in Article 14 (5) of Legislative Decree No 112/2015, the IM publishes its NS, including the charges resulting from the application of the charging scheme, as well as, with respect to year (T_1), the charges resulting from the application of the provisional scheme referred to under (g).

Chapter 2 Minimum Access Package (MAP)

Measure 53 Costing

1. In determining the costs related to the charges for the Minimum Access Package, the IM of the regional network shall comply with the principles and criteria set out in Title 2, with the exception of those applicable therein only to the national IM and without prejudice to the specifications referred to in Measure 50.
2. In particular:
 - a) the applicable rules for the calculation of direct costs, unless otherwise determined by the IM, are those referred to in paragraph 7.1;
 - b) pending the necessary clarifications, which the Authority reserves the right to carry out during the first regulatory period of full application of the measures under this Title (including through information obtained: (i) by managers within the framework of regulatory accounting schemes, (ii) by the RUs pursuant to Article 37 (8) of Legislative Decree No 112/2015), in setting the charges:
 - i) the targeted annual efficiency rate on operating costs $X_{(C_v)}$ and $X_{(C_f)}$, referred to in Measure 10, for the first regulatory period of application of these measures, shall be set at 0;
 - ii) the elasticity parameter η_g referred to therein shall be set at 1 for the first regulatory period of application of these measures;
 - iii) with regard to the additional provisions referred to therein, for the first regulatory period of application of these measures, the following shall not apply: (i) the procedure for the annual update of the charging levels referred to in paragraph 10.5; (ii) the reward/penalty systems on charging levels related to the quality of the service referred to in paragraph 10.6;
 - iv) the depreciation allowances referred to in Measure 17 are determined by the IM on the basis of economic and technical rates, established in accordance with the principles set out in the Civil Code, taking into account the useful life of the assets and any residual value at the end thereof.

Measure 54 Pricing

1. In the modulation of the charges for the MAP, the IM of the regional network shall comply with the principles and criteria set out in Title 2, except for those applicable therein only to the national IM, it being understood that:
 - a) the IM of the regional network – or the AB, where it is necessary to identify it – without prejudice to the specifications referred to in Measure 50, shall value at least the component A (Basic Charge) referred to in Measure 22, that is constructed in such a way that its revenue allows, in accordance with Article 17 (4) of Legislative Decree No 112/2015, the recovery of the *Direct Costs* referred to in Measure 7, broken down in the relevant sub-components, referred to in Measure 28;
 - b) if the IM – or the AB, where it is necessary to identify it – also decides to consider the B component, as defined in Measure 22, that is constructed in such a way that the total related revenues, together with those related to component A, allow the recovery of even part of the *Efficient Total Cost*, while respecting the maximum level of the total amount of the two components established by Measure 50 (2), they may take into account, on the basis of the criteria of reasonableness and proportionality, the related modulation, in accordance with the provisions of Measure 29, having regard to considering a basic structure of market segmentation which, on the basis of the pairs referred to in Measure 24, provides for at least the following segments:

Basic structure of market segments
technical services
commercial passenger services subject to public service obligations (PSO)

- c) in the event that forecast data on traffic volumes relating to services belonging to “commercial freight services” and “commercial open access passenger services” segments are available when the charging proposal is made, the pairs relating to these market segments shall be considered as well among the pairs referred to in (b), in addition to the minimum pairs provided for in the table above;
- d) in the event that, during the regulatory period, requests for access to the infrastructure for the provision of open access freight services or open access passenger services are submitted, the manager will apply to these services the charge provided for PSO services, until the end of the regulatory period, by informing interested parties thereof in the NS;
- e) the component C referred to in Measure 30 and its sub-components are not taken into account;
- f) for the purpose of reclassification of the railway network referred to in Measure 25, the entire infrastructure falls into Class 4 (Network at basic service level).

Chapter 3 Other services

Measure 55 General information and costing

1. Without prejudice to the economic equilibrium of management referred to in Measure 50, when determining the costs related to the charges for services other than the minimum access package, the IM of the regional network or the operator of facility other than the above IM, shall comply with the principles and criteria laid down in Title 3 for facility operators under type B.

Measure 56 Pricing

1. When modulating the charges for services other than the Minimum Access Package, the IM of the regional network or the operator of facility other than the IM, shall comply with the principles and criteria laid down in Title 3 for facility operators under type B.

