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DIVIDEND POLICY OF LISTED, STATE-OWNED ENTERPRISES FROM THE POWER SECTOR

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Purpose: The article aims to answer whether the failure to pay dividends by state-owned enterprises (SOEs) from the power sector listed on the Warsaw Stock Exchange is an action to the detriment of minority shareholders. These companies are PGE Polska Grupa Elektroenergetyczna S.A., Enea S.A., Energa S.A., and TAURON Polska Energia S.A.
Design/methodology/approach: Analysis of the literature on the dividend policy of companies and its impact on the company's value. Analysis and assessment of selected financial and non-financial indicators of the companies in 2019-2023 from the point of view of the justification for withholding dividend payments in these years.
Findings: The analysis of selected financial and non-financial indicators showed that the analysed 4 Polish companies could and should have paid dividends in the analysed years, and not allocated retained profits to unprofitable investments. In addition, a comparison of the values of these companies' indicators with the indicators of the German company selected for comparative analysis, whose significant shareholder is the German federal state, showed that it is necessary to improve the ownership supervision over them.
Research limitation/implications: Differences in the reporting rules for calculating some indicators, e.g. net debt may cause slight differences in the values of the calculated indicators, and thus limit their comparability between companies. The analysis is useful for all stakeholders of state-owned enterprises, especially politicians who are responsible for corporate governance.
Originality/value: The decision of the majority or dominant shareholder, i.e. the State Treasury, not to pay dividends required the assessment of the dividend policy of the State Treasury from the point of view of minority shareholders. In turn, the comparison of financial and non-financial indicators of the 4 Polish SOEs with the German SOE selected for comparative analysis allowed for the assessment of their performance and thus the assessment of corporate governance exercised by politicians.
Keywords: state-owned enterprises, SOEs, corporate governance, dividend policy, power, ROCE.
Category of the paper: research paper.

1. Introduction

The article aims to answer whether the non-payment of dividends by state-owned enterprises (SOEs) from the power sector listed on the Warsaw Stock Exchange is an action to the detriment of their shareholders.

The shares of the State Treasury in the analysed companies, are presented in Table 1. At the same time, in analysed companies at the end of 2024, there were from several to a dozen or so institutional shareholders representing pension funds and investment funds. For example, PGE Polska Grupa Elektroenergetyczna S.A. at the end of 2024 had 19 institutional shareholders holding 19.92% of shares and the same number of votes (Biznesradar.pl, 2.03.2025). Since the State Treasury's share in the company was 60.86% and the same number of votes, the remaining minority shareholders, having approximately, 20% shares were probably natural persons who had the right to participate in General Meetings, but due to the small number of shares held, they for sure never participated in them.

In connection with the fact that resolutions taken at General Shareholders' Meetings concerning non-payment of dividends were taken by the majority or dominant shareholder, which is the State Treasury, and by some minority shareholders, the so-called institutional shareholders, shareholders in this article are understood as Polish society represented by the State Treasury, individual participants of pension funds and investment fund management companies, and all other minority shareholders.

In the first quarter of 2023, the 4 analysed Polish companies produced about 63% of gross electricity in Poland. The largest share in production (39%) was held by PGE Polska Grupa Elektroenergetyczna S.A. The next company was Enea S.A. with a 13% market share. The third place with a 9% share in the production market was taken by TAURON Polska Energia S.A. The smallest production of the analysed companies was by Energa S.A., which had a 2% share in the gross electricity production market (TAURON Polska Energia S.A., 2023). The total gross electricity production in Poland in 2023 amounted to 163.6 TWh (Urząd Regulacji Energetyki, 11.02.2025).

The analysed companies have not paid dividends in the analysed years 2019-2023 and in 3 earlier years. Every year, their management boards submitted recommendations to the General Meetings of Shareholders not to pay dividends for a given year and to allocate all profits to reserve capital to increase investment expenditure. For example, the dividend policy of PGE Polska Grupa Elektroenergetyczna S.A. included in the financial report for 2023 is presented below.

“In May 2017, the company’s management board recommended suspending the payment of dividends from profits for 2016, 2017, and 2018 due to the need to finance an ambitious development program and limit the growth of the debt level. After this period, the management board intended to recommend the payment of a dividend to shareholders at the level of 40-50%

of the consolidated net profit attributable to the shareholders of the parent company, adjusted by the amount of write-offs revaluing the value of tangible fixed assets and intangible assets. The dividend policy contains a provision that the payment of each dividend will depend in particular on the total amount of the company's debt, expected capital expenditures, and potential acquisitions. The dividend policy, in particular as a result of the analysis of the company's debt in the context of the implementation of the investment program (by the assumptions of the PGE Group Strategy until 2030) and planned acquisitions (including the acquisition of PKPE Holding sp. z o. o. completed in April 2023), as well as taking into account the prolonged market instability and uncertainty (including as a result of the recession caused by the COVID 19 pandemic and the war in Ukraine), the management board of PGE Polska Grupa Elektroenergetyczna S.A. recommended not to pay dividend for the years 2019-2022. The Annual General Meetings (AGM) in the years 2020-2023 adopted resolutions by the recommendations of the management board of PGE Polska Grupa Elektroenergetyczna S.A." (PGE Polska Grupa Elektroenergetyczna S.A., 2019-2023).

The dividend policy consisting of in not paying dividends, regardless of the reported financial results, required in-depth analysis. In particular, it was necessary to analyse the profitability of allocating all profits to reserve capital in order to implement the investment policy instead of paying them profits in the form of dividends.

Both the purpose of the article and the applied research method are fresh solutions, previously undescribed by anyone.

To achieve the aim of this article, two research hypotheses were put forward.

H1 - the lack of dividend payments by the 4 Polish analysed companies in 2019-2023 and allocating all profits to reserve capital to finance investments was detrimental to their shareholders.

H2 - the lack of dividend payments by the 4 Polish analysed companies in 2019-2023 and the allocation of all profits to reserve capital to finance investments was the result of the poor financial performance of these companies and, consequently, a low level of cash and poor creditworthiness.

To test hypothesis H1, the Value spread indicator was analysed. It was calculated by deducting the Weighted Average Costs of Capital (WACC) from the Return on Capital Employed (ROCE). A positive value of the Value spread indicator means that the profitability of Capital Employed was higher than the WACC, which is beneficial for shareholders. A negative value shows that the company has not used invested capital effectively (Corporate Finance Institute, 15.02.2025). In summary, accepting or rejecting hypothesis H1 will allow for an assessment of the company's investment policy from the perspective of all shareholders. Not paying dividends and allocating the held cash assets to value-increasing investments would be beneficial for them. On the other hand, not paying dividends and allocating their cash to investments that did not bring an appropriate rate of return would not be beneficial for them.

Such a measure of the profitability of an investment using debt and equity capital is the Value spread indicator, which is the difference between ROCE and WACC.

To test the validity of hypothesis H2, the analysis of financial indicators was carried out, i.e. profitability indicators (Return on Sales - ROS, Return on Equity - ROE, and Return on Assets - ROA), debt indicators (Debt/Equity and Net debt/EBITDA), and non-financial indicators (sales/employee, EBITDA/employee, carbon intensity, and the cost of CO_2 per MWh of electricity produced). In addition, the Total Shareholder Return (TSR) indicator was calculated, indicating the profitability of investing in shares of the 5 analysed companies in 2019-2023. In turn, accepting or rejecting hypothesis H2 will allow to answer the question of whether the analysed companies had sufficient credit capacity, i.e., whether their financial situation allowed for financing both investments and the payment of potential dividends.

In order to make the testing of both hypotheses more reliable, a foreign state-owned enterprises (SOE), with similar parameters, i.e., sales revenue, asset value, number of employees, amount of electricity produced or amount of CO_2 emitted, was added to the analysis of 4 Polish companies (Table 2).

2. Literature review

A dividend is a share in the profit generated by the company and is a payment due to the shareholder for the capital provided by him (Sierpińska-Sawicz, 2019, p. 251).

