

Rules for calculation and publication of TGE's monthly indices

This document describes selected price data published by TGE on a monthly basis. These data are referred to as the TGE monthly indices and currently include:

- 1) *TGeBASE_WAvg*;
- 2) *TGeBASEm*;
- 3) *TGeONSHOREm*;
- 4) *TGePVm*.

TGeBASE_WAvg

The *TGeBASE_WAvg* index is defined as the volume-weighted average price of transactions concluded on the Day-Ahead Market in a given month, i.e.:

$$TGeBASE_WAvg = \sum_{k=1}^n P_k \times \frac{V_k}{V}$$

where:

n – the number of transactions concluded in a given month on the Day-Ahead Market;

P_k – the price of the k^{th} transaction;

V_k – trading volume defined as the number of MWh in the k^{th} purchase or sale transaction, with the volume of only one side of the transaction, either the purchase or sale, being taken into account for each transaction;

V – trading volume defined as the number of MWh in purchase or sale transactions concluded in a given month on the Day-Ahead Market, with the volume of only one side of the transaction, either the purchase or sale, being taken into account for each transaction.

The distinctive features of *TGeBASE_WAvg* are: (a) prices for individual electricity delivery hours are not averaged, which means that the index reflects the average transaction price per MWh, for the entire Day-Ahead Market in aggregate; (b) all transactions concluded on the Day-Ahead Market are taken into account, together with block contracts; and (c) the index is calculated for the month of trading rather than the month of electricity delivery.

In view of (a), the method of index calculation may be deemed to rely entirely, i.e. for the entire BASE profile in aggregate, on the volume-weighted average [price] at TGE. The index therefore takes into account the differences in trading volumes for delivery at individual hours of the day, which are in turn ignored in the other monthly indices calculated for the Day-Ahead Market.

The *TGeBASE_WAvg* index is published in the TGE's monthly communications and monthly reports. The publication of the index in the monthly reports for the previous month takes place no later than on the 3rd business day of the month.

TGeBASEm

The *TGeBASEm* index is defined as the arithmetic average of 24 volume-weighted average hourly prices from transactions concerning hourly instruments traded on the Day-Ahead Market for delivery in a given month, i.e.:

$$TGeBASEm = \sum_{i=1}^j \frac{M_i}{j}$$

where:

j – the value of 24, corresponding to the number of delivery hours during the day (transactions concluded for delivery hour “2a” of the day of time change in October are not included in the index);

M_i – weighted average price for the i^{th} hour expressed by the following formula:

$$M_i = \sum_{k=1}^n P_k \times \frac{V_k}{V}$$

where:

n – the number of transactions concerning hourly instruments traded on the Day-Ahead Market for delivery in a given month in the i^{th} hour of the delivery day;

P_k – the price of the k^{th} transaction;

V_k – trading volume defined as the number of MWh in the k^{th} purchase or sale transaction, with the volume of only one side of the transaction, either the purchase or sale, being taken into account for each transaction;

V – trading volume defined as the number of MWh in purchase or sale transactions concerning hourly instruments traded on the Day-Ahead Market for delivery in a given month, with the volume of only one side of the transaction, either the purchase or sale, being taken into account for each transaction.

The distinctive features of TGeBASEm are: (a) prices for individual electricity delivery hours, excluding hour "2a" in the day of October time change, are averaged, which is representative of continuous production typical of conventional and nuclear sources; (b) transactions concerning hourly instruments traded on the Day-Ahead Market are taken into account, i.e. block contracts are excluded, for easier comparison with the *TGePVM* and *TGeONSHOREm* indices; and (c) the index is calculated for the month of electricity delivery.

The *TGeBASEm* index is published on www.tge.pl. The publication of the index for the previous month takes place no later than on the 3rd business day of the month.

TGeONSHOREm

The *TGeONSHOREm* index is defined as the arithmetic average of 24 volume-weighted average hourly prices from transactions concerning hourly instruments traded on the Day-Ahead Market for delivery in a given month, according to weights corresponding to the share of efficiency of onshore wind power generation in Poland for individual delivery hours, i.e.:

$$TGeONSHOREm = \sum_{i=1}^j wONSHORE_i \times M_i$$

where:

j – the value of 24, corresponding to the number of delivery hours during the day (transactions concluded for delivery hour "2a" of the day of time change in October are not included in the index);

$wONSHORE_i$ – the weight assigned to the i^{th} hour of electricity delivery in a given month, indicating the share of efficiency of power generation from onshore wind sources in Poland during the day;

M_i – weighted average price for the i^{th} hour expressed by the following formula:

$$M_i = \sum_{k=1}^n P_k \times \frac{V_k}{V}$$

n – the number of transactions concerning hourly instruments traded on the Day-Ahead Market for delivery in a given month in the i^{th} hour of the delivery day;

P_k – the price of the k^{th} transaction;

V_k – trading volume defined as the number of MWh in the k^{th} purchase or sale transaction, with the volume of only one side of the transaction, either the purchase or sale, being taken into account for each transaction;

V – trading volume understood as the number of MWh in purchase or sale transactions concluded on the hourly Day-Ahead Market instruments for delivery

in a given month, with the volume of only one side of the transaction, purchase or sale, being taken into account for each transaction.

