



**Report on the interim measures  
to be implemented by GAZ-SYSTEM SA**

in connection with the entry into force of the  
*Commission Regulation (EU) No 312/2014 of 26  
March 2014 establishing a Network Code on Gas  
Balancing of Transmission Networks*

**CONSULTATION VERSION**

29 SEPTEMBER 2014

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## Introduction

On 16 April 2014 *Commission Regulation (EU) No 312/2014 of 26 March 2014 establishing a Network Code on Gas Balancing of Transmission Networks* (hereinafter: the Regulation) came into force. The Regulation contains guidance on the principles of system balancing and settlements with the Shipper (hereinafter: Shipper) related to individual imbalance. Transmission System Operators in the European Union (hereinafter: the EU), including Operator Gazociągów Przesyłowych GAZ-SYSTEM SA (hereinafter: GAZ-SYSTEM) are obliged to adapt the principles of balancing used in their transmission systems to the standards of the Regulation before 1 October 2015.

The ultimate objective of introduction of the above regulation is to accelerate the development of short-term wholesale gas markets and tighter integration of the EU gas market by ensuring consistency of the balancing rules of the transmission systems within the EU.

In accordance with Article 45 of the Regulation, in the absence of sufficient liquidity of the short term wholesale gas market, and thereby reduced ability to balance the transmission system in accordance with the target model presented in the Regulation, the Transmission System Operator may implement suitable interim measures. Interim measures are acceptable and temporary derogations from the rules of the Regulation, and their catalogue is clearly defined in Articles 47 - 50 of the Regulation.

Implementation of interim measures requires the Transmission System Operator to prepare a document confirming the appropriateness of introducing the proposed interim measures. Justification should take the form of a report whose individual components are indicated in Article 46 of the Regulation. The solutions proposed in the report should be subjected to prior consultation, which interested parties can participate in.

The report on the interim measures proposed for implementation in the transmission system managed by GAZ-SYSTEM will be prepared and sent to the President of the Energy Regulatory Office (hereinafter: ERO) by 16 October 2014. The ERO President, within six months of receiving the complete report, is required to take a decision concerning the proposed interim measures and refer the decision to the Agency (*Agency for the Cooperation of Energy Regulators*) (hereinafter: ACER) and the European Commission.

This consultation document aims to present the interested parties with interim measures planned for implementation by GAZ-SYSTEM. In accordance with Article 45 of the Regulation, the document presents information regarding:

- The state of development and liquidity of the short-term wholesale gas market in Poland;
- Interim measures planned for implementation by GAZ-SYSTEM together with the reasons for the application of these measures;
- Measures the application of which is a condition to remove the interim measures.

# 1. The state of development and liquidity of the short-term wholesale gas market in Poland

This chapter presents the assessment of the development and liquidity of the short-term natural gas market in Poland, with particular emphasis on the number of market participants, available products and their level of liquidity. Particular attention was paid to the possibility of using short-term wholesale gas market in Poland as a source of gas for the Transmission System Operator for the purpose of physical balancing of the system and as a tool for commercial balancing of individual Shippers.

## 1.1. Functioning of the short-term gas market

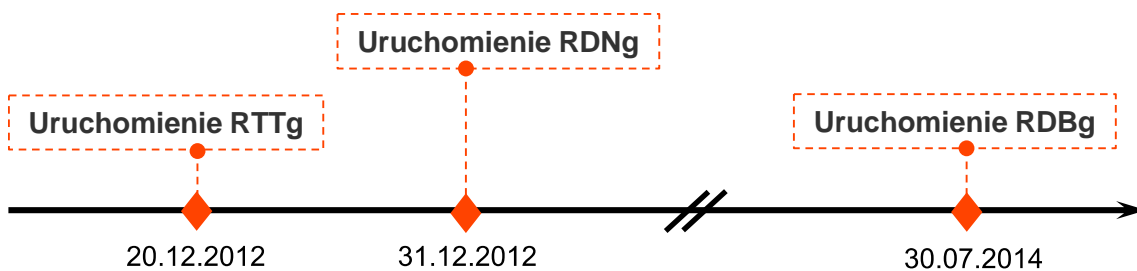
Both the Polish law and the EU law do not provide for an unambiguous definition of the short-term markets. For the purposes of this document, based on the provisions of the Regulation, it was assumed that the short-term natural gas market is a market in which gaseous fuel is traded two days before the date of delivery, the day immediately preceding the date of delivery or the date of delivery of the gaseous fuel. At present there is only one regulated market of natural gas in Poland that meets the above criteria, the gas exchange on the Polish Power Exchange (hereinafter: PPE). The gas exchange was established in December 2012.

PPE gas trading is conducted at a virtual point located within the transmission system of GAZ-SYSTEM. The product traded is the high-methane natural gas (E), traded in the following markets:

- Commodity Forward Instruments Market for gas (hereinafter: CFIMg);
- Day Ahead Market for gas (hereinafter: DAMg);
- Intra Day Market for gas (hereinafter: IDMg);

Below is a schedule of launching the above markets.

Figure 1. Schedule of commencing activities by new markets at the PPE gas exchange



Source: Own study based on PPE's data

key: CFIMg launched; DAMg launched, IDMg launched

All gas markets of the PPE are used to trade gas title products among market participants. Currently, the locational products are not offered in the gas market, i.e. products where the supply or off-take of gas is carried out at certain physical points of entry / exit.

Gas is traded on the CFIMg on weekdays from 8.00 am to 2.00 pm. Transactions on the CFIMg may be concluded in the auction system or in the continuous trading system by buying and selling standard title products. Currently, BASE standard products are available in the CFIMg, offered for the following periods: week, month, quarter, season or year. Of all the gas markets operated by the PPE, CFIMg is a market characterized by the highest turnover. From 1 January 2014 to 31 August 2014 turnover on the CFIMg totalled 38.7 TWh; i.e. 97% of all gas trade in the markets operated by PPE.

In the short-term markets of DAMg and IDMg, gas is traded daily, as follows:

- from 9:00 am to 1:00 pm: DAMg,
- from 8:00 am to 1:30 pm: IDMg.

DAMg is used to trade gas in equal quantities at all hours of the day of delivery. Gas is traded on the DAMg on the day before the date of delivery or two days prior to the date of delivery.

Trading in the DAMg market takes place in the following systems:

- continuous trading system and
- fixing system.

In the continuous trading system, the transaction price is determined on the basis of orders placed with the highest buy and sell price limits which allow to close the transaction.

In the fixing system, members of the exchange place orders from 9:00 am to 9:15 am, without insight into orders of other exchange members placed for fixing. At 9:16 am the PPE determines fixing based on all orders placed for fixing. Fixing is determined in such a way so as to achieve the balance between demand and supply with the principle of maximizing the volume of trading. After determination of fixing, trading is continued until 1:00 pm in the continuous trading system. Opening of quotation by specifying a fixing is a signal for the market on the current perception of the prices by the users.

Based on all recent listings on the DAMg (in the continuous system and fixing system) the POLPX index is determined.

