Med-TSO
TeasiMed2 project

RULES APPLIED TO THE INTERCONNECTIONS BETWEEN EU AND EXTRA-EU COUNTRIES:

Capacity allocation and management of interconnection congestions

Released on 22.05.25

Co-funded by the European Union

Table of contents

List of figures

List of tables

Acknowledgments

This report was prepared by Med-TSO Technical Committee Regulation, chaired by **Juan Manuel Rodriguez Garcia**, Red Eléctrica, in the frame of Teasimed 2 project.

The drafting team which realized this document was composed of:

Sofiene BEL HAJ AMOR (STEG - Tunisia)

Javier BARRANTES (RED ELÉCTRICA - Spain)

Dimitrios BECHRAKIS (IPTO - Greece)

Walid BENABED (ONEE - Morocco)

Juan Manuel RODRIGUEZ GARCIA (RED ELÉCTRICA - Spain)

Bilal TANATAR (TEIAŞ - Türkiye)

Tarik Emre ÖZDEMIR (TEIAŞ - Türkiye)

Gianni RESTANO CASSULINI (TERNA - Italy)

The work could not have been completed without the support and co-operation provided by all the Members of the TC Regulation that have reviewed the document.

Last but not least, thanks go to Med-TSO Secretariat staff and in particular to Ms. Naglaa KHATTAB, Mr. Luca RUFFINO, and Mr. Anas EL Hraiech for their help in coordinating the work for producing the report.

Glossary:

ARERA	Italian Regulatory Authority for Energy, Networks, and the Environment
ATC	Available Transmission Capacities
BES	Balkan Energy School
CBAM	Carbon Border Adjustment Mechanism
CP	Clearing Price
EBRD	European Bank for Reconstruction and Development
EnC	Energy Community
ENTSO-E	European Network of Transmission System Operators for Electricity
CESA	Continental Europe Synchronous Area
ESO EAD	Bulgarian TSO "Electricity System Operator, Energiya and Development"
EXIST	Energy Exchange Istanbul, the Turkish energy market operator
FSKAR	The Financial Settlement mechanisms of KΔf (Capacity Difference), ACE (Area Control Error) and ramping period
GME	Gestore del Mercato Elettrico, the Italian power, gas and environmental markets operator
ICJ	International Court of Justice
JAO	Joint Allocation Office, A service provider for Transmission System Operators (TSOs) In the European Electricity Market
LTNOM	Long Term NOMinated capacity
MBP	monthly base product
MIBEL	Iberian Electricity Market
MONITA	Montenegro–Italy interconnection.
NRA	National Regulatory Authority

NTC	Net Transfer Capacity
OMIE	Iberian Energy Market Operator
PCI	Project of Common Interest
PEXs	Power Exchange companies
PTRs	Physical Transmission Rights
REGAGEN	Montenegrin Energy and Water Regulatory Agency
SEE CAO	Southeast Europe Coordinated Auction Office
TCAT	Transparency and Capacity Allocation Tool, a platform managed by TEİAŞ (Turkish TSO) for capacity allocation/usage operations
TEN	Trans-European Network, the electrical infrastructure support program
TSO	Transmission System Operator
UIOLI	Use it or lose it, electricity trading mechanism, is a principle often applied in energy markets, particularly in the context of capacity allocation and trading
UIOSI	Use it or sell it, electricity trading mechanism, is a principle often applied in energy markets, particularly in the context of capacity allocation and trading
UNSCR	United Nations Security Council Resolution
WB	West Balkan countries (Albania, Bosnia and Herzegovina, Kosovo, North Macedonia, Montenegro, and Serbia)
YBP	Yearly Base Product

1. Introduction

This deliverable is part of TASK 2 Consolidation of common technical regulatory frameworks, Activity 2 Technical Support for the definition and implementation of Mediterranean Grid Codes, developed by the Technical Committee (TC) Regulation of Med-TSO under the TEASIMED II project (2023–2025).

The TC Regulation has outlined two main objectives for developing this Activity:

1. Provide practical examples and harmonized mechanisms for the management of interconnections between European Union member countries and third countries. This includes:
   - Capacity calculation and allocation mechanisms.
   - Congestion management and methods for using interconnection capacities.
   - Transparency coordination to enhance cross-border electricity trading within an interconnected electricity exchange zone. These efforts align with the Arab Grid Code, emphasizing key elements like cross-border capacity calculation, capacity allocation, congestion management, transmission services, and wheeling.
2. Introduce the concept of the Carbon Border Adjustment Mechanism (CBAM) and examine its implications on cross-border electricity trading. Electricity exchanges between the EU and non-EU countries must comply with CBAM, yet there are numerous challenges and questions about how to interpret and apply this regulation. A separate report is being developed to address these aspects.

The current report “Rules applied to the interconnections between EU and extra-EU countries: capacity allocation and management of interconnection congestion”, answers to the first objective of Activity 2. It aims at presenting the state of the art of interconnections between EU and non-EU countries with the objective of highlighting some possible settings for the management of the interconnections in the future.

2. Purpose and structure of the Report

The first three chapters of this report focus on case studies of interconnections between EU member states and non-EU countries in the Mediterranean region. These are:

- Montenegro–Italy (MONITA) interconnection.
- Türkiye–Greece–Bulgaria interconnection.
- Morocco–Spain interconnection.

Each case study is organized into the following sections:

- **Datasheet and Specification of Interconnection**: General information about the interconnection.

- **Management of Interconnection:** Legal and regulatory frameworks, entities involved, ownership, commercial rights, and roles and responsibilities.
- **Capacity Allocation and Congestion Rents:** Regulatory processes for capacity allocation, criteria for distributing congestion rents.
- Finally, for each case, the best practices and lessons learned to support interconnection initiatives in the Mediterranean region are reported.

The fourth chapter provides a comparative analysis of the case studies, leveraging the experiences of members with existing interconnections between the EU and non-EU countries. Learning from these experiences is critical to identifying the barriers and challenges that prevent the effective exchange of electricity within Mediterranean Power Systems. Addressing these barriers is essential for increasing cross-border electricity exchanges though the existing interconnections and preparing a possible framework for the future links that will be operational in the Mediterranean region by 2030, which aligns with one of the main objectives of Med-TSO.

3. Interconnections between EU and non-EU countries in the Mediterranean region

The three cases and three international electricity interconnections selected to be presented as cases are the only existing ones linking the EU and non-EU Power Systems in the Mediterranean Region.

FIGURE 1 EXISTING INTERCONNECTIONS BETWEEN EU AND NON-EU COUNTRIES

The institutional and regulatory settings for the three interconnections between the EU and non-EU power systems in the Mediterranean region reflect their unique frameworks of cooperation and governance:

- **Montenegro–Italy (MONITA) Interconnection:** This undersea power link between Montenegro and Italy is Montenegro's gateway to the EU electricity market. CGES[1], the Montenegrin TSO participates in ENTSO-E as member and Montenegro is a Contracting Party of the Energy Community[2]. The Energy Community (EnC) supports the integration of Balkan electricity markets into the EU internal market by promoting the transposition of EU energy regulations.
- **Türkiye–Greece–Bulgaria interconnections**: Türkiye's integration into the European electricity system is facilitated by TEİAŞ, its transmission system operator, which participates in ENTSO-E as observer. This participation provides a regulatory framework for synchronized grid operations with Greece and Bulgaria, enabling cross-border electricity trading. The interconnection strengthens regional grid stability while aligning Türkiye with ENTSO-E's standards and operational rules to the extent permitted by Turkish legislation, supporting its efforts to harmonize with EU energy market policies
- **Morocco–Spain Interconnection:** This interconnection operates under a bilateral agreement between Morocco and Spain and represent a distinct institutional case with respect to the other ones. In fact, the Spanish counterpart manages security and regulatory compliance for the EU, ensuring compatibility with EU standards. Morocco operates outside ENTSO-E frameworks, relying on direct agreements for electricity trade. This model underscores bilateral cooperation's role in fostering renewable energy integration and facilitating energy exchanges between Europe and North Africa

3.1The MONITA interconnection

3.1.1 Datasheet and specification

MONITA is a High-Voltage Direct Current (HVDC) interconnection linking the power grids of Montenegro and Italy. It involves a 423 km interconnection under the Adriatic Sea, at a maximum depth of 1,215 meters, with a further 22 km of underground cable, 16 km in Italy (from the coast to the Cepagatti substation) and 6 km in Montenegro (from the coast to the Lastva-Kotor substation).

