

**METHODOLOGY AND CRITERIA FOR EVALUATING  
INVESTMENTS IN ELECTRICITY AND GAS INFRASTRUCTURE  
PROJECTS**

(ARTICLE 17(6) REGULATION (EU) 2022/869)

*Unofficial and non-binding english translation*

October 2023

Este documento está preparado para impressão em frente e verso

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## ÍNDICE

<b>1</b>	<b>PRELIMINARY NOTE .....</b>	<b>1</b>
<b>2</b>	<b>EVALUATION OF INVESTMENTS IN ELECTRICITY AND GAS INFRASTRUCTURES.....</b>	<b>5</b>
<b>3</b>	<b>RISK MANAGEMENT MEASURES .....</b>	<b>7</b>
3.1	Brief overview of Electricity and Gas TSO regulatory methodologies .....	7
3.1.1	Electricity sector .....	8
3.1.2	Gas sector .....	11
3.2	Risk management measures applied to the TSO of the Electricity Sector .....	12
3.3	Risk management measures applied to the TSO of the Gas Sector .....	17



## 1 PRELIMINARY NOTE

Following article 17(4) of the Regulation (EU) 2022/869 of the European Parliament and of the Council of 30 May 2022<sup>1</sup>, by 24 January 2023, each national regulatory authority shall submit to the Agency its methodology and the criteria used to evaluate investments in energy infrastructure projects and the higher risks incurred by them.

Subsequently, on the basis of a comparative analysis of the practices adopted by national regulatory authorities, by 24 June 2023, ACER shall facilitate the sharing of good practices and make recommendations on a common methodology to evaluate the incurred higher risks of investments in energy infrastructure projects, as well as on incentives for Projects of Common Interest where higher risks than those of comparable infrastructure are identified (Article 17 (5)).

According to Article 17(6), by 24 September 2023, each national regulatory authority shall publish its methodology.

Regarding Regulation (EU) No. 347/2013, the new European regulation envisages that the methodology and criteria previously presented are updated in view of latest legislative, policy, technological and market developments. Furthermore, such methodology and criteria shall also expressly address the specific risks incurred by offshore grids for renewable energy<sup>2</sup> and by projects, which, while having low capital expenditure, incur significant operating expenditure.

Since ERSE<sup>3</sup> submitted the likewise document to ACER in 2014, several changes occurred in the Portuguese legal frameworks of electricity and gas sectors.

In the electricity sector, Decree-Law No. 15/2022 of 14 January, which transposed Directive (EU) 2019/944 and, partially, Directive (EU) 2018/2001, adapted the legal framework of Portuguese electricity sector to the new challenges of energy policy at national and European level in the coming years. This new law created the legal framework for the Portuguese electricity sector evolve from a system based on centralised generation to a decentralised model that includes local generation, self-consumption and energy communities, active management of networks supported by smart grids and that ensures the active

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<sup>1</sup> Regulation (EU) 2022/869 on guidelines for trans-European energy infrastructure.

<sup>2</sup> Specifically, for the category of energy infrastructure referred to in point (1) (f) of Annex II to Regulation (EU) 2022/869.

<sup>3</sup> ERSE (Entidade Reguladora dos Serviços Energéticos) is the Portuguese National Regulatory Authority (NRA) of the electricity and gas sectors.

participation of consumers in the markets. Moreover, this diploma amended the concession bases of the electricity transmission network to include the maritime space adjacent to the mainland, which makes the TSO responsible for the planning, development and operation of offshore electricity transmission networks<sup>4</sup>.

In the gas sector, Decree-Law No. 62/2020 of 28 August, which transposed Directive (EU) 2019/692, adapted the legal framework of the Portuguese gas sector for the incorporation of renewable and low-carbon gases, including their production, transmission through networks and consumption, with the aim of contributing to the decarbonisation of the gas sector.

The new legal frameworks in Portugal kept the responsibility for the final decision and approval of the national development and investment plans of the electricity transmission network and gas network and high pressure infrastructures for the next 10 years (NTYNDP) under the Government's authority, although with some changes in the approval procedure, mainly in terms of time schedule. The role of the national regulatory authority (NRA) was also maintained. ERSE is not directly responsible for the approval of infrastructure investments, but it is responsible for promoting a public consultation on the proposals of NTYNDPs for electricity transmission network and the gas transmission network, as presented by TSOs. After the public consultation, ERSE and the Directorate-General for Energy and Geology (DGEG) issue opinions on the proposals of NTYNDPs in their areas of competence, which must be considered by the TSOs in the preparation of the final plans. Those final plans are submitted to the Government for a final decision and approval. The new legal framework introduced in the final phase of this process the discussion of investment plans in the Portuguese Parliament. In the case of the electricity sector, the approval of the NTYNDP is now decided by the Council of Ministers, while in the gas sector the decision remains at the level of the member of the Government responsible for the energy sector.