The weights for $w_{ONSHORE_i}$ are calculated based on capacity utilisation factors of onshore wind sources in the territory of Poland for 24 hours of electricity generation in each of the 12 months of the year. These weights, which correspond to the quotient of the capacity utilisation factor of onshore wind sources for a given hour in a given month and the sum of these factors for 24 hours in a given month, are as follows (hours in rows, months in columns):

	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>	<i>V</i>	<i>VI</i>	<i>VII</i>	<i>VIII</i>	<i>IX</i>	<i>X</i>	<i>XI</i>	<i>XII</i>
1	4.0%	4.0%	4.1%	4.4%	4.5%	4.4%	4.3%	4.2%	4.1%	4.1%	4.0%	4.1%
2	4.0%	4.0%	4.1%	4.3%	4.4%	4.3%	4.2%	4.1%	4.0%	4.0%	3.9%	4.1%
3	4.0%	4.0%	4.0%	4.2%	4.3%	4.2%	4.1%	3.9%	3.9%	3.9%	3.9%	4.1%
4	4.0%	4.0%	4.0%	4.1%	4.2%	4.1%	4.0%	3.8%	3.8%	3.9%	3.9%	4.0%
5	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	3.9%	3.8%	3.8%	3.9%	4.0%	4.1%
6	4.1%	4.1%	4.0%	4.0%	3.9%	3.9%	3.9%	3.8%	3.8%	4.0%	4.1%	4.1%
7	4.1%	4.2%	4.0%	3.9%	3.8%	3.8%	3.9%	3.8%	3.9%	4.0%	4.2%	4.1%
8	4.1%	4.2%	4.1%	3.8%	3.7%	3.7%	3.8%	3.9%	4.0%	4.2%	4.3%	4.2%
9	4.2%	4.2%	4.1%	3.8%	3.7%	3.8%	3.9%	3.9%	4.1%	4.2%	4.3%	4.2%
10	4.2%	4.2%	4.1%	3.8%	3.8%	3.8%	4.0%	4.0%	4.1%	4.3%	4.3%	4.2%
11	4.2%	4.2%	4.1%	3.9%	3.9%	4.0%	4.1%	4.1%	4.2%	4.3%	4.2%	4.2%
12	4.2%	4.1%	4.1%	3.9%	4.0%	4.1%	4.2%	4.1%	4.2%	4.2%	4.2%	4.1%
13	4.1%	4.1%	4.1%	4.0%	4.0%	4.1%	4.3%	4.2%	4.2%	4.2%	4.1%	4.1%
14	4.1%	4.1%	4.2%	4.1%	4.1%	4.2%	4.3%	4.3%	4.2%	4.1%	4.1%	4.1%
15	4.2%	4.1%	4.2%	4.1%	4.2%	4.2%	4.3%	4.3%	4.2%	4.1%	4.1%	4.1%
16	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.3%	4.3%	4.2%	4.1%	4.2%	4.1%
17	4.3%	4.3%	4.2%	4.3%	4.3%	4.3%	4.3%	4.3%	4.2%	4.1%	4.3%	4.2%
18	4.4%	4.4%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.2%	4.4%	4.3%
19	4.4%	4.5%	4.4%	4.4%	4.4%	4.3%	4.3%	4.4%	4.4%	4.3%	4.4%	4.3%
20	4.4%	4.4%	4.4%	4.5%	4.4%	4.4%	4.3%	4.4%	4.5%	4.4%	4.4%	4.3%
21	4.3%	4.4%	4.4%	4.6%	4.4%	4.4%	4.3%	4.5%	4.5%	4.5%	4.3%	4.3%
22	4.3%	4.3%	4.4%	4.6%	4.5%	4.5%	4.3%	4.6%	4.5%	4.4%	4.3%	4.3%
23	4.2%	4.1%	4.3%	4.6%	4.6%	4.5%	4.4%	4.6%	4.5%	4.4%	4.2%	4.3%
24	4.1%	4.0%	4.2%	4.5%	4.5%	4.5%	4.4%	4.5%	4.3%	4.3%	4.1%	4.2%

The factors and weights that are used by TGE in calculating the index are defined with greater precision than in the tables above.

The distinctive features of $TGeONSHORE_m$ are: (a) prices for individual hours of electricity delivery are averaged using weights which indicate the share of efficiency of power generation from onshore wind sources in Poland; (b) only transactions concerning hourly instruments traded on the Day-Ahead Market are taken into account, i.e. excluding block contracts, to apply precise pricing for individual delivery hours and (c) the index is calculated for the month of electricity delivery.

The $TGeONSHORE_m$ index is published on www.tge.pl. The publication of the index for the previous month takes place no later than on the 3rd business day of the month.