The power line work sites opened in 2012. The undersea cables have been laid on the Adriatic seabed through three separate laying campaigns, which took place between 2015 and 2017. The total capacity of the interconnection is

[1] https://www.entsoe.eu/about/inside-entsoe/members/
[2] https://www.energy-community.org/aboutus/whoweare.html

up to 1200 MW, in two poles of 600 MW each, both in import and in export. The first pole of the interconnection was commissioned in December 2019 with a nominal capacity of 600 MW.

The two-way power exchange makes it possible to diversify supply and strengthen reliability, efficiency, security, environmental sustainability and resilience of the electricity grids on both sides of the Adriatic; it will also allow the potential for production from renewable sources, available both in Italy and in the Balkan area, to be fulfilled. The Italy-Montenegro interconnection is the result of a solid bilateral energy cooperation between the two countries sanctioned by two intergovernmental agreements signed in 2007 and 2010.

Connecting the two sides of the Adriatic Sea is considered of strategic value and has radically changed energy flows in the Balkan area, promoting initiatives for the integration of the Balkans in the EU electricity markets, contributing to the development of strategic electricity corridors in the entire Balkan area, favoring new investments, especially in terms of generation from renewables, and increasing the security of the supply and operations of the electricity systems in Italy and the Balkans.

The infrastructure (first pole) was included as a Project of Common Interest (PCI) by the European Commission, which co-financed feasibility studies as part of the priority electrical infrastructure support program Trans-European Network (TEN) in 2008 with EBRD (European Bank for Reconstruction and Development), which financed the Montenegro cost-benefit analysis.

3.1.2 Interconnection management

The interconnection was developed in the framework of a cooperation between Italy and Montenegro and the respective TSOs, Terna and CGES.

The main milestones of such cooperation have been:

- The intergovernmental agreement signed on February 6, 2010, between the Republic of Italy and the State of Montenegro stating the institutional support and agreement over the construction and operation of the New Interconnection System and the implementation of the Strategic Partnership. The agreement, inter alia, placed on Terna the responsibility for the construction and the ownership of the New Interconnection, which was to become an integral part of the Italian transmission network (as public infrastructure), and placed on CGES the responsibility for the construction of the Associated Network Infrastructures, to be owned by CGES and to form an integral part of the Montenegrin transmission network (as public infrastructure).

- The Strategic and Shareholders' Agreement, signed on January 25, 2011, by and among the State of Montenegro, Terna and CGES, following Terna's acquisition of approximately 22% of CGES's outstanding capital stock.
- The Project Coordination Agreement, established on January 25, 2011, between the State of Montenegro, Terna and CGES for the joint development of the Interconnection.
- The authorization to the construction, obtained both in Italy and in Montenegro in 2011.
- Terna established a subsidiary, Terna Crna Gora, in Montenegro in 2011.
- The first pole of the interconnection commenced operation in December 2019.
- Regarding regulatory development and cooperation, the integration between Montenegro and the EU market has been pursued primarily within the Western Balkan 6 Memorandum of Understanding (WB6 MoU). This agreement was signed on April 27th, 2016, by Ministries, NRAs, TSOs, and PEXs of the WB6 countries (Albania, Bosnia and Herzegovina, Kosovo[3], North Macedonia, Montenegro, and Serbia). The WB6 MoU established strategic objectives to analyze, design, and implement day-ahead market integration between WB6 countries and EU member states through the selection of appropriate national day-ahead market designs.
- On Sept. 5th, 2016, the Italian NRA also adhered to the WB6 MoU as a first step towards the launch of a market coupling project with the WB6 countries, made technically possible by the forthcoming operation of the submarine cable between Italy and Montenegro. The WB6 MoU implied the go-live of the Italy-Montenegro Interconnection as a precondition for connecting the Western Balkans to the European Internal Energy Market.
- On April 6th, 2017, Terna signed the Addendum to the WB6 MoU, thus expressing its willingness to participate in the Regional Electricity Market Development and agreeing on the need for close cooperation of the Energy Community and EU Stakeholders in the implementation of day-ahead market coupling.
- On May 5th, 2017, the Italian NRA established a sub-regional working group consisting of TSOs and PXs from Albania, Italy, Montenegro, and Serbia (referred to as the AIMS WG) and assigned the group the following tasks:
    - To develop a proposal for a multilateral cooperation agreement.
    - To create a high-level design for the market coupling project.
    - To formulate a proposal for agreements on the management of the market coupling processes.

[3] This designation is without prejudice to positions on status and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence."

- In January 2018, the Italian NRA established the Knowledge Exchange Program. This program aims to transfer knowledge on market coupling initiatives between EU Member States to the NRAs of Albania, Montenegro, and Serbia. Terna contributed by sharing information based on recent EU experiences with day-ahead market coupling.
- In 2022, the Energy Community Ministerial Council adopted the Electricity Integration Package, to integrate the electricity markets of the Energy Community Contracting Parties into the EU internal market, through the transposition of EU energy regulation in the national legislation of the involved Balkan states. As a result of this adoption, the regulatory authorities of Italy, Albania, Bosnia-Herzegovina, Montenegro and North Macedonia (as well as Serbia as an observer member), founded the Balkan Energy School (BES) to support regulators in harmonizing the Balkan regulatory frameworks towards integration with European electricity markets. Terna and GME continue to support these capacity building initiatives in collaboration with the Italian National Regulatory Authority ARERA.

3.1.3 Operational principles

The operation of the interconnection is performed by Terna in cooperation with CGES according to an Operation Agreement signed in May 2019. The Inter-TSO coordination is managed through standardized procedures for operators and close coordination between Terna and CGES. This includes:

- Standardization of maneuvers to start up/shut down the Interconnection as well as adjusting active power settings from the dispatching center.
- Procedures for remedial actions during real-time events on both AC and HVDC systems.
- An emergency assistance service to support both TSOs in critical situations (in line with the Emergency Restoration Network Code).

The link allows for a power flow of up to 600 MW. Active power and the set points of the HVDC converters are automatically regulated to meet forecasted power exchanges and to compensate for frequency variations. Reactive power is automatically limited to a maximum rated output of 50 MVAR, with HVDC filters also used for this purpose.

3.1.4 Capacity allocation and congestion rents

The existing 600 MW of capacity are split as follows:

- 200 MW are assigned to a consortium of private industries with an exemption to 3rd party access (i.e. treated as a merchant line), whilst the remaining 400 MW are assigned in equal parts to the Italian and Montenegrin TSOs (200 MW each to Terna and CGES).
- The transmission capacity assigned to TSOs is sold by the Southeast Europe Coordinated Auction Office (SEE CAO) through Physical Transmission Rights (PTRs) auctions, in connection with the 'Use it or sell it' principle.