In the regulatory framework, since 2014 the main changes occurred in the electricity sector, whose incentives applied to the electricity transmission evolved gradually in order to promote efficiency and streamlining of investments, while including aspects of output based regulation. In the regulatory period started in 2022, a revenue cap regulation has been applied to the total controllable costs<sup>5</sup> of this activity.

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<sup>4</sup> Before this legal amendment, the concession contract of the electricity transmission network bases was amended to include a strip of maritime space for the installation of an submarine cable to connect offshore wind generation near Viana do Castelo in the north of Portugal (Windfloat project).

<sup>5</sup> That is, a revenue cap regulation applied to Total Expenditure (TOTEX) with a building block approach which considers Operational Expenditure (OPEX) and Capital Expenditure (CAPEX), applying an efficiency target to both components.

Despite being a revenue cap, this methodology partially associates the evolution of allowed revenues with the way in which the activity has been performed, both in terms of intensity, through the selection of physical cost drivers, and in qualitative terms, through the introduction of an incentive to improve technical performance, thereby seeking to promote an efficient and effective management of the transmission network.

The regulatory model has been complemented with the introduction of a mechanism for sharing profits and losses related to the average return on assets. By July 2023 ERSE concluded the revision of the regulatory framework<sup>6</sup> following the publication of Decree-Law No. 15/2022, however without impacting the regulatory model of electricity transmission.

In the gas sector, the regulatory framework is adapted to the legal framework of Decree-Law No. 62/2020 since 2021. In terms of the gas transmission activity, the regulation methodologies have not been significantly changed since 2014. The only relevant changes the introduction in 2017 of a mechanism to smooth the impact of demand volatility on tariffs, which allows revenue deferrals when revenue deviations due to gas demand deviations exceed a limit. This mechanism is financially neutral for the transmission network operator.

More directly related to the topic of this document, it has to be highlighted that ERSE's regulatory practice tackles almost all the risks related to investments in electricity and gas networks.

This is firstly materialised, in the calculation of the assets' rate of return, which in the electricity sector is internalised into the controllable TOTEX, while in the gas sector it is applied directly to the regulatory asset base (RAB). This rate of return corresponds to the weighted average cost of capital (WACC), which considers on the one hand the systematic risk of the activity and on the other hand the financing costs. Furthermore, this rate of return is indexed to the financial conditions of the market through annual adjustments. Once again, this applies both for electricity and gas sectors.

Besides this regulatory practice, the investments included in the NTYNDP approved by the Government shall be recovered through the network access tariffs, whereas ERSE's statutes oblige to warrant a financial equilibrium of regulated activities as long as they are efficiently managed.

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<sup>6</sup> Public Consultation no. 113 - <https://www.erse.pt/atividade/consultas-publicas/consulta-p%C3%BAblica-n-%C2%BA-113/> (only available in Portuguese)

Finally, in the preparation of this document, ERSE considered several aspects of the ACER recommendation No. 03/2014, of 27 June 2014<sup>7</sup>, on incentives for Projects of Common Interest and on a common methodology for risk evaluation, which frames the contents to be disclosed by the national regulatory authorities under this topic, as well as the “Report on Investment Evaluation, Risk Assessment and Regulatory Incentives for Energy Network Projects”, published by ACER in June 2023<sup>8</sup>.

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<sup>7</sup> [“Recommendation of the Agency for the Cooperation of Energy Regulators no. 03/2014, of 27 June 2014, on incentives for Projects of Common Interest and on a common methodology for risk evaluation”](#), pursuant to article 13 (5) of Regulation (EU) no. 347/2013.

<sup>8</sup> [“Report on Investment Evaluation, Risk Assessment and Regulatory Incentives for Energy Network Projects”](#), pursuant to article 17 (5) of Regulation (EU) no. 2022/869



## 2 EVALUATION OF INVESTMENTS IN ELECTRICITY AND GAS INFRASTRUCTURES

For both electricity and gas transmission networks, all investments have to be included in the National Ten-Year Network Development Plan (NTYNDP), which has to be approved by the relevant government body responsible for the energy sector.

Decree-Law No. 15/2022 frames the development and application of the NTYNDP for the electricity sector, while in the gas sector the NTYNDP is framed by Decree-Law No. 62/2020. In both sectors, the plans are prepared for a 10-year horizon, with updates every 2 years. In the electricity sector, the NTYNDP proposals are submitted by the TSO to DGEG and ERSE by 15 October of an odd-numbered year, while in the gas sector the NTYNDP proposals are submitted to DGEG and ERSE by 31 March of an odd-numbered year.