Trading on the IDMg involves 19 hourly instruments for the supply of gaseous fuel from 11.00 to 5.00 (including) of a given gas day (the first five hours of the gas day are inactive). On the IDMg, gas is traded in the continuous trading system on the day of gas delivery.

The next page includes a table which compares basic information on the operation of the short-term markets.

**Figure 2. Key information on the DAMg and IDMg broken down into key areas**

Area	DAMg	IDMg
<b>Subject of trade</b>	The subject of trade is delivery of gas in equal quantity at all hours of the day(s) of delivery (a <i>BASE</i> type instrument).	Trading involves 19 hourly instruments for the supply of gaseous fuel from 11.00 to 6.00 of a given gas day
<b>Specifics of the contract</b>	One contract corresponds to the delivery of 1 MWh of gas every hour of the day(s) of delivery	One contract corresponds to 1 MWh of gas at a specific hour of delivery
<b>Trading</b>	Trading is carried out on the day preceding the day of delivery from 9:00 am to 1:00 pm, while for the weekend contracts trading is carried out two days prior to the date of delivery from 9:00 am to 1:00 pm	Trading is carried out on the day delivery from 8:00 am to 1:30 pm
<b>Quotation system</b>	Continuous quotations/fixing	Continuous quotations
<b>Indexes</b>	POLPX-gas	None

*Source: Own study based on PPE's data*

## 1.2. Participants of the short-term gas market

A participant of the short-term gas market on the PPE is an entity that:

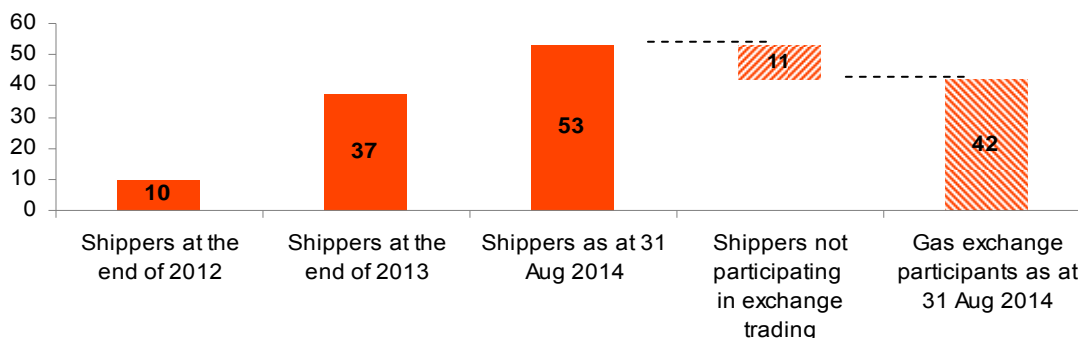
- signed a transmission contract with the Transmission System Operator and received allocation of capacity at the virtual point of entry into / point of exit from the wholesale gas market on the PPE (has a status of the Shipper)
- is entitled to trade gas on the PPE.

In connection with the progressive liberalization of the gas market in Poland, the number of Shippers has been rapidly increasing since 2012. Currently (as of 31 August 2014.) there are 53 entities operating in the gas market which have the status of a Shipper, that is nearly 50% more than at the end of 2013.

Not all entities having the Shipper status are entitled to trade gas on the PPE. According to the PPE data, as at 31 August 2014 11 entities with the Shipper status did not have the rights to trade gas on the PPE and thus such Shippers could not have been considered participants of the short-term gas market on the PPE.

The graph below shows the number of Shippers from 2012 to 2014, detailing Shippers entitled to trade gas on the exchange.

**Figure 3. Number of Shippers at the end of the period from 2012 to 2014 and the number of participants of the exchange market as at 31 August 2014.**



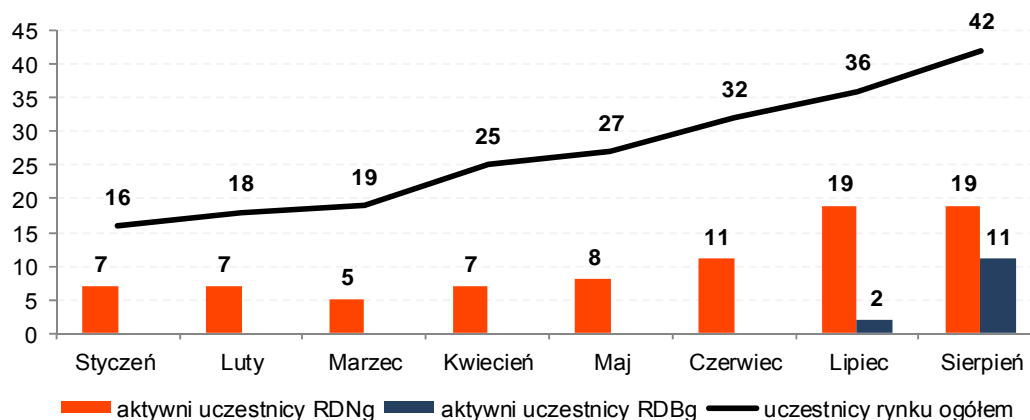
Source: Own study based on PPE's data

Despite a significant increase in the number of Shippers, including Shippers which hold rights to trade gas on the PPE, only a part of entities are actively involved in exchange trading (an active market participant is an entity which concluded at least one buy or sell transaction in a given month on the DAMg or IDMg). As of 31 August 2014, out of 42 Shippers with the rights to trade on the PPE:

- 19 entities (only 45%) actively participated in the DAMg and
- 11 entities (only 26.2%) actively participated in the IDMg.

The chart below presents the increase in the number of participants of the short-term gas market in Poland in various months of 2014, broken down to active participants of the DAMg and IDMg markets.

**Figure 4. Number of participants trading on the PPE and the number of active participants in individual months of 2014.**



Source: PPE

key: January, February, March, April, May, June, July, August

DAMg active participants, IDMg active participants, total market participants

Originally, trading in the gas markets operated by the PPE could have been carried out only through brokerage houses, which were the sole entities authorised to act as participants of the gas market on the PPE. It was only amendment of the Act on the Energy Law and certain other Acts, published in the Official Journal of 27 August 2013 item 984, which introduced changes that allowed gas energy companies to obtain the status of an exchange member.

Therefore, currently participants of the gas market operated on the PPE may conclude buy/sell transactions in the natural gas market:

- **directly** as members of the gas exchange or
- **indirectly** through a selected member of the gas exchange (brokerage house).

As at 15 September 2014, only 17 entities had the status of a PPE member authorized to trade gas. The vast majority of gas exchange members have access both to the CFIMg and the short-term markets (DAMg and IDMg).

The following table lists members of the gas exchange admitted to trading as at 15 September 2014.

