



STUDY ON THE VIABILITY OF CROSS-BORDER BALANCING OPERATIONS IN THE REGION

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1. Glossary

ACER - European Union Agency for the Cooperation of Energy regulators

CNMC – ‘Comisión Nacional de los Mercados y la Competencia’, National Regulatory Authority for the Energy Sector in Spain.

CRIA – ‘Código de Registro Individualizado de Agente’, ERSE code that unequivocally identifies an entity in the energy sector.

ERSE – ‘Entidade Reguladora dos Serviços Energéticos’, National Regulatory Authority for the energy sector in Portugal.

GIG – ‘Gestor Integrado de Garantias’, Entity responsible for implementing the risk and guarantee management mechanism applied on electricity and gas sectors in Portugal.

GTG – ‘Gestor Técnico Global do SNG’, is the Entity responsible for maintaining the gas system facilities in Portugal within adequate operational limits, either in the regasification plants, the transmission network or in the underground storage facilities. It is also responsible for calculating the balance of each user in the balancing areas and for invoicing the surcharges that may arise from the imbalance of users in the different balancing areas and the use of balancing actions in the transmission network.

GTS – ‘Gestor Técnico del Sistema’, is the Entity responsible for maintaining the gas system facilities in Spain within adequate operational limits, either in the regasification plants, the transmission network or in the underground storage facilities. It is also responsible for calculating the balance of each user in the balancing areas and for invoicing the surcharges that may arise from the imbalance of users in the different balancing areas and the use of balancing actions in the transmission network.

PVB – ‘Punto Virtual de Balance’, virtual interchange point of the transmission network where users can transfer ownership of gas, in Spain.

REMIT - Regulation on wholesale Energy Market Integrity and Transparency

RNTG – ‘Rede Nacional de Transporte de Gás’, portuguese gas transmission network.

RRC – ‘Regulamento de Relações Comerciais dos setores elétrico e do gás’, ERSE regulation establishing commercial relations in the electricity and gas sectors.

SIFCO – ‘Sistema de Información de Facturaciones y Consumos’, CNMC code that unequivocally identifies an entity in the energy sector.

SNG – ‘Sistema Nacional de Gás’, portuguese gas system.

VIP - Virtual Interconnection Point, commercial point that aggregate the two physical interconnection points between Portugal and Spain (Campo Maior/Badajoz e Valença do Minho/Tuy).



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VTP – ‘Virtual Trading Point’, virtual interchange point in the Portuguese transmission network where users can transfer ownership of gas.

2. Foreword

The “Study on the Viability of Cross-Border Balancing Operations in the Region” document is a deliverable of the SGRI Work Plan 2021/2022, provided under the ‘Target 2 – Market Integration in the Region’. It seeks to respond to the request of the NRAs, by initiative of ERSE, for the TSOs to study the options for the implementation of a procedure for cross-border balancing actions between Portugal and Spain, as foreseen in the Regulation (EU) 312/2014 of 26/March/2014 establishing a Network Code on Gas Balancing of Transmission Networks in force.

Given that the trading platform was recently put in place for the Portuguese system (on 16/March/2021) and considering that it has yet to tread the path to liquidity, cross-border balancing actions may provide an alternative tool for the system balancing.

As requested, this study, now addressing Portugal and Spain, should assess the regulatory conditions and the costs of cross border balancing operations as an indicator of the potential effectiveness of such mechanism and whether it can be used to increase the efficiency and reliability of balancing operations, with possible later interest to the entire region.



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3. Executive Summary

For the purpose of implementing cross-border balancing actions between Portugal and Spain there is a profuse regulatory framework to consider at European level, at National level in each country and, also, at common level, all of them set with a view to ensuring the proper functioning of the internal gas market under the Regulation (EC) No 715/2009 of 13/July/2009 on conditions for access to the natural gas transmission networks.

In order for the relevant system managers to access the adjacent system to perform cross-border balancing actions, there are several contractual conditions to comply and associated costs to bear, as in the case for any regular network user.

At operational level, the design of any cross-border balancing actions must consider the effectiveness and efficiency requirements of the system in need to trigger a cross-border balancing action, without compromising the supplying adjacent system with undesired effects. This asks for the development of adequate coordination measures for compatibility between the trading needs and adequate interconnection capacity allocation for such actions.

The desired coordination and simplification of the access to cross-border balancing actions by any of the relevant technical managers in the current market model would need regulatory changes in each system.