The literature on dividend policy and its impact on the value of a company indicates that there is no uniform position among researchers on this issue. Some authors claim that an increase in the value of dividends paid increases the value of the company, while others claim that paying dividends decreases this value. Still, other authors argue that dividend policy is irrelevant to the value of the company.

In 1961, Miller and Modigliani published an article on the influence of capital structure and the value of dividends paid on the value of a company. According to the authors, capital structure and the value of dividends paid do not affect the value of a company. Dividends are only a way of distributing profits, and the value of a company depends on the profit earned. Unfortunately, the authors assumed that companies operate in a perfect market (no transaction costs, no difference in dividend and capital gains tax, no bankruptcy costs, sellers and buyers of shares have the same and free access to information and the same bargaining power), and investors can borrow money at the cost of the risk-free rate (Miller, Modigliani, 1961).

The authors who claim that dividends are good for shareholders include M.J. Gordon. He believed that retained earnings are associated with higher risk for shareholders. In the case of dividend payment, shareholders have money faster than in the case of retaining earnings and not paying dividends. He claimed that the lack of dividends increases risk for shareholders and

thus an increase in their expected rate of return, i.e. an increase in the cost of equity capital. This approach to dividend policy is the so-called bird in hand theory (Gordon, 1963).

Other authors argue that paying dividends is disadvantageous to shareholders when the tax rate on dividends paid is higher than the tax rate on capital gains (Al.-Malkawi, Rafferty, Pillai, 2010). In the US, the tax rate on capital gains is lower than the tax rate on dividends paid (Damodaran, 2017). This approach to dividend policy means that more and more companies, instead of or in addition to paying dividends, buy back their shares, i.e. carry out so-called buyback transactions. In 2022, global share buybacks surged to a record $ 1.3 trillion, which was 94% of dividends paid. In 2012, the value of buybacks was 52% of dividends paid (Hanus Henderson Investors, 18.02.2025). In Poland, the tax rate on dividends paid is equal to the tax rate on capital gains (Ustawa…, 1992).

A company's dividend policy and related investment policy are also explained by the pecking order theory. It assumes that managers prefer the following sources of financing investment opportunities: first, through the company's retained earnings, followed by debt, and choosing equity financing as a last resort (Myers, Majluf, 1984).

Other researchers are proponents of the signaling theory, which is based on the agency theory and the information asymmetry. Since managers have better knowledge of the company's financial situation, their decisions regarding the amount of dividend payout are a signal to the market. An increase in the level of dividends is interpreted as a credible signal that the company will be able to maintain this level of dividends in the future and this usually causes an increase in demand for the company's shares and an increase in its share price. Discontinuing or reducing the level of dividend payout is in turn perceived by investors as a negative signal, which results in a decrease in the share price (Brycz, Pauka, 2013). The Signaling theory was studied by, among others, Stephan Roos (Ross, 1997), M. Miller, and K. Rock (Miller, Rock, 1985).

Yet another theory related to dividend policy, the dividend smoothing theory, concerns the amount of dividends paid and was presented by J. Linthner in 1958. According to him, managers try to maintain a constant level of dividends paid in relation to the profits achieved. Linthner's research showed that managers believe that the market values companies with a stable dividend policy (Lintner, 1956).

In practice, the dividend policy depends on the investment possibilities and the availability of funds with which the company can finance new investments. This is the so-called residual dividend policy, which assumes that new investments are primarily financed from retained earnings, and dividends are paid only when profits are greater than planned investment expenditures. The residual dividend policy assumes that investors prefer not to pay dividends if the company can allocate retained earnings to investments that bring an appropriate return on investment (Brigham, 1997, p. 229).

3. Methods

Economic analysis, particularly ratio analysis, was used as a research method to analyse the company's dividend policy.

The applied research method consisted of selecting appropriate financial and non-financial data of the analysed companies for the last 5 years, using this data in the ratio analysis of individual companies, and comparing the obtained ratios of the analysed companies with each other.

Four foreign SOEs were selected for comparative analysis: from France, Finland, Sweden and Germany (Tab. 1). However, for the comparative analysis to be useful, it was assumed that the foreign state-owned enterprises (SOEs) selected for comparative analysis should have similar business parameters to the 4 Polish companies, i.e. sales revenue, asset value, number of employees, and CO_2 emission intensity indicator per MWh of electricity produced. In addition, the selected companies should be listed on the stock exchange (Tab. 2).

The German company EnBW reported PLN 199,987 million in revenue in 2023 and PLN 199,987 million in asset value. In addition, EnBW, employing 26,043 people in 2023, produced 26.6 TWh of electricity. Another company, the Swedish Vattenfall, produced more electricity in 2023 (100.9 TWh) than 4 Polish companies combined, which limited its comparability with Polish companies. In addition, it was not a listed company. The shares of the third company, the French EDF, have not been listed on the stock exchange since 18.05.2023. In addition, the huge values of its revenue (PLN 634,725 million), assets (PLN 1,657,341 million), number of employees (175,550), and TWh of electricity produced (467.64 TWh) meant that it was not a good company for comparative analysis. The last company proposed for comparative analysis, the Finnish Fortum, had sales revenue and asset value comparable to Polish companies. At the same time, it had a very low carbon intensity indicator (32 gCO_2/kWh), and most of its employees and sales revenues were related to foreign operations. Due to the last two features, this company was not suitable for comparative analysis with Polish companies.

Table 1.
Selected Western European power companies - shares held by the State or other local government bodies

Company	Country	Shareholders	Interests in the share capital	Nr of votes	Remarks
TAURON	Poland	State Treasury (direct & indirect holdings)	40.45%	40.45%	30.06% directly held by the State Treasury; 10.39% indirectly held by KGHM S.A., a company in which the State Treasury holds 31.79% shares

Cont. table 1.

PGE	Poland	State Treasury	60.86%	60.86%	
ENEA	Poland	State Treasury	52.29%	52.29%	
ENERGA	Poland	State Treasury (indirect holdings)	90.92%	93.28%	Indirectly held by ORLEN S.A., a company whose 49.89% shares are held by the State Treasury.
EnBW	Germany	State of Baden-Württemberg (indirect holdings)	46.75%	46.75%	Indirectly held by NECKARPRI-Beteiligungsgesellschaft mbH, which is a wholly-owned subsidiary of NECKARPRI GmbH, which in turn is wholly owned by the state of Baden-Württemberg
		OEW Energie-Beteiligungs GmbH (OEW)*	46.75%	46.75%	The association of 9 regional authorities in southern Baden-Württemberg
EDF	France	State Treasury (indirect holdings)	100.00%	100.00%	Not listed from 18.05.2023
VATTENFALL	Sweden	State Treasury (indirect holdings)	100.00%	100.00%	Not listed.
FORTUM	Finland	State Treasury (indirect holdings)	51.26%	51.26%	Indirectly held by Solidium Oy, a company whose 100% shares are held by the State Treasury.

Source: Companies' financial statements for 2023.

Of the 4 well-known European state-owned enterprises (SOEs), and selected for comparative analysis (Tab. 1), only the German company EnBW was chosen. It has similar financial and non-financial parameters to the 4 analysed Polish companies and was listed on the stock exchange (Tab. 2).

Table 2.
Selected Western European power companies – financial and non-financial data

Company	**Country**	**Sales (PLN million)**	**Assets (PLN million)**	**Nr of employees**	**Electricity production (TWh)**	**Carbon intensity gCO2/kWh**
TAURON	Poland	50 715	49,798	18 728	10.1	909
PGE	Poland	95 964	113 443	42 552	56.8	1003
ENEA	Poland	44 021	39 111	18 227	21.3	768
ENERGA	Poland	26 087	31 679	8 732	3.2	552
EnBW*	Germany	199 987	177 680	26 943	26.6	366
EDF*	France	634 725	1 657 341	175,550	467.64	37
VATTENFALL**	Sweden	114 965	233 200	20,995 (10,509 in Sweden)	100.9	69
FORTUM*	Finland	30 488	85 131	5225 (2682 in Finland)	47.0	32

* Values in € changed into PLN using the exchange rate - PLN/EUR – 4.5430 (NBP, 9.02.2025).
** Values in € changed into PLN using the exchange rate - PLN/SEK – 0.3962 (NBP, 9.02.2025).

