

Energy Regulatory Office

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Polish heating industry in times of energy crisis. Latest “Heating Industry In Numbers” report now available

The year 2022 was the time of rapid change in the Polish heating industry. The crisis triggered by the pandemic and Russia’s aggression against Ukraine fundamentally turned around and galvanized the operating environment of the industry, impacting both the profitability of companies and the cost of system heat for consumers. The accelerating energy transition, which has presented heat generators with demanding investment tasks, only added to this challenge.

Undoubtedly, district heating systems in Poland need to be upgraded and made independent of fossil fuels but this transformation must also take into account the local specifics, quite unique to the Polish market. Furthermore, the modernisation of the district heating sector should be seen as a security component, which was clearly demonstrated by the situation with the war in Ukraine and the fears of a lack of coal supplies for Polish district heating and CHP plants. Therefore, in my opinion, a model for central financing of the modernisation of the district heating sector should be put in place - emphasized Rafał Gawin, President of the Energy Regulatory Office (URE)

This turbulent period is documented in detail and summarised in the latest report by the President of URE entitled [“2022 Heating Industry In Numbers”](#) which we strongly recommend to all those interested in the heating industry.

‘The analysis of the collected data provides a basis for the assessment of the sector’s condition as well as the current change dynamics and trends. This annual study significantly supports the activities of the regulator by identifying business areas where efficiency improvements are required.’ points out the President of URE. *‘In addition to its relevance to the industry and its*

customers, the publication may be a valuable starting point for an in-depth analysis of the heating industry for academics and researchers concerned with this field. The Energy Regulatory Office is one of the main actors involved in the analysis and regulation of the sector. We therefore have the experience and knowledge to be a partner in discussions on the desirable and optimal direction of change with the legislator, on the one hand, and with the heating industry on the other - he adds.

URE President's actions for the heating industry

The President of URE took action to balance the interests of producers and consumers of system heat, including the initiatives undertaken by the District Heating Working Group established at URE in 2020.

In addition, with a view to supporting the heating industry, the President of URE initiated cooperation with Bank Gospodarstwa Krajowego, which started to offer liquidity loans. Importantly, the related debt service costs are accepted by the regulator in heat tariffs.

The effects of the measures implemented by the President of URE in 2022 with a view to improving the financial standing of the heating industry will only be reflected in the performance results for 2023. For more details on the Polish heating industry in 2022 and the activities of the President of URE aimed at this sector, see the report ["2022 Heating Industry In Numbers 2022"](#).

Polish heating industry 2022

As a result of the rapid increase in the cost of fuel purchases and CO₂ emission allowances in 2022, the sector was affected by increased debt level and deteriorated liquidity. At the same time, last year saw the highest level of capital expenditure in the sector since 2015, reaching as much as PLN 4.73 billion, nearly 23 per cent more than in 2021.

The capacity levels, both installed and contracted from district heating plants, were slightly lower, with the installed falling from 54 GW to 53 GW the year, a drop by 1.7 per cent, and a decrease in contracted capacity by 0.28 per cent (from 35.02 to 34.9 GW).

Along with the increase of the cost of system heat, the sales volume went down. The volume of heat sold by district heating plants exceeded 357 TJ and fell by over 7.2 percent in comparison to the 2021 figure.

Hard coal and lignite remained the primary fuels used in heat generation accounting 66.2 per cent of the fuel consumption volume. However, compared to 2021, their share of the energy mix decreased by 3 percentage points. On the other hand, the respective shares of both gaseous fuels and renewable energy sources went up, with the latter accounting

already for than 15 per cent. The largest share of RES was observed in the Podlaskie, Kujawsko-Pomorskie and Pomorskie Voivodeships.

Tariff turmoil

Due to unprecedented fuel price increases in 2022 reaching over 80 per cent for hard coal and more than 160 per cent for high-methane natural gas, the average price of heat sold in 2022 also increased by nearly 35 per cent, reaching the level of around 64 PLN /GJ. The average transmission service charge rate also went up by almost 17 per cent to a level exceeding PLN 22/GJ.