TITLE 5 REGULATORY ACCOUNTING

Chapter 1 Manager of national railway infrastructure

Measure 57 Scope, purpose and criteria of regulatory accounting

57.1 General features

1. Regulatory accounts are aimed at providing evidence of the following:
 - a) methods for the allocation of costs and revenues of the IM to all industrial processes related to different activities, subject to accounting separation, in particular with reference to the MAP and to the different categories of services provided on the national railway infrastructure, to the management of regional railway networks, as well as to commercial activities that may produce surpluses to be taken into account in the calculation of charges;
 - b) use of public contributions and incentives received by the IM;
 - c) compliance with the provisions on financial transparency referred to in Article 11-quater of Legislative Decree No 112/2015, in particular with respect to the following:
 - i) revenue produced by the infrastructure management, including to ensure compliance with the economic equilibrium referred to in Article 16 of Legislative Decree No 112/2015, may only be used to finance the activity of the IM or pay dividends to the owners of the undertaking, which may include the State and private shareholders, but not the undertakings which are part of a vertically integrated undertaking and which exercise control over both a railway undertaking and the IM;
 - ii) in vertically integrated undertakings, financial transfers between the IM and any legal entity of the integrated undertaking are prohibited, where such transfers may lead to distortions of market competition, including as a result of cross-subsidies;
 - iii) the IMs do not grant, directly or indirectly, loans to RUs and vice versa;
 - iv) only dividends generated from activities which do not involve the use of public funds or revenues from charges for the use of railway infrastructure may be used also by undertakings which are part of a vertically integrated undertaking and which exercise control over both a railway undertaking and the IM;
 - v) the services provided by the other legal entities of a vertically integrated undertaking to the IM are based on contracts and are remunerated at market prices or at prices reflecting the cost of production, plus a reasonable profit margin.
2. It shall form the basis for setting the charges for use of the railway infrastructure and for access to the service facilities and provision of railway services.
3. This regulatory accounting shall be prepared yearly, by applying the cost accounting criteria indicated below, as well as those specified in the Measures of Chapter 2 of Title 2 and in the Measures of Chapter 2 of Title 3 of this act, which are fully referred to herein.
 - a) cost base: HCA (Historical Cost Accounting) with reference to the data of the Base year;
 - b) cost standard: FDC (Fully Distributed Costing) and, with respect to MAP services, separate indication of the costs directly incurred as a result of operating the train service;
 - c) cost allocation: criteria of causality (Activity Based Costing) and relevance and, with respect to MAP services, separate indication of the costs not directly incurred as a result of operating the train service;

- d) surpluses from other commercial activities: allocation to MAP and extra-MAP services, separately and by type, of the surpluses from other commercial activities, as defined under Measure 6 above;
 - e) evidence of the Net Book Value of long-term assets and depreciations allowances for the following costs:
 - incremental expenses contributing to the total expected production (thus including future expansions or developments) and those relating to renewals of existing railway infrastructure (i.e. extraordinary maintenance), both current or expected to be incurred (based on justified estimates) over the life of the concession, net of obtained or expected public contributions on plant and equipment;
 - financial charges expected to be incurred over the life of the concession, relating to funding for investment in the railway infrastructure, for this purpose directly allocated to assets, inclusive of charges relating to any hedging contracts, net of obtained or expected public contributions on plant and equipment.
4. Should the IM consider it essential, on the basis of sound and documented justifications, it shall update the regulatory accounting system and, in particular, the criteria and methods for cost allocation according to the best international practice, informing the Authority at least 60 days in advance of the implementation of the changes in the corporate information system. To ensure data comparability in the different years, it shall draw up the regulatory accounts of the previous year on the basis of the new criteria and methods.

57.2 Income Statement and Balance Sheet components

1. The income statement and balance sheet components that the IM is required to highlight in the Regulatory Accounts are related to the necessary level of knowledge by the Authority for the exercise of its powers, with particular regard, *inter alia*, to:
 - a) the monitoring powers referred to in Article 37 (3) of Legislative Decree No 112/2015, in relation to the activities of the IM and, among them, the compliance with the requirements set out in Article 11-quater of the same Legislative Decree No 112/2015;
 - b) verifications under its remit with regard to the compliance of the regulatory system set out by the IM with the criteria of this regulatory act.
2. In particular, with respect to the income statement and balance sheet, relevant are the items referred to in Annex 2, separately for each of the accounting statements to be included in the relevant dossier referred to in Measure 59.