The proposed new EU framework to decarbonize gas markets, promoting hydrogen and reducing methane emissions, which was adopted by the Commission on the 15/December/2021 (Regulation and Directive), must be considered when making further developments on this matter.

4. Regulatory framework

At **European level**, there are several network codes setting the rules for access, capacity allocation, balancing and interoperability conditions to the natural gas transmission networks with a view to ensuring the proper functioning of the internal gas market under the Regulation (EC) No 715/2009 of 13/July/2009. Those with relevance for the purpose of this study, are the following:

- Regulation (EU) 312/2014 of 26/March/2014, establishing a Network Code on Gas Balancing of Transmission Networks, supports the development of a competitive short term wholesale gas market in the European Union that enables the provision of gas flexibility, from whatever source, to offer it for purchase and sale via market mechanisms so that network users can balance their balancing portfolios efficiently or the transmission system operator can use the gas flexibility when balancing the transmission network. It also foresees market-based balancing rules financially that incentivize network users to balance their balancing portfolios via cost-reflective imbalance charges. Under this Regulation, the transmission system operator shall undertake balancing actions:
 - in order to (a) maintain the transmission network within its operational limits; and (b) achieve an end-of-day linepack position different from the one anticipated on the basis of expected inputs and off-takes for that gas day, consistent with economic and efficient operation of the transmission network. While undertaking balancing actions, the transmission system operator shall consider at least its own estimates of demand of gas over and within the gas day for which the balancing action(s) is (are) considered; (b) nomination and allocation information and measured gas flows; and gas pressures throughout the transmission network(s).
 - doing so through the (a) purchase and sale of short-term standardized products on a trading platform; and/or (b) the use of balancing services.

While undertaking balancing actions, the transmission system operator shall take into account that (a) the balancing actions shall be undertaken on a non-discriminatory basis; and (b) the balancing actions shall regard any obligation to operate the transmission network in an economic and efficient way.

The transmission system operator may seek approval from the national regulatory authority to trade within an adjacent balancing zone, and have the gas transported to and from this balancing zone, as an alternative to trading title products and/or locational products in its own balancing zone(s). When deciding on granting the approval, the national regulatory authority may consider alternative solutions to improve the functioning of the domestic market. The applicable terms and conditions shall be reconsidered on an annual basis by the transmission system operator and the national regulatory authority. The use of this balancing action shall not limit the access to and use by the network users of capacity at the interconnection point concerned.

- Regulation (EU) 2017/459 of 16/March/2017 establishing a network code on capacity allocation mechanisms in gas transmission systems. This Regulation applies to interconnection points, setting up standardized capacity allocation mechanisms including auction procedure for the standard capacity products to be offered and allocated, applying to all technical and interruptible capacity at interconnection points as well as to additional

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capacity in the meaning of point 2.2.1 of Annex I of Regulation (EC) No 715/2009 and to incremental capacity.

- Regulation (EU) 2015/703 of 30/April/2015 establishing a network code on interoperability and data exchange rules. This Regulation sets out rules regarding interoperability and data exchange as well as harmonized rules for the operation of gas transmission systems applicable to interconnection points. For the purpose of harmonization in technical, operational and communication areas and for facilitating commercial and operational cooperation between adjacent transmission system operators, this Regulation addresses interconnection agreements, units, gas quality, odourisation and data exchange, providing rules and procedures to reach an appropriate level of harmonization towards efficient gas trading and transport across gas transmission systems. It requires that adjacent transmission system operators shall establish an interconnection agreement in respect of each interconnection point: (a) rules for flow control; (b) measurement principles for gas quantities and quality; (c) rules for the matching process; (d) rules for the allocation of gas quantities; (e) communication procedures in case of exceptional events; (f) settlement of disputes arising from interconnection agreements; (g) amendment process for the interconnection agreement.