The 'Use it or sell it' principle

According to the 'Use it or sell it' principle, holders of Physical Transmission Rights (PTRs) have the flexibility to either use or sell their acquired rights. When opting to use the PTRs, holders engage in trading energy in a neighboring bidding zone through Over the Counter (OTC) markets or power exchanges (since March 2023 and the setting of a power exchange in Montenegro).). This process requires them to notify the Transmission System Operators (TSOs) of their intention to transmit electricity, using the acquired capacity. This nomination process involves scheduling an energy injection in the importing country and a corresponding energy withdrawal in the exporting country. Notably, PTR holders do not receive direct remuneration for merely holding the PTRs. Instead, they stand to gain financially if they can exploit price differences between the zones, purchasing energy at a lower price in one country or zone and selling it at a higher price in another.

Alternatively, if PTR holders choose not to nominate their rights for transmission capacity, the 'Use it or sell it' (UIOSI) principle is triggered. Under UIOSI, any unused capacity is automatically released for daily auction. The original PTR holders are then compensated based on the outcomes of these daily auctions. This approach ensures that transmission capacity is utilized efficiently, preventing any resources from remaining idle. It also promotes market liquidity by ensuring active participation in daily auctions for transmission rights. Furthermore, the principle provides clearer price signals for electricity transmission between different zones, aiding in better market functioning and transparency.

The merchant line owners are regarded as PTR holders for the sake of the UIOSI principle and are compensated based on the outcome of the daily auction for the capacity they do not nominate.

Cross-border Capacity Allocation

The non-merchant capacity for each direction of the interconnection is sold through explicit auctions held by SEE CAO over three time-horizons: yearly (with reduction periods), monthly (with reduction periods) and daily.

Year-ahead auctions

In December of year Y-1, Terna and CGES agree and provide SEE CAO with the amount of capacity to be sold on a yearly basis for each direction: YBP = yearly base product with reduction periods (e.g. for planned maintenance). This is usually a fraction of the interconnection Net Transfer Capacity (NTC), excluding the merchant capacity:

$$\boldsymbol{YBP = NTC_Y - \frac{1}{3} NTC_Y(ML)}$$

In 2023, for example, NTC_Y was equal to 210 MW; after deducting the merchant line part, YBP = 140 MW (yearly product put on auction).

Auctions use a marginal price mechanism: see Exhibit 1 for details on the auctions' allocation process and pricing.

Month-ahead auctions

In month M-1, Terna and CGES agree and provide SEE CAO with the amount of capacity to be sold monthly for each direction: MBP = monthly base product with reduction periods (e.g. for planned maintenance). This is usually equal to the whole interconnection capacity (excluding the merchant capacity), minus the capacity already allocated in the yearly auction:

$$\boldsymbol{MBP = NTC_M - \frac{1}{3} NTC_M(ML) - AAC_Y}$$

Where AACY is the already allocated capacity in the yearly auctions.

Day-ahead Auctions

By 8:30 of D-1, PTR holders who intend to use their long-term capacity need to nominate it for each hour of day D. Capacity that is not nominated becomes available for daily auctions, and Daily ATCs (Available Transmission Capacities) are provided to SEE CAO by Terna at 9.15 of D-1.

The Hourly Product put to auction for each direction is:

$$\boldsymbol{ATC_{A\rightarrow B} = NTC_{A\rightarrow B} - LTNOM_{A\rightarrow B} + LTNOM_{B\rightarrow A}}$$

Where ATCA → B is the Available Transmission Capacity in the direction A→B, LTNOM is the capacity already nominated in the long-term auctions. After the day-ahead auctions are closed, Capacity Holders need to nominate the capacity bought through the short-term auction.

Nomination Process

As already mentioned, the capacity is allocated by SEE CAO on behalf of the TSOs. Market Participants can purchase capacity for both border directions through Explicit Auctions regardless of the type of Electricity Markets in place in the 2 countries – as there was no power exchange in Montenegro before March 2023. Every market participant that actively purchases capacity is defined as a Capacity Holder and has a duty to appoint a Nomination Agent responsible for nominating the capacity to the relevant TSO. The rules that regulate this communication vary depending on the phase (yearly, monthly, daily) and the border the transaction crosses. In the MONITA case, the so-called A to B nomination is applied in the day-ahead auctions, while the A to N or N to A principles are applied to year-ahead and month-ahead capacity auctions:

- A to B principle: capacity holder A may only appoint one legal entity B as Nomination Agent on the importing TSO side.
- A to N principle: capacity holder A may appoint several legal entities N as Nomination Agent(s) on the importing side of the concerned border.
- N to A principle: capacity holder A may appoint several legal entities N as Nomination Agent(s) on the exporting side.

Further information is provided in Exhibit 2

Congestion management and curtailment

In the case of NTC reduction (forecast outage, network maintenance or change in the overall network conditions), CGES and TERNA must provide the new agreed NTC values to SEE CAO by 13.00 of D-2. Should the HVDC link trip, a counter-trading procedure is implemented, adjusting the generation or consumption of electricity instructing certain power plants to increase or decrease their output or adjust the consumption in specific areas to balance the grid.

In response to internal security issues, TSOs have the authority to adapt the set-point of the HVDC link. The set-point is the desired operating level of the HVDC link, including parameters like voltage and power flow. By adjusting the set-point, TSOs can control the amount of electricity transmitted through the HVDC link, helping to manage congestion and maintain grid stability.

Further information is provided in Exhibit 3

Congestion rents use

- Congestion rents relative to the 200 MW capacity owned by Terna are used according to article 19 of EU Regulation 2019/943, Art. 44.2 of Annex A to ARERA Resolution n. 111 of 2006 and ARERA Resolution n. 162 of 2011.
- Congestion rents relative to the 200 MW capacity owned by CGES are deducted from CGES Regulatory allowable revenue according to Art. 6.3 of the Methodology for determining the regulatory allowed income and prices for the use of the electricity transmission system determined by REGAGEN on the 5th of July 2022.
- The remaining 200 MW assigned to private investors are exempt from 3rd party access. The direct economic benefits relating to this capacity belong to such investors.

Compensation for unintended deviations

Because HVDC systems excel at power flow control compared to traditional (AC) systems, unintentional energy exchanges are minimal. Residual involuntary energy exchanges are financially settled according to the FSKAR[4] mechanism.

3.1.5 Best Practices

To be properly evaluated, the MONITA interconnection needs to be contextualized in Montenegro's path to EU membership and the country's continuous development as a crossroad for the wider Balkan area. These components contributed - together with the creation of a functioning power exchange and domestic markets - to the level of success enjoyed by the infrastructure. The interconnection has fostered development on both a local and regional level, allowing not only Montenegro but also neighboring countries to access a direct connection to the EU and Italian power markets. On the technical side, the infrastructure itself has not experienced major failures, proving to be a successful example of integration between uncoupled markets both on the physical and regulatory sides. Proper cooperation between TSOs and NRAs can and will enable different electricity market models with different characteristics to coexist and operate safely and efficiently, providing a strong point in favor of extra-EU interconnections and their ability to generate wealth and positive relations between countries.

Exhibit 1 – Explicit Auctions Allocation Process

[4] https://eepublicdownloads.entsoe.eu/clean-documents/EDI/Library/cim_based/fskar/FSKAR_Transparency_Reporting_v2.0.pdf

The minimum dimension of Physical Transmission Rights (PTRs) is equal to 1 MW.

The bids presented in the auction include quantities [MW] and price [€/MW].

SEE CAO arranges the bids in descending order and

- If the required quantity is inferior or equal to the capacity offered in the auction (ATC), then the price of the PTRs will be equal to zero (Clearing Price = 0).
- If the required quantity is larger than the ATC, the clearing price will be equal to the offered marginal price.

Each participant that presents a bid with a price higher than (or equal to) the clearing price (CP), will receive the required quantity. If 2 or more Participants have submitted, for one Bidding Zone border and direction, valid Bids with the same Bid Price, that cannot be accepted in full for the total requested quantity of capacity, a pro-rata criterion shall be applied.