The preparation and implementation of the NTYNDP is a continuous process, starting with the identification by the TSO of all the infrastructure and network development needs, which leads to the definition and selection of investment projects that meet these needs in a cost-effective manner. In the electricity sector, the new legal framework requires new investments to be subject to a cost-benefit analysis comparing them with other viable alternatives, such as the use of flexibility, namely storage and demand response. However, the alternatives must guarantee the same level of security of supply and the existence of capacity for the reception and delivery of electricity with an appropriate level of security and quality of service.

In addition to the identification of network needs and the selection of investment projects, when preparing the NTYNDP, the TSO must ensure its compliance with climate and energy policy instruments, as defined by the Portuguese Government, and coordination with the Regional and pan-European TYNDP, as well as with distribution network plans, pursuant to national legislation in force.

In brief, the NTYNDP approval process in Portugal, for both the electricity and gas sectors, consists of the following steps:

- the TSO submits the NTYNDP proposal to DGEG and ERSE, within the legal deadline (updated in odd years, 15 October for electricity sector and 31 March for gas sector);
- within 22 days of receiving the NTYNDP proposal, ERSE launches the corresponding public consultation, which lasts 30 days;

- ERSE prepares a report on the public consultation no later than 22 days after the end of the public consultation, which is submitted to DGEG and to the TSO, together with the contributions received during the public consultation;
- within 30 days of the deadline referred to in the previous step, ERSE issues an opinion taking into account its fields of competence, in order to: i) ensure that the investment needs are addressed; ii) analyse the potential impact of NTYNDP on access tariffs and end user tariffs; iii) promote competition; iv) ensure consistency with the Regional and pan-European TYNDP. ERSE's opinion may determine changes to the proposals of NTYNDP and shall be communicated to DGEG and the TSO. Within the same deadline, DGEG issues an opinion in its fields of competence<sup>9</sup>, which shall be communicated to ERSE and to the TSO;
- within 60 days, taking into account the opinions of ERSE and DGEG, the TSO prepares the final proposal of the NTYNDP and submits it to DGEG;
- within 15 days, DGEG sends the final proposal of the NTYNDP to the member of the Government responsible for the energy sector, together with the report of the public consultation and the opinions of DGEG and ERSE;
- the decision to approve the final proposal of the TYNDP is the responsibility of the Government<sup>10</sup>, following the discussion of these plans in the Portuguese Parliament<sup>11</sup>.

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<sup>9</sup> In particular on investment needs to ensure adequate levels of security of supply, compliance with energy policy targets and the reliability of the infrastructure and its equipment from the perspective of the safety of people and assets.

<sup>10</sup> The decision to approve the NTYNDP is taken by the Council of Ministers in the case of the electricity sector, while in the gas sector the approval decision is taken by the member of the Government responsible for the energy sector.

<sup>11</sup> In updates of the plans that take place in the remaining odd years until the end of the ten-year horizon, the Government's approval is not preceded by consultation with Parliament.

### 3 RISK MANAGEMENT MEASURES

This chapter begins with a description of the regulatory methodologies applied to electricity transmission and gas transmission activities, followed by details of the risk mitigation measures applied to investments in these regulated the TSOs of electricity and gas.

#### 3.1 BRIEF OVERVIEW OF ELECTRICITY AND GAS TSO REGULATORY METHODOLOGIES

Currently, the regulatory methodologies applied to electricity and gas TSOs are different, as described below. However, there are some common features in the regulatory treatment of investments in both sectors, namely in terms of the definition of regulatory parameters or cost components reflected in the allowed revenues.

One of these situations is the rate of return applied to the regulated assets in the case of the gas sector, or implicit in the capital expenditure (CAPEX) component of the allowed revenues in the case of the electricity sector, which is determined by the same methodology in both sectors. This rate is determined each year of the regulatory period by means of an indexation mechanism to the financial and macroeconomic conditions in Portugal and is updated according to the evolution of the Portuguese 10-year bond yield. The indexation mechanism is calibrated at the beginning of each regulatory period, according to the risk of the activity and its financing costs. In order to mitigate the potential risk associated with a total indexation, the remuneration rate obtained through this mechanism has a “cap” and a “floor” established for the regulatory period.

It should be noted that the regulatory periods in Portugal are of intermediate duration (4 years) in both the electricity and gas sectors. Therefore, any deviations between actual costs and allowed revenues of the electricity and gas TSOs, which may occur due to the calibration of the parameters or a change in the circumstances in which the activities are developed, are limited in time. On the other hand, for both sectors, the regulatory framework provides for the possibility of fixing the parameters exceptionally, namely in situations where the economic and financial equilibrium of the regulated activities may be jeopardised. These aspects help to better manage the risks associated with the investment projects of these operators.

It should also be noted that ERSE participates in the European benchmarking projects of the TSOs carried out by CEER, whose results are analysed and used in a qualitative way to evaluate the performance of the Portuguese TSOs, in particular the efficiency of CAPEX and operational expenditure (OPEX).