At national level in Portugal:

- The 'Decreto-Lei n.º 62/2020, published in Diário da República No 168, 1st series, of August 28, 2020, rules the organization and functioning of the national gas system. It foresees, among many other, all the national regulatory dispositions and all regulation related to the gas balancing rules and capacity management in the system. Those with relevance for the purpose of this study are the following:
 - The 'Regulamento de Operação das Infraestruturas do setor do gás' (ERSE regulation No 341/2021, published in Diário da República No 72, 2nd series, of April 29, 2021), ROI, establishes the applicable procedures and criteria for the management of the gas flows, the gas network balancing and all technical conditions allowing for the infrastructure operators to ensure the required interoperability and respective supervision, enshrining the rights and obligations of all stakeholders. Respective procedures are established at the 'Manual de Procedimentos da Gestão Técnica Global do SNG' (ERSE Directive No. 9/2021, published in Diário da República No 92, 2nd series, of May 12, 2021), MPGTG SNG, including, among others, the detailed rules for the functioning of the national balancing system.
 - The 'Regulamento de Acesso às Redes, às Infraestruturas e às Interligações do setor do gás' (ERSE regulation No 407/2021, published in Diário da República No. 92, 2nd series, of May 12, 2021), RARII, establishes the applicable procedures for infrastructure access for users in the national gas system. Respective procedures are established at the 'Manual de Procedimentos do Acesso às Infraestruturas do setor do gás natural' (ERSE Directive No. 13/2017, published in Diário da República No. 183, 2nd series, of September 21, 2017, modified by Directive No. 7/2020, published in Diário da República No 78, 2nd series, of April 21, 2020), including, among others, the detailed rules for the capacity allocation and congestion management in the gas network, the LNG terminal and the underground storage.
 - The 'Regulamento de Relações Comerciais dos Setores Elétrico e do Gás' (ERSE regulation No. 1129/2020, published in Diário da República No 252, 2nd series, of



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December 30, 2020), RRC, identifies the various players in the gas sector, specifying the way in which they relate to each other and the rules applicable to the functioning of the markets (retail and wholesale).

At national level in Spain:

- The ‘Real Decreto 984/2015, de 30 de octubre, por el que se regula el mercado organizado de gas y el acceso de terceros a las instalaciones del sistema de gas natural’ regulates the organized gas market, third party access to facilities with regulated access to the gas system and the management of guarantees. Establishes the independent contracting of entries and exits to the transmission and distribution system (as a Virtual Balancing Point for the exchange of gas introduced without any restrictions), the simplification and streamlining of contracting procedures (through the application of framework contracts and the constitution of a unique telematic contracting platform) and the establishment of market mechanisms for the allocation of capacity.
- The ‘CNMC Circular 2/2020, de 9 de enero de 2020, por la que se establecen las normas de balance de gas natural’ establishes the mechanisms for calculating the gas balance in the Spanish gas infrastructures, including the procedures for calculating imbalances and their surcharges, the operational balance for the balancing areas of the Virtual Balance Point (PVB), Tank Balance Point (TVB) or Underground Storage Balance Point (AVB) , as well as the rules for nominating the use of gas system infrastructures and the procedures for informing users in relation to the balance, in accordance with the provisions of Commission Regulation (EU) 312/2014 establishing the network code on gas balancing in the transmission networks.
- The ‘CNMC Circular 8/2019, de 12 de diciembre de 2019, por la que se establece la metodología y condiciones de acceso y asignación de capacidad en el sistema de gas natural’, establishes the procedure and conditions for third party access and connection to transmission and distribution facilities of the gas system, including capacity allocation procedures, general technical criteria applicable to access to system facilities, the basis for the establishment of guarantees relating to capacity contracting, as well as congestion management mechanisms.
- The ‘CNMC Resolución de 9 de junio de 2020, por la que se aprueba el procedimiento de habilitación y baja de la cartera de balance de los usuarios del sistema gasista en el tanque virtual de balance, el punto virtual de balance y el almacenamiento virtual de balance y el contrato marco de cartera de balance’. It approves the procedure for the authorization and cancellation of users' balancing portfolio, which is compulsory in order to have a PVB balancing portfolio, an essential requirement for operating in the transmission and distribution network, including the signing of a unique balancing portfolio contract. This resolution also approves this contract, which establishes the framework for interaction between users and GTS in relation to their balance.
- The ‘CNMC Resolución de 15 de abril de 2020, por la que se aprueba el contrato marco para el acceso a las instalaciones del sistema gasista’, approves the framework agreement for access to the spanish gas system facilities.

At common level:



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- Interconnection Agreement at VIP Ibérico, established between REN Gasodutos, S.A., Enagás Transporte, S.A.U. and Enagas GTS, S.A.U on the 14/02/2017, which defines the procedures and principles that regulate the interface conditions between REN and Enagás transmission networks (reserved document).