**Figure 5. Gas exchange members admitted to trading, broken down by CFIMg, DAMg and IDMg (as at 15 September 2014)**

No.	Name of entity	Shipper status	CFIMg	DAMg and IDMg
1	CEZ Towarowy Dom Maklerski Sp. z o.o.	X	YES	YES
2	Dom Maklerski BOŚ S.A.	X	YES	YES
3	ENEA Trading Sp. z o.o.	✓	YES	-
4	Energia dla firm Sp. z o.o.	✓	YES	YES
5	Fortum Power and Heat Polska Sp.z o.o.	✓	YES	YES
6	Inter Energia S.A.	✓	YES	YES
7	NOBLE Securities S.A.	X	YES	YES
8	PAK -Volt S.A.	✓	YES	YES
9	PGE Dom Maklerski S.A.	X	YES	YES
10	PGE Polska Grupa Energetyczna S.A.	✓	YES	YES
11	PGNiG S.A.	✓	YES	YES
12	PKP Energetyka S.A.	✓	YES	YES
13	POLENERGIA OBRÓT S.A.	✓	YES	YES
14	Re Alloys Sp. z o.o.	✓	YES	YES
15	RWE Polska S.A.	✓	YES	YES
16	TAURON Polska Energia S.A.	✓	YES	YES
17	Vattenfall Energy Trading GmbH	✓	YES	YES

Source: PPE



### 1.3. Liquidity of the short-term gas market

The main determinants of the short-term gas market liquidity are:

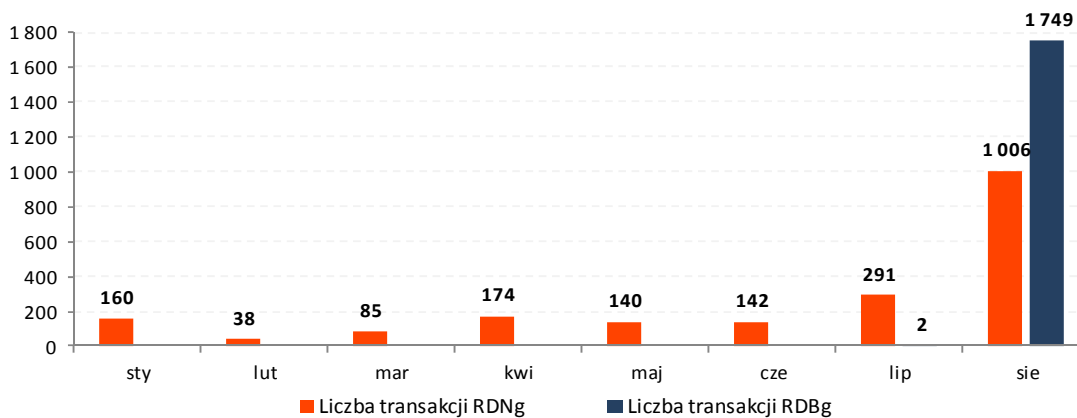
- The number of completed exchange transactions,
- The volume of gas trading,
- The churn ratio and
- Short-term liquidity ratio.

Since the launch of the gas exchange until July 2014, the number of short-term transactions concluded on the PPE was very low (below 300 transactions per month). Only from 1 August 2014, following separation of a company responsible for retail trade from PGNiG SA, PGNiG Obrót Detaliczny Sp. z o.o. (hereinafter: PGNiG OD), we can observe a significant increase in the number of transactions concluded on the DAMg (more than 1,000 transactions completed in August 2014).

A significant increase in the number of concluded transactions is also visible on the IDMG (more than 1,700 transactions in August 2014), however, given the very short period of functioning of the market, any conclusions drawn on the basis of these data will be subject to significant error, and therefore should not be used to draw binding conclusions.

The chart below presents an increase in the number of transactions concluded on the DAMg and IDMG in individual months of 2014.

**Figure 6. The number of transactions on the DAMg and IDMG in individual months of 2014.**



Source: PPE

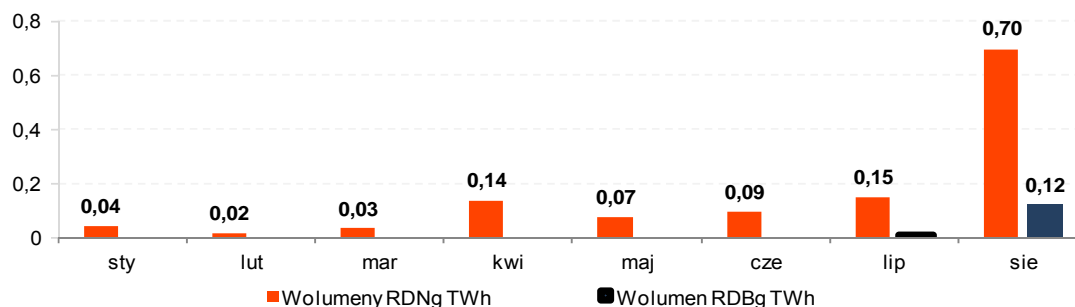
key: Number of DAMg transactions; Number of IDMG transactions

With the increase in the number of transactions concluded, there has been a significant increase in the trading volumes in the DAMg and IDMG markets. In August 2014 only, the trading volume of transactions concluded on DAMg reached the level of 700 GWh and was higher than the cumulative trading volume for that market in the previous seven months. At the same time, we see a very rapid growth in the trading volumes on the IDMG - in August 2014, the market trading volume amounted to 120 GWh.

The next page shows an increase in the volume of gas trading on the DAMg and IDMG in individual months of 2014

**Figure 7. The volume of transactions concluded on the DAMg and IDMg in individual months of 2014.**

Source: PPE



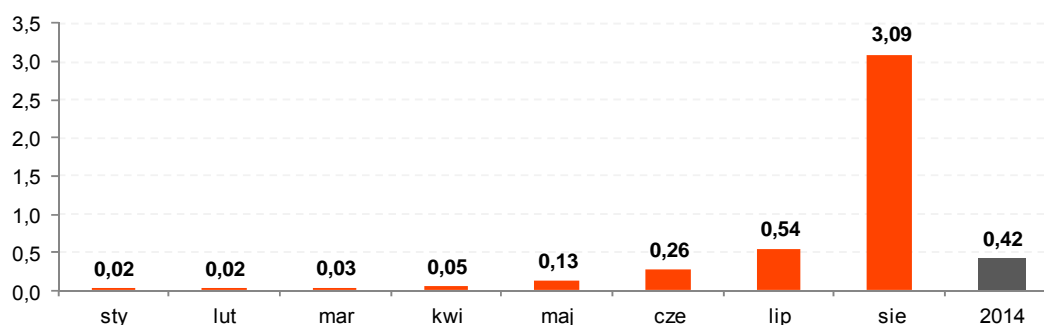
key: DAMg TWh volumes; IDMg TWh volume

The liquidity of the wholesale gas markets is also evaluated with the use of the churn ratio. This ratio is calculated as the quotient of the volume of gas sold in exchange transactions and OTC market transactions (traded volumes) and the volume of gas physically delivered to the exit points from the transmission system (gas demand) in a given time period (usually the ratio is calculated for the annual periods).