57.3 Other information relevant to regulatory accounting

1. In the context of the Regulatory Accounting, in addition to the above-mentioned income statement and balance sheet components, the IM is required to highlight the following:
 - a) with regard to the assets for which the return on net invested capital is to be calculated, the relevant details, in accordance with the relevant statement in Annex 2;
 - b) with regard to the assets for which, pursuant to Measure 6, surpluses are to be calculated, the relevant details, in accordance with the relevant statement in Annex 2;
 - c) with reference to extra-MAP services, the final data on the level of use of facilities and volumes of production of services.

Measure 58 Statements of accounting separation

1. Accounting separation is the necessary tool to achieve transparency and correct allocation of costs and revenues to the activities of production of services included and not included in the MAP. The IM, starting from its analytical accounts, draws up the accounting schemes provided for in this regulatory act, in accordance with the principles set out below.
2. For each of the activities carried out by the IM, the income statement and balance sheet components are identified and differentiated according to the following type classes:

- a) **MAP relating to national railway infrastructure**, as defined in Article 13 (1) of Legislative Decree No 112/2015, with separate evidence of the income statement and balance sheet components pertaining to the *Direct Costs* referred to in Measure 13, with a level of unbundling corresponding to the different parts of the infrastructure resulting from the combination of the basic classification of the railway network referred to in Measure 25 and the classification by route referred to in Ministerial Decree of 23 July 2007 of the Ministry of Economy and Finance;
 - b) **other regulated services relating to national railway infrastructure**, as referred to in Measure 36, with the degree of detail specified below;
 - c) **management of the regional railway networks** referred to in Article 1(4) of Legislative Decree No 112/2015, with separate evidence of each of them, differentiating the income statement and balance sheet components for: (i) MAP services, according to procedures similar to those specified under (a); (ii) other services referred to in Measure 36, with details of each type sub-class – among those listed in the Measure – for which the IM is the sole supplier;
 - d) **other commercial activities**, differentiating the income statement and balance sheet components which contribute to assess the surpluses referred to in Measure 6, with separate evidence of those:
 - i) classified as ancillary, i.e. deriving from the commercial exploitation of the railway infrastructure or in any case connected thereto, pursuant to Article 13 of Legislative Decree 112/2015;
 - ii) other than ancillary, which also include services offered to RUs, but not included among those referred to in Article 13 of Legislative Decree No 112/2015, as well as the implementation of the technological upgrade of regional railway networks, pursuant to Article 47 of Legislative Decree No 50/2018;
 - iii) relating to the essential functions referred to in Article 11 of Legislative Decree No 112/2015; the railway infrastructure manager, for its network, or the independent third party identified in accordance with Article 11 (11) of Legislative Decree No 112/2015, are entrusted exclusively with the tasks of carrying out the essential functions for the setting and collection of charges and the allocation of infrastructure capacity, including both the definition and assessment and the availability and allocation of individual paths, on the basis of the provisions laid down in Articles 17 and 26, respectively;
 - e) **other non-relevant and financial items.**
3. Within each of the classes defined above, having regard to the respective levels of unbundling, the IM is required to ensure separate evidence of the relations with other legal entities of the vertically integrated undertaking which the same IM is part of, in order to ensure compliance with the principles set out in Article 11-quater of Legislative Decree No 112/2015 on financial transparency.
 4. For other services, the Regulatory Accounting is drawn up with reference to each of the type sub-classes listed in Measure 36 and, within those sub-classes, by separating the services provided on the basis of different production processes and which may be requested separately.
 5. In cases where the IM provides access to service facilities, the regulatory accounts shall also specify the details for each service facility except, as regards costs, where this is particularly burdensome due to the large number of facilities and the difficulty in easily associating the income statement or balance sheet components with each facility. In such case, the IM assesses whether it is possible to separate the accounts by categories of facilities characterised by a similar level of unit costs, or by a similar distribution of capacity among individual users. The estimate of the level of costs, to be used to identify the level of aggregation referred to in the previous period, shall be based on objective parameters, such as areas used or number of employees, as well as on an analysis of the production process showing the relevance of these parameters.
 6. If the IM provides both access to the facility and one or more services in the facility itself, and it is possible to self-supply the services, details of the costs relating to access only shall be provided.
 7. The provisions of (5) and (6) apply to facilities and services for which the IM falls under type A.

