Electricity Market Characteristics

Wholesale market

The volume of gross domestic electricity generation in 2021 was at a higher level compared to the previous year, and amounted to 173,583 GWh (an increase of 14 % compared to 2020). In the same period, gross domestic electricity consumption amounted to 174,402 GWh and increased by 5.4% compared to 2020. The growth rate of domestic electricity consumption was lower than the GDP growth rate in 2021, which according to preliminary estimates of Statistics Poland amounted to 5.7%.

The structure of electricity production in 2021 did change insensibly compared to 2020. The vast majority of generation is still based on conventional fuels, i.e. hard coal and lignite.

In 2021, the share of imports in the domestic balance of physical flows constituted 8.0 % of total electricity fed into the grid, while the share of exports constituted 7.6 % of electricity off-taken. As compared to 2020, share of imports declined by 3.8 percentage point, while share of exports increased by 3.4 percentage point.

Structure of electricity generation, domestic balance of physical flows in cross-border exchange, and electricity consumption in 2020-2021 [GWh]

	2020	2021	Dynamics (2021/2020; 2020=100)
Total electricity production	**152,308**	**173,583**	**113.97**
including: hard coal-based power plants	71,546	93,037	**130.04**
lignite-based power plants	37,969	45,367	**119.48**
gas-based power plants	13,924	13,366	**95.99**
industrial power plants	9,799	-	
water-based utility power plants	2,698	2,830	**104.89**
wind sources	14,174	14,234	**100.42**
other RES	2,198	4,749	**216.06**
cross-border exchange balance	13,224	820	**6.20**
Domestic electricity consumption	**165,532**	**174,402**	**105.36**

Source: URE on the basis of PSE S.A.'s data.

Caution! From 1st of January 2021 industrial power plants are included in professional thermal power plants and are not directly comparable to data from previous years. This is due to the modernization of the TSO's IT systems.

In 2021, installed capacity in national electricity system amounted to 53,656 MW, and generating capacity totalled 54,382 MW, which is an increase by 9.0 % and by 10.8 %, respectively, as compared to 2020. An average annual capacity demand was 23,673.00 MW, against maximum demand of 27,617.20 MW, which is an increase by 5.6 % and 3.1 % respectively, as compared to 2020. The ratio of available capacity to generating capacity in 2021 was 57.6 % (decrease by 4.1 percentage points as compared to 2020).

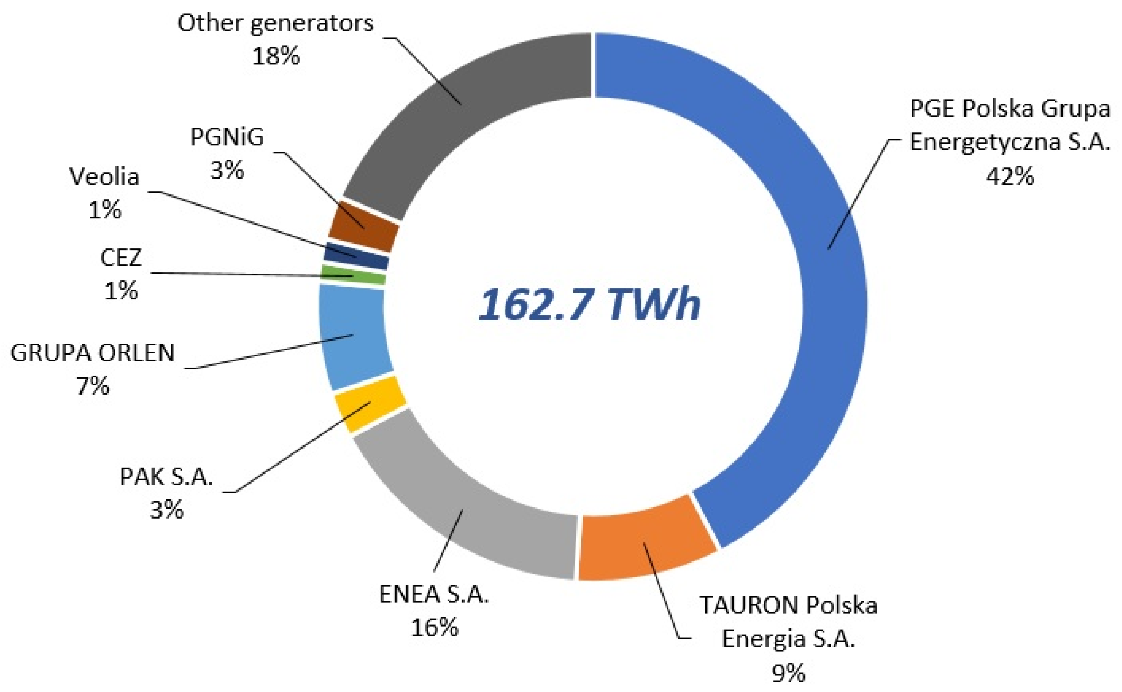
Installed capacity of domestic power plants (at the end of the year)