The liquidity ratio is a synthetic measure, showing the number of times a unit of energy (gas) was traded on the market prior to its actual delivery to the end user. In line with the approach adopted by **ACER, a market is considered to be fully liquid when the churn ratio exceeds 8**.

The chart below presents the level of the churn ratio for the gas market in Poland in individual months of 2014.

**Figure 8. The level of the churn ratio for the gas market in Poland in individual months of 2014.**



Source: PPE

<sup>1</sup> *Functioning wholesale gas markets – Objectives and criteria, ACER, May 2014*

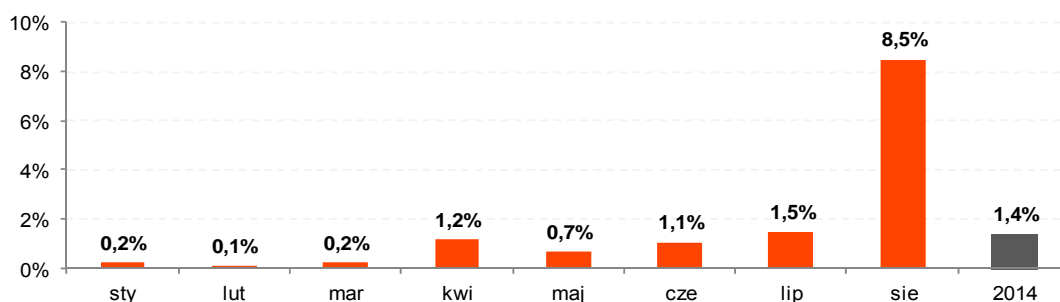
The level of the churn ratio for the natural gas market in Poland increased significantly during 2014 from 0.03 in January to 3.19 in August. The average annual volume-weighted churn ratio calculated for the first eight months of 2014 **was 0.43**, which indicates a relatively low level of liquidity of the natural gas market in Poland.

To evaluate the liquidity of the short-term gas markets, a short-term liquidity ratio is also used. This ratio is calculated as the quotient of the volume of gas sold in short-term transactions (SPOT traded volumes) multiplied by 100% and the volume of gas physically delivered to the exit points from the transmission system (gas demand).

The short-term liquidity ratio shows what portion of gas supplied to consumers was traded on the short-term markets.

The chart below presents the level of the short-term liquidity ratio for the short-term gas markets operated by the PPE in individual months of 2014.

**Figure 9. The level of the short-term liquidity ratio for the gas market in Poland in individual months of 2014.**



Source: PPE

The level of the short-term liquidity ratio for the natural gas market in Poland increased significantly during 2014 from 0.2% in January to 8.5% in August. The average annual volume-weighted ratio calculated for the first eight months of 2014 **was 1.4%**, which indicates a relatively low level of short-term liquidity of the gas market in Poland.

The surge in the churn ratio and the short-term liquidity ratio in August 2014 is associated with the commencement of operations by PGNiG OD following its separation from PGNiG SA. In August 2014 the company probably contracted a sizeable part of gas for the winter season of 2014/2015.

Therefore, in the coming months we can expect that the liquidity ratios will fall in comparison with August 2014. Nevertheless, while the current trend is maintained, a further gradual increase in liquidity of the short-term gas markets on the PPE should be expected in the near future.

#### 1.4. Assessment of the development of the wholesale market of short-term gas transactions

In the GAZ-SYSTEM's assessment, taking into account the following factors:

- **Limited opportunities for gas trading:**
  - Trading on short-term gas markets on the PPE is possible from 8:00 am until 1.30 pm (5.5 hours a day).
  - On the most developed European wholesale gas markets (e.g. EEX, ICE-ENDEX) gas is traded around the clock, taking into account any technical interruptions.
- **No locational products:**
  - On short-term gas markets on the PPE, standard products are offered which only allow to transfer title to the gas among market participants.
  - On the most developed European wholesale gas markets (e.g. ICE-ENDEX), locational products are additionally offered.
- **A relatively small number of entities active in the market:**

In August 2014, only 19 entities actively traded on short-term gas markets on the PPE.
- **A relatively small number of members of the exchange admitted to the DAMg and IDMg markets:**
  - In September 2014 only 16 members of the exchange were admitted to short-term gas markets on the PPE.
  - In September 2014, 71 entities were admitted to trading on the OCM market (SPOT market for NBP on ICE-ENDEX).
- **Number of transactions:**
  - In August 2014, approximately 2,750 transactions were concluded on short-term gas markets on the PPE (DAMg and IDMg total).
  - In 2014 August, more than 3,200 transactions were concluded on the German SPOT market, on the EEX trading platform.
- **Low trading volumes:**
  - In August 2014, the total trading volume on short-term gas markets on the PPE (DAMg and IDMg total) was approximately 820 GWh.
  - In August 2014, the trading volume on the OCM market (the SPOT market for the NBP on ICE-ENDEX) was 10,426 GWh.
- **The low level of the churn ratio:**
  - In 2014 the churn ratio of the Polish gas market was 0.43.
  - In 2014 the churn ratio for the UK gas market was about 30, while for the Dutch market around 25.
- **Low level of the short-term liquidity ratio:**
  - In 2014, the short-term liquidity ratio for short-term gas markets operated by the PPE was 1.4%,

- In 2014 the short-term liquidity ratio for the UK gas market was about 30%, while for the Dutch market around 7%,

the wholesale market for short-term transactions of natural gas in Poland should be considered at an **early stage of development**.

At the same time analyses indicate that the churn ratio of the wholesale gas market in Poland increased significantly in the last months of 2014. The increase in liquidity is related to the fact that a retail company (PGNiG OD) was separated from the structures of PGNiG SA.

In the assessment of GAZ-SYSTEM, the **short-term market liquidity**, in particular in the context of a clear upward trend, **should be fully sufficient for commercial balancing of the Shippers from 1 October 2015** (i.e. from the date of application of the principles prescribed by the Regulation). In addition, balancing Shippers portfolios using the tools offered by PPE will positively influence the development of short-term market by increasing its liquidity. Such a solution will reduce Shippers interest of balancing through transactions with GAZ-SYSTEM. Adopted mechanism leads to the implementation of the objectives of the Regulation.

At the same time, given the perspective of satisfying the needs of the Transmission System Operator resulting from the obligation to ensure physical balance of the system, **the short-term gas market operated in the framework of the PPE** requires additional modifications, in particular:

- **it is necessary to market locational products.**

GAZ-SYSTEM's strategy assumes that the trading of gas on the DAMg and IDMg markets will be the one of the primary means used by GAZ-SYSTEM to ensure physical balancing of the system. However, due to the nature of the operation of the transmission system and the need to ensure a high degree of energy security, it will be necessary to apply complementary measures to ensure the full range of tools necessary for balancing the system.

## 2. Interim measures planned to be used

This chapter presents a catalogue of interim measures approved for use by the Regulation and the measures selected for use by GAZ-SYSTEM together with the reasons for the application of these measures. In addition, the chapter presents an assessment of the impact of interim measures planned for implementation on the liquidity of the wholesale market of short-term transactions in high-methane gas in Poland.