All those who are assigned with PTRs (PTRs Holders) are required to pay the CP.

Exhibit 2 – Explicit Auctions Nominations

In D-1, PTRs Holders are required to nominate (i.e.: to communicate to the 2 involved TSOs) the PTRs that they intend to make use of in day D.

In cases where the yearly and monthly PTRs are not nominated, the corresponding quantities are reassigned in the daily auctions.

The PTRs Holder is remunerated for the non-nominated PTR (UIOSI principle) through day-ahead market spread in case of day-ahead implicit allocation (IT-AU, IT-FR, IT-SI, IT-GR) or with the marginal price of the daily auction in case of day-ahead explicit allocation (IT-CH, IT-MNE).

Exhibit 3 – Explicit Auctions Firmness

Long Term Transmission Rights may be curtailed in the event of:

- Force Majeure or to ensure operation remains within Operational Security Limits before the Day Ahead Firmness Deadline.
- Force Majeure or emergency after the Day-Ahead Firmness Deadline.

Affected PTRs Holders are entitled to receive the following compensation:

- For Curtailments to ensure operation remains within Operational Security Limits, Day-Ahead explicit auction price. Such compensation is limited to the value of the total amount of Congestion Income collected on the Bidding Zone Border in the reference calendar year.

- For Curtailments due to emergency situations, day-ahead explicit auction price.
- For Curtailments due to Force Majeure, the marginal price of the initial auction.

3.2 Cross-border electricity trade between TÜRKIYE and ENTSO-E countries

3.2.1 Datasheet and specification

Since September 18, 2010, the Turkish electricity transmission system has been operating in synchronized parallel with ENTSO-E CESA (European Networks of Transmission System Operators for Electricity Continental Europe Synchronous Area). Following the completion of the stabilization phase, 15-day trial exchanges were conducted. At the end of this phase, starting from June 20, 2011, half of the NTC (Net Transfer Capacity) values with Greece and Bulgaria were allocated by TEİAŞ, while the remaining half was allocated through auctions conducted by the respective Transmission Companies (ESO EAD or IPTO). As of October 1, 2015, the SEE CAO headquartered in Podgorica, Montenegro, and of which TEİAŞ is a founding member, began allocating the entire NTC at the Türkiye - Greece border and continues to do so to this day.

The Turkish electricity system is connected to ENTSO-E CESA through a total of 3 interconnection lines: two at the Bulgarian border and one at the Greek border.

- The interconnection line providing the Greece Interconnection is the 400 kV Babaeski (Türkiye) - Nea Santa (Greece) Interconnection overhead Line. This line is a single-circuit line approximately 128 km long.
- The interconnection lines providing the Bulgaria Interconnection are the 400 kV Hamitabat (Türkiye) - Maritsa East (Bulgaria) - I and the 400 kV Hamitabat (Türkiye) - Maritsa-East (Bulgaria) - II Interconnection overhead Lines. These lines are also single-circuit lines, with lengths of approximately 159 km and 149 km, respectively.

3.2.2 Interconnection management

The following legal regulations apply to the interconnection:

- The "Electricity Market Law No. 6446"[5] which includes the duties and obligations of TEİAŞ (Turkish Electricity Transmission Corporation)
- The "Electricity Market Import and Export Regulation"[6] which provides the main framework for cross-border electricity trade

[5] https://www.epdk.gov.tr/Detay/Icerik/1-4446/electricity-market-law
[6] https://www.epdk.gov.tr/Detay/Icerik/3-0-0-49/yonetmelikler

- The "Electricity Market Tariff Regulation"[7] which relates to the calculation of system operation and system usage fees
- The "Electricity Market Licensing Regulation"[8] which also includes the licensing procedures for market participants conducting cross-border electricity trade
- The documents "Auction Rules" and "PTR (Physical Transmission Rights) Usage Rules"[9] which contain the rules for the allocation and/or usage of cross-border interconnection capacity
- The documents SEE CAO "Set of Rules" (only applicable for GR-TR interconnection)[10] The "Procedures and Principles for the Allocation of Capacity in Case of the Establishment of New Interconnection Lines by Legal Entities"[11] which is to be considered within the scope of the allocation of cross-border interconnection capacity

3.2.3 Entities involved in the management of the interconnection

On the Turkish side, the operation of both interconnections within Turkish borders is carried out by TEİAŞ in coordination with the respective TSO. Information on capacity allocation and usage within the scope of cross-border electricity trade with Continental Europe is provided below:

- First, each year at the end of October or the beginning of November, the yearly NTC (Net Transfer Capacity) for the following year is harmonized in coordination with the respective TSO. In the calculation, the NTC proposals of the two TSOs involved in the interconnection are evaluated based on direction (import/export) and period, and the minimum value is determined as the yearly harmonized NTC for the relevant direction and period. The determined yearly NTC is used in the calculation of the yearly capacity offered to market participants throughout the year.
- At the end of the second month (M-2) before the transfer month (M) or at the beginning of the month (M-1) before the transfer month, the monthly harmonized NTC for the relevant transfer month (M) is determined using the same harmonization method (minimum rule), including the yearly NTC. The monthly NTC is also used in the calculation of the monthly capacity offered to market participants.
- For the Türkiye - Bulgaria interconnection, the respective TSOs share the monthly and yearly NTCs equally. Thus, each TSO calculates the capacity to be offered to market participants for both monthly and yearly

[7] https://www.epdk.gov.tr/Detay/Icerik/3-6943/elektrik-piyasasi-tarifeler-yonetmeligi-
[8] https://www.epdk.gov.tr/Detay/Icerik/3-6727/elektrik-piyasasi-lisans-yonetmeligi
[9] https://tcat.teias.gov.tr/#/main/document
[10] https://seecao.com/documents/
[11] https://www.epdk.gov.tr/Detay/Icerik/3-7025/elektrik-piyasasi-ithalat-ve-ihracat-yonetmeligi

capacity allocation auctions based on their share of the NTC. TEİAŞ carries out the monthly and yearly auction processes for the NTC part of TEİAŞ on this border as the auction operator.

- For the Türkiye - Greece interconnection, since SEE CAO is the auction operator, the agreed monthly or yearly NTCs are submitted to SEE CAO and without any NTC sharing SEE CAO carries out the relevant monthly and yearly auction processes.
- As a result of the capacity allocation auctions conducted for the Türkiye - Bulgaria interconnection, market participants operating in Türkiye and having the necessary licenses who are registered on the TCAT Platform[12] (the platform managed by TEİAŞ for capacity allocation/usage operations) can bid in the capacity allocation auctions in the direction they are registered. Capacity. C is allocated to market participant(s) who have winner bid(s). The marginal price method is used to determine the winner bids in these auctions.
- For the Türkiye - Greece interconnection, SEE CAO, which carries out the auction processes on behalf of both TSOs, allocates capacity to the winning market participants.
- Companies that have been allocated capacity for both interconnections can transfer these capacities to other companies that meet the necessary conditions, if they wish. These transfers are reported to the auction operators on the platform operated by SEE CAO for the Türkiye - Greece interconnection and on the TCAT Platform.
- For both borders, market participants can conduct cross-border electricity trade based on their long-term (monthly/yearly) capacities (if any) or the long-term capacities of the companies which are counterparts in the other country. For this purpose, companies inform TEİAŞ by making nominations the TCAT Platform by 08:00 CET/CEST the day (D-1) before the transfer day (D). These nominations). These nominations are (--1). This nomination was also made to the TSO in the other country by the counterpart companies.
- After the completion of the long-term nomination process and the matching of these nominations by the TSOs, SEE CAO calculates the unused capacities for the Türkiye - Greece border, and TEİAŞ calculates the unused capacities for the Türkiye - Bulgaria border within the scope of TEİAŞ capacities using the TCAT Platform. Unused capacities are used in the calculation of the capacity to be offered to market participants in the daily auctions.
- SEE CAO carries out the daily auction processes for the Türkiye - Greece border, and TEİAŞ carries out the daily auction processes for the Türkiye - Bulgaria border within the scope of TEİAŞ capacities using the TCAT Platform and performs the capacity allocation.
- Market participants that meet the necessary conditions can conduct cross-border electricity trade based on their short-term (daily) capacities (if any) or the short-term capacities of the companies which are

[12] https://tcat.teias.gov.tr/#/main/dashboard

counterparts in the other country. For this purpose, companies inform TEİAŞ by making nominations making on the TCAT Platform by 14:00 CET/CEST the day (D-1) before the transfer day (D). These nominations are also made by the TSO in other countries by the counterpart company.