	Installed capacity [MW]		
	2020	2021	dynamics (year/year)
Installed capacity of domestic power plants:	49,238	53,656	**8.97%**
In utility power plants:	36,364	38,570	**6.07%**
In hydroelectric utility power plants:	2,356	2,380	**1.02%**
In thermal utility power plants:	34,008	36,190	**6.42%**
Hard coal based:	22,747	24,611	**8.19%**
Lignite based:	8,478	8,262	**-2.55%**
Gas-fired:	2,782	3,317	**19.23%**
In wind sources and other RES:	10,229	15,086	47.48%
In industrial power plants:	2,645	0	-100.00%
Installed capacity in centrally-dispatched generation units	29,429	27,850	-5.37%
Installed capacity in not centrally-dispatched generation units:	19,810	25,806	30.27%

Source: URE on the basis of PSE S.A.'s data.

The biggest share in electricity generation subsector in 2021, which totalled 42.4%, was still held by the group PGE Polska Grupa Energetyczna S.A. (increase by 1.8 percentage point in comparison to the previous year). This group, took a leading position also on the market of sale to final customers, and maintained it in 2021.

Share of groups in the volume of electricity fed into the grid in 2021 (considering the entity structure as at 31 December 2021)



Caution! The group "Other generators" includes both generators which are part of groups (e.g. Azoty, E.ON, Polenergia, FORTUM) and generators operating individually on the electricity generation market – outside groups.

Source: Own analysis based on data of the Ministry of Climate and Environment and URE

Sales of electricity

The structure and mechanisms of market operation do not differ from the corresponding structures and mechanisms, which formed in a majority of other European states deemed competitive markets. Market participants have, on a non-discriminatory basis, wide access to various forms of electricity sales and access to information on volumes and prices at which electricity is contracted and sold on the wholesale market.

The tables below present shaping the directions of electricity sales in segments of generation and trading in the years 2020-2021.

Directions of electricity sales by generators in 2020-2021 [TWh]

Year	Trading companies	Regulated markets, including power exchange	Balancing market	Exports	End users	Other sales*
2020	30.9	105.5	10.8	0.1	1.8	2.6
2021	32.2	108.3	13.7	0.1	1.7	1.5

Source: Data of Ministry of Climate and Environment and URE.

Directions of electricity sales by trading companies in 2020-2021 [TWh]

Year	Trading companies	Regulated markets, including power exchange	Balancing market	Exports	End users	Other sales*
2020	110.4	96.5	7.4	1.5	127.0	28.1
2021	111.0	118.9	7.3	1.4	133.1	23.8

Source: Data of Ministry of Climate and Environment and URE.

* "Other sales" includes electricity sold to TSO and DSOs, and sales to small local distributors.

As a result, in 2021 significant drop of electricity sales through power exchange is observed both among generators and trading companies.

Total electricity volume in all transaction concluded in 2021 on all sales markets of TGE S.A. (Polish power exchange) amounted to 225.2 TWh, which is a decrease by 7.4 % compared to 2020 (243.2 TWh). In 2021, TGE S.A. operated the following electricity sales markets:

- Single Day-Ahead Coupling (SDAC) in the XBID model,
- Day Ahead Market (DAM) including in the auction system,
- Electricity Forwards Market of the Organized Trading Facility (EFM OTF).