Table 1. *Unit cost of fuels consumed in heat generation sources in 2020–2022*

Item		Fuel cost per unit*			Change	
		2020	2021	2022	2021/2020	2022/2021
		[%]				
Hard coal	PLN/t	302.91	296.07	541.02	-2.26	82.73
Lignite		52.95	49.90	54.42	-5.76	9.06
Light heating oil		2,369.61	2,972.97	5,025.61	25.46	69.04
Heavy fuel oil		876.40	749.27	1,359.21	-14.51	81.40
High-methane natural gas	PLN/m ³	0.87	1.74	4.59	100.00	163.79
Low-methane natural gas		0.50	0.89	1.56	78.00	75.28
Biomass	PLN/GJ	16.26	17.07	49.44	4.98	189.63
Other fuels		12.37	17.37	58.38	40.42	236.10

Dynamic changes in commodity prices forced district heating companies to update their tariffs extremely frequently. During the past year, URE conducted as many as 925 proceedings to approve or amend heat tariffs, which is almost the double of their number in the previous year. It is worth noting that this was accomplished with the unchanged budget and number of tariff specialists at URE.

At the same time, thanks to the support mechanism for heat consumers introduced in September 2022, the average price for heat generation was capped at the level of average price of heat generation with compensation, as determined individually for heat generated in gas-fired and fuel oil fired sources, and for heat generated in other sources. ^[1]

Low profitability of cogeneration

In 2022, the operating costs of district heating once again increased significantly (by almost 37 per cent). Electricity and heat cogeneration companies, for which heat tariffs are approved using a simplified method and could not be revised during the year, found themselves in a particularly difficult situation.

As a consequence of the high cost of fuel and CO₂ emission allowances, the gross profitability of CHP sources fell to minus 38 per cent in 2022, while the profitability of heat-only sources was slightly positive at 0.25 per cent (overall, the gross profitability of the district heating industry as a whole was minus 22 per cent).

In the case of cogeneration companies, the presentation of financial results for the heat business alone makes the assessment very difficult, as it is not possible in their case to clearly separate the costs of electricity and heat generation by location, and therefore to determine efficiency for heat generation only. The cost allocation keys applied by the companies may be biased towards the profit from either heat sales or electricity sales in the overall financial result (depending on the cost allocation method used in the accounting rules). This is because there is no legal regulation (and therefore no consistency as regards the allocation method) that would clearly define how costs should be allocated, require the use of a single cost allocation method across all the entire peer group. Energy companies are therefore free to choose how to allocate overhead costs. This means that CHP units can allocate costs in such a way that the profitability of the district heating business is lower while the profitability of the electricity generation business is higher.

- The first study dedicated to the heating sector was undertaken by URE in 2002.
- Since then, the length of the district heating network has increased from 17,312 km to 22,578.4 km. Also, the length of the network per company went up from approximately 23.8 km to 62.89 km.
- The total installed heat generation capacity of licensed heat generators fell from around 71 GW to around 53 GW between 2002 and 2022.
- In 2022, there was a nearly 7 per cent decrease in CHP heat production compared to 2021, and the share of CHP in total heat production fell down (the share of CHP in total heat production was 62.1 per cent in 2022, as compared to 63.2 per cent in 2021).
- Since 2002, the share of coal fuels in heat production fell by 15.2 percentage points (from 81.7 per cent to 66.2 per cent in 2022).
- The average price of heat sold from heat-generating sources without cogeneration in 2022 was 76.39 PLN/GJ (an increase of 43.29 per cent compared to 2021), while the average price of heat sold from heat-generating sources with cogeneration was 55.15 PLN/GJ (an increase of 21.82 per cent).
- The average single-component heat price in 2022 was 76.69 PLN/GJ and was higher year on year by 47.61 per cent.
- The gross profitability of the district heating industry was negative at minus 22 per cent in 2022.
- The cumulative increase in the operating cost of the district heating business between 2020 and 2022 exceeded 70 per cent.

^[1] Act of 15 September 2022 on special solutions for certain heat sources in connection with the situation on the fuel market (Journal of Laws of 2022, item 1967).

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