8. For the purposes of drawing up the regulatory accounts, the income statement and balance sheet components may be of:
 - a) direct and exclusive relevance of a specific activity;
 - b) direct relevance of a number of activities, which may be allocated pro-quota based on specific drivers;
 - c) relevance to all assets, and therefore allocated indirectly based on aggregate drivers.
9. The IM provides for direct and exclusive allocation of the income statement and balance sheet components that are objectively and exclusively attributable to specific activities.
10. For income statement and balance sheet components of non-exclusive relevance, the allocation to each asset must be made transparently and analytically, based on drivers chosen for their suitability to measure the consumption of resources or the use of assets in the context of a specific activity.
11. The income statement and balance sheet components attributable to all the activities of the IM, as well as those which, for reasons of objective and documented evidence, may not be otherwise allocated between the various activities on the basis of relevant drivers, are allocated to the various activities in proportion to the total costs already allocated as defined above.
12. In the MAP statement, the IM shall provide separate evidence of the costs directly related to the performance required to enable the use of the railway infrastructure, taking into account the provisions of Implementing Regulation (EU) 2015/909.
13. The Authority reserves the right to verify the reasonableness and adequacy of the allocation criteria adopted, based on the documentation provided by the IM in this respect.

Measure 59 Transmission of Documentation to the Authority

1. The IM shall prepare and provide annually to the Authority, within 60 days of the approval of the Financial Statements, the Regulatory accounting dossier consisting of:
 - a) accounting statements referred to in Annex 2, drawn up on in digitally signed, editable electronic form and inclusive of the income statement and balance sheet components referred to in Measure 57:
 - i) summary statement of regulatory accounts and reconciliation with financial statements, based on the type classes referred to in Measure 58;
 - ii) for national railway infrastructure, income statement and balance sheet for the Minimum Access Package (MAP), as defined in Article 13 (1) of Legislative Decree No 112/2015. This statement shall be supplemented by the detail of the calculation of the return on the relevant net invested capital, as set out in Measure 57;
 - iii) for national railway infrastructure, income statement and balance sheet for service facilities and rail services, divided into cost/income centres with the level of detail referred to under Measure 58. This statement shall be supplemented by the detail of the calculation of the return on the relevant net invested capital, as set out in Measure 57;
 - iv) for each regional railway infrastructure subject to accounting separation, income statement and balance sheet for the Minimum Access Package (MAP), as defined in Article 13 (1) of Legislative Decree No 112/2015, as well as for the railway service facilities or services referred to in Measure 36 with details of each of the type sub-classes for which the IM is the sole supplier. This statement shall be supplemented by the detail of the calculation of the return on the relevant net invested capital, as set out in Measure 57;
 - v) income statement and balance sheet for other commercial activities.

These statements are supplemented:

- for ancillary commercial activities, by details relating to the calculation of the relevant surpluses referred to in Measure 57;

- for non-ancillary commercial activities, by details relating to (i) calculation of the relevant surpluses, as set out in Measure 57 and, in that context, (ii) calculation of the reasonable profit, approximated by the return on the relevant net invested capital, as referred to in Measure 57;
 - by providing separate evidence of the income statement and balance sheet items related to the activities supporting the management of the individual interconnected regional railway infrastructure (e.g. *Allocation Body* function or implementation of upgrading or maintenance activities).
- b) Regulatory Accounting Methodology and Reporting Document, drawn up in digitally signed, editable electronic form, which explains how to report on at least the following:
- i) description of the assessments carried out to identify the activities subject to accounting separation, explaining the consistency of those assessments with the criteria set out in Measure 58;
 - ii) description of the logical model of the analytical accounting system, with evidence of the methodology for allocating the income statement and balance sheet items to the individual activities subject to accounting separation;
 - iii) description of system environment/architecture used for asset management purposes;
 - iv) detailed description of accounting methodologies adopted, valuation criteria, allocation criteria, allocation *drivers* used, in relation to each of the income statement and balance sheet components specified in the accounting schemes;
 - v) detailed description of the methodologies adopted to quantify the residual value of the infrastructure, with reference to each types of fixed assets specified in the accounting schemes;
 - vi) detailed description of the methodologies adopted to quantify fixed assets and depreciation relating to long-term costs for specific investment projects pursuant to Article 18 (8) of Legislative Decree No112/2015, highlighting their values;
 - vii) detailed information on any changes in the scope of the regulated activities subject to accounting separation and related economic components, to ensure full comparability between the data relating to the different years;
 - viii) detailed information, including quantitative information, on the individual sources and use of public funds and other compensation in a transparent and comprehensive manner, including a detailed examination of the cash flows of the sectors, to determine how public funds and other forms of compensation have been used, in accordance with Annex IV to Legislative Decree No 112/2015;
 - ix) detailed information, including quantitative information, on the cost and profit categories that allow to establish whether cross-subsidisation has been provided between the different activities, in accordance with Annex IV to Legislative Decree No 112/2015;
 - x) description of the entries related to relations with other legal entities of the vertically integrated undertaking with evidence of the valuation and allocation methodology;
 - xi) description of use of operating profits;
 - xii) statement that the reconciliation results from the financial statements approved in accordance with the adopted accounting standards;
 - xiii) detailed description of the activities carried out to achieve the required efficiency objectives, with details of individual activities and quantitative evidence, for each of them, of the economic results achieved;
- c) for extra-MAP services, summary of the level of use of facilities and volumes of service production, with the same level of unbundling as referred to in paragraph 42.8 (f).
2. This document is accompanied by a report, drawn up by an independent audit firm, certifying compliance with the measures issued by the Transport Regulation Authority on Regulatory accounting (so-called Certification).