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5. Conditions of Access

5.1. Contractual Conditions

5.1.1. Portugal

In order for an entity to trade natural gas in the Portuguese wholesale market (namely, in organized market), it must hold the status of Market Agent (AM), within the scope of the SNG global technical management activity, in accordance with numbers 1, 2, 3 and 6 of article 244 present in the RRC in force.

With the wording of number 6 above, whenever access to the wholesale market is made for physical delivery of contracted gas, the access to the AM status is carried out through the signing of the adhesion to the SNG global technical management contract. The general conditions of this agreement are present in Annex II of the MPGTG SNG, in compliance with RRC article 247 in force.

To deliver or receive gas at the Portuguese Virtual Trading Point (VTP), which is located at national network, the AM must sign the network use contract, with general conditions established in accordance with the article 10 of the RARII in force. Pending the update of the general conditions, in accordance with the regulations in force, the clauses contained in Despacho ERSE No. 24145/2007, published in the Diário da República No. 203, of 22 October, continues to be taken into account.

Procedure No. 1 present in the MPGTG SNG systematizes the process to be instructed with the Portuguese Global Technical Manager (GTG) to obtain the status of AM. As prerequisites for the instruction, the candidate entity need to obtain:

- The registration pursuant to Article 9 of Regulation on wholesale energy market integrity and transparency (REMIT) – obtaining Energy Identification Code (EIC), with European Union Agency for the Cooperation of Energy regulators (ACER), in accordance with number 2 of article 244 in RRC in force.
- The Individualized Registration Code (CRIA) attributed by ERSE, in accordance with article 245 of the RRC in force –which rules are established in Diretiva ERSE No. 16/2019, published in Diário da República No. 235, 2nd series, of 6 December 2019.

Before signing the adhesion contract, the entity must present the required guarantees, in accordance with Diretiva ERSE No. 7/2021, published in Diário da República no. 73, 2nd series, of April 15, 2021, associated with the risk and guarantee management regime in the national electricity and gas systems.

According to paragraph 2 of article 251 of the RRC in force, an entity to be admitted to trading on an organized market, must previously access the status of market agent within the scope of the global technical management activity in the Portuguese system. In addition, to comply with the other requirements, in point 2.2, of Annex I, of Diretiva ERSE No. 14/2020, published in Diário da República No. 191, 2nd series, of 30 of September. This Annex establishes the trading rules for products with physical delivery at the VTP, traded on the MIBGAS trading platform and associated



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procedures, to which the agent undertakes to comply with the execution of the adhesion contract, attached to the trading rules.

5.1.2. Spain

An entity wishing to participate in the Spanish Gas PVB (Punto Virtual de Balance) must hold the status of Authorized User and be included in the list of authorized users managed by Enagás in its role of Technical System Manager (Enagás GTS), to which has to take the following steps:

Previous requirements to start activity as shippers of natural gas:

- Notify by means of a written communication, before the beginning of the activity, to the competent Administration and in any case to the General Direction of Energy Policy and Mines of the Ministry for the Ecological Transition and the Demographic Challenge and fulfil a responsible declaration that the company accomplishes all the requirements established to exercise the activity.
- After receiving notification from the General Directorate for Energy Policy and Mines, the CNMC grants an identification code (SIFCO Code) to the Shipper who begins activity in Spain to manage its information in the Information System on Billing and Consumption of the Gas Sector (SIFCO).
- Obtaining an EIC Code: The Central Issuing Office - ENTSO-E's Secretariat Local Issuing Office for Spain is Red Eléctrica. REE provides a web application to the agents participating in the energy markets to support this function.
- User registration in the guarantees account in the guarantees manager (MIBGAS): The guarantee account user is a legal entity that, having signed the document of acceptance and adhesion to the guarantee management rules (NGGSG) is associated to a guarantee account (guarantees for contracting infrastructure capacity with regulated third-party access and for the settlement of PVB imbalances).

Once all these previous requirements have been completed, next steps to become authorized in the Spanish Gas System in order to operate at gas facilities and PVB area are:

- Signing the adhesion to balance portfolio framework agreement with Enagás GTS which allows to operate and perform notifications of gas transactions in the desired balancing areas. As a precondition to sign this adhesion agreement is mandatory the arrangement of imbalances guarantees with MIBGAS as guarantees manager. Once signed the agreement, the user is included in the updated list of authorized users with balance portfolio and apply to MIBGAS to register as a MIBGAS Market Agent allowing the negotiation in spot and prompt products in PVB Area.
- Signing the adhesion to framework agreement for access to the spanish gas system facilities (AISGE) with Enagás GTS which is imperative for the allocation of the various services on the unique telematic contracting platform. As a precondition to sign this adhesion framework agreement, is mandatory the arrangement of the minimum guarantees for contracting capacity with MIBGAS as guarantees manager.