### 2.1. Catalogue of acceptable interim measures

In accordance with provisions of the Regulation, in the absence of sufficient liquidity of the short term wholesale gas market for short-term transactions, the Transmission System Operator may implement interim measures. Interim measures are acceptable, temporary derogations from the rules of transmission network balancing, as defined in the Regulation.

In accordance with the catalogue presented in the Regulation (Articles 47 to 50), the operator may apply for implementation of the following interim measures:

- **Balancing platform** (*Article 47 of the Regulation*):
  - According to the of Regulation, the Transmission System Operator should ultimately be able to provide an integral system performance using available and sufficiently liquid trading platforms for short-term contracts for the purchase / sale of gas.
  - Interim measure - Where the liquidity of available trading platforms is insufficient for the Transmission System Operator to apply safe balancing operations, the operator may use their own balancing platform to conclude transactions of sale / purchase of gas for the sole purpose of physical balancing of the transmission system.
- **Interim imbalance charge** (*Article 49 of the Regulation*):
  - According to the Regulation, the imbalance charges should be determined on the basis of the marginal price system (*Article 22 of the Regulation*), where the buy price and the sell price are calculated on the basis of the transactional data from selected trading platforms. Transactional data necessary to calculate the imbalance charges for a given day is the marginal buy price in transactions where a TSO was a party to, the marginal sell price in transactions where a TSO was a party to and the weighted average market price appropriately reduced or increased by a small adjustment.
  - Interim measure - Where there is a lack of sufficient liquidity in the short term market, the Transmission System Operator may determine the prices to settle the imbalance in a different way. The interim imbalance charge should be then determined on the basis of an administered price, a proxy for a market price or a price derived from balancing platform trades.
- **Tolerance** (*Article 50 of the regulation*):
  - According to the Regulation, the System Users should pay the imbalance charge whenever their balance of the gas volume introduced and received from the system is different from zero.
  - Interim measure – the Transmission System Operator may introduce the so-called tolerance level, which determines the acceptable level of imbalance where the imbalance settlement should be based on the weighted average market price of gas. In accordance with provisions

of the Regulation, introduction of tolerance must be temporary and should not adversely affect development of the short-term market.

In accordance with Article 45 of the Regulation, any application of interim measures is possible only in the absence of sufficient liquidity of wholesale gas markets for short-term transactions. In addition, the scale of application of interim measures should take into account the need to increase liquidity in the wholesale gas markets, in particular with regard to short-term trading market.

On the basis of analyses carried out by GAZ-SYSTEM, liquidity of the wholesale gas market in Poland is still considered to be low (see Chapter 1). At the same time, the analyses indicate that compared to the previous year a significant increase in the level of liquidity in the wholesale market was observed in 2014. In order to maintain and further stimulate liquidity in the wholesale market, it is reasonable that only certain interim measures be applied. Application of the entire catalogue of available interim measures would extend the path to achieve the expected level of liquidity of the domestic gas market.

The following sections of this document present solutions proposed by GAZ-SYSTEM for implementation in relation to specific interim measures.

## **2.2. Balancing platform**

### **TARGET MODEL**

According to the Regulation, the System Users shall be responsible to balance their balancing portfolios in order to minimise the need for Transmission System Operators to undertake balancing actions. Balancing actions should be carried out by System Users on the basis of available gas trading platforms with the use of standard short-term products. In order to optimize the imbalance charges, System Users should make their own buy / sell transactions, where the party initiating the transaction are System Users seeking to balance their market position.

In a similar fashion, the Transmission System Operator, in fulfilment of its duties related to physical balancing of the transmission system should conclude buy / sell transactions for gas for balancing purposes with the use of the trading platforms.

This solution aims to increase the involvement of the transmission System Users in trading standard short-term contracts on the trading platforms, which in turn should help to increase the liquidity of these platforms, and thus strengthen the development of competition in the gas market.

### **DEFINITION AND PURPOSE OF OPERATION**

According to the Regulation if liquidity of short-term trading platforms is insufficient to conduct safe balancing operations, the Transmission System Operator is able to operate a balancing platform. In accordance with Article 3 of the Regulation, a balancing platform is an electronic platform on which trading participants may submit and accept buy and sell offers. The Transmission System Operator is a trade participant of all these transactions.

In accordance with provisions of the Regulation, the purpose of the balancing platform is to provide the operator with the possibility of congestion management and transmission system balancing if the short-term market liquidity is insufficient.

## IMPLEMENTATION OPTION

Given the level of short-term liquidity of the gas market in Poland (see Chapter 1), the standard short-term products currently available do not give the full capabilities of pursuing effective balancing operations by the Transmission System Operator. Use of the target balancing model from 1 October 2015 would adversely affect the operator's capabilities to maintain the transmission system within the limits of security. In the present market conditions, it is necessary to provide GAZ-SYSTEM with the availability of additional tools providing access to gas for the physical balancing of the transmission system.

Standard short-term products currently available on the PPE do not fully correspond to the GAZ-SYSTEM needs associated with balancing. The transmission system of GAZ-SYSTEM includes areas where physical balancing is difficult due to significant system limitations. Standard products offered on the PPE only allow the transfer of the gas title among market participants, while the Transmission System Operator additionally requires the so-called locational products, where a party to the transaction undertakes to deliver / receive a certain amount of gas at a physical point of entry to or exit point from the transmission system.

Consequently, taking into account the premises defined in Article 47 of the Regulation, i.e.:

- the lack of sufficient liquidity of the wholesale gas market for short-term transactions and
- the lack of the option to conclude transactions involving locational products on the trading platform,

GAZ-SYSTEM **plans to use the balancing platform as an interim measure**, approved for use with provisions of the Regulation.

## DESCRIPTION OF THE BALANCING PLATFORM

The Balancing Services Market (hereinafter: BSM) operated by GAZ-SYSTEM meets the definition of the balancing platform (in accordance with provisions of the Regulation).

The BSM is a market of offers for the provision of system services (with regard to the high-methane gas) submitted by the BSM participants to the market operator, that is GAZ-SYSTEM. A BSM participant may be the customer for transmission services (Shipper), licensed to trade gas, which has entered into an *Agreement of participation in the balancing services market* with GAZ-SYSTEM.

GAZ-SYSTEM may submit demand for the following system services via the BSM:

- supply of gas at the virtual exit point;
- off-take of gas at the virtual entry point;
- supply of gas at the physical entry point (locational product);
- off-take of gas at the physical exit point (locational product);
- reduction of supply of gas at the entry point (locational product).

GAZ-SYSTEM announces demand for provision of such services through its website (<http://www.gaz-system.pl/strefa-klienta/system-przesylowy/rynek-uslug-bilansujacych/>). In response to the requests made or regardless of such requests, participants may submit their offers by 8.00 pm on the day preceding (n-1) the gas day (n) which the request pertains to. If GAZ-SYSTEM accepts the offer, the operator communicates that fact to the selected participant. Within an hour of offer acceptance, the participant is required to submit a nomination or renomination corresponding adopted to the offer



accepted by GAZ-SYSTEM in terms of quantity, time and place of offer fulfilment. A system service is considered to be fulfilled if allocation of gas quantity corresponds to the nomination or renomination approved by GAZ-SYSTEM. After the end of the gas month, GAZ-SYSTEM determines liabilities and receivables for each market participant, and then performs settlement of the system services.