TGePVM

The *TGePVM* index is defined as the arithmetic average of 24 volume-weighted average hourly prices from transactions concerning hourly instruments traded on the Day-Ahead Market for delivery in a given month, according to weights corresponding to the share of efficiency of power generation from photovoltaic sources in the territory of Poland for individual delivery hours, i.e.:

$$TGePVM = \sum_{i=1}^j wPV_i \times M_i$$

where:

j – the value of 24, corresponding to the number of delivery hours during the day (transactions concluded for delivery hour “2a” of the day of time change in October are not included in the index);

wPV_i – the weight assigned to the i^{th} hour of electricity delivery in a given month, specifying the share of efficiency of power generation from PV sources in Poland during the day;

M_i – weighted average price for the i^{th} hour expressed by the following formula:

$$M_i = \sum_{k=1}^n P_k \times \frac{V_k}{V}$$

n – the number of transactions concerning hourly instruments traded on the Day-Ahead Market for delivery in a given month in the i^{th} hour of the delivery day;

P_k – the price of the k^{th} transaction;

V_k – trading volume defined as the number of MWh in the k^{th} purchase or sale transaction, with the volume of only one side of the transaction, either the purchase or sale, being taken into account for each transaction;

V – trading volume defined as the number of MWh in purchase or sale transactions concerning hourly instruments traded on the Day-Ahead Market for delivery in a given month, with the volume of only one side of the transaction, either the purchase or sale, being taken into account for each transaction.

The weights for wPV_i are calculated based on capacity utilisation factors of photovoltaic sources in the territory of Poland for 24 hours of electricity generation in each of the 12 months of the year. These weights, which correspond to the quotient of the capacity utilisation factor photovoltaic sources for a given hour in a given month and the sum of these factors for 24 hours in a given month, are as follows (hours in rows, months in columns):

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
6	0.0%	0.0%	0.0%	0.0%	0.4%	0.8%	0.6%	0.1%	0.0%	0.0%	0.0%	0.0%
7	0.0%	0.0%	0.9%	0.8%	1.8%	2.3%	2.1%	1.3%	0.2%	0.0%	0.0%	0.0%
8	0.2%	2.2%	3.8%	2.9%	4.0%	4.3%	4.1%	3.6%	2.1%	0.5%	0.5%	0.0%
9	4.6%	6.8%	7.6%	5.8%	6.5%	6.5%	6.5%	6.2%	5.4%	3.4%	4.3%	2.9%
10	11.5%	12.0%	11.2%	8.8%	8.8%	8.6%	8.7%	8.8%	8.7%	7.9%	10.6%	10.5%
11	17.6%	15.8%	13.7%	11.2%	10.6%	10.2%	10.3%	10.8%	11.5%	12.1%	16.2%	17.9%
12	20.9%	17.7%	14.8%	12.6%	11.6%	11.1%	11.3%	12.1%	13.2%	15.0%	19.6%	22.2%
13	20.1%	17.1%	14.5%	13.0%	11.9%	11.4%	11.6%	12.4%	13.8%	16.3%	19.6%	21.6%
14	15.5%	14.2%	12.9%	12.6%	11.4%	11.0%	11.2%	12.0%	13.4%	15.6%	16.1%	16.4%
15	8.2%	9.6%	10.1%	11.2%	10.3%	10.0%	10.2%	10.8%	11.8%	13.2%	9.9%	7.8%
16	1.4%	4.2%	6.6%	9.2%	8.7%	8.5%	8.6%	8.9%	9.4%	9.5%	3.1%	0.6%
17	0.0%	0.5%	3.0%	6.6%	6.6%	6.7%	6.7%	6.6%	6.4%	5.1%	0.0%	0.0%
18	0.0%	0.0%	0.7%	3.9%	4.4%	4.6%	4.6%	4.1%	3.2%	1.4%	0.0%	0.0%
19	0.0%	0.0%	0.1%	1.5%	2.3%	2.7%	2.6%	1.9%	0.7%	0.0%	0.0%	0.0%
20	0.0%	0.0%	0.0%	0.1%	0.8%	1.2%	1.0%	0.3%	0.0%	0.0%	0.0%	0.0%
21	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
22	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
23	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
24	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

The factors and weights that are used by TGE in calculating the index are defined with greater precision than in the tables above.

The distinctive features of $TGePVm$ are: (a) prices for individual hours of electricity delivery are averaged using weights which indicate the share of efficiency of power generation from photovoltaic sources in Poland; (b) only transactions concerning hourly instruments traded on the Day-Ahead Market are taken into account, i.e. excluding block contracts, to apply precise pricing for individual delivery hours and (c) the index is calculated for the month of electricity delivery.

The $TGePVm$ index is published on www.tge.pl. The publication of the index for the previous month takes place no later than on the 3rd business day of the month.

The indices prepared by Towarowa Giełda Energii S.A., as described in this document, must not be used within the meaning of Regulation (EU) 2016/1011 of the European Parliament and of the Council of 8 June 2016 on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds and amending Directives 2008/48/EC and 2014/17/EU and Regulation (EU) No 596/2014 (the "BMR Regulation").

Towarowa Giełda Energii S.A. is not an administrator within the meaning of the BMR Regulation.

General principles concerning market data and indices: [TGE - Website Terms of Use](#)