Source: Companies' financial statements for 2023.

4. Presentation of the analysed SOE'S

Financial and non-financial data of the analysed companies are presented in Appendix (Tables 3, 4, 5, 6, and 7).

5. Results

5.1. Testing hypothesis H1

Hypothesis H1 assumed that the lack of dividend payments by the analysed companies in 2019-2023 and allocating all profits to reserve capital to finance investments was detrimental to its shareholders.

To test hypothesis H1, the Value spread indicator was analysed. It was calculated by deducting WACC from ROCE.

Return on Capital Employed (ROCE)

Return on Capital Employed (ROCE), a profitability ratio, measures how efficiently a company is using its capital to generate profits. The return on capital employed metric is considered one of the best profitability ratios and is commonly used by investors to determine whether a company is suitable to invest in or not. ROCE can only be used to benchmark companies in the same industry. To calculate ROCE, divide EBIT (earnings before interest and tax) by Capital Employed. Capital Employed is the difference between the value of assets and the value of current liabilities (Corporate Finance Institute (CFI), 15.02.2025).

$$\boldsymbol{ROCE} = \frac{\textbf{EBIT}}{\textbf{Capital Employed}} = \frac{\textbf{EBIT}}{\textbf{Total assets} - \textbf{current liabilities}}$$

Capital employed can be also calculated by adding non-current assets to shareholders' equity (Wall Street Prep., 15.02.2025):

$$\textbf{Capital Employed} = \textbf{Shareholders' Equity} + \textbf{Non} - \textbf{Current Liabilities}$$

Therefore, the ROCE value indicates the profitability of invested capital, both own and external. This results from the fact that usually non-current assets are financed with external capital.

Figure 1 presents the ROCE indicators for the 5 analysed companies. The ROCE value for EnBW was presented in its financial statements, for the other companies it was calculated based on the formula:

$$\boldsymbol{ROCE} = \frac{\textbf{EBIT}}{\textbf{Average total assets} - \textbf{average current liabilities}}$$

The data presented in Figure 1 shows that the order of companies with the highest average ROCE value was as follows:

- EnBW – 9.4%,
- Energa S.A. – 6.3%,
- Enea S.A. – 3.0%,
- TAURON Polska Energia S.A. – 1.1% and
- PGE Polska Grupa Elektroenergetyczna S.A. – 0.5%.

Weighted Average Cost of Capital (WACC)

A firm's Weighted Average Cost of Capital (WACC) represents its blended cost of capital across all sources, including common shares, preferred shares, and debt. WACC can be calculated using the following formula (Corporate Finance Institute (CFI), 16.02.2025):

$$\mathbf{WACC = (E/V \times Re) + ((D/V \times Rd) \times (1 - T))}$$

where:

E = market value of the firm's equity (market cap),

D = market value of the firm's debt,

V = total value of capital (equity plus debt),

E/V = percentage of capital that is equity,

D/V = percentage of capital that is debt,

Re = cost of equity (required rate of return),

Rd = cost of debt (yield to maturity on existing debt),

T = tax rate.

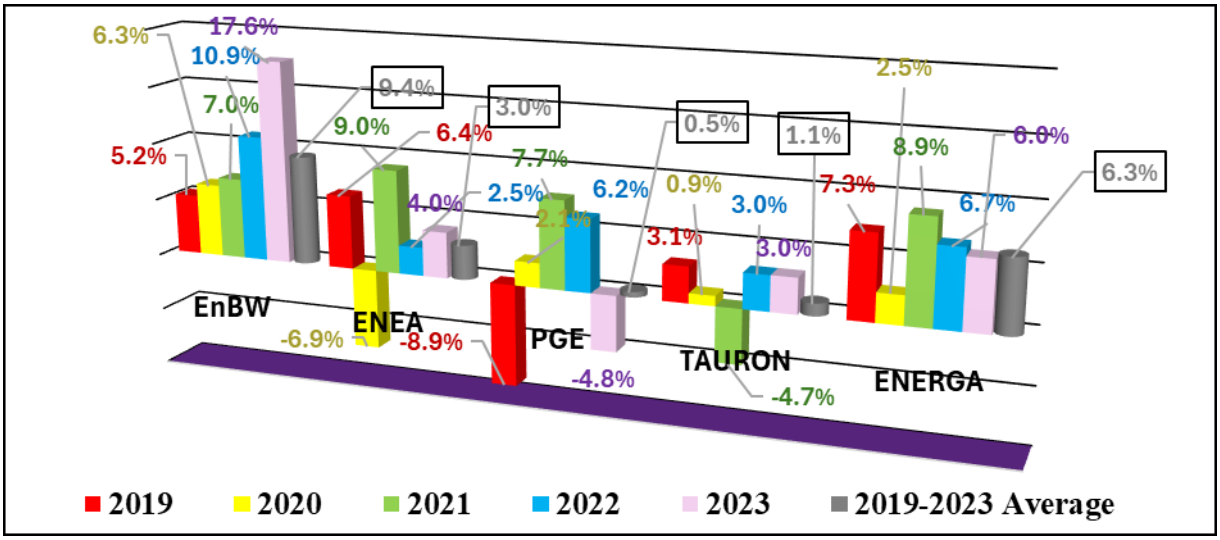

Figure 1. ROCE ratios in 2019-2023.

Source: Tables 3, 4, 5, 6, and 7; own calculations.

Value spread

Value spread, i.e. the difference between the ROCE and the WACC, shows whether the profitability of employed capital was greater than the WACC. Figure 2 presents value spreads for analysed companies in 2019-2023. Adopted for calculations WACC values are averages calculated by dividing by 2 the sums of the lowest and highest WACC values used by the companies for impairment tests. The Value spread for EnBW was presented in its financial statements, for the other companies it was calculated based on the formula: ROCE – WACC.

The data presented in Figure 2 shows that the order of companies with the highest Value spread was as follows:

- EnBW -3.5%,
- Energa S.A. – minus 2.0%,
- Enea S.A. – minus 4.7%,
- PGE Polska Grupa Elektroenergetyczna S.A. – minus 7.1% and
- TAURON Polska Energia S.A. – minus 7.5%.

Value spread below zero means that the ROCE was lower than WACC, which means that these companies did not create value for their shareholders. It can be said that allocating all profits to the reserve capital and then using them for investment expenses was disadvantageous for their shareholders, which confirms hypothesis H1.

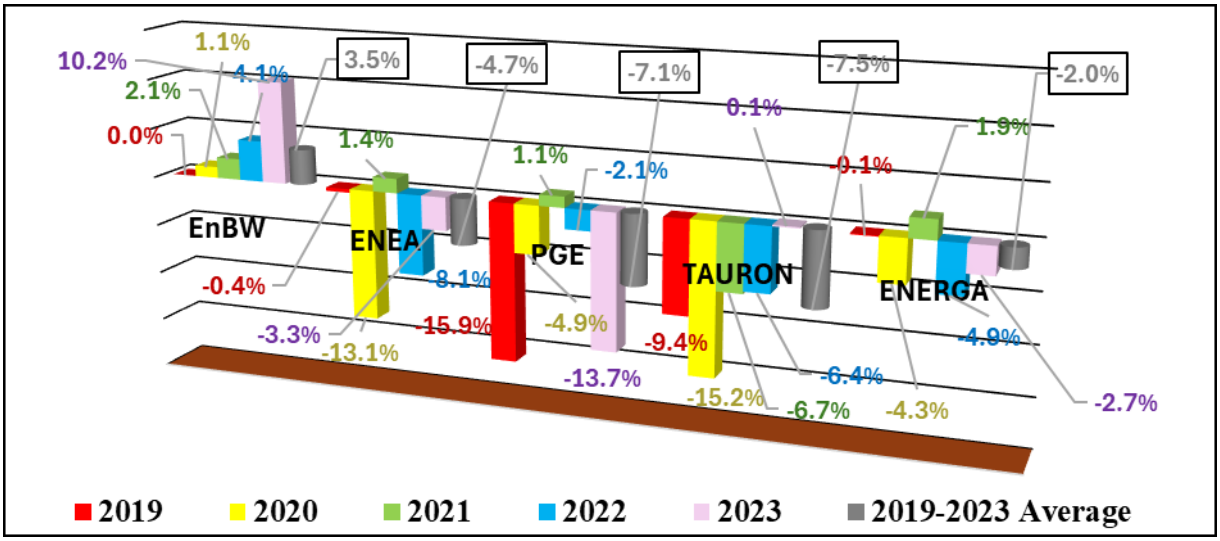

Figure 2. Value spreads ratios in 2019-2023.