Detailed rules for the BSM functioning are described in Chapter 18 of the Transmission Network Code (hereinafter: TNC).

In the context of provisions of the Regulation, the intention of GAZ-SYSTEM is to maintain the BSM as a balancing platform.

## 2.3. Interim imbalance charge

### TARGET MODEL

In accordance with the Regulation, the imbalance charge should be calculated as the product of the daily imbalance of a System User and the current price valid for the gas day.

The mechanism of determining the prices should be based on the marginal pricing system. Guidelines relating to the marginal price system are set out in Article 22 of the Regulation, based on which the operator determines for each gas day:

- **Marginal sell price** (hereinafter: MSP) applied where the daily imbalance quantity is positive (i.e. the System User's inputs for that gas day exceed its off-takes for that gas day) and
- **Marginal buy price** (hereinafter: MBP) applied where the daily imbalance quantity is negative (i.e. the System User's off-takes for that gas day exceed its inputs for that gas day).

The MSP and the MBP are calculated on the basis of transactional data from selected trading platforms identified by the Transmission System Operator and approved by the appropriate regulatory authority.

A marginal sell price is determined as the **lower** of the following variables:

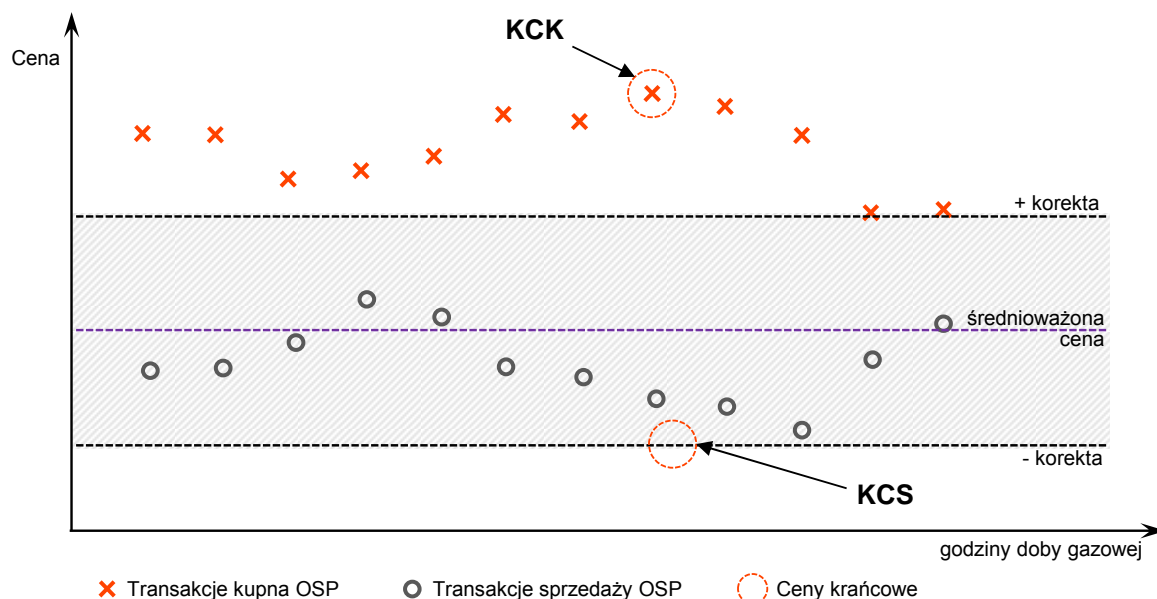
- The **lowest** price of any sales of title products in which the Transmission System Operator is involved in respect of the gas day n;
- The weighted average price of gas in respect of that gas day n, **minus** a small adjustment.

A marginal buy price is determined as the **higher** of the following variables:

- The **highest** price of any purchases of title products in which the transmission system operator is involved in respect of the gas day n;
- The weighted average price of gas in respect of that gas day n, **plus** a small adjustment.

Below is a drawing which shows a marginal pricing mechanism compatible with the target model. In the given situation, the marginal sell price is fixed at the level of the weighted average gas price reduced for an adjustment, while the marginal buy price is fixed at the level of the highest price recorded in buy transactions in which the Transmission System Operator participated.

**Figure 10. Marginal pricing mechanism consistent with the target model of the Regulation**



Source: Own study

key: adjustment; weighted average price, adjustment, gas day hours

TSO buy transactions; TSO sell transactions; Marginal prices

#### DEFINITION AND PURPOSE OF OPERATION

According to the Regulation if the short-term market liquidity is insufficient for market participants, the operator is able to determine the prices to settle imbalance charges at a level different than the price level determined by the marginal price system. In this case, the operator may apply an interim imbalance charge.

In accordance with Article 49 of the Regulation, the interim imbalance charge is the fee calculated on the basis of individually fixed level of the imbalance price. Implementation of an interim imbalance charge temporarily relieves the Transmission System Operator from the obligation to apply marginal prices (*Article 22 of the Regulation*). The price level used for the interim imbalance charge may be determined on the basis of:

- an administered price,
- the ratio replacing the market price or
- transactions executed on the balancing platform.

In accordance with the Regulation, the operational objective of the interim imbalance charges is to determine the price for imbalance to motivate the System Users to take balancing actions through short-term wholesale gas markets.

## IMPLEMENTATION OPTION

In the opinion of GAZ-SYSTEM, the current short-term market liquidity should be fully sufficient to ensure trade balancing to the market participants. In addition, the use of the target model of determining imbalance charges will contribute to the further increase in the liquidity of the wholesale gas market in Poland. The transparent mechanism of determining marginal prices will result in an increase in the interest of market participants in entering into transactions on the domestic gas trading platform.

Therefore GAZ-SYSTEM **is not planning to apply an interim imbalance charge** as an interim measure.

## 2.4. Tolerance

According to the Regulation, ultimately the System Users should pay the imbalance charge whenever their balance of the gas volume introduced and received from the system is different from zero. The Regulation does not provide for the application of tolerance where the imbalance settlement takes place at the weighted average price of gas acquisition.

In the assessment of GAZ-SYSTEM, introduction of tolerance will decrease the motivation of transmission System Users to perform balancing operations. A drop in motivation of System Users to balance will adversely affect the liquidity and short-term development potential of the short-term natural gas market in Poland.

Given this, considering the sufficient level of liquidity from the perspective of commercial balancing of System Users, GAZ-SYSTEM **is not planning to implement tolerance** as an interim measure.

## 2.5. Assessment of the impact of interim measures on the liquidity of the wholesale market of short-term gas transactions in Poland

According to the Regulation, in the target model the System Users and the Transmission System Operator should carry out balancing actions by entering into buy and sell transactions for gas on the available gas trading platforms.