### 3.1.1 ELECTRICITY SECTOR

Since 2022, the electricity transmission activity has been subject to incentive regulation through a revenue cap methodology applied to the total controllable costs (TOTEX), complemented by a mechanism for sharing profits and losses related to the average return on assets. The total controllable cost base includes an OPEX component, determined on the basis of historical efficient costs, and a CAPEX component, which takes into account the recovery and remuneration of investments made prior to 2022 and the recovery and remuneration of investments forecast for the regulatory period, subject to the efficiency targets of the incentive regulation methodology.

The OPEX component takes into account the evolution of the allowed revenues and the costs actually incurred, while respecting the principle of economic performance sharing (profits or losses) between the company and the consumers. The amounts related to OPEX included in the controllable TOTEX are intended, on the one hand, to provide the company with a sufficient margin of potential profit to encourage the implementation of cost efficiency measures and, on the other hand, to transfer to consumers part of the efficiency gains actually achieved in the previous regulatory period.

To define the CAPEX component, the CAPEX is estimated for each of the years of the regulatory period (depreciation plus remuneration of assets net of depreciations and subsidies) and this series is then converted into an equivalent annual payment, using the rate of return defined by ERSE for that regulatory period. The investment forecasts used in this calculation are those reported by the TSO, which are validated against the information of the approved NTYNDP. With regard to the investments included in a NTYNDP whose approval procedure has not been completed prior to the parameterisation of TOTEX's components, ERSE takes into account in the calculation of the CAPEX component those which, in ERSE's opinion to the aforementioned NTYNDP, have an a favourable position. At the beginning of each regulatory period, the CAPEX component is reassessed in order to incorporate the assets that are actually in operation and to adjust the investment forecasts for the future based on the most recent NTYNDP (approved by the Government or with an opinion issued by ERSE).

The allowed revenues used in the revenue cap regulation of the electricity TSO is the sum of the controllable OPEX and CAPEX components determined as described above. For the 2022-2025 regulatory period, the cost drivers used for the evolution of the total cost base are the following:

- Economic and financial cost drivers:

- financing conditions, which seeks to reflect in allowed revenues the evolution of the remuneration rate of the assets, resulting from the indexation mechanism to the Portuguese 10-year bond yield (this cost driver affects the proportion of the total cost base corresponding to the remuneration of the assets);
- neutralise the efficiency targets in CAPEX components referring to investments before 2022 (this cost driver affects the proportion of the total cost base corresponding to depreciation and remuneration of assets that became operational before 2022).
- Physical cost drivers: capacity of generators connected to the transmission network and network length (these cost drivers affect the remaining proportion of the total cost base, which includes, for example, the portion of costs related to OPEX).

It should be noted that when selecting the physical drivers, the aim was to select variables that represent the outputs of the transmission activity and that encourage the TSO to respond to the needs of network users, while also transmitting signals of technological neutrality. Thus, the regulatory model does not restrict the operator's actions, giving it the freedom to choose the solutions that best suit the operation and development of the network and mitigating CAPEX-bias. In particular, the cost driver "capacity of generators connected to the transmission network" meets these requirements and is also relevant to the dynamics of the energy transition, since it encourages the operator's efforts to enable more renewable capacity to be connected to the network (through increased network capacity, but also through dynamic management of existing network capacity or flexibility of network users).

The OPEX component and percentage of the CAPEX component related to investments coming into operation after 2022 are subject to price updates and efficiency targets (RPI-X)<sup>12</sup>.

In addition, the amount of the incentive to improve the technical performance of the network is added to the allowed revenues determined by the revenue cap methodology applied to the electricity TSO's controllable TOTEX.

This incentive aims to provide signals to the TSO to improve the technical performance of the transmission network, while assessing the capacity of the network to bridge the gaps resulting from the evolution of the transmission activity in a context of energy transition and decarbonisation of the energy sector, selecting

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<sup>12</sup> Retail Price Index (RPI) minus efficiency improvement factor (X)

the appropriate investments. The technical performance of the network is assessed based on a combined set of indicators, namely equipment availability, quality of service and cross-border capacity available to day ahead market.

Regarding network equipment availability, TSO management decisions are at stake that contribute to avoid degradation of the availability figures already achieved, with that availability measured as a percentage of the total hours of the year. This indicator is determined based on the rolling average of availability occurred in the last 3 years (real occurred data). For each year, it is checked whether the 3-year moving average is higher than a reference value or not.

Regarding quality of service, the aim is to ensure that the TSO's investment decisions do not lead to a degradation of the continuity of electricity supply already achieved. The quality of service indicator is associated with the rolling average of the Equivalent Interruption Time (EIT) occurred in the last 3 years (real occurred data). For each year, it is verified whether the value of the 3-year rolling average is higher than a reference value (maximum value of EIT previously set by NRA) or not.