Source: Tables 4, 5, 6, 7 and 8; own calculations.

5.2 Testing hypothesis H2

Hypothesis H2 assumed that the lack of dividend payments by the 4 Polish analysed companies in 2019-2023 and the allocation of all profits to reserve capital to finance investments was the result of the poor financial performance of these companies and, consequently, a low level of cash and poor creditworthiness.

Financial and non-financial indicators were analysed to test the validity of hypothesis H2. The financial ratios used in the analysis are:

- profitability indicators (ROS, ROE, and ROA),
- debt indicators (Debt/Equity, and Net debt/EBITDA),
- CAPEX/revenue,
- impairment costs/revenue, and
- Total Shareholder Return (TSR).

In turn, the non-financial indicators used in the analysis are:

- sales/employee,
- EBITDA/employee,
- carbon intensity, and
- the cost of CO2 emissions.

Figures 3, 4 and 5 present the profitability indicators of the analysed companies in 2019-2023, i.e. ROS, ROA, and ROE. These indicators are a supplement to the ROCE indicator.

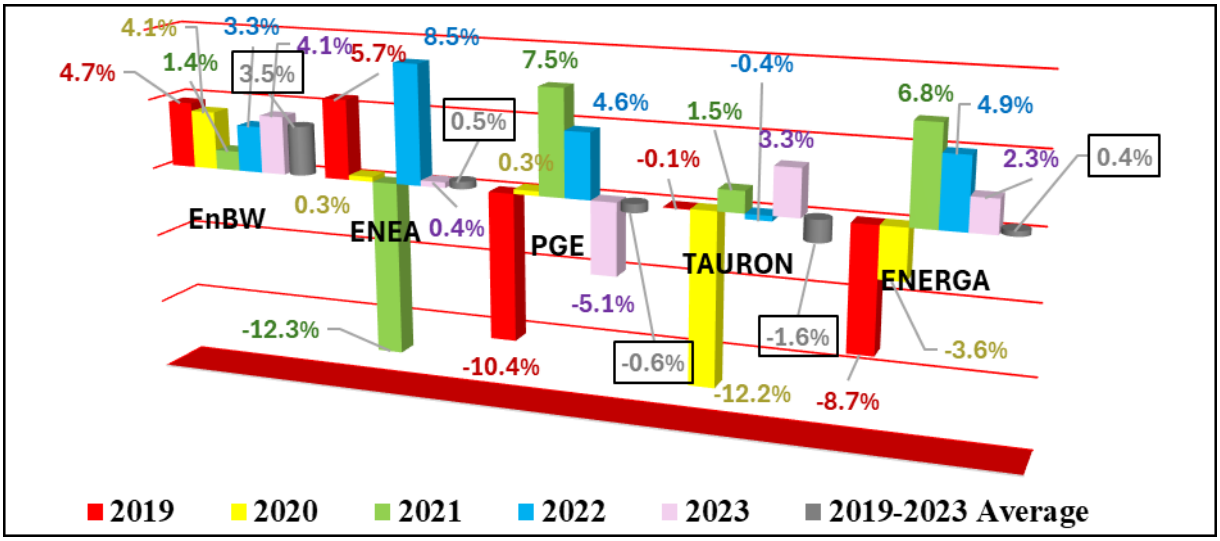

Figure 3. Return on Sales (ROS) ratios in 2019-2023.

Source: Tables 4, 5, 6, 7 and 8; own calculations.

EnBW had an average net profit of PLN 0.35 per PLN of sales in the analysed period. The next 2 companies, i.e. Enea S.A. and Energa S.A., generated an average net profit of PLN 0.005 and PLN 0.004 per PLN of sales. The last 2 companies, i.e. PGE Polska Grupa Elektroenergetyczna S.A. and TAURON Polska Energia S.A. reported sales losses of PLN 0.006 and PLN 0.016 per PLN of sales, respectively (Figure 3).

The data presented in Figure 4 shows that EnBW recorded the highest average return on assets (ROA) in the analysed years (2%). Among Polish companies, the highest average ROA value was recorded by Energa S.A. (0.8%), and the lowest by Enea S.A. (minus 0.5%).

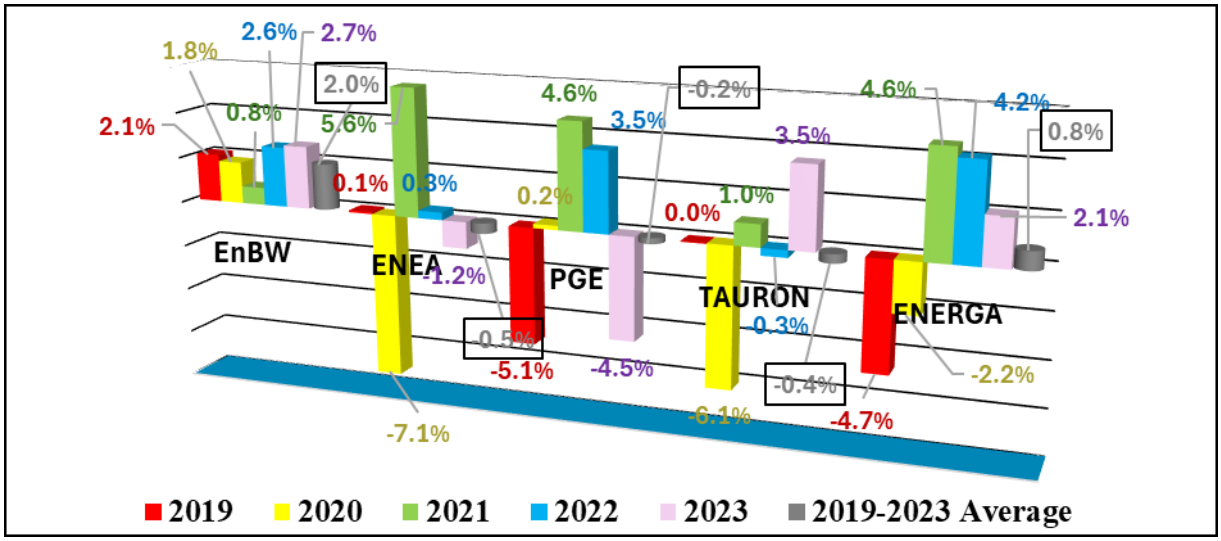

Figure 4. Return on Assets (ROA) ratios in 2019-2023.

Source: Tables 4, 5, 6, 7 and 8; own calculations.