Measure 60 **Publication of Regulatory Accounting information**

1. Pursuant to Annex V (b) of Legislative Decree No 112/2015 the IM shall include in the Network Statement (NS) a section on the charging principles, containing appropriate detailed information on the charging scheme and on charges to allow the RUs to easily determine the cost for the use of lines and service facilities. It shall specify methodology, rules and parameters applied with respect to costs and charges.
2. The above-mentioned section of the NS contains additional information on changes in the charges that have been already decided or are expected in the next five years, where available (Annex V (b) of Legislative Decree No 112/2015).

Chapter 2 Service facility operators on the national railway infrastructure other than the IM

Measure 61 Scope, purpose and criteria of regulatory accounting

61.1 General information

1. The Measures of this Chapter apply to entities other than IM, operating service facilities or providing rail services on the national railway infrastructure, in the following cases:
 - a) where they fall under type A, with reference to the facilities and services for which they fall thereunder;
 - b) where they operate service facilities or provide rail services referred to in Measure 36 (a), and are part of a company which is also operating and has a dominant position on the national rail transport services markets for which the service is used.
2. The regulatory accounting to be produced by the operator of the service facility is aimed at providing evidence of the methods for allocating costs and revenues for the facilities and services referred to in Measure 36, operated or offered by such operator. It also serves as the basis of reference for setting the charges for access to service facilities and for the use of rail services.
3. Such regulatory accounting shall be prepared yearly, by applying the cost accounting criteria indicated below, as well as, for the service facility operators under Type A, those set out in Chapter 2 of Title 3 of this act, which are fully referred to herein:
 - a) cost base: HCA (Historical Cost Accounting) with reference to the data of the Base year;
 - b) cost standard: FDC (Fully Distributed Costing);
 - c) cost allocation: criteria of causality (Activity Based Costing) and relevance.
4. Should the facility operator consider it essential, on the basis of sound and documented justifications, it shall update the regulatory accounting system and, in particular, the criteria and methods for cost allocation according to the best international practice, informing the Authority at least 60 days in advance of the implementation of the changes in the corporate information system. To ensure data comparability in the different years, it shall draw up the regulatory accounts of the previous year on the basis of the new criteria and methods.

61.2 Income statement and balance sheet components

1. The income statement and balance sheet components that the service facility operator is required to highlight in the Regulatory accounting are related to the necessary level of knowledge by the Authority for the exercise of its powers, with particular regard, *inter alia*, to the monitoring of the application of the criteria of this regulatory act;
2. In particular, with regard to income statement and balance sheet, the facility operator is required to highlight, where relevant, the components referred to in Annex 3, separately for each of the accounting schemes to be included in the relevant dossier referred to in Measure 63.

61.3 Other information relevant to regulatory accounting

1. In the context of the Regulatory accounting, in addition to the above-mentioned income statement and balance sheet components, the service facility operator is required to highlight the following:
 - a) with regard to the assets for which the return on net invested capital is to be calculated, the relevant details, in accordance with the relevant statement in Annex 3;
 - b) the final data on the level of use of facilities and volumes of production of services.