Under the scope of the Resolution of 4th December 2015, of the Secretary of State for Energy, approving the Market Rules, the Adhesion Contract and the Market Resolutions of the Organized



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Gas Market and its 5 December 2018 and 2nd August 2016 modifications, in order to be authorized to trade in MIBGAS is mandatory to acquire the status of Market Agent.

5.2. Regulatory implications

5.2.1. Portugal

A foreign Technical Manager is not within the scope of national regulation, nor is it considered to be an intervening subject in the commercial relationship, taking into account the current regulatory wordings. The question relies on whether it is possible to requalify this entity, taking into account paragraphs r), of number 1, of the article 3rd - Subjects intervening in the commercial relationship - and i), of number 3, of article 244 - Access to the market regime -, both related to the RRC in force.

The paragraphs contain the following wording:

- Item r), number 1, article 3: "Other natural or legal persons engaged in activities related to the production, marketing or purchase and sale of electricity or gas, including self-consumption".
- Point i), number 3, article 244: "Other agents of organized markets not mentioned in the previous paragraphs".

The RRC must be adjusted accordingly, if the above items do not allow for the proper regulatory framework.

Because of the regulation in force, the current wording of the contracts, both for adhesion and for use of the transmission network, imply that the Spanish Technical Manager needs to be qualified as a supplier in Portugal, in order to trade in the wholesale market and use the transmission network, namely by:

- Sub point i), subparagraph a), of the number 2 of the clause 11 - termination of the contract - of the general conditions of the adhesion contract.
- Clause 2 - scope of application - affecting the general conditions of the contract of use.

Thus, except for another understanding/regulatory change that substantiates amendments to the above clauses, the Spanish System Operator to trade natural gas on the Portuguese Virtual Trading Point (VTP), must ordinarily, like any other market agent wishing to participate in the Portuguese wholesale market, take the following steps:

- Licensing/registering with DGEG as a supplier.
- Obtaining the AM individualized registration code from ERSE, pursuant to article 245 of the RRC in force and Diretiva ERSE No. 16/2019 (in addition to registration, under article 9 of REMIT - from the respective national regulator /ACER).
- Enter into the global technical management of the national gas system adhesion contract – signed with REN; It is the formalization of obtaining the status of market agent, in accordance with RRC in force, as a necessary condition for trading in the organized wholesale market, operated by MIBGAS – provides eligibility for the process of joining the organized market – in

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addition to the negotiation of capacity products in accordance with the contracts for the use of the infrastructures that are signed.

- Signing the contract for the use of the gas transmission network – formalization of access to the national gas transmission grid, as a market agent, in order to be able to contract capacity, namely, at the virtual interconnection point (VIP) - celebrated with REN.
- Enter into the adhesion contract to the organized market, signed with the market operator MIBGAS, allowing the negotiation of spot and prompt products at the Portuguese VIP, under the terms set out in Diretiva ERSE No. 14/2020, published in Diário da República No. 191, 2nd series, September 30th.
- Enter into adhesion contract with the Integrated Guarantees Manager (GIG), signed with OMIP, aiming at establishing a guarantee that covers the payment obligations resulting from the execution of use and adhesion contracts, taking into account the effective participation verified in the gas market, in accordance with the Diretiva ERSE No. 7/2021.

5.2.2. Spain

A foreign Technical Manager is not within the scope of national regulation. Following Hydrocarbons Law 34/1998, of 7th October:

- Article 58: It is not among the definition of agents operating in the system.
- Article 61: Neither in the parties that can incorporate natural gas into the system that also establishes *“the Parties authorized to purchase natural gas shall have the right of access to regasification, storage, transportation and distribution facilities under the terms and conditions established in the applicable regulations”*.

Article 5 of the Circular 2/2020, of 9th of January, of the National Commission for Markets and Competition, establishing the natural gas balancing rules, establishes, for users of the gas system who wish to operate in the transmission and distribution network, the obligation to be authorized as users with a balancing portfolio at the virtual balancing point (PVB).