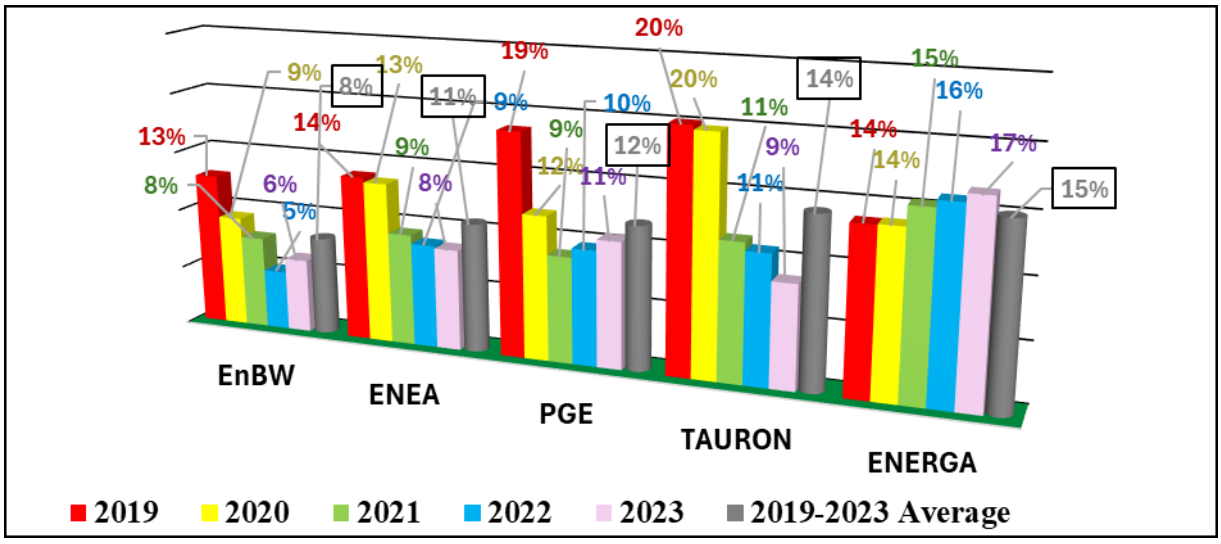

Figure 5. CAPEX/revenue ratios in 2019-2023.

Source: Tables 4, 5, 6, 7 and 8; own calculations.

Despite the extremely poor value of ROA indicators of Polish companies, they invested much more than the German company (Figure 5). The average investment expenditure of the profitable EnBW company amounted to 8% of its revenue. Among Polish companies, the highest average CAPEX/revenue ratio was reported by Energa S.A. (15%), and the lowest by Enea S.A. (11%).

The data presented in the next Figure, 6, shows that EnBW recorded the highest average return on equity (ROE) in the analysed years (13.9%). Among Polish companies, the highest average ROE was reported by Energa S.A. (1.9%), and the lowest by TAURON Polska Energia S.A. (minus 0.9%).

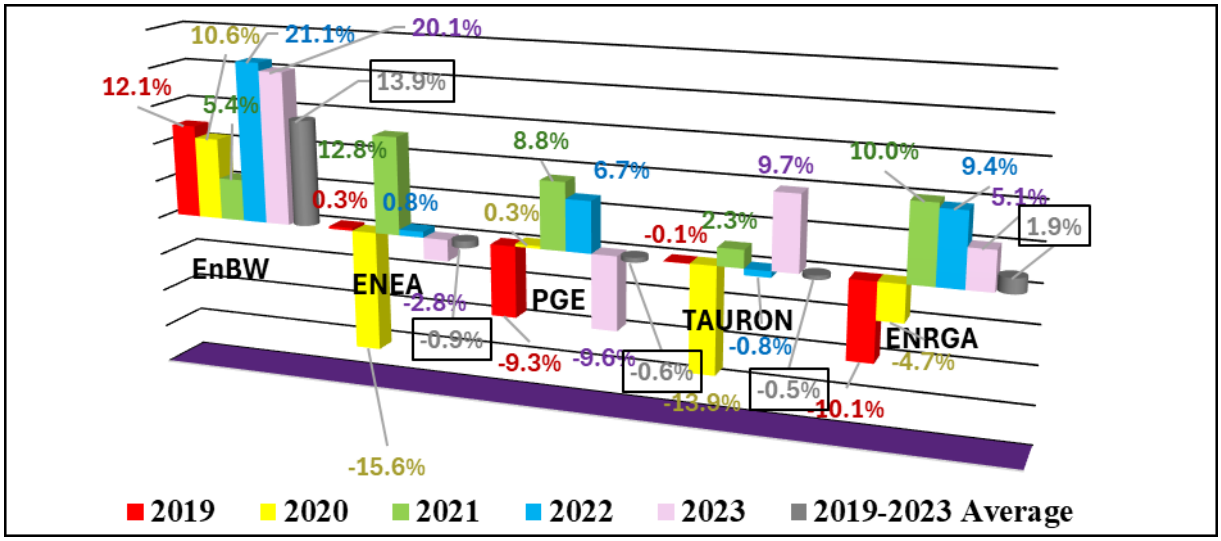

Figure 6. Return on Equity (ROE) ratios in 2019-2023.

Source: Tables 4, 5, 6, 7 and 8; own calculations.

To sum up, the highest values of all profitability indicators (ROCE, ROS, ROA, and ROE) for the period 2019-2023 were reported by EnBW.

Figures 7 and 8 present debt ratios in 2019-2023 and the average values for this period.

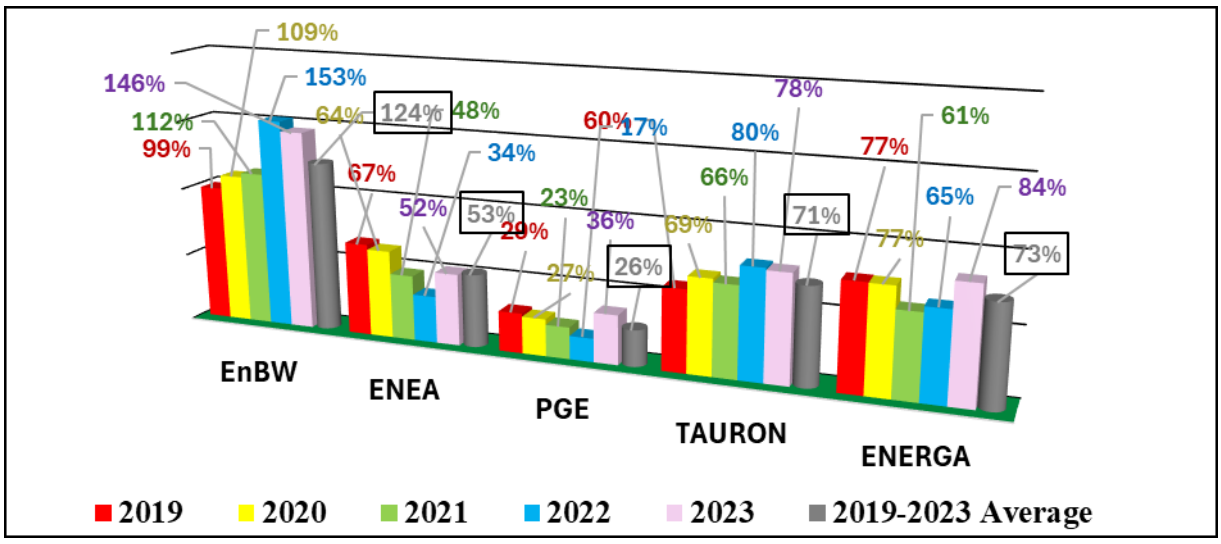

Figure 7. Debt/Equity (D/E) ratios in 2019-2023.

Source: Tables 4, 5, 6, 7 and 8; own calculations.

The data from Figure 7 show that the most indebted company was EnBW, whose average debt amounted to over 100% of the equity in 2019-2023. In turn, the least indebted company was PGE Polska Grupa Elektroenergetyczna S.A., whose average debt in these years amounted to 26% of equity.

Figure 8 presents the Net debt/EBITDA ratios in 2019-2023. The data from Figure 8 shows that the most indebted company in relation to EBITDA was TAURON Polska Energia S.A., whose average Net debt/EBITDA ratio was 2.6. In turn, PGE Polska Grupa Elektroenergetyczna S.A. reported the lowest value of this ratio and it amounted to 0.8.