- For both borders, the relevant TSOs conduct matching processes for the nominations made by the companies on the day.
- In addition, TEİAŞ and the Turkish companies in the Turkish side report the net amount of the trade bilaterally to the relevant platform operated by the Market Operator, EXIST (Energy Exchange Istanbul), in the day before transfer day. TEİAŞ made this notification on behalf of the counterpart companies in other countries.
- The netted nominations made for both the Türkiye - Greece and Türkiye - Bulgaria borders and any emergency exchanges between the TSOs (if any) are prepared in certain file formats and sent to the coordination center, Swiss-Grid.
- Companies pay the capacity allocation fees to SEE CAO or TEİAŞ for the capacities allocated to them. SEE CAO distributes these incomes equally between the relevant TSOs, IPTO and TEİAŞ. Additionally, conducting cross-border electricity trade in Türkiye are also required to pay system usage and system operation fees to TEİAŞ.
- The TSOs measure the transferred energy through the meters at the relevant substations, harmonize it mutually, and send it to the coordination center to which they are affiliated.
- The TSOs also send the unit prices of electricity formed in the day-ahead market daily to the coordination centers. The coordination center, based on the information provided by TEİAŞ and the other TSOs, sends the files containing the relevant energy components and monetary values to the TSOs in accordance with the ENTSO-E FSKAR rules. The price amounts to be compensated to or received from the TSOs are determined by these files. The collection and payment of these price amounts according to the creditor/debtor position are carried out by JAO (Joint Allocation Office).

3.2.4 Capacity allocation and congestion rents

TEİAŞ carries out the allocation processes for the capacities owned by TEİAŞ at the Türkiye - Bulgaria border in accordance with its duties and obligations under the "Electricity Market Law No. 6446," and in compliance with the "Regulation on Electricity Market Import and Export" and "Auction Rules" legislation. For the Türkiye - Greece border, TEİAŞ fulfills its responsibility regarding the allocation of relevant capacities through SEE CAO within the framework of the legislation.

The related allocation processes are conducted through yearly /monthly and daily auctions, and the marginal pricing method is used in these auctions.

In the related capacity allocation auctions, if the capacity offered to market participants is less than the total capacity requested by the market participants, according to the marginal pricing, an auction unit price is formed. The collected amount of the auctions is distributed by applying a share Key 50-50 between the two (2) neighbor TSOs. Concerned local NRAs allocate the collected funds to cover expenses associated such as establishment of new interconnection lines, maintenance of existing Interconnection lines, etc.

3.2.5 Best Practices

The management of interconnections between Türkiye and ENTSO-E highlights several best practices that can serve as a model for cross-border electricity trade. Key elements include the harmonization of Net Transfer Capacity (NTC) across borders, which ensures efficient energy flow and market stability. The establishment of coordinated auction offices, like SEE CAO, for transparent capacity allocation fosters optimized utilization of available infrastructure. Moreover, the involvement of multiple Transmission System Operators (TSOs) and adherence to standardized regulations—such as Türkiye' s Electricity Market Law—emphasizes the importance of legal and operational coordination to handle capacity auctions, congestion management, and system usage fees. These practices ensure the efficient allocation of resources, serving as an example for promoting further interconnection projects in the region.

3.3 Rules applied to the Morocco-Spain (ES-MA) interconnection.

3.3.1 Datasheet and specification

The Maghreb region has been synchronized with the European electrical power system since 1997, when the first interconnection between Spain and Morocco entered in operation. This first interconnection between these two countries consisted of an HVAC line of 700 MW with a total length of around 60km, with 30 km corresponding to a subsea cable and the remaining 30 km to an overhead line. In June 2006, the interconnector capacity doubled, through the commissioning of a second HVAC connection of the same capacity, ultimately resulting in a total thermal capacity of 1400 MW. The current NTC[13] is 900 MW from Spain to Morocco and 600 MW from Morocco to Spain.

3.3.2 Interconnection management

On the Spanish side, the management of ES-MA interconnection is regulated by the following pieces of regulation:

[13] https://www.ree.es/en/activities/operation-of-the-electricity-system/international-interconnections, https://www.iesoe.eu/iesoe/

- Law 24/2013[14] establishes in its Article 11(5) that the commercial utilization of this interconnection to establish energy exchanges requires explicit authorization of the Spanish competent Ministry
- Circular 3/202015 established in Article 6(4) that any exchange through this interconnection is subject to tariffs.
- The technical details of cross-zonal capacity allocation and congestion management are established in the following regulations:
    - Circular 3/2019 defines the general principles of ES-MA capacity allocation.
    - Spanish Operational Procedure 3.1 details the process of capacity allocation (see explanation in chapter below)
    - Spanish Operational Procedure 3.2 establishes congestion management via re-dispatching.
    - Spanish Operational Procedure 4.0 determines the criteria for capacity calculation.

On the Moroccan side, the ES-MA interconnection is managed by law only by ONEE as manager of the Moroccan electricity transmission grid. It includes the management, operation and development of interconnection lines with neighboring countries.

The ES-MA management mechanism includes the following processes:

- Capacity calculation (performed both week-ahead, day-ahead and continuously reassessed)
- Capacity allocation (day-ahead and intraday)
- Congestion Management (real time)
- Compensation of unintended deviations (week after)

3.3.3 Capacity allocation and congestion rents

As further detailed in Spanish Operational Procedure 3.1, capacity allocation in ES-MA interconnection is performed via a hybrid mechanism combining explicit access to ES-MA via bilateral contract nominations and implicit allocation via energy auctions run by OMIE[16]. Always subject to Spanish Ministry authorization.

---

[14] Ley 24/2013, de 26 de diciembre, del Sector Eléctrico. (boe.es): https://www.boe.es/buscar/pdf/2013/BOE-A-2013-13645-consolidado.pdf

[15] Disposición 1066 del BOE núm. 21 de 2020: https://www.boe.es/boe/dias/2020/01/24/pdfs/BOE-A-2020-1066.pdf

[16] www.omie.es

In accordance with the processes described in Spanish Operational Procedure 3.1, authorized market participants[17] can submit their nominations of bilateral contract until 10:30 D-1. These nominations should include a bid for cross-zonal capacity which will only be considered in case of congestion.

- If volume of nominations is lower than 50% of the available capacity:
    - Nominations are integrated and the market participants get allocated the needed capacity for those nominations.
    - Day-ahead energy auction takes place considering the remaining capacity.
- If volume of nominations received exceeds 50% of the available capacity in ES-MA
    - Explicit allocation is set to stand-by
    - Day-ahead energy auction run by OMIE takes place considering the 50% of available capacity.

      After Day-ahead energy auction ends, remaining available capacity is allocated to the bilateral nominations received at 10:30 D-1 via an explicit auction which will consider the prices incorporated to the nominations. As a result of the auction, market participants whose nominations got cross-zonal capacity will have a payment obligation equal to the product between their nomination and the price resulting from the auction. This is the only scenario where congestion rent may be created.