On the other hand, the Resolution of 15 April 2020, of the National Commission for Markets and Competition, approving the framework contract for access to gas system facilities, establishes that this contract is signed by parties with the right of access to the Spanish gas system.

According to Article 3. Subjects with right of access, of Royal Decree 984/2015, of 30 October, which regulates the organized gas market and third-party access to natural gas system facilities.

“Under the terms and conditions established in this Royal Decree, the following parties have the right of access to gas system facilities:

a) Natural gas shippers.

b) Direct consumers in the market.

c) The Technical Manager of the Spanish Gas System, natural gas transporters and distributors and the Corporation of Strategic Reserves of Petroleum Products (CORES), may exercise access to the facilities only and exclusively when so required for the development of the activities for which they are expressly authorized by the regulations in force”.



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Therefore, if the Portuguese system operator wishes to operate and notify transactions at the virtual balancing point (PVB), and therefore have a balancing portfolio at the PVB, it must, like any other user of the system, carry out the authorization process. This enabling process comprises the following steps:

- Notify by means of a written communication, before the beginning of the activity, to the competent Administration and in any case to the General Direction of Energy Policy and Mines of the Ministry for the Ecological Transition and the Demographic Challenge.
- Obtaining the SIFCO (Information System on Billing and Consumption of the Gas Sector) code granted by CNMC being included in the CNMC List of natural gas shippers.
- Registering in the Guarantees Account in MIBGAS.
- Adhesion to balance portfolio's framework agreement signed with Enagás Technical System Manager. It is required for contracting services, which entail entry and exit to the PVB Area, just as for performing transactions in the organized gas market or other market platforms.
- Adhesion to framework agreement for Access to the Spanish Gas System Facilities (AISGE) signed with Enagás Technical System Manager.

5.3. Associated costs

There are costs that are independent of the execution of market transactions and others costs resulting from them. The first costs we identify as fixed costs (although the guarantees to be presented may vary with the execution of market transactions, due to its mandatory nature, with a minimum associated, it is seen as a fixed cost), while the second costs we identify as variable costs.

5.3.1. Portugal

As fixed costs in Portugal, we have, namely:

- Payment of a registration fee as a supplier with the DGEG, pursuant to Portaria No. 83/2013, published in Diário da República No. 40, 1st series, of February 26, 2013.
- Charges related to the establishment of guarantees with the GIG entity, aimed at covering payment obligations resulting from participation in the wholesale market regime in Portugal, within the scope of contracts of use of transmission grid and of adhesion to the global technical management of SNG, pursuant to Diretiva ERSE No. 7/2021.
- Charges related to the establishment of guarantees with MIBGAS, within the scope of the respective contract of adhesion to the organized market managed by MIBGAS, aiming to cover the respective payment obligations, derived from verified purchase transactions to be established in accordance with point 6.6, present in the Annex I of Diretiva ERSE No. 14/2020.
- Tariff referring to VIP capacities contracted on the annual, quarterly and monthly horizons to guarantee interconnection capacity, regardless of whether its current use occurs or not.



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Variable costs in Portugal include:

- The costs related to participation in the wholesale market regime associated with the MPTGTG SNG in force, namely:
 - Imbalance charges.
 - Neutrality charges.
 - Tariffs referring to VIP capacities contracted with horizons shorter than the monthly.

5.3.2. Spain

As fixed costs in Spain, it exists, namely:

- Charges related to the establishment of imbalance guarantees in order to mitigate the possible non-payment of any amount due to imbalance settlements. These guarantees are required and calculated by Enagás GTS and administered by MIBGAS as guarantee manager. The procedure for calculating the guarantees for imbalance is set out in Chapter VII of Circular 2/2020, of 9 January, of the National Markets and Competition Commission, which establishes the natural gas balancing rules. The minimum guarantees to be deposited by a user for this concept are those set out in point 1 of Annex VIII of the Resolution of 2 August 2016, of the Secretary of State for Energy, which approves the rules for the management of guarantees of the gas system.
- Charges related to the establishment of guarantees for each of their contracts and for each of the services or products contracted. These guarantees are required and calculated by Enagás GTS and administered by MIBGAS as guarantees manager. The calculation procedure as well as the minimum guarantees to be deposited by a user for this concept are those listed in point 1 of Annex IX of the Resolution of 2 August 2016, of the Secretary of State for Energy, which approves the rules for the management of guarantees of the Gas System.
- Charges related to the establishment of guarantees with MIBGAS, within the scope of the respective contract of adhesion to the organized market managed by MIBGAS, aiming to cover the respective payment obligations, derived from verified purchase transactions to be established in accordance with point 3.4 of 'Resolución de 2 de agosto de 2016, de la Secretaría de Estado de Energía, por la que se aprueban las normas de gestión de garantías del Sistema gasista'.
- Fixed part of tariff referring to VIP capacities regardless of whether its current use occurs or not.