For cross-border capacity available to day ahead market, the goal is to assess TSO's decisions that impact in improving cross-border capacity made available for commercial purposes, while avoiding unnecessary investment in building more cross-border lines. For this purpose, the indicator relates the values of cross-border capacity made available by the TSO to the day ahead market and compares that value with a target value set under European level by Regulation no. 2019/943, of 5 June, with those set targets aiming at ensuring TSOs do not limit the volume of cross-border capacity to be made available to market participants to solve congestion within their own bidding zones, or as a means of managing flows resulting from internal transactions to bidding zones.

Overall, the incentive aims at improving technical performance of the transmission network combining three indicators, assuming a relative weight of 25% for each of the first two indicators and a weight of 50% for the indicator relating to cross-border capacity. Depending on previously set of reference values, a premium or penalty will be added to allowed revenues of the TSO.

Finally, at the end of each regulatory period, the mechanism for sharing profits or losses related to the average return on assets is applied, as described in section 3.2 below.

For more details on the regulation methodology applied to the electricity TSO and the parameters applied in the current regulatory period, please see the document "Parâmetros de regulação para o período 2022 a 2025"<sup>13</sup> (only available in Portuguese).

### 3.1.2 GAS SECTOR

In the gas sector, a price cap methodology is applied to OPEX. Before the end of each regulatory period, the TSO performance in achieving the goals in terms of operational efficiency is evaluated. This analysis also allows determining the effectiveness of the regulatory methodology applied during the regulatory period and the need to eventually review regulatory parameters. The adherence between actual costs and allowed revenues is assessed. From this analysis, it follows the definition of a set of regulatory parameters: i) the level of OPEX to be recovered by the network access tariffs during the next regulatory period, ii) the efficiency targets applied to these costs, iii) the cost drivers. Since the regulatory periods are four years long, the potential risk for the TSO due to a wrong calibration of these parameters is mitigated.

Regarding CAPEX, in the natural gas sector a rate of return methodology is applied to the RAB evaluated in historical costs. This regulatory methodology ensures the recovery of investment costs approved in a NTYNDP, i.e. the depreciations and the return on assets net of depreciations and subsidies.

In the 2016-2017 gas year, a mechanism to smooth the impact of demand volatility on tariffs was introduced. The aim of this mechanism is to mitigate the impact of demand volatility on the allowed revenue recovered by the TSO through network tariffs in each year, by deferring part of the adjustments associated with deviations in demand forecasts, when such adjustments exceed a certain limit. The mechanism is symmetrical, being activated for under and over deviations in demand, and the deferred amounts are reimbursed in the following three years, ensuring financial neutrality for the operator and for the tariff system. The revenue deviation limit associated with demand deviations, which activates the mechanism, is a parameter set by ERSE at the beginning of each regulatory period (currently 20%).

For more details on the regulation methodology applied to the gas TSO and the parameters applied in the current regulatory period, please refer to the document "Parâmetros de regulação para o período 2024 a 2027"<sup>14</sup> (only available in Portuguese).

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<sup>13</sup> Available on ERSE's website, at <https://www.erse.pt/media/bjdnrr05/par%C3%A2metros-2022-2025.pdf>.

<sup>14</sup> Available on ERSE's website, at <https://www.erse.pt/media/hh1ezngj/par%C3%A2metros-2024-2027.pdf>.

### **3.2 RISK MANAGEMENT MEASURES APPLIED TO THE TSO OF THE ELECTRICITY SECTOR**

The introduction of incentive regulation at TOTEX level is intended to lead the electricity TSO to a better economic performance, giving it the necessary resources to develop its activity in a more flexible way, but with greater responsibility in its decisions and on the medium and long term performance. It is inherent in incentive regulation that the annual flow of allowed revenues may not coincide with the actual annual costs, so the company should take this aspect into account in the planning and implementation of its activities.

On the other hand, if the actual investments differ in terms of cost or commissioning date from those forecast in the NTYNDP and internalised in the parameterisation of the CAPEX component of the total cost base, the mechanism for sharing profits or losses (described in section 3.1.1) will be triggered for deviations in the average return on assets that exceed certain limits defined at the beginning of the regulatory period.

Since the current regulatory methodology applies to total controllable costs, whose parameters are defined for the horizon of the regulatory period, the impact of the regulatory framework on the company's investment risks is evaluated for this horizon for the TOTEX, where investment costs are included (in the CAPEX component).

Notwithstanding the new challenges associated with the changes occurred in 2022, the regulatory framework applied to the electricity TSO strongly limits the investment risks.

