**List of reference indices calculated and published by**

**Bursa Romana de Marfuri *(Romanian Commodities Exchange) EST SRL***

1. **Preamble**

The Bursa Romana de Mărfuri (Romanian Commodities Exchange) EST SRL / BRM EST calculates and publishes a series of reference indices for the price of natural gas traded on its own platforms as a result of the concluded transactions. Indices are called **“MDGAS”** plus an ending, depending on the type of market segment for which they are calculated.

All indices calculated by the BRM EST are the intellectual property of the BRM EST and it’s shareholder Bursa Română de Mărfuri (Romanian Commodities Exchange) SA. The transactions concluded on the BRM EST platforms dedicated to the natural gas market are the source of the data.

1. **Name of indices and meaning:**

**MDGAS\_DA**: is the price index calculated for the transactions concluded for one gas day of natural gas delivery, namely the day ahead.

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**MDGAS\_WD**: is the price index calculated for the transactions concluded for one gas day of natural gas delivery, namely the within-day.



**MDGAS\_FW**: is the price index calculated for the transactions concluded on the forward markets for products whose delivery period is exactly the delivery period tracked. The index is calculated BEFORE the beginning of the delivery period tracked with the index.



**MDGAS\_OTC:** is the price index calculated for all transactions concluded in the Natural Gas Ring within the bilateral contracts market (OTC) for a certain delivery period.



1. **General principles for determining the index:**

**Indices are calculated as weighted averages of transactions related to a delivery period that is the object of the respective transaction/transactions.**

The general calculation formula is:

**MDGAS “\_ …”** = Sum (Vi\*Pi)/Sum Vi

Where:

MDGAS represents the family of indices calculated by the BRM EST

“\_..”is the ending of the index with indications regarding the type of the delivery period.

Vi = Transaction volume “i” expressed in MWh

Pi = Transaction price "i" expressed in MDL, EUR or US Dollar. The conversion into currencies *(EUR or USD) is* made at the official exchange rates of the NBR published for the day of the transaction.

1. **Indices calculation frequency and their publication**

The indices are calculated at the level of each trading day and are published by the BRM EST on its own website.

The indices are calculated daily based on the prices of the current trading day.

In case there are no transactions during the current trading day, then the indices value from the respective day is equal with the value of the indices of the last trading day in which transactions have been made.

The values of the indices can be taken over strictly with the express consent of the company, except for the cases provided by the national legislation.

1. **Specific calculation methodology for the** **MDGAS\_DA index**

The calculation model is described for a certain trading day called the T-day.

The physical delivery of natural gas, which is the object of a transaction concluded on gas day T on the BRM EST platform, must be made on day T+1, the gas day immediately after, according to the applicable legislation in force.

The T and T + 1 gas days are consecutive calendar days, the trading being performed in daily trading sessions on the BRM EST on term products market.

**MDGAS\_DA *ZZ/LL/AAAA*=** $\frac{\sum\_{i=0}^{n}Pi\*Ci}{\sum\_{i=0}^{n}Ci}$**,**

**Where:**

**“MDGAS\_DA”** is the market segment identifier for the day ahead gas delivery

***“ZZ/LL/AAAA”*** is the gas delivery day (T+1)

**“Pi”** is the price of a single transaction

**“Ci”** is the quantity expressed in number of MWh, related to the single transaction

**“n”** is the total number of transactions concluded on the market segment for the day ahead gas delivery

**“i”** identifies the transaction recorded in the BRM EST trading system for the market segment for the day ahead

“**DA**” – acronym for the day ahead

1. **Specific calculation methodology for the** **MDGAS\_WD index**

The calculation model is described for a certain trading day called the gas day T.

The physical delivery of natural gas, which is the object of a transaction concluded on gas day T on the BRM EST platform must also be made on day T, the same gas day according to the applicable legislation in force.

Day T is identified in the index by the time stamp on the day, month and year coordinates.

**MDGAS\_WD *ZZ/LL/AAAA*=** $\frac{\sum\_{i=0}^{n}Pi\*Ci}{\sum\_{i=0}^{n}Ci}$**,**

**Where:**

**“MDGAS\_WD”** is the market segment identifier for the current delivery gas day

***“ZZ/LL/AAAA”*** is the delivery gas day (T)

**“Pi”** is the price of a transaction

**“Ci”** is the quantity expressed in the number of MWh, related to the transaction

**“n”** is the total number of transactions concluded on the market segment for the current delivery gas day

**“i”** identifies the transaction recorded in the BRM EST trading system for the current day market segment

“**WD**” – acronym for the within day

1. **Specific calculation methodology for the** **MDGAS\_FW** **index**

The delivery periods for which indices are calculated are as follows: month, quarter, semester and calendar year, gas season and gas year.

The calculation frequency is daily and the calculation model is described for a certain trading day called day T in which transactions are concluded on all BRM EST platforms with medium and long-term products with standard delivery periods, fixed transaction price and delivery in flat profile.