Measure 62 **Statements of accounting separation**

1. For each of the activities carried out by the service facility operator, the income statement and balance sheet components are identified and differentiated according to the following type classes:
 - a) regulated services relating to the national railway infrastructure, as referred to in Measure 36, with the degree of detail specified below;
 - b) other activities; in the case of facility operators referred to in paragraph 61.1 (1) (b), these include the other activities of the company which they are part of.
2. Within each of the two classes defined above, having regard to the respective levels of unbundling, the facility operator which is part of a vertically integrated undertaking, as defined in article 3 (1) (uu-bis) of Legislative Decree No 112/2015, is required to ensure separate evidence of the relations with other legal entities of the same undertaking, in order to identify potential cross-subsidisation. In the case of facility operators referred to in paragraph 61.1 (1) (b), separate evidence shall also be provided of the relations with the company which the operator is part of.
3. In the context of the services referred to in paragraph 1 (a), the above regulatory accounting is drawn up with reference to each of the type sub-classes listed in Measure 36 and, within those sub-classes, by separating the services provided on the basis of different production processes and which may be requested separately.
4. In the cases where the facility operator provides access to service facilities, the regulatory accounts shall also specify the details for each service facility except, as regards costs, where this is particularly burdensome due to the large number of facilities and the difficulty in easily associating the income statement or balance sheet components with each facility. In such case, the facility operator assesses whether it is possible to separate the regulatory accounts by categories of facilities characterised by a similar level of unit costs, or by a similar distribution of facility capacity among individual users. The estimate of the level of costs, to be used to identify the level of aggregation referred to in the previous period, is based on objective parameters, such as areas used or number of employees, as well as on an analysis of the production process showing the relevance of these parameters.
5. If the facility operator provides both access to the facility and one or more services in the facility itself, and it is possible to self-supply the services, details of the costs relating to access only shall be provided.
6. For the purposes of drawing up the regulatory accounts, the income statement and balance sheet components may be of:
 - a) direct and exclusive relevance of a specific activity;
 - b) direct relevance of a number of activities, which may be allocated pro-quota based on specific drivers;
 - c) relevance to all assets, and therefore allocated indirectly based on aggregate drivers.
7. The service facility operator provides for direct and exclusive allocation for the income statement and balance sheet components that are objectively and exclusively attributable to specific activities.
8. For income statement and balance sheet components of non-exclusive relevance, the allocation to each asset must be made transparently and analytically, based on drivers chosen for their suitability to measure the consumption of resources or the use of assets in the context of a specific activity.
9. The income statement and balance sheet components attributable to all the activities of the IM, as well as those which, for reasons of objective and documented evidence, may not be otherwise allocated between the various activities based on relevant drivers, are allocated to the various activities in proportion to the total costs already allocated as defined above.
10. The Authority reserves the right to verify the reasonableness and adequacy of the allocation criteria adopted, based on the documentation provided by the facility operator in this respect.

Measure 63 **Transmission of Documentation to the Authority**

1. The service facility operator shall prepare and provide annually to the Authority, within 60 days of the approval of the Financial Statements, the Regulatory accounting dossier consisting of:
 - a) accounting schemes referred to in Annex 3, drawn up on in digitally signed, editable electronic form and inclusive of the income statement and balance sheet components referred to in Measure 61:
 - i) summary statement of regulatory accounts and reconciliation with financial statements, based on the type classes referred to in Measure 62;
 - ii) income statement and balance sheet for service facilities and rail services, divided into cost/income centres with the level of detail referred to under Measure 62. This statement shall be supplemented by the detail of the calculation of the return on the relevant net invested capital, as set out in Measure 61;
 - iii) income statement and balance sheet for other commercial activities;
 - b) Regulatory Accounting Methodology and Reporting Document, drawn up in digitally signed, editable electronic form, which explains how to report on at least the following:
 - i) description of the assessments carried out to identify the activities subject to accounting separation, explaining the consistency of those assessments with the criteria set out in Measure 62;
 - ii) description of the logical model of the analytical accounting system, with evidence of the methodology for allocating the income statement and balance sheet items to the individual activities subject to accounting separation;
 - iii) description of system environment/architecture used for asset management purposes;
 - iv) detailed description of accounting methodologies adopted, valuation criteria, allocation criteria, allocation *drivers* used, in relation to each of the income statement and balance sheet components specified in the accounting schemes;
 - v) detailed information on any changes in the scope of the regulated activities subject to accounting separation and related balance sheet components, to ensure full comparability between the data relating to the different years;
 - vi) detailed information, including quantitative information, on the individual sources and use of public funds and other compensation in a transparent and comprehensive manner, including a detailed examination of the cash flows of the sectors, to determine how public funds and other forms of compensation have been used, in accordance with Annex IV to Legislative Decree No 112/2015;
 - vii) in the case of a service facility operator which is part of a vertically integrated undertaking: detailed information, including quantitative information, on the cost and profit categories that allow to establish whether cross-subsidisation has been provided between the different activities subject to accounting separation;
 - viii) in the case of a service facility operator which is part of a vertically integrated undertaking: description of the items related to relations with other entities of such undertaking, highlighting the valuation and allocation methodology;
 - ix) statement that the reconciliation results from the financial statements approved in accordance with the adopted accounting standards;
 - x) detailed description of the activities carried out to achieve the required efficiency objectives, with details of individual activities and quantitative evidence, for each of them, of the economic results achieved;
 - c) summary of the level of use of facilities and volumes of production of services, with the same level of unbundling referred to in paragraph 42.8 (f); the summary shall give specific evidence, where appropriate, of the access provided and the services produced for own use or of the company which the operator is part of.