At the same time, due to the need to ensure security of the physical balancing of the network by the Transmission System Operator, it is necessary to implement tools (interim measures) that can provide liquidity of the physical balancing for GAZ-SYSTEM in case of emergencies.

In view of the above GAZ-SYSTEM:

- **is planning to maintain the BSM as a balancing platform;**
- **is not planning to introduce an interim imbalance charge;**
- **is not planning to introduce tolerance.**

Since commencement of trading on the gas exchange in Poland, the Transmission System Operator is an entity actively involved in trading on the short-term gas markets. Introduction of target model according to the Regulation will further increase the activity of GAZ-SYSTEM and other market participants, and thus will have a positive impact on the liquidity level of short-term gas markets.

In the assessment of GAZ-SYSTEM, keeping the BSM **will increase the security of the transmission system balancing.**

### 3. Actions aimed at removal of interim measures

This chapter presents a proposal of criteria for removal of interim measures by GAZ-SYSTEM and proposed actions the implementation of which, in the opinion of the Transmission System Operator, is necessary for removal of these measures.

#### 3.1. Criteria which determine removal of interim measures

Considering the development of the short-term market of natural gas in Poland and its development prospects in the near term, GAZ-SYSTEM is proposing to apply only one of the acceptable interim measures, the balancing platform.

GAZ-SYSTEM is planning to maintain the BSM as an additional tool for obtaining gas for the physical balancing of the transmission system (see subchapter 2.2). The BSM will be withdrawn from use as soon as the following goals are achieved:

- the level of trading liquidity on the gas exchange required for safe network balancing by GAZ-SYSTEM,
- greater availability of short-term markets during the day and
- full availability of products required by GAZ-SYSTEM for balancing the physical system.

Accordingly, to evaluate the possibility of removal of interim measures, the following criteria will be applied:

- The level of market liquidity;
- Availability of short-term products;
- Relevancy of products offered on the market to meet the needs of GAZ-SYSTEM.

The following section of the subchapter describes each of the criteria for market development proposed above. The presented description takes into account, in particular, the desired target state to create the basis for recognition of the criteria as satisfied.

Removal of the interim measure will be possible **when all three of the aforementioned criteria for market development are met simultaneously**.

#### THE LEVEL OF MARKET LIQUIDITY

Liquidity of the wholesale gas markets (see chapter 1.3) is also described with the use of:

- the churn ratio to assess liquidity of the **entire wholesale market** and
- the short-term liquidity ratio to evaluate liquidity of the **short-term market**.

According to the ACER criteria, the wholesale market is considered to be fully liquid when the churn ratio reaches a value greater than 8<sup>2</sup>. Currently fully liquid markets in the EU are considered to be

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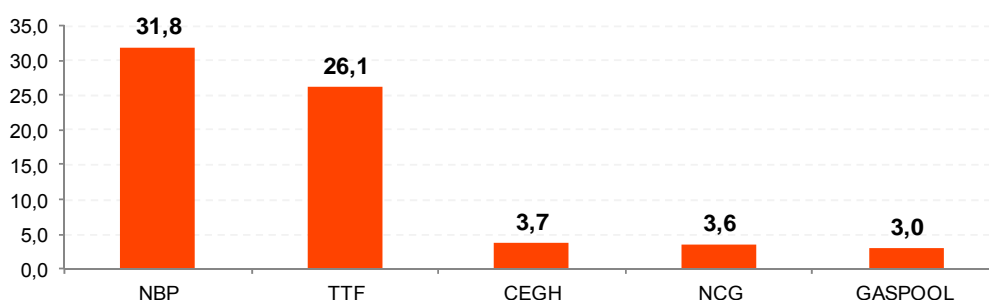
<sup>2</sup> *Functioning wholesale gas markets - Objectives and criteria, ACER, May 2014*

wholesale gas markets in the UK (NBP) and the Netherlands (TTF) for which the liquidity ratio calculated for August 2013 was 31.8 and 26.1 respectively. The value of other gas markets in Europe varies around 3.0-4.0.

The average annual volume-weighted churn ratio calculated for the first eight months of 2014 was **0.43**, which indicates a relatively low level of liquidity of the wholesale natural gas market in Poland.

The following are the values of the churn ratio for selected wholesale markets in the EU.

**Figure 11. Churn ratio for selected gas markets in Europe, calculated for August 2013.**

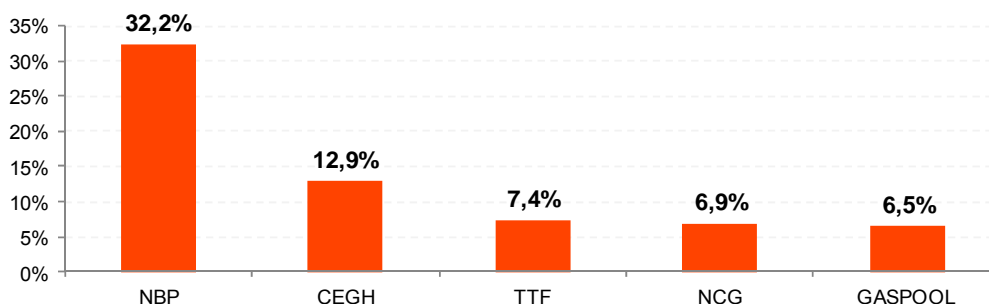


Source: Centre for Research on Energy and Environmental Economics and Policy, *Balancing Systems and Flexibility Tools in European Gas Markets*, Milan, February 2014.

The short-term gas market is deemed to be liquid when the value of the short-term liquidity ratio reaches a level of at least 6%.

In Poland, the average value of the short-term liquidity ratio calculated for the first eight months of 2014 was **1.4%**, which indicates a low level of short-term liquidity of the gas market operated by the PPE.

**Figure 12. Short-term liquidity ratio for selected gas markets in Europe, calculated for August 2013.**



Source: Data from individual exchange hubs and Centre for Research on Energy and Environmental Economics and Policy, *Balancing Systems and Flexibility Tools in European Gas Markets*, Milan, February 2014.

Therefore, GAZ-SYSTEM proposes the following criteria which determine the opportunity to remove the balancing platform:

- **achievement of the annual churn ratio of at least 8.0 and**
- **achievement of the short-term liquidity ratio of at least 6%.**

#### **PRODUCT AVAILABILITY**

The most liquid short-term gas markets in the EU allow for trading in short-term products for almost 22 hours 7 days a week (with a technical break of approx. 2 hours). The lack of significant downtime in gas trading allows users and the Transmission System Operators to ensure liquid balancing throughout the entire gas day.

Trade on short-term wholesale markets gas in Poland is conducted as follows:

- for the DAMg each day from 9:00 am to 1:00 pm;
- for the IDMg each day from 8:00 am to 1:30 pm.

