HANDBOOK

MEDREG Study Visit
to the Egyptian Gas Regulator GASREG
to the French Regulator CRE

DEVELOPMENT AND IMPLEMENTATION OF TPA RULES AND ACTIVITIES FOR THE GAS SECTOR

6-8 July 2020

MEDREG
MEDITERRANEAN ENERGY REGULATORS

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CONTEXT

Since the establishment of the Egyptian Gas Regulatory Authority GASREG in 2017, MEDREG has been continuously supporting by sharing experiences and practices to reinforce its technical and regulatory capacity as leverage for the development of the gas market. In this context, as a follow up to the support activities of the latest years, GASREG requested the technical assistance of MEDREG in 2020 on the topic of the development and implementation of Third-Party Access (TPA) rules and activities.

In Egypt's case, ensuring the right of TPA to gas facilities stands within GASREG objectives and responsibilities. TPA is indeed a fundamental element of liberalised gas markets since it provides the suppliers and consumers with fair and non-discriminatory accessibility to the existing infrastructures. Transmission and distribution networks are usually considered natural monopolies, as they are not economically replicable. They are the means of transporting gas from generators and producers to end consumers. Due to these characteristics, infrastructure owners may hamper economic competition through unfair competitive practices if access to third parties is not regulated. Therefore, TPA allows market operators to transport, deliver and trade their products using the existing networks on a non-discriminatory basis through open access tariffs determined and monitored by energy regulators.

So far, TPA rules and procedures in Egypt are still being developed. In particular, technical TPA rules are included in the network code without the details regarding the tariff structure. The authority applies priority and pro-rata mechanisms for booking capacity with only one TSO dealing with many DSOs and handling the hourly/daily pipelines line pack in the network code1.

II. DAY 1

1. REGULATORY FRAMEWORK AND CURRENT EVOLUTION OF TPA RULES AND PROCEDURES IN EGYPT

Engineer Karem Mahmoud, *GASREG Executive Chairman*

Nowadays, there are different options to create a functioning, fair and transparent gas market in Egypt. An internal market consists in an integrated liquid and transparent internal energy market in order to exploit the resources of member states, encourage the stakeholders to invest in an infrastructure adapted to future challenges and secure supply while offering consumers the most advantageous prices. The creation of a bigger and more transparent market will motivate and promote investment in other countries, as well.

However, there are two issues in the market opening:
Firstly, third parties' access for a monopolistic structure and, secondly, **the unbundling of infrastructure.** The European trade now combines marketplaces and interconnections because the development of commerce places aims at providing reliable trade signals and it goes towards efficiency and solidarity, as it has the goal to create liquid markets. This is the case in Egypt. Nonetheless, several measures have been already implemented in order to regulate the gas market. For instance: the objectives and the new framework regulate, monitor, and supervise all the **downstream gas market activities.** Another aim is to protect the interests of the market parties and consumers.

There are four aspects of achievements: The first one was the institutional establishment of the regulator. Egypt had to establish a new regulator by stuffing the old internal bylaws, organismal structure, description, budget, and business that they managed in the first year to approve it all. The second aspect of the regulatory framework that was worked on in the first two years was the transitional period's regulatory procedure. Thirdly, the transmission and diffusion system approve that this spreads the first new distribution and transmission tariff. The fourth achievement was that the first network code for the transmission system was released a couple of months ago, in 2020, which is also a significant shift in the market among other steps.

Nowadays, the main priorities are creating an investment followed by a hub. The government has enormous plans for increasing the housing sector for gas consumption instead of energy consumption because it's more economical for the government to sell the gas instead of LBG. In the previous years, the government of Egypt has succeeded to deliver the gas and to have new connected housing conditions as the consumers have widely increased.

2. REGULATION OF TPA TO GAS INFRASTRUCTURES: THE ROLE OF THE REGULATOR

Benoit Esnault,
Head of Interconnections and European Networks Department

Regulation is a way of accompanying industrial activities. It consists of accompanying a sector to ensure that its development is in line with the general interest. It is also made up of the background principles of network economics and the concept of the essential facility and its associated issues. The choice that has been made is to have some independent law. The concept of **independent regulation** promotes neutral administrators to ensure that they can effectively focus on the sector's economic performances, following the main objective within the framework of economic efficiency, which is to stimulate the market.