In 2021, 47 entities actively participated in trading on electricity markets operated by TGE S.A.

The largest volume of electricity is traded at EFM OTF. In 2021 46,663 transactions were concluded on that market (together with auctions), and the total volume of electricity trading was 188.9 TWh. The volume-weighted average transaction price of BASE Y-22 contract in the entire year 2021 was at the level of 384.16 PLN/MWh, while in 2020 the volume weighted average transaction price of the corresponding BASE_Y-21 forward contracts amounted to 231.87 PLN/MWh.

In 2021, 1,231,625 transactions were concluded on the day ahead market. Total volume of electricity traded on DAM amounted to 33.9 TWh, what means an increase by 3.7 % compared to 2020. Volume-weighted average price of electricity on DAM in 2021 amounted to 401.17 PLN/MWh and was higher by 190.06 zł/MWh in comparison to 2020 when this price was 210.11 PLN/MWh.

On the intraday market, 492,459 transactions were concluded in 2021, and total volume of traded electricity amounted to 2.4 GWh.

In 2019, volume of electricity in contracts concluded on the OTC market, excluding intra-group contracts, amounted to 12.9 TWh and was higher by 9.3 % in comparison to 2020 (11.8 TWh).

Retail market

In 2021, there were 5 big DSOs operating on the electricity market which are subject to unbundling obligation. In addition, there were 180 vertically integrated undertakings designated as DSOs, which do not fall under unbundling obligation.

In 2021, there were 6 incumbent (default) suppliers, 182 suppliers in vertically integrated entities that were also distribution system operators, and independent electricity suppliers not connected with distribution activities. In 2021, there were some 17.2 m end users, of which 90.3% (15.5 m) were households.

Electricity prices and distribution fees applicable to customers with comprehensive contracts

Specification	***4th Q 2020***			***4th Q 2021***		
		Including:			***Including:***	
	Average sales price	***Fee for electricity***	***Distribution fee***	***Average sales price***	***Fee for electricity***	***Distribution fee***
	[PLN /MWh]					
Customers in total	**540.70**	**332.10**	**208.60**	**596.80**	**354.10**	**242.70**
including: customers on HV (group A)	338.20	278.60	59.68	465.80	402.80	63.00
customers on MV (group B)	444.50	328.70	115.79	482.70	329.30	153.40
customers on LV (group C)	697.40	416.10	281.20	786.40	466.50	319.90
Customers of group G	547.10	310.70	236.40	594.80	325.40	269.30
including: households	546.20	310.70	235.50	603.80	330.80	273.00

Source: Data of Ministry of Climate and Environment and URE.

An important institution of the electricity market is the “back up” sales, guaranteeing the customer continuity of energy supply in cases not attributable to the customer (e.g. financial difficulties of the seller resulting in the inability to continue operations). In the case of customers in households connected to the DSO power grid with a rated voltage of up to 1 kV, the price of electricity sold as part of the provision of a back- up comprehensive service may not be higher than the product of the coefficient of 2.5 and the average sale price of electricity on the competitive market, as referred to in Article 23 (2) (18) (b) of the Energy Law Act. In other cases, the price offered by back-up sellers is freely shaped and specified in publicly available price lists of sellers.

In 2021 the President of URE continued the cyclical monitoring of the retail market in the field of launching and and servicing of back-up sales to final customers. The survey was addressed to the five largest DSOs: PGE Dystrybucja S.A., TAURON Dystrybucja S.A., ENERGA-OPERATOR S.A., ENEA Operator Sp. z o.o. and Stoen Operator Sp. z o.o. and the 6 biggest suppliers (PGE Obrót S.A., ENERGA Obrót S.A., TAURON Sprzedaż Sp. z o.o., TAURON Sprzedaż GZE Sp. z o.o., E.ON. S.A. i ENEA S.A.).The scope of the survey included information on:

(i) suppliers which offered last resort supply to final customers connected to the network of DSOs
(ii) final customers for which the operator launched back-up supply and/or a designated supplier provided back-up supply.

09.06.2022