#### **REGULATORY TREATMENT OF TOTEX**

The cost of an investment planned in a NTYNDP approved by the Government, or in a NTYNDP in the process of being approved and favourably assessed by ERSE, is taken into account when determining the CAPEX component to be included in the total cost base for a regulatory period. Hence, these investment costs are included in the allowed revenues of the electricity TSO, which are reflected in the network access tariffs.

The rate of return used to determine the CAPEX component is set to reflect both the risk of the activity and the risk of the current financial and economic environment. Thus, the return on assets corresponds to the WACC, which takes into account the company's cost of debt and cost of equity. The cost of debt reflects the company's financing costs. The cost of equity is calculated using the Capital Asset Pricing Model (CAPM), which reflects the systematic risk of the activity. Finally, the remuneration rate is indexed to the Portuguese



10-year bond yield, with a cap and a floor. Therefore, despite the changes in the regulatory framework as of 2022, the principle of linking the remuneration of the assets to the national financial context has been maintained, which reduces the liquidity risk for the company, potentially hindering investments.

Cumulatively, there are other options applied by ERSE to the electricity transmission activity that mitigate the main investment risks, namely:

1. Risk of time overruns

The accrued financial costs are considered as investment costs, which are included in the calculation of the CAPEX component incorporated into TOTEX and are thus recovered through network access tariffs. Any additional financial costs due to a time overrun of the investment are thereby recovered. However, these costs are only recovered and remunerated as from the date on which the asset becomes operational.

2. Risk of stranded assets

Once the investments included in the approved NTYNDP become operational, and after they become part of the RAB (see point 4), until they are fully depreciated, even if the assumptions on activity evolution underlying the investment selection and decision are no longer valid. This means that these investments are taken into account throughout their lifetime in the calculation of the CAPEX component incorporated into TOTEX.

3. Risk of not considering the anticipatory investments

In the parameterisation process for the next regulatory period, the budgeted values of investments planned in the approved NTYNDP are included in the calculation of the CAPEX component incorporated into TOTEX. In this way, the allowed revenue of the electricity TSO internalises the investments in transmission assets to be made before the needs by generation or consumption facilities are confirmed, in order to facilitate their connection at a later stage.

4. Risk of mismatch between the actual CAPEX and the forecast CAPEX

The total cost base defined for a regulatory period includes in the CAPEX component the investment costs planned for all the years of that regulatory period, provided they are approved in

the NTYNDP and validated by ERSE to be included in the RAB<sup>15</sup>. The difference between these costs and the actual investment costs is taken into account in the definition of the total cost base of the following regulatory period. Furthermore, deviations of the CAPEX component related to changes in the rate of return or physical cost drivers are reflected in the allowed revenues through adjustments made two years later. On the other hand, the existence of the mechanism for sharing profits and losses related to the average return on assets will allow the regularisation of the TSO's allowed revenues in the following regulatory period, namely if there are significant deviations in the implementation of investments<sup>16</sup>.

### **MECHANISM FOR SHARING PROFITS AND LOSSES RELATED TO THE RETURN ON ASSETS**

As a complement to the revenue cap regulation applied to the electricity TSO's controllable TOTEX, a mechanism for sharing profits and losses has also been introduced in 2022. This mechanism is triggered if the average return on assets verified during the previous regulatory period goes beyond pre-defined thresholds, which aims to evaluate the deviations in profitability of the activity compared to the rate of return defined by ERSE. Its activation results from a comparison of the average regulatory operating profitability verified in the years of that regulatory period with the average rate of return defined by the NRA for the same period. The mechanism operates progressively at three different levels of deviation in assets returns<sup>17</sup>. It should be noted that the revenues resulting from the incentives to improve technical performance of the TSO are not taken into account in this calculation, to avoid distorting the rationale of incentive regulation.

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<sup>15</sup> There is no exact and immediate equivalence between the approval of an investment in the NTYNDP and its inclusion in the cost base for the new regulatory period. ERSE validates a number of factors, namely whether the investment has actually been put into operation, whether it fulfils the objectives for which it was approved in the NTYNDP and whether the costs reflect the forecasts in the NTYNDP, under *ceteris paribus* conditions.

<sup>16</sup> Excessive deviations in investment costs may lead to a decrease in the return on assets, which will originate an additional amount of revenue to the company during the following regulatory period, if the deviation exceeds the limits pre-defined for the mechanism. In the opposite side, deviations by default in investment costs may activate the mechanism in order to the company deliver partially the excess return on assets.

<sup>17</sup> If profitability is close to the rate of return, no sharing takes place. If profitability deviates moderately from the rate of return, there is an equitable sharing of gains or losses between the company and consumers. In extreme cases, with excessive deviations of profitability from the rate of return, there is full replacement of gains or losses beyond this threshold.

The mechanism applies throughout the regulatory period<sup>18</sup>. In order to minimise the risks of tariff instability, any amounts resulting from the application of the mechanism are progressively transferred until the end of the regulatory period.