2. This document is accompanied by a report, drawn up in accordance with Article 2409 bis of the Civil Code, by the statutory auditor, the board of auditors or an audit firm, certifying compliance with the measures issued by the Transport Regulation Authority on Regulatory accounting (so-called Certification).
3. The Authority will consider this documentation as confidential.
4. For the first period of application of these regulatory measures, the time limit referred to in (1) is postponed to 60 days of the date of entry into force of these regulatory measures if this date is later than the date of approval of the financial statements.

Chapter 2 Managers of regional railway infrastructure

Measure 64 Scope, purpose and criteria of regulatory accounting

64.1 General features

1. The Measures of this Chapter shall apply to entities other than the national IM, with reference to the management of interconnected regional railway networks, as referred to in Article 1 (4) of Legislative Decree No 112/2015.
2. Regulatory Accounting is aimed at providing evidence of:
 - a) methods for allocating the costs and revenues of the regional network to all industrial processes relating to the various activities subject to accounting separation, in particular with reference to the different categories of services offered on the regional rail network;
 - b) use of public contributions and incentives received by the IM.
3. It also serves as a basis for setting the charges for access to infrastructure and service facilities and the charges for services.

64.2 Income statement and balance sheet components

1. The income statement and balance sheet components that the regional IM is required to highlight in the Regulatory accounting are related to the necessary level of knowledge by the Authority for the exercise of its powers, with regard, *inter alia*, to the verifications within its remit concerning the compliance of the charging system set by the above IM with the criteria of this regulatory act.
2. In particular, with regard to income statement and balance sheet, the IM of the regional network is required to highlight, where relevant, the components referred to in Annex 4, separately for each of the accounting schemes to be included in the relevant dossier referred to in Measure 66.

64.3 Other information relevant to regulatory accounting

1. In the context of the Regulatory accounting, in addition to the above-mentioned income statement and balance sheet components, the IM of the regional network is required to highlight the following:
 - a) with regard to the assets for which the return on net invested capital is to be calculated, the relevant details, in accordance with the relevant statement in Annex 4;
 - b) with regard to the assets for which, according to Measure 6, the calculation of surpluses is provided, the details thereof, in accordance with the relevant statement included in Annex 4.

Measure 65 Statements of accounting separation

1. The Regulatory Accounting to be produced by the IM of the regional network is intended to provide evidence of the methods for allocating costs and revenues related to the management of the railway infrastructure.
2. For each of the activities carried out by the IM of the regional network, the income statements and balance sheet components are identified and broken down into the following type classes:
 - a) MAP relating to regional railway infrastructure, as defined in Article 13 (1) of Legislative Decree No 112/2015), differentiating the income statement and balance sheet components relating to *Direct costs* and net residual costs;
 - b) other services relating to regional railway infrastructure, referred to in Measure 36, differentiating the income statement and balance sheet components relating to each type sub-class of service facilities or railway services of which the IM is the sole supplier;

- c) other commercial activities, which contribute to the assessment of surpluses referred to in Measure 6, with separate evidence of those:
 - i) classified as ancillary, i.e. deriving from the commercial exploitation of the railway infrastructure or in any case connected to it, pursuant to Article 13 of Legislative Decree No 112/2015 (e.g.: sale of advertising space along the line, training to train drivers of RUs, sale of end-of-life products, etc.);
 - ii) other than ancillary services, which also include services offered directly to RUs, but are not included among those listed in Article 13 of Legislative Decree No 112/2015;
 - d) other non-relevant and financial entries.
3. Within each of the classes defined above, having regard to the respective levels of unbundling, the IM of the regional network is required to ensure separate evidence of the relations with other legal entities of the vertically integrated undertaking which the IM is part of, in order to ensure compliance with the principles laid down in Article 11-quater of Legislative Decree No 112/2015 on financial transparency.