The essence of the regulation comes from European legislation and the guidelines of the EU. Cross-border integration is a fundamental objective of this project. At interconnections, it is very important to make two different systems work together, so they have other codes. On the gas side, a **capacity calculation** remains in the hands of the transmission system operators. These estimations are based on net-

work computations, the physics of the systems and forecast in terms of gas flows, gas consumption, and the gas volumes that are available at borders in the neighbouring country. They articulate these calculations with the strategies and the needs of the network users or competitors in the market. They have a combination of different capacity products, allowing them to develop their plan with long term products for their regular supplies and short-term products with a view of stimulating in the future.

Whereas Egypt had to modify and amend their legislation progressively, in Europe, there is a big difference with the UAE, which is the heat in the wintertime. There is a peak of demand in Egypt and the interconnections are increasing as well. The purpose of the introduction of competition was to create a single market and reduce prices for consumers. First, Egypt started with a quite general tax. Consumers are free to choose regulated tariffs, which are determined now by the regulator and the government, creating their market with this design in Europe. Their focus in Europe is competition downstream, meaning competition on national transmission, and storage, as well as distribution.

Europe started within the international markets, but all the countries consume large quantities of gas. The European system is well integrated and interconnected with large capacities. In Egypt, it is slightly different because the design of the gas system is entirely distinct, and because the kind of integration it has is with the neighbouring countries, Israel and Jordan. The key to making Egypt attractive is to increase its capacities. The more confidence there is in the Egyptian platform, the more consumers the country will have.

This kind of trade depends on the terms of the tariffs. This then has to be addressed according to the design of the system and what you want to achieve in terms of competition including the idea you have about fairness. If tariffs increase too much, no one will use them. It will become a stranded asset that will be socialised and paid by other users to look for the right direction. Users will need to be careful because of the transmission tariffs and distribution tariffs, which require transparency. In order to build confidence, it is necessary to have something which is seen as fair and determined according to the use of gas and where the volume of consumption is seen clearly.

IIII. DAY 2

3. BALANCING RULES AND FLEXIBILITY

Vincent Fortanier, *Analyst, Upstream Gas infrastructures Department*

Balancing rules and regulations is crucial when opening a gas market to competition. Every state member has some space to adapt the European rules to its markets. Since 2014, there is a standard code that equals the groups for the progressive follow-ups. This is a move, through national deliberations, to comply with European standards.

France is a significant market given that the majority of the gasoline is brought to the market by suppliers that are just delivering gas consumptions sites. Other types of actors also use the national transmission network, including shippers and traders. The shippers use France as a transit market to deliver gas in southern European countries. Whereas traders use the French market for speculation purposes by selling and buying volumes of gas through the French virtual exchange point. However, since the market opened to competition, factories are still not using the transmission network, particularly traders who only use the French market to sell and buy volumes of gas.

Moreover, the **transmission network** is divided between two Transmission System Operators (TSOs), which impact the way the balance or imbalances of finances are carefully calculated. These TSOs are joined in a unique balancing zone. The ratio in France is calculated daily, and the setting prices of imbalances are linked with market prices, according to the European guideline. The settlement price of imbalances is based on market prices. The commercial balance is calculated daily. So, it's at the end of the day that the settlement price is set for a shipper. The rules are set as far as a neutral positive, financially speaking, for citizens. The CSA's role is to manage these networks' physical balance and build the settlement deals for the shifts implied on imbalances. Therefore, those calculations are based on the nominations that are made by all the different shippers, who then calculate the balance of the day. Thanks to the market prices, the market forces of the day can send the daily balance bill.

By collecting the hourly nominations of shippers and using prediction models based on daily temperature and consumption data of the past years, TSOs can foresee the balancing needs of the network. The physical balance of the network is thus the responsibility of the TSOs. To follow the process, the French TSOs settle contracts with SSOs to be able to inject or withdraw volumes of gas if needed to balance the system. TSOs can also buy or sell the volumes needed directly via the French market. If needed the TSO's can activate a locational product to avoid congestions.