Variable costs in Spain include:

- Variable part of Tariffs referring to contracted VIP capacities associated to the use of the interconnection.
- The costs related to operation in the PVB following Circular 2/2020, namely:
 - Imbalance charges.
 - Neutrality charges.



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6. Operational conditions

In order for a transmission system operator to trade within an adjacent balancing zone and have the gas transported to or from this balancing zone, it is necessary the use of some transmission capacity at the interconnection point between both zones. This shall be accomplished:

- (i) allowing for the corresponding balancing action to be effective where it is meant,
- (ii) avoiding inefficient costs,
- (iii) and, in such way that it does not undermine the access and the usage by the network users of the capacity at the interconnection point, as required by the regulation.

In this process, the transmission system operator risks ineffectiveness of the required balancing action and inefficiency in both procedures (gas trade and corresponding capacity booking), if it is not done in a coordinated way, they may not achieve the required results.

To avoid the referred risk, it must be ensured that the total traded volumes in the adjacent market could be fully transported through the interconnection point, compassing traded volumes and VIP available transmission capacity. Hence, a cross-border mechanism would have to establish adequate measures of coordination for compatibility between the trading needs and adequate interconnection capacity allocation to cross-border balancing actions. With such coordination, no imbalances nor capacity mismatch (excess or not enough capacity booking) would occur resulting from cross-border balancing.

Furthermore, the transmission system operation shall observe a defined sequence for such cross-border balancing actions in the merit order, with proper priority among trading in its own balancing zone and eventual local products and/or balancing services, something that is actually missing in national regulation.

In addition, the condition for triggering a balancing action could evolve in order to allow taking in consideration the price difference between balancing zones at each moment.

Moreover, when designing the mechanism for cross-border balancing actions, and to do not undermine the usage of VIP by network users, some conditions could be set related to the overall nominations, or the use of interconnection over which it would not be possible to launch cross-border balancing actions, assuring also the compatibility with the application of congestion management procedures such as oversubscription and buy-back or day-ahead interruptible capacity allocation to network users, but not overcomplicating the cross-border balancing action mechanism.



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7. Conclusions

The conclusions of this study are the following:

- The design of the cross-border balancing actions must ensure that the quantities traded on the organized market by the relevant technical manager are able to fully flow through the interconnection point such that it allows for the desirable effect in the system in need and it does not cause undesired imbalances in the adjacent system. For this purpose, is necessary to develop adequate measures of coordination for compatibility between the trading needs and adequate interconnection capacity allocation to cross-border balancing actions that do not undermine the usage of the interconnection by network users. If these conditions are met, TSOs will not be subject to the risk of having to bear any imbalance or neutrality charges.
- In the current conditions, in order to implement a mechanism of cross-border balancing actions, any of the relevant technical managers must:
 - qualify and sign the access/balance contracts in the adjacent system, studying what should be the “figure” under the technical manager should access the adjacent market, since acting as a regular market agent in the adjacent system is not viable under current regulation.
 - participate in the regular allocation mechanism for the allocation of interconnection transmission capacity.
 - pay for all the associated costs with the respective participation in the adjacent system.
- Any other arrangements for simplifying and coordinating the access to cross-border balancing actions by any of the relevant technical managers in the current market model would need regulatory changes in each system. These procedures could be simplified in the future if further market integration is achieved between the systems.
- Further developments to this subject shall consider rules to be introduced by the revision of the new proposed EU framework to decarbonize gas markets, promoting hydrogen and reducing methane emissions, adopted by the Commission on the 15/December/2021 (Regulation and Directive) which recognizes the possibility of a technical manager to access the adjacent system to book capacity and develop its balancing functions.
- This is just a preliminary study on the potential implementation of cross-border balancing actions under the regulation in place, namely, “TSO acting as a market agent in the adjacent market”. Other alternative models are out of the scope of this report but they might be explored in future studies.