#### **IMPACT OF THE REGULATORY FRAMEWORK**

Although the regulatory framework applied to total controllable costs is incentive-based, requiring efficiency efforts by the operator, there are strong mitigating factors to the risk faced by the operator.

On one hand, there is the guarantee that the investment planned in the NTYNDP approved and validated by ERSE are included in the RAB, which is taken into account in the calculation of the CAPEX component included in the TOTEX. Moreover, the rate of return used to calculate this CAPEX component reflects not only the risks of the activity, but also the country's financial conditions, due to the methodology used to determine the WACC and the use of the WACC as one cost driver of the incentive regulation.

On the other hand, the existence of regulatory periods of intermediate duration (4 years) and the updating of the CAPEX component with the real assets and the most recent TYNDP at the beginning of each regulatory period prevent the existence of systematic deviations in the repercussion of investment on the allowed revenues that are recovered through network access tariffs.

Even so, it should be noted that there may be some perception of risk by the TSO during the regulatory period, due to the decoupling between the flow of allowed revenues and the costs actually incurred, bearing in mind that the CAPEX component incorporated in the total cost base is smoothed. However, the methodology adopted in the definition of this parameter ensures financial neutrality for the operator and for the tariff system.

In situations where significant changes occur between the investment plan embedded in the TOTEX, there is a gradual replacement of the revenue deviations that may arise, by default or by excess, either through the determination of the allowed revenues for the following regulatory period or through the mechanism for sharing profits and losses related to deviations of the average return on assets.

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<sup>18</sup> The calculation of the mechanism is carried out in the second year of the following regulatory period in order to use actual and audited values from all years of the former regulatory period.

Regarding the OPEX component embedded in the TOTEX, it has a very small weight in the total cost base of the electricity TSO. In the parameterisation this component is divided into fixed and variable parts. The variable part varies with relatively stable physical cost drivers (installed capacity of generators connected to the network and length of the network), so no potential risks associated with the recovery of the OPEX component are identified.

Finally, it allows for sporadic and exceptional treatment of costs outside the TOTEX methodology, namely in cases where the regulator deems it necessary due to the specificity of certain costs of the projects (both CAPEX and OPEX)<sup>19</sup>.

In summary, despite the application of a revenue cap methodology to controllable TOTEX, the regulatory framework of the electricity TSO allows a low level of risk for the implementation and operation of investments planned in the NTYNDP, bearing in mind the intermediate duration of the regulatory period, the methodologies underlying the calibration of parameters, the annual adjustments with actual cost drivers and the application of the mechanism for sharing profits and losses at the end of the regulatory period.

## **OFFSHORE GRIDS**

Decree-Law no. 15/2022 modified the concession basis of the Portuguese transmission network, so that the concession area now covers the mainland and the adjacent maritime area up to the limit of the Contiguous Zone, as defined in the United Nations Convention on the Law of the Sea<sup>20</sup>. Thus, the electricity TSO becomes responsible for the planning, development and operation of the offshore grids in the maritime area with this delimitation.

As a result, the investment of the offshore grids and the corresponding operating costs will receive the same regulatory treatment as those of the onshore grids in mainland Portugal. This means that these costs will incorporate the TOTEX of the applicable regulatory methodology, on the assumption that they are

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<sup>19</sup> Since the TOTEX methodology came into force, ERSE has already accepted investment costs outside the TOTEX cost base, namely for a project that had permitting problems not directly attributable to the operator. At the time the TOTEX cost base was defined, the project had not yet been transferred into operation and there was still uncertainty about the date on which this would occur. As the transfer to operation was confirmed during 2022, the CAPEX for this project was included in the operator's allowed revenues, outside the TOTEX methodology.

<sup>20</sup> Corresponding to the maritime area between the Portuguese mainland coast and 24 nautical miles, as defined in the "[United Nations Convention on the Law of the Sea](#)".

planned in an approved NTYNDP or, if not yet approved, in a NTYNDP in the process of being approved and favourably assessed by ERSE.

The risks and the corresponding management measures for this type of investment are therefore equivalent to those described above.

#### **SPECIFIC RISKS AND INCENTIVES FOR ELECTRICITY PROJECTS OF COMMON INTEREST**

Within the scope of Article 17(1) of Regulation (EU) no. 2022/869, if the electricity TSO requests an incentive for a project of common interest (PCI) due to specific risks, it will be applied the 7-step common methodology for the identification and evaluation of risks, described in ACER Recommendation no. 03/2014.

However, the evaluation will only be conducted in cases where it is proven that the default regulatory model of electricity transmission and its parameters fail to already provide a fair and sufficient balance between risks and revenues for the TSO, or the specificities of the project have not been addressed outside the TOTEX methodology, under the terms mentioned above.