3.3.4 Congestion management

In case a congestion occurs in ES-MA interconnection, the schedules at the interconnection are re-dispatched to solve the congestion following Spanish Operational Procedure 3.2.

3.3.5 Compensation for unintended deviation

Unintended deviations in ES-MA interconnection are compensated in kind. Compensation in kind is calculated on a weekly basis by means of the following coordinated bilateral process between Red Eléctrica and ONEE:

- Between Monday and Wednesday of week W+1, both TSOs agree on the unintended deviations of the week W and determine the energy schedules for compensating these deviations between Thursday of week W+1 and Wednesday of week W+2

[17] "Participant" refers to any entity involved in any phase of the process of generation, distribution, commercialization, or consumption of electricity.

- These schedules are calculated considering the different deviations for the different tariff periods.

3.3.6 Best practices

Current ES-MA interconnection management provides with a simple mechanism for exchanges of energy between non-EU and EU countries, especially when market conditions are not symmetrical. The following figure shows the exchange of energy (GWh) between Morocco and Spain since the beginning of the commercial operation of the electrical interconnection.

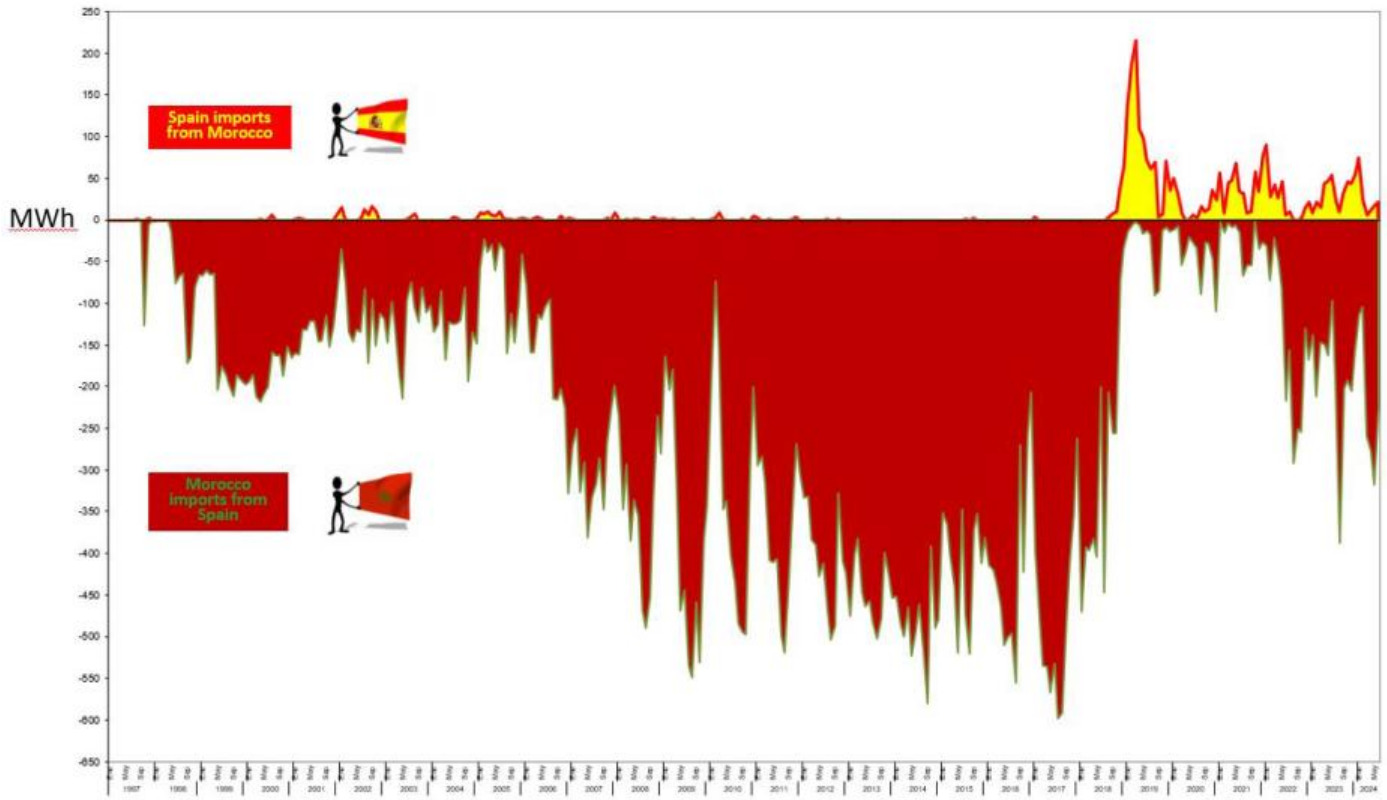


FIGURE 2 EXCHANGE OF ENERGY (GWH) BETWEEN MOROCCO AND SPAIN

4. Analysis and comparison of the three cases

4.1 Technological configuration

From a technological perspective, the three cross-border interconnections examined in this report exhibit distinct specifications, reflecting the diverse geographical and operational conditions of each case. The unique characteristics of the regions involved have driven the selection of specific models and technologies, informed by rigorous preliminary studies. These studies have highlighted the suitability of the chosen technologies for addressing the challenges and maximizing the benefits of each interconnection.

The interconnections are distinguished by the type of technology employed, whether High Voltage Direct Current (HVDC) or High Voltage Alternating Current (HVAC), as well as the nature of their electrical circuits, which may include submarine or overhead lines. Additionally, the physical length of the interconnections, whether categorized as long or short, further underscores the tailored approach taken to address the specific requirements of each project.