The monitoring of every shipper's daily imbalance is also the responsibility of the TSOs. If the daily imbalance is superior to 50 per cent of the shipper's financial guarantee, the TSO sends formal warning information. If the daily imbalance reaches 90 per cent of the financial guarantee, the TSO can ask for an account on the future imbalance bill: prices of imbalances are linked with market prices. Starting from 100% of the financial guarantee, the TSO can partially break the transmission contract with the shipper, forbidding him to subscribe to exit capacities or nominate gas volumes out of the French market.

In a gas network, the line pack volume is a key flexibility factor in regards to the balancing rules. The TSOs offer flexibility services on the days where the line pack has been sufficient to manage the daily imbalances (no locational product, no buying or selling on the market), and shippers who have subscribed to these services are exonerated of the daily settlement price.

The role of the regulator in the balancing rules is to implement these rules adapted to the characteristics of its national market. The main levers are the amount of the financial guarantee, which are mandatory for every actor willing to enter the open gas market. The smallest actors could see an expensive amount as a barrier. In France, the amount set by CRE is equal to the two highest transmission bills paid by the shipper to the TSOs in the last 12 months. The shippers are given the possibility to adjust this amount to a higher level to keep some flexibility. Indeed, some players, as traders, need a higher guarantee to maintain open positions for several days. There is a time basis for imbalance calculation and for the gradual range of sanction at the disposal of the TSOs to manage the imbalanced shippers. In Europe, the choice has been made to calculate imbalances daily, as it is adapted to the way the European gas markets works, taking into account nomination cycles, capacity subscription cycles, and consumption measurement. With regards to the sanctions, in December 2019 the CRE recently allowed the TSOs to partially suspend a transmission contract as soon as a shipper reaches an imbalance of 100% of its guarantee, as a reaction to several cases of fraud in Spain, Germany and Netherlands. In Europe, the choice has been made to base this calculation on the market prices of the day, as the gas markets are now considered sufficiently liquid and interconnected.

Active cooperation between the TSOs and the regulator is essential to have a well-functioning and balancing system. After all, the regulators don't watch every shipper's daily basis determinations on the French market. Nonetheless, this is done through citizen attitudes. Depending on who delivers a guarantee, it will represent the imbalance of the day, even if the regulator makes the rules and creates the framework, it's the operators who apply them daily.

It is mandatory for every actor willing to enter the open market to pay a financial bill. Depending on the markets' conditions and the prices of the day, traders would need to have huge imbalances. As long as they enter the French markets, they have throughout the financial year to do this since this is the first step to entering the market. Additionally, a balanced calculation is also part of the rule within the framework of rules, as mentioned before. In Europe, trust has been made to calculate imbalances daily because the actors have the tools needed to perform this task. This is not mandatory, and it can be adapted to the type of basis, the fair balance calculation to the specificity of the market and the needs, both of the issues and the stores.

4. THE IMPACT OF TPA ON CAPACITY ALLOCATION MECHANISMS AND CONGESTION MANAGEMENT PROCEDURES

Edouard Le Bret,
Analyst, Interconnections and European Networks Department

In order to ensure third party access, capacity allocation TSOs must offer their services in a non-discriminatory manner to all network users and detailed allocation rules are established in the network code on capacity allocation mechanisms (CAM). Congestion management relies on all market participants having access to the maximum network capacity, and TSOs must practice and publish transparent congestion-management procedures (CMP), which ensure that cross-border exchanges of gas are on a non-discriminatory basis.

4.1 CAPACITY ALLOCATION MECHANISMS AND CONGESTION MANAGEMENT PROCEDURES

The regulation says that it is vital that gas can be traded independently of its location in the system, and it is believed that the only way to do this is to give network users the freedom to book entry and exit capacity independently. The supply is the only thing the regulation has to book the entry points, ability at entry points and power at exit points. It promotes competition since it decreases the entry barriers to the market players on the market. And it improves the trading ability of guests from one to the other. The consumer can also book a more significant exit capacity than the entry capacity that has been booked to the supply of gas.