Therefore, GAZ-SYSTEM is proposing the criterion which conditions the possibility of removing the balancing platform as an **extension of the support for trading on the short-term markets (DAMg and IDMg) to 22 hours, 7 days a week.**

#### **PRODUCT RELEVANCY**

The following three main types of standard products can be identified on European short-term wholesale gas markets:

- **Title products**

Products which allow to transfer the seller's title to a defined volume of gas to the buyer for the agreed price.

- **Locational products**

Products which allow to transfer the title to a given volume of gas, at the same time indicating the points of entry to or exit points from the transmission system in which the gas is to be received / introduced.

- **Temporal products**

Products which allow to transfer the title to a given volume of gas, which also identify the hourly volume of gas receipt or introduction, where the volume can be different in different hours of the gas day.

Currently, only title products are offered in the short-term gas market in Poland. In extraordinary situations, such products may not be sufficient for the balancing related needs of GAZ-SYSTEM.

Due to the technical characteristics of the system, GAZ-SYSTEM needs at least products which additionally indicate the physical location of the entry point to or the exit point from the transmission system. Currently locational products are offered through the BSM maintained by the operator.

Therefore, GAZ-SYSTEM is proposing **marketing of locational products to the PPE** as the criterion which conditions the possibility of withdrawing the balancing platform.

### 3.2. Actions planned with the purpose of removing the interim measures

In the opinion of GAZ-SYSTEM, in order to create the conditions for removal of the interim measure of the balancing platform, it is necessary to take the following actions:

1. Expand the interconnectors;
2. Develop the national gas infrastructure;
3. Exempt entities which submit offers for the BSM from the use of the gas tariff;
4. Increase the temporary availability of the short-term gas trading on the PPE;
5. Introduce locational products.

#### 1. Expansion of the interconnectors

Currently, the main source of gas supply for Poland is the eastern direction. Greater integration of the Polish transmission network with the European network will increase the options of purchasing gas in the Western markets. The resulting diversification of gas supply will affect the increase in security of the gas system and the increase in liquidity of the Polish wholesale gas market. Therefore, in order to diversify gas supply sources for Poland, GAZ-SYSTEM plans to build / expand interconnectors between the Polish transmission system and the transmission systems of selected European countries (Czech Republic, Slovakia and Lithuania).

In accordance with the current development plan of the Polish transmission system, GAZ-SYSTEM is planning to:

- **expand the Poland-Czech Republic connection by the end of 2018** – to support transmission of up to 6.5bn m<sup>3</sup> of natural gas per year to Poland (with an option to expand to 10bn m<sup>3</sup>), with a support for transmission of up to 5bn m<sup>3</sup> per year to the Czech Republic;
- **expand the Poland-Slovakia connection by the end of 2019** – to support transmission of up to 5.7bn m<sup>3</sup> of natural gas per year to Poland (with an option to expand to 9.5bn m<sup>3</sup>), with a support for transmission of up to 4.5bn m<sup>3</sup> per year to Slovakia;
- **expand the Poland-Lithuania connection by the end of 2019** – to support transmission of up to 1bn m<sup>3</sup> of natural gas per year to Poland with a support for transmission of up to 4.1bn m<sup>3</sup> per year to Lithuania (with an option to expand to 4.1bn m<sup>3</sup>);

**Until such projects are implemented**, in order to increase the system security by ensuring GAZ-SYSTEM with the possibility of physical balancing on the balancing platform, the operator is planning to keep the **BSM as an interim measure**.

#### 2. Development of the national gas infrastructure

In accordance with subparagraph 14.4 of the TNC, GAZ-SYSTEM is unable to ensure physical balancing of transmission system areas which cover areas powered from Tietierowka, Branice and Gubin points. In order to increase the security level in these areas, the Transmission System Operator has created the BSM, thus allowing trade in locational products.

**Until activities** aimed at creating appropriate system connections with areas powered from

Tietierowka, Branice and Gubin points are completed, GAZ-SYSTEM plans to **keep the BSM as an interim measure**.

### **3. Exemption of entities which submit offers for the BSM from the use of the gas tariff**

Currently, being active players at the BSM is difficult because the tariff for gaseous fuels is in effect. According to the law, application of the tariff may be suspended only with a decision of the ERO President. The ERO President may define the scope and duration of such an exemption. Currently, only companies which trade through gas markets on the PPE are exempted from application of the tariff.

Exemption of entities which submit offers on the BSM from the obligation to apply the tariffs for gaseous fuels would increase the BSM liquidity and thus increase opportunities for balancing operations carried out by GAZ-SYSTEM.

**Until the entities which submit offers on the BSM are exempted from application of the tariff for gaseous fuels**, GAZ-SYSTEM will not be able to benefit fully from the BSM, which negatively translates to system security.

### **4. Increasing the temporary availability of the short-term gas trading on the PPE**

Currently, trading on short-term gas markets operated by the PPE is possible from 8:00 am until 1.30 pm (5.5 hours a day). After introduction of the rules under the Regulation, such a short period of market availability will not provide the Transmission System Operator with opportunities for effective balancing actions.

Therefore, increasing the temporary availability of the short-term gas trading on the PPE would increase the safety of physical balancing conducted by the Transmission System Operator.

**Until the PPE implements the rules** that allow to trade gas 24h a day on short-term markets, GAZ-SYSTEM plans to **keep the BSM as an interim measure**.

### **5. Introduction of locational products**

Currently, short-term gas markets operated by the PPE may only be used to trade title products among market participants. Title products do not support physical balancing of transmission system areas which cover areas powered from Tietierowka, Branice and Gubin points. In addition, it should be noted that the locational products will increase significantly catalogue of measures used by GAZ-SYSTEM in case of system imbalance at the entry points from the countries outside the European Union, where liquid gas market does not function yet and there is no possibility of substitution of locational products within the BSM by other activities on the neighbouring market. This includes such points as point Wysokoje or Drozdowicze.

Therefore introduction of locational products on the short-term gas market on the PPE would increase the security of the transmission system. Alternatively, to increase the system security it would be possible to introduce locational products on the physical interconnection points of entry to the Polish system through the neighbouring markets (e.g. locational product for the Lasów entry point).

**Until introduction of locational products by the PPE or introduction of locational products for physical interconnection points of entry to the system by the neighbouring countries**, GAZ-SYSTEM plans to **keep the BSM as an interim measure**.



### 3.3. Framework schedule of activities

Below is a framework schedule of activities planned for implementation in order to develop short-term gas markets, and hence withdraw the balancing platform by GAZ-SYSTEM. The time limits may be postponed after consultations on the materials and after conducting a comprehensive analysis of the feasibility of actions.

**Table 1: Schedule of implementation of activities aimed at removal of interim measures**

Area / Action	Implementation deadline
1. Expansion of the interconnectors	by the end of 2019
2. Development of the national gas infrastructure	not specified
3. Exemption of entities which submit offers on the BSM from the obligation to apply the tariffs for gaseous fuels	actions of third parties.
4. Increasing the temporary availability of the short-term gas trading on the PPE	actions of third parties.
5. Introduction of locational products on gas exchange	actions of third parties.