MONITA

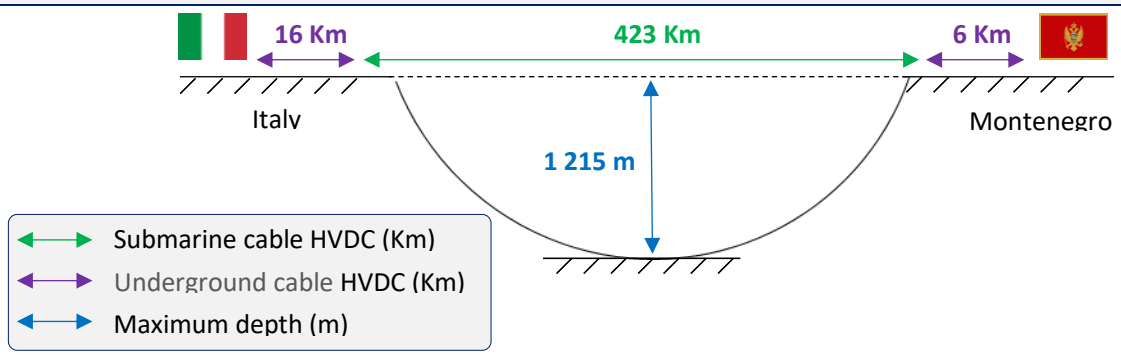


FIGURE 3 MONITA INTERCONNECTION

Cross-border Electricity Trade Türkiye – ENTSO-E

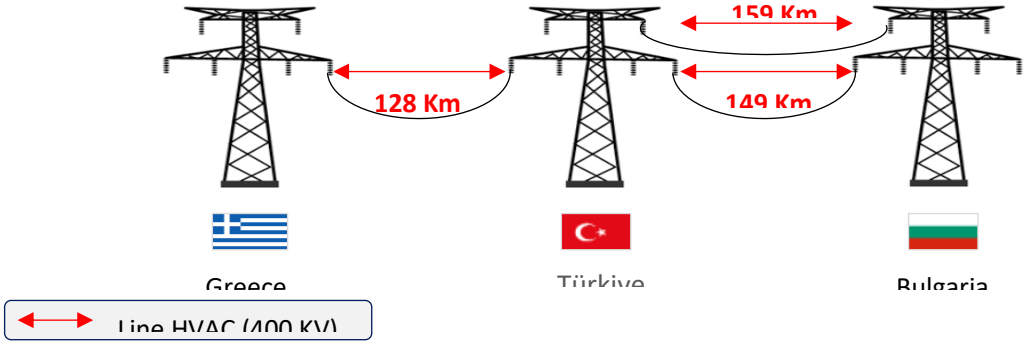


FIGURE 4 TÜRKIY -ENTSO-E INTERCONNECTION

ES-MA

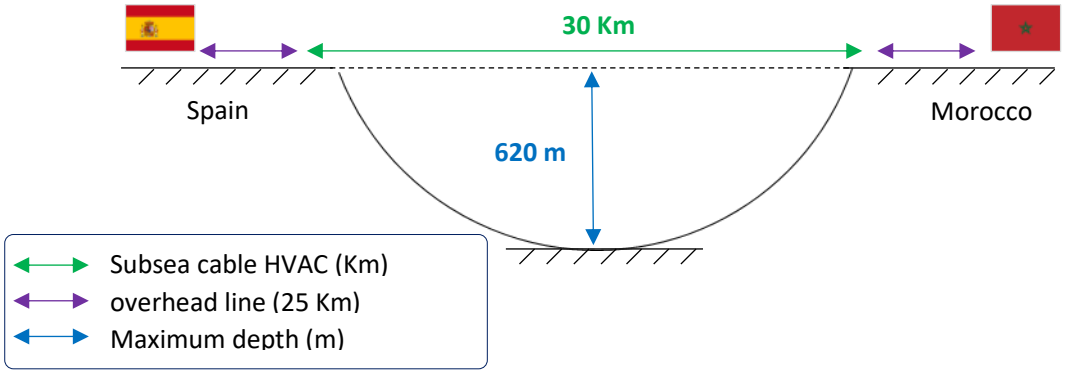


FIGURE 5 ES-MA INTERCONNECTION

Cross-border interconnections	Technology		Cable / line		Length	
	HVDC	HVAC	Submarine	Overhead	Long	Short
MONITA	√		√		√	
Electricity Trade TÜRKIYE -ENTSO-E		√		√	√	
ES-MA Interconnection		√	√			√

FIGURE 6 COMPARISON BETWEEN SPECIFICATIONS OF THE THREE INTERCONNECTIONS

4.2 Capacity Calculation and Allocation

4.2.1 Capacity Calculation analysis for the three cases

The capacity calculation for the analyzed interconnections involves converting physical transmission grid restrictions into the maximum permissible volumes of commercial exchanges. These exchanges are carefully designed to ensure system security is not compromised. Transmission System Operators account for all relevant physical restrictions when calculating and notifying capacities, thereby eliminating the need for market allocation processes to make additional assumptions about grid scenarios.

The methodologies employed for capacity calculation in the four interconnections adhere to best practices aimed at maximizing full utilization of transmission capacities while maintaining strict compliance with security standards, nevertheless there are notable differences in the approaches to capacity calculation.

In the IT-ME and GR-TR interconnections, yearly Net Transfer Capacity (NTC) values are harmonized in coordination with the respective TSOs. The NTC proposals from the TSOs involved are evaluated based on the flow direction (import/export). Using this harmonized approach, monthly NTC values for the relevant transfer period are

determined by extending the methodology applied to the yearly NTC. These values are then communicated to the designated exchange platform, SEE CAO, to ensure consistency in capacity allocation.

In contrast, the BG-TR interconnection employs a shared approach, where the monthly and yearly NTCs are equally divided between the TSOs. Each TSO independently calculates the capacity to be offered to market participants, and the allocation process is managed through TEİAŞ's platform (TCAT). This structure ensures equitable sharing of capacity between the participating TSOs.

For the ES-MA interconnection, capacity calculation follows a dynamic process. Maximum import and export capacities are determined through iterative simulations that prioritize system security criteria. These capacities are calculated over various time frames, published on Red Eléctrica's transparency platform[18], and reassessed in real time as needed. This iterative process ensures that the capacity reflects real-time grid and power system conditions and promotes the efficient use of available infrastructure.

In terms of Maximum Net Transfer Capacity, the cases analyzed also differ in its management.

The IT-ME interconnection allocates its 600 MW capacity by reserving 200 MW for a consortium of private industries under a merchant model, while the remaining 400 MW are equally divided between Terna (Italy) and CGES (Montenegro). IT-ME utilizes submarine cables, which involve significant investment costs. To ensure efficient utilization of these high-cost infrastructures, regulatory frameworks should establish fixed allocations for each TSO involved.

The GR-TR, BG-TR and ES-MA interconnections differ in their operational methods. Their NTC values are jointly calculated by the respective TSOs (solely by Red Eléctrica in the case of ES-MA). For the GR-TR interconnection the maximum program exchange is 166 MW from Greece to Türkiye and 50 MW in the reverse direction, while BG-TR allocated maximum is 434 MW for flows from Bulgaria to Türkiye and 100 MW from Türkiye to Bulgaria.

[18] https://www.esios.ree.es/en/international-exhanges

The main aspects are summarized in the following table.

Cross-border interconnections	Stockholder	Exchange	Capacity of interconnections		Energy 2023	load factor
MONITA	Private	IT ⍰ ME	200 MW	NTC With reduction periods	-	-
	TERNA		200 MW		-	-
	CGES		200 MW		-	-
Electricity Trade TÜRKIYE -ENTSO-E	IPTO & TEIAS	GR ⇨ TR	166MW	NTC maximum values calculated in 2023	161 GWh	9 %
		TR ⇨ GR	50 MW		402 GWh	28 %
	ESO & TEIAS	BG ⇨ TR	434 MW		783 GWh	21 %
		TR ⇨ BG	100 MW		642 GWh	22 %
Interconnection ES-MA	Red Eléctrica & ONEE	ES ⇨ MA	900 MW	NTC maximum values calculated in 2023	2315 GWh	24%
		MA ⇨ ES	600 MW		459 GWh	9%