The objective of **capacity allocation** is that TSOs must offer their services in a non-discriminatory manner to all the network users and follow detailed allocation rules, which apply all across Europe. Now all the rules are the same: the idea is that all market participants who need capacity shall have access to it when it's possible to access it.

4.2. REGULATOR ROLE FOR CAPACITY ALLOCATION AND CONGESTION MANAGEMENT.

Capacity allocation mechanisms

The earliest mechanism appeared when the first shipper who needed capacity was allocated the power he wanted. It was sold at the regulated reserve price, which is determined by the other regulators. Therefore, this Capacity Allocation Mechanism has the advantage of simplicity. Albeit, it is an easy method to allocate capacity, it also has drawbacks. First, it does not ensure that all market participants who want power can obtain it because it works on a first-come, first-served basis. Additionally, it is a scarce resource since there is no auction process because the price of power is the deregulated tariff and the new value is given to the capacity.

Another example of capacity allocation methodology used in France is the Open Subscription Period, OSP in this system. It's sold at the regulated reserve price and the items are more comfortable. However, the problem is that the market participants will not have the capacity as they requested, so it can incentivise suppliers to demand more capacity than they need to anticipate a shortage.

Furthermore, congestion can be physical at first, which corresponds to a state of saturation of the network or when a gas pipeline does not allow the transport or distribution of all the quantities injected or withdrawn, taking into account the characteristics and performance of the network equipment. The quantity of gas that you want in a

particular type corresponds to the state of the network's saturation when a gas pipeline does not allow the transport or distribution of all the quantities injected or withdrawn. Some capacity holders keep contracts, which state that their capacity can be interrupted if needed. Another possibility is its so-called locational spread, or, as a last resource, all the market participants can mutually restrict their ability to leave the technical capacity available. The only way to reduce congestion is to invest in the network and to commission new assets, new pipes, or to upgrade the capacity of existing lines.

IV. DAY 3

5. MARKET MODELS, GRID OWNERSHIP MODELS AND UNBUNDLING FROM DIFFERENT PERSPECTIVES

Vincent Harrop, *Jurist, Legal Department*

The main purpose of the unbundling rules is to ensure independence and neutrality for gas operators and to allow third-party access (TPA) to networks to be efficient. Unbundling of network activities is a necessary and gradual process in opening up energy markets to competition. The gradual process of creating a competitive gas market consists of firstly in a prior market design with an integrated model. Most gas utilities were run by national entities or vertically integrated and (often) state-owned monopolies. These companies usually have exclusive rights to sell, import, and export gas and to construct and operate related infrastructures (transmission, distribution, storage and LNG installations).

However, there has been an introduction of new market players to be able to open up to the competition. In this way, there has also been an opening up to the competition in the upstream markets (generation, licence to import and export or trading), and in the downstream markets (supply to end-users). On the other hand, infrastructures activities (transmission, distribution and storage) remain under a monopolistic regime and thus regulated.

Therefore, the cardinal principles of opening up Europe's energy markets to the competition are a fully open market allowing all consumers to freely choose their supplier, the freedom of establishment on upstream and downstream markets activities, and the access to networks and infrastructure on an objective, transparent and non-discriminatory basis.

Taking this into account, the need of unbundling lies in the notion that if a single company operates a transmission network and generates or sells energy at the same time, it may have an incentive to obstruct competitors' access to infrastructure in order to retain their historical market shares. This prevents fair competition in the market. Consequently, the primary objective of the unbundling rules is to ensure independence and neutrality of gas transmission and distribution operators.

Accounting unbundling was one of the first steps of the process engaged within the European Union during the mid-1990s. This type of unbundling is the minimum separation requirement to be respected by every network operator. The objectives of it include the prevention of subsidisation between activities, the contribution to more transparency and a more automatic cost allocation between activities, work on the regulator, notably facilitated networks, network-time establishments and, finally, to give visibility to the national regulator or any competent authority. In France, the regulator approved the accounting parameters, the allocation rule and the principle determining the accounting separation. In order to carry its mission, the regulator has its right of access to the operator's accounting and an audit with the help of a third party. The accountings should split activities, but they can consolidate for governance purposes in terms of overall accountability.