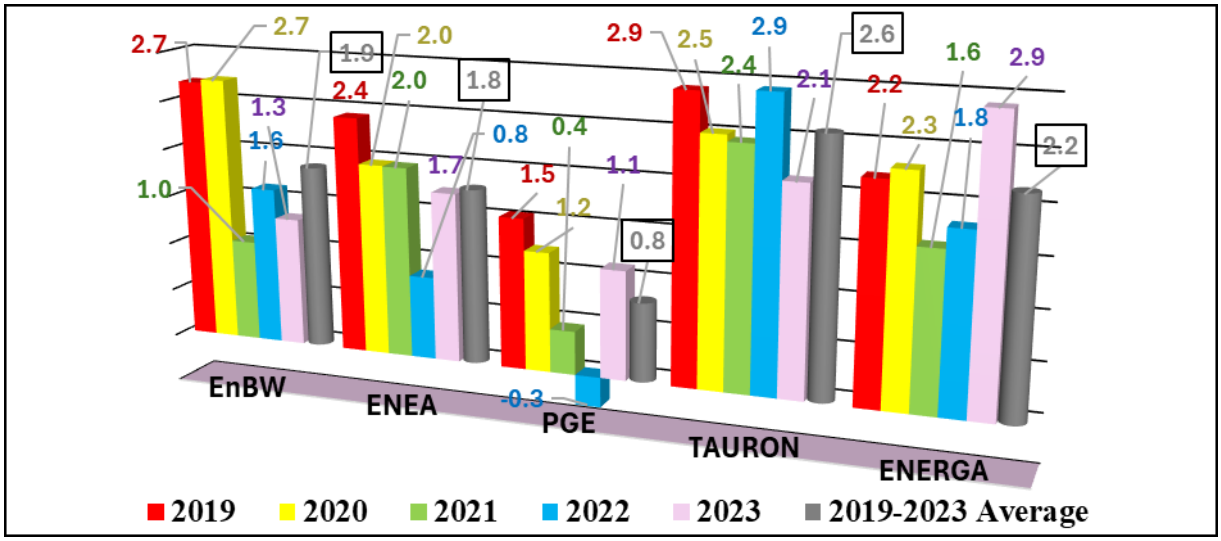

Figure 8. Net debt/EBITDA ratios in 2019-2023.

Source: Tables 4, 5, 6, 7 and 8; own calculations.

The next Figure,9, presents the ratio of investment expenditures (CAPEX/revenue). EnBW recorded the lowest value of the ratio (8%), and the highest value recorded Energa S.A. (15%).

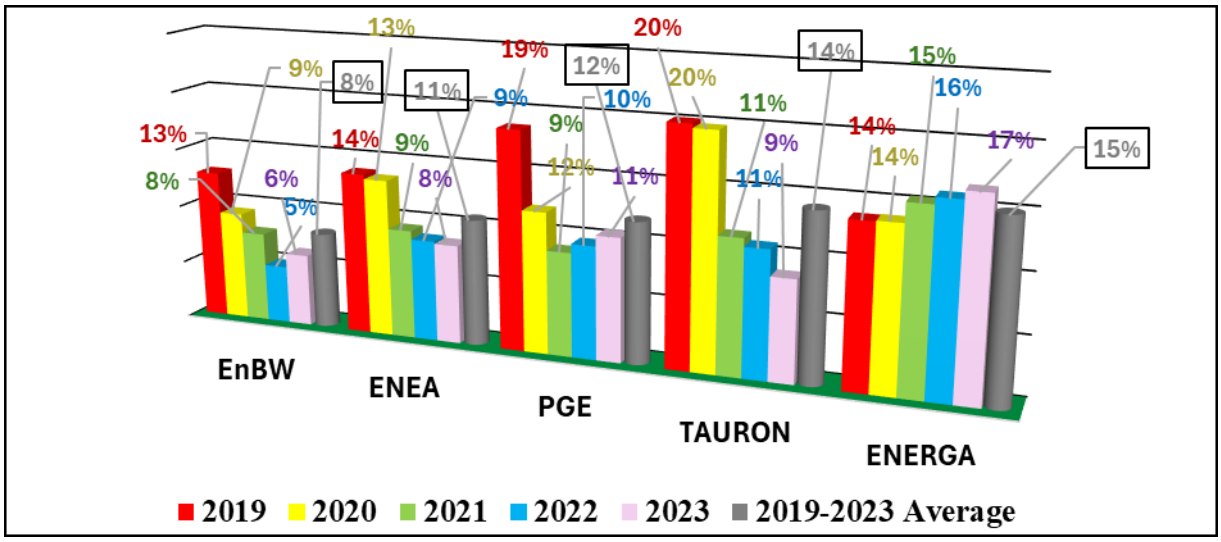

Figure 9. CAPEX/revenue ratios in 2019-2023.

Source: Tables 4, 5, 6, 7 and 8; own calculations.

Figure 10 presents EBITDA per employee in 2019. The highest average value of the ratio (PLN 0.65 million per employee) was reported by EnBW, and the lowest (PLN 0.19 million per employee) by TAURON Polska Energia S.A.

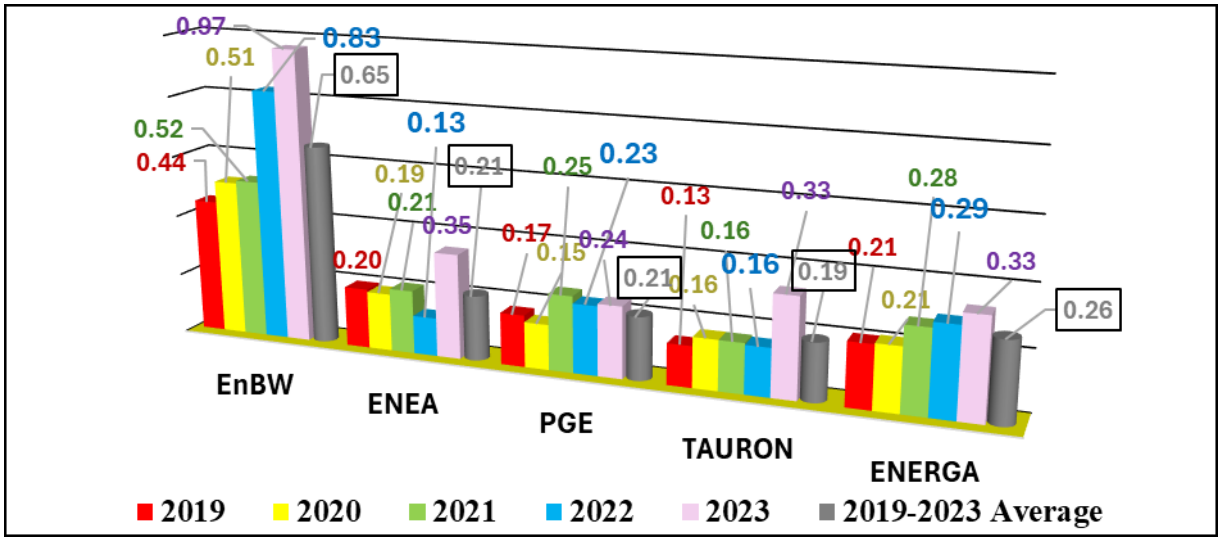

Figure 10. EBITDA per employee ratios in 2019-2023 (in PLN million per employee).

Source: Tables 4, 5, 6, 7 and 8; own calculations.

The next Figure, 11, presents the carbon intensity indicator showing how many kg of CO_2 was emitted during the production of 1 MWh of electricity. The data in Figure 11 shows that in the analysed years the lowest average carbon intensity indicator (413 kg CO_2/MWh) reported EnBW, and the highest (1032 kg CO_2/MWh) reported PGE Polska Grupa Elektroenergetyczna S.A.