### **3.3 RISK MANAGEMENT MEASURES APPLIED TO THE TSO OF THE GAS SECTOR**

In the case of the gas sector, the regulatory framework makes the TSO investment risk almost inexistent.

#### **REGULATORY TREATMENT OF OPEX**

The OPEX of the gas TSO is subject to an incentive regulation. Therefore, the allowed revenues to support such cost may differ from the actual costs incurred. However, as this is a very mature activity, it is not expected that there will be significant changes in unit operating costs throughout the regulatory period, with any over or under deviations being internalised in the parameterisation of the operational cost base for the following regulatory period.

On the other hand, the principle of economic performance sharing, which is also applied to the transmission activity of the electricity sector, reduces the gap between the allowed revenues and the actual costs of the company.

Therefore, there are no significant or systematic risks associated with the recovery of the OPEX of the gas TSO.

### REGULATORY TREATMENT OF CAPEX

The investments of the gas TSO that are included in the NTYNDP approved by the Government and validated by ERSE to be included in the RAB<sup>21</sup> must be included on allowed revenues calculation and recovered through the network access tariffs. In the gas transmission, the RAB is determined with actual investment.

With regard to the remuneration of investments in the gas sector, the rate of return on assets is defined to reflect both the risk of the activity and the risk of the financial and economic context. Thus, the rate of return on assets corresponds to the WACC composed of the cost of debt and of the cost of equity. The costs of debt reflects the company's financing costs. The cost of equity reflects the systematic risk of the activity that is estimated by using the CAPM<sup>22</sup>.

The rate of return is also indexed to the evolution of the Portuguese 10-year bond yield. This allows acknowledging the country's financial conditions and, therefore, mitigating the investment liquidity risk. As in the electricity sector, the indexation mechanism is also partial, which means that the rate of return on regulated assets cannot evolve beyond a maximum or a minimum value.

In addition, other measures applied by ERSE make it possible to address the remaining main risks of gas TSO, which are similar to those applied to electricity TSO:

1. Risk of time overruns

The accrued financial costs, which may be due to any time overrun of the investment, are considered as investment costs, which are included in CAPEX calculations and recovered through network access tariffs. However, these costs are only recovered and remunerated once the investment has become operational.

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<sup>21</sup> There is no exact and immediate equivalence between the approval of an investment in the NTYNDP and its inclusion in the cost base for the new regulatory period. ERSE validates a number of factors, namely whether the investment has actually been put into operation, whether it fulfils the objectives for which it was approved in the NTYNDP and whether the costs reflect the forecasts in the NTYNDP, under *ceteris paribus* conditions.

<sup>22</sup> *Capital Asset Pricing Model*

2. Risk of stranded assets

Once the investments included in the approved NTYNDP become operational and are validated by ERSE, they become part of the RAB and considered for CAPEX calculations until they are fully depreciated, even if the assumptions that serve as ground for investment selection and decision are no longer valid.

3. Risk of not considering the anticipatory investments

In the process of setting network access tariffs for the following year, the budgeted values of investments that are foreseen to come into operation in that year are included in the RAB underlying the CAPEX calculation.

4. Risk of mismatch between the actual CAPEX and the forecast CAPEX

The network access tariffs (applied on a yearly basis) include forecast investment costs. The difference between actual investment costs and forecasted costs is accounted for in the tariffs two years later, including every financial cost of the existing deviations.

**IMPACT OF THE REGULATORY FRAMEWORK**

Despite being applied a price cap regulation to the OPEX, the impact due to the possible mismatch between the actual costs and the costs recovered through tariffs is mitigated since the regulatory period has an intermediate duration (4 years).

With regard to the CAPEX, the rate of return methodology applied is inherently of minimal risk to the TSO.

The existence of the mechanism to smooth the impact of demand volatility on tariffs introduces a time lag between the flow of revenues recovered through the network tariffs and the allowed revenues of the gas TSO. However, the time lag is short (3 year) and the mechanism financially neutralises the revenue deferrals, thereby significantly not increasing the risks incurred by the TSO. Furthermore, by promoting tariff stability, it also contributes to an improved economic sustainability of the gas transmission network.

Thus, the regulatory framework applied to the activities developed by the gas TSO guarantees a very low level of risk for the implementation and exploitation of the investments approved in the NTYNDP.

#### **SPECIFIC RISKS AND INCENTIVES FOR GAS PROJECTS OF COMMON INTEREST**

Within the scope of Article 17(1) of Regulation (EU) no. 2022/869, if the gas TSO requests an incentive for a project of common interest (PCI) due to specific risks, it will be applied the 7-step common methodology for the identification and evaluation of risks, described in ACER Recommendation no. 03/2014.

However, the evaluation will only be conducted in cases where it is proven that the default regulatory model of electricity transmission and its parameters fail to already provide a fair and sufficient balance between risks and revenues for the TSO.