Furthermore, the legal unbundling constitutes a further step from accounting unbundling that emerged in European law in 2003. In this regime, network activities are performed by legally separated entities. Legal unbundling aims to give network operators a sufficient level of independence from other parts of the vertically integrated undertaking to fulfil what is called "functional unbundling".

Functional unbundling requires a management separation, meaning that the persons responsible for the management of the company have to be independent of the vertically integrated undertaking (not participating in the vertically integrated undertaking's governance and not to hold interests in the vertically integrated undertaking.) It also entails effective decision-making rights. In this way, the company must have the necessary resources to carry-on with activities and should be free and independent to operate and develop its network. However, it should not prevent the existence of economic supervision rights of the parent company, for instance, approving the annual financial plan, setting limits on indebtedness. Such supervision rights should not allow the parent company to give instructions regarding day-to-day operations, nor for individual decisions concerning the construction or upgrading of transmission lines that do not exceed the terms of the approved financial plan or any equivalent instrument.

Moreover, functional unbundling also requires compliance. Network operators shall establish a compliance programme, which sets out measures taken to ensure that discriminatory conduct is excluded. A person or a body responsible for monitoring the compliance programme is nominated and has to report its activity to the regulatory authority. Network operators own considerable importance regarding their network, affecting all market players, contestants, and capacity availability. The network operators should implement effective information firewalls in that sense. Secondly, the networks

operators will have access to a lot of information related to the new market players themselves. Taking this into account, the vertically integrated undertaking can access information related to its direct competitor. Thus, this should be a separation in it, as well, so there can be no mix of communication between the two entities.
Finally, there's a geographical requirement of separation concerning the construction of distinctive buildings in terms of image and modelling. The idea is network operators are corporate identity and that communication practice creates confusion in respect to the identity of the vertically integrated undertaking.

6. THE INVESTMENT PLAN

Héloïse Tixier,
Analyst, Upstream Gas infrastructures Department

The French investment regulation consists of two main exercises: An Annual network development plan and an Annual Investment Programme. Regarding the annual network development, the Directive 2009/73/EC, Article 22 holds: "Every year, transmission system operators shall submit to the regulatory authority a ten-year network development plan based on existing and forecast supply and demand after having consulted all the relevant stakeholders. That network development plan shall contain efficient measures in order to guarantee the adequacy of the system and the security of supply." The CRE is in charge of verifying that the plan covers all the investment needs and is coherent with the European plan (Ten-Year Network Development Plan, "TYNDP") developed by the ENTSO-G. The CRE consults all actual or potential system users on the network development plan.

On the other hand, regarding the Annual investment programmes, the CRE approves these programmes every year and can refuse some

of the proposed investments. The CRE verifies that the investments needed for network development are launched. If an investment included in the network development plan (one that is still relevant) is not implemented by the TSOs, the CRE can compel them to launch it or put in place a tender for another promoter to do it.

Regulators have the right to access all the information, including confidential information. The regulator will approve the supervisory body parts since they will be submitted to the independence requirements before, during or after their nomination.

Moreover, the political decisions, regulations and powers that are given to the regulator to apply also play a pretty important role. The objective of the investment regulation for France is to find the appropriate size, so the idea is to have a network to invest enough to manage it correctly.

Additionally, the French framework gives the TSOs strong incentives to invest. Investments enter the Regulated Asset Base and are remunerated (current rate for gas TSOs: 4,25%). Up until 2016, an additional remuneration (3% over 10 years) was given for some projects of particular interest for the development of interconnections or the zone merger in France.

The French network is now properly sized, and the following objectives have been met:

- Creation of new interconnections with neighbouring countries
- Connection of LNG terminals to the network reinforcement of the network to suppress the main congestions and implement the zones merger.