The published indices related to the periods have the following terminology:

**MDGAS\_FW *Luna\_AAAA – Month\_YYYY*, index for a specific calendar month of delivery. Example: *Decembrie\_2020, Ianuarie\_2021, Februarie \_2021 etc. – December\_2020, January\_2021, February\_2021,* *etc.***

**MDGAS\_FW *Trimestrul X\_AAAA – Quarter X\_YYYY,* index for a certain calendar quarter of delivery. Example: *Trimestrul 4\_ 2020, Trimestrul 1\_2021, Trimestul 2\_2021, etc. – Quarter 4\_ 2020, Quarter 1\_2021, Quarter 2\_2021, etc.***

**MDGAS\_FW *Semestrul X\_AAAA – Semester X\_YYYY,* index for a certain calendar semester of delivery. Example: *Semestrul 2\_ 2020, Semestrul 1\_2021, Semestrul 2\_2021, etc. – Semester 2\_ 2020, Semester 1\_2021, Semester 2\_2021, etc.***

**MDGAS\_FW *An calendaristic\_AAAA – Calendar year\_YYYY*,** **index for a certain calendar year of delivery. Example: *An calendaristic\_2020, An calendaristic\_2021, etc. – Calendar year\_2020, Calendar year\_2021, etc.***

**MDGAS\_FW *Sezon gazier cald/rece\_AAAA – Hot/warm gas season\_YYYY*, index for a certain gas season of delivery. Example: *Sezon gazier rece\_2020, Sezon gazier cald\_2021, Sezon gazier rece\_2021, etc. – Cold gas season\_2020, Hot gas season\_2021, Cold gas season\_2021, etc.***

**MDGAS\_FW *An gazier\_AAAA – Gas year\_YYYY,* index for a certain gas year of delivery. Example: *Sezon gazier rece\_2020, Sezon gazier cald\_2021, Sezon gazier rece\_2021, etc. – Cold gas season\_2020, Hot gas season\_2021, Cold gas season\_2021, etc.***

**Where:**

**“MDGAS\_FW”** is the identifier of the market segment of the medium and long-term products

“***YYYY***” is the calendar year in which the delivery related to the product delivery period begins

**Calculation method:**

1. Step 1 – Identification of all Forward and Futures transactions that have a flat delivery profile and fixed price of the transaction and a certain delivery period: *month, quarter, semester, gas season, gas year or calendar year.*
2. Step 2 – Calculation on a daily basis of the weighted average price for the transactions concluded on the respective day on the products with the delivery period tracked by the index.
3. Step 3 – Update of the value of the price index at the time of a change.

*Example for products with the delivery period the calendar year 2021*

*MDGAS\_FW* ***Calendar year\_2021****=* $\frac{\sum\_{i=0}^{n}Pi\*Ci}{\sum\_{i=0}^{n}Ci}$*,*

*Where:*

*“****Calendar year****\_2021” is the delivery period related to the gas year 2021, respectively* *01.01.2021-31.12.2021 gas days*

*“Pi” is the price of a single transaction*

*“Ci” is the quantity expressed in number of MWh, related to the single transaction*

*“n” is the total number of transactions concluded on the market segment for the gas year 2021*

*“i” identifies the transaction registered in the BRM EST trading system for the gas year 2021*

*“FW” –* *acronym for forward markets.*

1. **Specific calculation methodology for the** **MDGAS\_OTC index**

The delivery periods for which indices are calculated are: month, quarter, semester and calendar year, gas season and gas year.

The calculation frequency is daily and the calculation model is described for a certain trading day called day T in which transactions are concluded on all BRM EST platforms with medium and long-term products with standard delivery periods, fixed transaction price and delivery in constant profile.

The published indices for the periods have the following terminology:

**MDGAS\_OTC** **Month\_YYYY,** index for a specific delivery calendar month. Example: December\_2020, January\_2021, February\_2021, etc.

**MDGAS\_OTC** **Quarter X\_YYYY**, index for a specific delivery calendar quarter. Example: Quarter 4\_2020, Quarter 1\_2021, Quarter 2\_2021, etc.

**MDGAS\_OTC Semester X\_YYYY**, index for a specific delivery calendar semester. Example: Semester 2\_2020, Semester 1\_2021, Semester 2\_2021, etc.

**MDGAS\_OTC Calendar year\_YYYY**, index for a specific calendar year of delivery. Example: Calendar year\_2020, Calendar year\_2021, etc

**MDGAS\_OTC Hot/cold gas season\_YYYY**, index for a specific gas delivery season. Example: Cold gas season\_2020, Hot gas season\_2021, Cold gas season\_2021. etc.

**MDGAS\_OTC Gas year\_YYYY** index for a specific gas year of delivery. Example: Cold gas season\_2020, Hot gas season\_2021, Cold gas season\_2021. etc.

Where:

**"MDGAS\_OTC"** represents the market segment identifier of medium and long-term products "YYYY" represents the calendar year in which the delivery related to the product delivery period begins.

**Calculation method:**

Step 1 – identification of all Forward and Futures type transactions that have delivery in a constant profile and fixed price of the transaction and a specific delivery period: month, quarter, semester, gas season, gas year or calendar year.

 Step 2 - Calculation on a daily basis of the weighted average price for the transactions concluded on that day for the products with the delivery period tracked by the index.

 Step 3 – Update the price index value at the time of a change.

Example for products with a delivery period of calendar year 2021

**MDGAS\_OTC Calendar year\_2021= (∑\_(i=0)^n▒〖Pi\*Ci〗)/(∑\_(i=0)^n▒Ci),**

Where:

*"Calendar year \_2021" represents the delivery period related to the gas year 2021, respectively 01.01.2021-31.12.2021, gas days.*

*"Pi" represents the price related to a single transaction.*

*"Ci" represents the quantity expressed in MWh, related to the single transaction.*

*"n" represents the total number of transactions concluded on the market segment for the gas year 2021*

*"i" identifies the transaction registered in the BRM EST trading system for the gas year 2021*

 *"OTC" - acronym for the market of bilateral contracts for consumers (in English: Over The Counter).*

**FINAL NOTE: The list of published indices and the calculation methodology is established by the BRM EST and published periodically on the website** [**www.brmeastenergy.md**](http://www.brmeastenergy.md) **.**