Measure 66 Transmission of Documentation to the Authority

1. The IM of the regional network shall prepare and provide annually to the Authority, within 60 days of the approval of the Financial Statements, the Regulatory accounting dossier consisting of:
 - a) accounting schemes referred to in Annex 4, drawn up on in digitally signed, editable electronic form and inclusive of the income statement and balance sheet components referred to in Measure 64:
 - i) summary statement of regulatory accounts and reconciliation with financial statements, based on the type classes referred to in Measure 65;
 - ii) for the regional railway infrastructure, income statement and balance sheet for the Minimum Access Package (MAP) as defined under article 13 (1) of Legislative Decree No 112/2015. This statement shall be supplemented by the detail of the calculation of the return on the relevant net invested capital, as set out in Measure 64;
 - iii) for the regional railway infrastructure, income statement and balance sheet for service facilities or rail services referred to in Measure 36, with details of each of the type sub-classes indicated therein for which the IM is the sole supplier. This statement shall be supplemented by the detail of the calculation of the return on the relevant net invested capital, as set out in Measure 64;
 - iv) income statement and balance sheet relating to other (commercial and not relevant) activities. These statements are supplemented as follows:
 - for ancillary commercial activities, with details relating to the calculation of the relevant surpluses referred to in Measure 64;
 - for non-ancillary commercial activities, with details relating (i) to the calculation of the relevant surpluses, as set out in Measure 64 and, in that context, (ii) to the calculation of the reasonable profit, approximated to the return on the relevant net invested capital, as referred to in Measure 64;
 - b) Regulatory Accounting Methodology and Reporting Document, which explains how to report on at least the following:
 - i) description of the logical model of the analytical accounting system, with evidence of the methodology for allocating the income statement and balance sheet items to the individual activities subject to accounting separation;
 - ii) description of system environment/architecture used for asset management purposes;
 - iii) detailed description of accounting methodologies adopted, valuation criteria, allocation criteria, allocation *drivers* used, in relation to each of the income statement and balance sheet components specified in the accounting schemes;

- iv) detailed information, including quantitative information, on the individual sources and use of public funds and other compensation in a transparent and comprehensive manner, including a detailed examination of the cash flows of the sectors, to determine how public funds and other forms of compensation have been used, in accordance with Annex IV to Legislative Decree No 112/2015;
 - v) detailed information, including quantitative information, on the cost and profit categories that allow to establish whether cross-subsidisation has been provided between the different activities in accordance with Annex IV to Legislative Decree No 112/2015;
 - vi) description of the items related to relations with other entities of the vertically integrated undertaking, highlighting the valuation and allocation methodology;
 - vii) statement that the reconciliation results from the financial statements approved in accordance with the adopted accounting standards.
2. This document is accompanied by a report, drawn up in accordance with Article 2409 bis of the Civil Code, by the statutory auditor, the board of auditors or an audit firm, certifying compliance with the measures issued by the Transport Regulation Authority on Regulatory accounting (so-called Certification).
3. For the year 2023 and for the financial year 2022, the deadline referred to in (1) is postponed to 30 October 2023. The managers who, at the time of entry into force of these regulatory measures, have already provided the documentation, in compliance with the obligations laid down in the previous regulatory framework, are required to re-submit such documentation and adapt it to the provisions under these measures, within the above time limit.

ANNEXES

Annex 1/a – Format of Regulatory Financial Plan for MAP referring to the national network

[See attached excel sheet]

Annex 1/b – Format of Regulatory Financial Plan for Extra-MAP Services

[See attached excel sheet]

Annex 1/c – Format of Regulatory Financial Plan for MAP referring to regional networks

[See attached excel sheet]

Annex 2 – Accounting schemes for the national railway infrastructure manager

[See attached excel sheet]

Annex 3 – Accounting schemes for the service facility operator

[See attached excel sheet]

Annex 4 – Accounting schemes for the manager of the regional network

[See attached excel sheet]