The current challenge now consists of accompanying the energy transition objectives. The CRE is thus particularly vigilant in its examination of any new investment project submitted by the TSOs. Nonetheless, the revision of the investment incentives in 2016 included the suppression of the additional remuneration of 3%, replaced by an incentive for the development of interconnections (not applied, and thus suppressed in 2020). It also entailed the introduction of an incentive mechanism for controlling the costs of the projects of more than 20M€. Finally, the revision of the investment incentives incorporates the approval of investments and is based on strong requirements regarding justification, including a costs-benefits analysis and the evaluation of alternative scenarios.

V.
SPEAKERS

NAME	BIOGRAPHY
Karem Mahmoud	*GASREG Executive Chairman*
Benoit Esnault	*Head of Interconnections and European Networks Department*
Vincent Fortanier	*Analyst, Upstream Gas infrastructures Department*
Edouard Le Bret	*Analyst, Interconnections and European Networks Department*
Vincent Harrop	*Jurist, Legal Department*
Héloïse Tixier	*Analyst, Upstream Gas infrastructures Department*

GLOSSARY
KEY CONCEPTS

Unbundling of the infrastructures:
Items or services that are split rather than compact.
Downstream gas market activities: Final part of the gas market where the service gets to the consumer
Independent regulation: Neutral administrator which ensures that they can effectively focus on the sector's economic performances; one of the goals of the tools to achieve this economic efficiency is to stimulate the market.

Capacity calculation:
"According to Article 37(3) of the EB Regulation, TSOs of each capacity calculation region need to develop a methodology for cross-zonal capacity calculation within the balancing timeframe for the exchange of balancing energy or for operating the imbalance netting process and submit it to the concerned regulatory authorities for approval then to the Agency for information". [1]

Transmission networks:
The network transmission is code that enable the Energy Community, an international organisation that brings together the EU and its neighbours, to create an integrated pan-European energy market.

Capacity allocation:
"Capacity allocation provides mechanisms to obtain capacity products from transmission system operators. It is usually underpinned with a capacity contract between the network user and the network operator". [2] *In order to facilitate gas transport and gas trading across the EU, the Framework Guidelines and the associated Network Code on Capacity Allocation Mechanisms (FG and NC CAM) aim to promote and define harmonised capacity allocation mechanisms, i.e. auction procedures and a small set of standardised bundled cross border capacity products at interconnection points between entry-exit zones. The code, taking account of general commercial and technical rules related to capacity allocation, also specifies how adjacent transmission system operators shall cooperate to facilitate the sale and usage of bundled capacity* [3].

[1] *Capacity calculation and allocation. (2020). Https://Acer.Europa.Eu. https://acer.europa.eu/en/Electricity/MARKET-CODES/ELECTRICITY-BALANCING/IMPLEMENTATION/Pages/CAPACITY-CALCULATION-AND-ALLOCATION.aspx*

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[3] *Gas Capacity Allocation Mechanisms. (2020). Acer.Europa.*Eu. https://acer.europa.eu/en/Gas/Framework%20guidelines_and_network%20codes/Pages/Gas-Capycity-Allocation-Mechanisms.aspx

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MEDREG is the Association of Mediterranean Energy Regulators, which gathers 27 energy regulators from across 22 countries, spanning the European Union, the Balkans and North Africa.

We aim to set the conditions for the establishment of a Mediterranean Energy Community by promoting a transparent, stable and compatible regulatory framework in the Mediterranean Region. We foster electricity and gas market integration, renewable energy development, infrastructure investments as well as consumer protection.

Based on a bottom-up approach, MEDREG acts as a platform that enables Mediterranean regulators to cooperate and exchange knowledge and experience.

The organisation is co-funded by the European Union.

This handbook is based on a webinar organised by MEDREG to outline the priorities for CASREG, including the creation of a transparent and competitive gas market in Egypt.

EDITORIAL PROJECT AND CONTENT
MEDREG Secretariat & Vision Communication: www.vision-communication.org

DESIGN PROJECT AND PRODUCTION
Giuseppe Forgioli: www.forgioli.it

Co-funded by
the European Union