TABLE 1 COMPARISON BETWEEN CAPACITY CALCULATION APPLIED TO THE THREE INTERCONNECTIONS

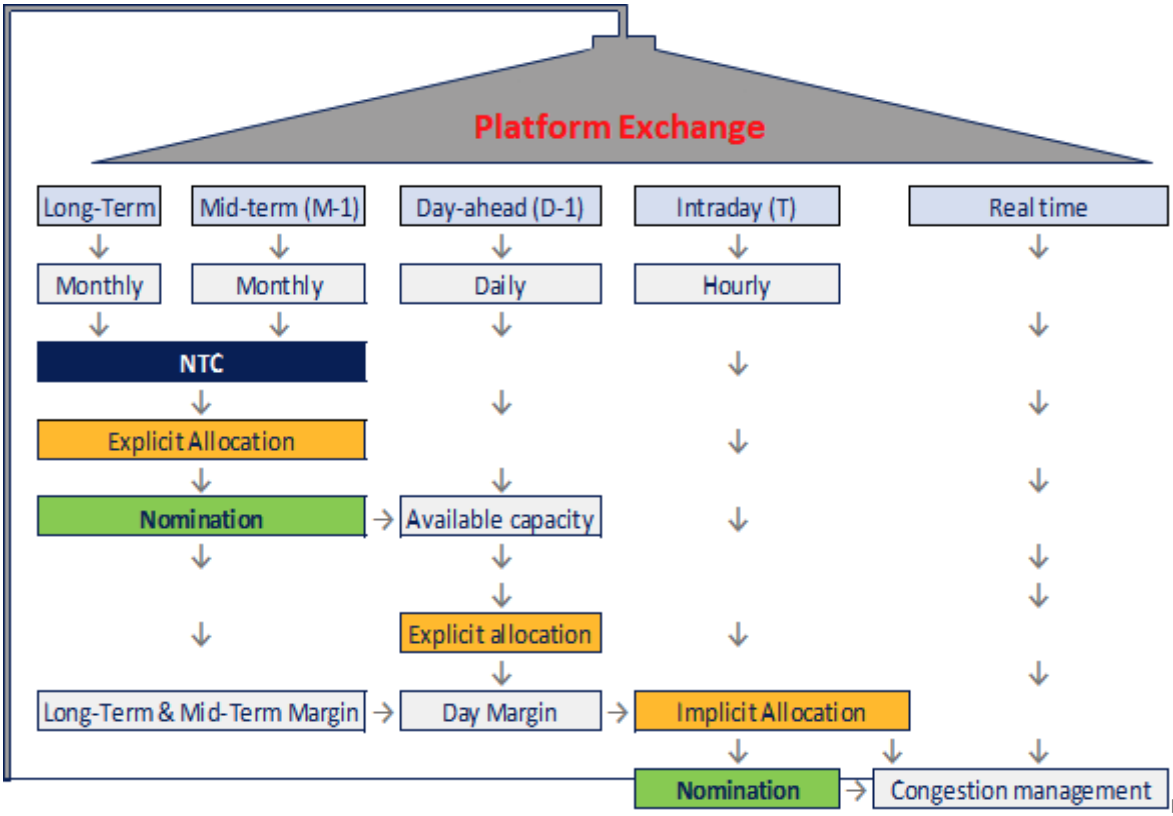
4.2.2 Capacity allocation

The purpose of capacity allocation methods is to allocate the capacity of the interconnection thus determining electricity volume that market participants can trade between different bidding areas. These cross-border transactions shouldn't exceed the transmission capacity that the TSOs have determined for each border and direction, and which is calculated in Net Transfer Capacity. The market design and time frames—yearly, monthly, day-ahead, or intraday—dictate how capacity is allocated. The methods analyzed in the cases are divided into explicit and implicit approaches.

Explicit allocation approaches require participants to submit separate bids for cross-border transmission capacity and energy capacity. In contrast, implicit allocation methods directly integrate the cross-border capacity allocation process into the energy market's global optimization. Transitioning to implicit and integrated methodologies generally enhances market efficiency by aligning capacity allocation with overall market needs.

Capacity calculation and allocation processes, up to the point of auction nomination, typically follow a well-defined configuration under a unified structure defined by the regulation or agreed between the stakeholders.

The main aspects of capacity allocation are reported in the following:



mage:

FIGURE 7 MAIN ASPECTS OF CAPACITY ALLOCATION

The four analysed interconnections — IT-ME, GR-TR, BG-TR, and ES-MA —share certain fundamental principles in capacity allocation but differ significantly in their implementation methods and operational frameworks.

One common choice across all cases is the use of explicit auctions as the primary mechanism for allocating Physical Transmission Rights (PTRs). Three out of four interconnections presented in this report adopted this method. These

auctions, held over yearly, monthly, and day-ahead time frames, allow market participants to secure cross-border electricity capacity.

In most cases the TSOs decided to establish a coordinated auction office, following different allocation principles:

- The **IT-ME** and **GR-TR** interconnections utilize SEE CAO for capacity allocation, following the "Use It or Sell It"[19] (UIOSI) mechanism.
- The **BG-TR** interconnection employs the TEİAŞ Capacity Auction Tool (TCAT) and follows the "Use It or Lose It" (UIOLI)[20] principle.
- The **ES-MA** interconnection adopts a hybrid approach, combining explicit allocation through bilateral nominations that are conducted through bilateral nominations, and implicit allocation via the MIBEL platform (Iberian electricity market).

The following table summarizes the main characteristics for the three cases:

Cross-border interconnections		TSO's Involved	Allocated Capacity	Allocation Platform
MONITA	IT-ME	TERNA & CGES	Use it or sell it	SEE CAO
Electricity Trade TÜRKIYE - ENTSO-E	GR-TR	IPTO & TEIAS	Use it or sell it	SEE CAO
	BG-TR	ESO &TEIAS	Use it or lose it	TCAT
Interconnection ES-MA	ES-MA	Red Eléctrica & ONEE	Explicit First-Come-First-Served	Nomination for Red Eléctrica
			Implicit Allocation	MIBEL

TABLE 2 MAIN CHARACTERISTICS FOR THE THREE INTERCONNECTIONS

[19] Under **UIOSI,** unused PTRs are resold in daily auctions, ensuring efficient capacity use and market liquidity.

[20] Under **UIOLI,** unused capacity rights are forfeited without compensation, simplifying implementation but potentially reducing flexibility.

5. Conclusions

The analysis of the MONITA, Türkiye–ENTSO-E, and ES-MA interconnections reveals significant lessons and opportunities for fostering cross-border electricity trade. These interconnections demonstrate how regulatory, technical, and operational challenges can be successfully addressed through collaboration.

5.1 The role of the institutional framework

The European Commission's leadership has been instrumental in defining clear regulatory frameworks that encourage alignment with EU standards. This is clear in the harmonization of practices in neighbouring non-EU countries, facilitated by initiatives such as the Energy Community. However, a comprehensive institutional framework specific to the Mediterranean region stays underdeveloped, hindering the growth of new interconnections. The establishment of National Regulatory Authorities in several non-EU Mediterranean countries is a crucial step forward, fostering transparency, operational stability, and regulatory coordination.

5.2 Lesson learnt on regulatory aspects.

The coexistence of diverse market models within these interconnections illustrates that varied regulatory and operational structures can be integrated successfully. This is particularly clear when trading platforms are utilized, as they enhance market liquidity, provide accurate price signals, and ensure efficient resource allocation. Among the capacity allocation principles examined, the "Use It or Sell It" (UIOSI) approach stands out for its ability to maximize transmission capacity utilization, prevent resource idleness, and support daily market liquidity.

5.3 The role of technology

From a technological perspective, High Voltage Direct Current (HVDC) systems emerge as the preferred choice for long submarine interconnections due to their advanced power flow control capabilities and reliability. The MONITA interconnection, in particular, has exemplified how HVDC systems can facilitate seamless integration between uncoupled markets, contributing to the resilience and efficiency of interconnected systems.

5.4 Closing Remarks

This report underscores the importance of cross-border interconnections in fostering regional energy cooperation, enhancing market efficiency, and supporting the energy transition.

Looking ahead, the development of future cross-border interconnections needs institutional collaboration and regulatory harmonization across the Mediterranean region. Strengthening partnerships among Transmission System Operators, National Regulatory Authorities, and regional stakeholders will be critical to addressing existing

barriers and advancing new projects. Adopting successful practices from existing interconnections, such as trading platform integration and the UIOSI principle, can enhance the design and implementation of upcoming initiatives.

The development and day-to-day operation of interconnections should be seen part of a wider environment of operational cooperation to ensure the safety of interconnected systems. Transmission and system operators are encouraged to develop and implement operational cooperation and safety rules through shared standards and operational cooperation bodies.

Furthermore, expanding interconnection projects should align with sustainability goals, promoting renewable energy integration and environmental stewardship.

By learning from the experiences of existing interconnections, stakeholders in the Mediterranean region could build a more interconnected, sustainable, and resilient electricity network. As the energy landscape continues to evolve, cross-border interconnections will remain a cornerstone of regional collaboration and progress, laying the groundwork for a secure and sustainable energy future.

Med-TSO Legal Headquarters
Viale Egidio Galbani, 70 – 00156 Rome – Italy • Info@med-tso.com • www.med-tso.org

Co-funded by
the European Union

This publication was co-funded by the European Union. Its contents are the sole responsibility of Med-TSO and do not necessarily reflect the views of the European Union.