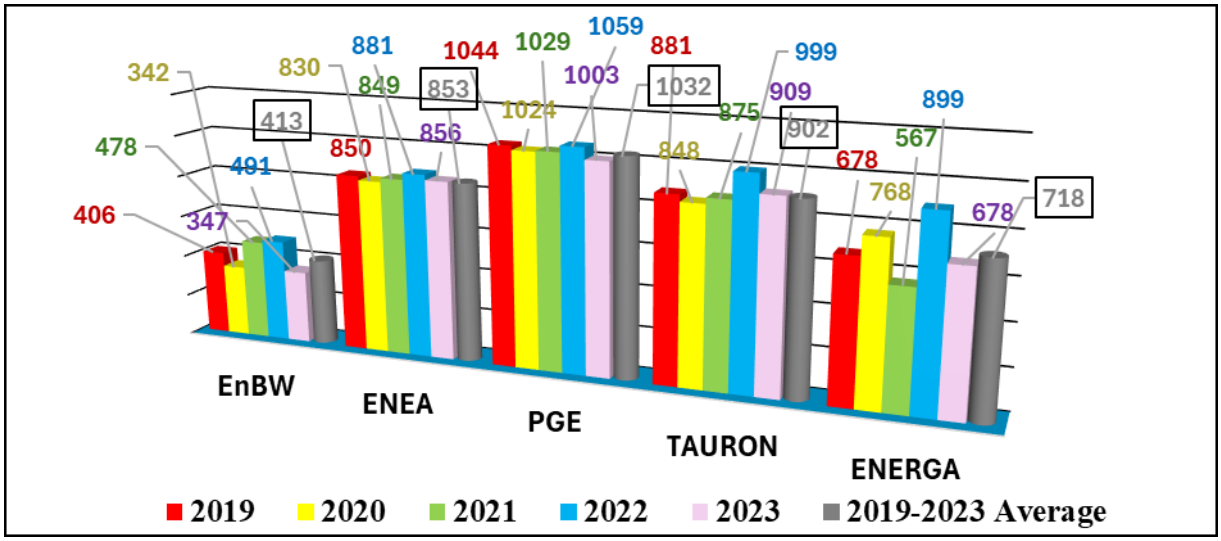

Figure 11. Carbon intensity ratios in 2019-2023, (kgCO_2/MWh).

Source: Tables 4, 5, 6, 7 and 8; own calculations.

According to Directive 2003/87/EC (Directive 2003/87/EC, 2023), power plants emitting CO_2 must settle their emissions by redeeming an appropriate number of allowances. The number of redeemed EU Allowances (EUAs) should be equal to the amount of CO_2 emitted.

The average annual EU Allowances prices in €/t CO_2 on the ICE exchange in 2019-2023 were (PGE Polska Grupa Elektroenergetyczna S.A., 2021 and 2023):

- 24.66 in 2019,
- 24.14 in 2020,
- 53.87 in 2021,
- 80.85 in 2022,
- 83.16 in 2023.

To convert the value in € to PLN, the average annual €/PLN exchange rate provided by the National Bank of Poland was used, which had the following values (NBP, 9.02.2025):

- 4.2980 in 2019,
- 4.4448 in 2020,
- 4.5674 in 2021,
- 4.6869 in 2022,
- 4.5430 in 2023.

The data presented in Figure 12 shows that the highest, average cost of EU Allowances per 1 MWh of electricity produced was reported by PGE Polska Grupa Elektroenergetyczna S.A., which amounted to PLN 251/MWh of electricity. In turn, the lowest cost was reported by EnBW, which amounted to PLN 103/MWh of electricity. The total cost of EU Allowances for EnBW due to difficulties with their description in the financial statements was calculated as the product of emitted tons of CO_2 and the average price of EU Allowances in a given year (PGE Polska Grupa Elektroenergetyczna S.A., 2022-2023). The cost of EU Allowances per MWh of electricity was calculated by dividing the total EU Allowance costs by the number of MWh of electricity produced.

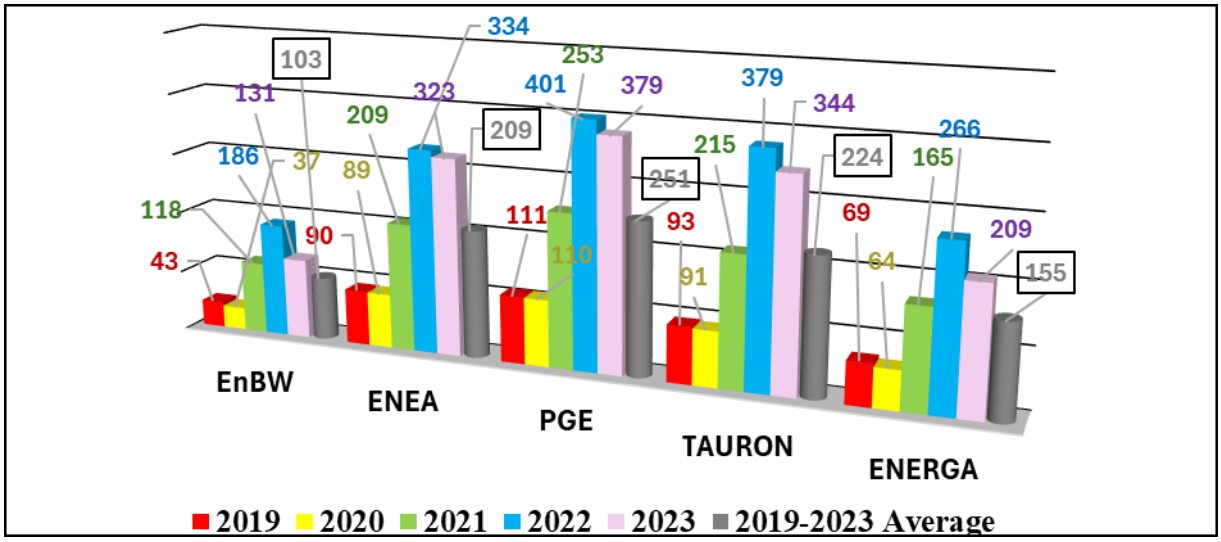

Figure 12. Carbon cost ratios in 2019-2023, (PLN/MWh).

Source: Tables 4, 5, 6, 7 and 8; own calculations.

The share of coal assets in the generation assets of the analysed companies resulted in the need to make write-offs based on the results of impairment tests. In addition, the companies made write-offs of intangible assets, but their amount was insignificant compared to the value

of coal assets (Tab. 3, 4, 5, 6, and 7). Figure 13 presents impairment costs in relation to sales revenues. PGE Polska Grupa Elektroenergetyczna S.A. recorded the highest average value of the impairment costs/revenue ratio and it amounted to 6.2%. EnBW company recorded the lowest average value of this ratio and it amounted to 1.6%. A similar average value of this ratio, 1.8%, was recorded by Energa S.A., which resulted from a lower share of electricity production from fossil fuels compared to the other analysed Polish companies.

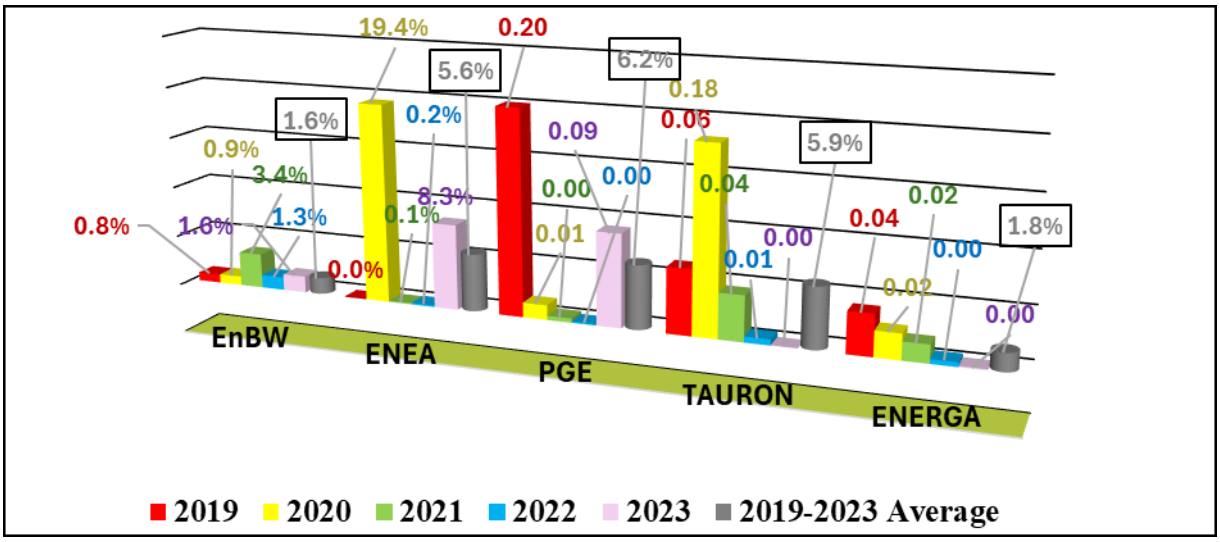

Figure 13. Impairment costs/revenue ratios in 2019-2023.

Source: Tables 4, 5, 6, 7 and 8; own calculations.

High impairment cost result from the large share of electricity production from fossil fuels in the production mix of these companies (Figure 14). Almost all impairment costs related to non-financial assets in the operating segments "Conventional Generation" and "Mining". In addition, the large share of electricity production from fossil fuels resulted in higher CO_2 emissions and thus higher cost of producing 1 MWh of electricity. The data presented in Figure 14 shows that the highest average share of renewable energy in total electricity production (40.6%) was held by Energa S.A. Such a high value of this indicator resulted from the small electricity production by Energa S.A. in comparison to the other companies (Tab. 3, 4, 5, 6, and 7). An equally high average share of electricity production from renewable sources in the total production was recorded by the German company and amounted to 31.3%. The values of these indicators for the remaining 3 companies were lower than 10%.

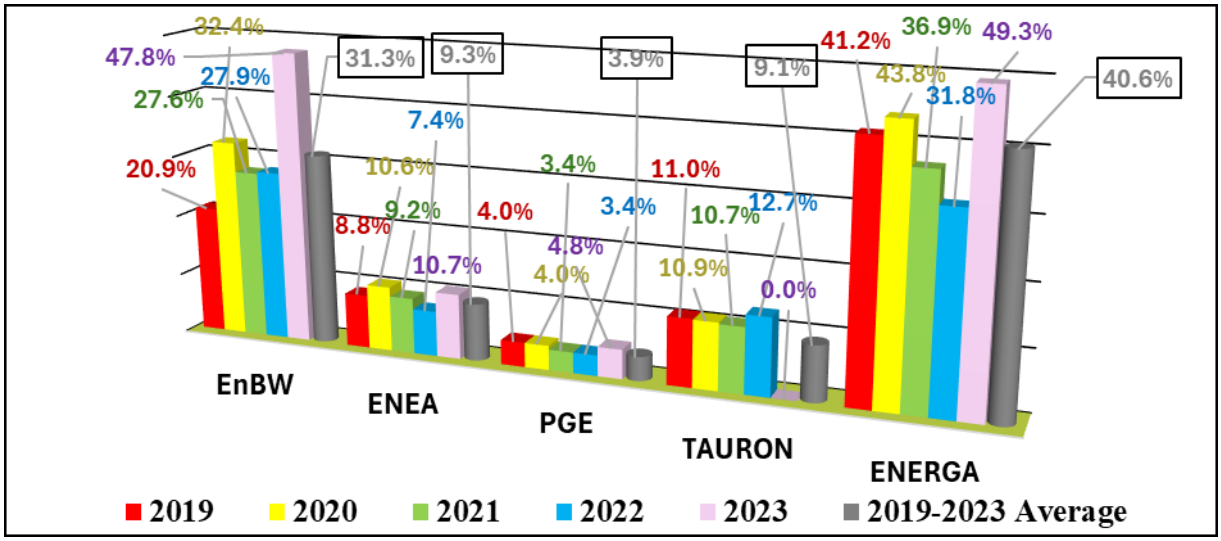

Figure 14. Electricity from renewable resources/total produced net electricity ratios in 2019-2023.
Source: Tables 4, 5, 6, 7 and 8; own calculations.

The next indicator, TSR, indicates the profitability of investing in shares of the analysed companies in 2019-2023 (Figure 15). In the analysed period, the most, 27%, could be earned by EnBW shareholders, and the least by PGE shareholders, minus 1%. Among Polish companies, the highest return on capital was generated by TAURON Polska Energia S.A. and amounted to 19%. The high value of this indicator results from the fact that at the end of 2022, the company sold the "Mining" operating segment to the State Treasury, which basically reported losses every year (TAURON, 23.02.2025).

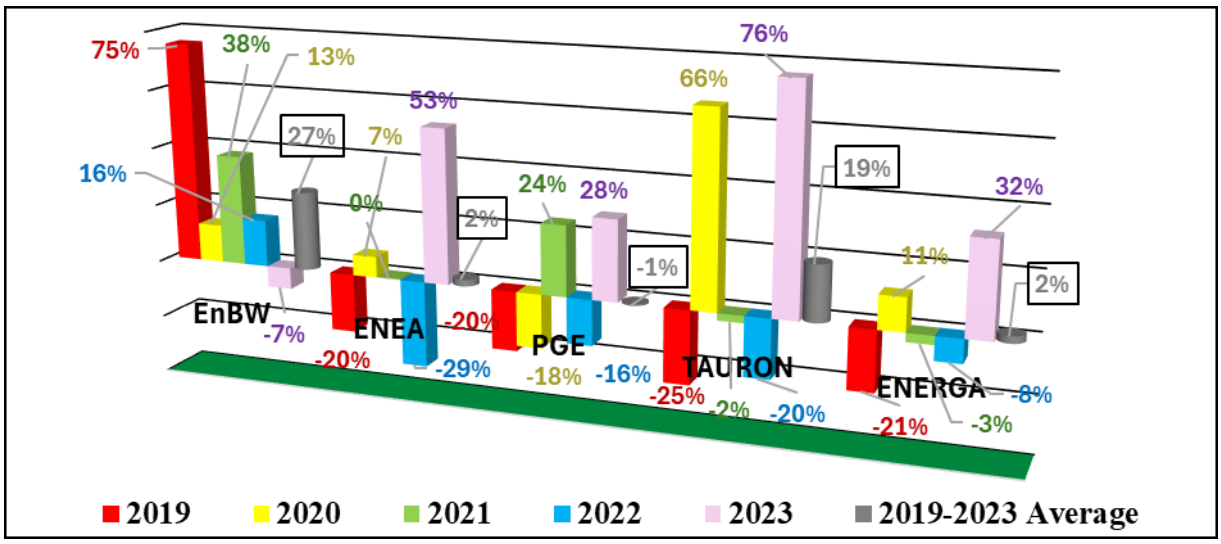

Figure 15. Total Shareholder Return (TRS) ratios in 2019-2023.
Source: Tables 4, 5, 6, 7 and 8; own calculations.

Hypothesis H2 assumed that the lack of dividend payment by the 4 analysed Polish companies in 2019-2023 and the allocation of all profits to reserve capital to finance investments resulted from the weak financial results of these companies and, consequently, a low level of cash and poor creditworthiness.

To test hypothesis H2, financial and non-financial indicators of the 4 Polish SOEs and the German SOE were used. The average values of profitability indicators (ROS, ROA, and ROE) reported by the German company were the highest among the 5 analysed companies. EnBW spent the least on investments in relation to revenue out of all companies, which may indicate a better selection of investment projects. EnBW's better profitability results can be explained, among others, by values of the following indicators:

- electricity production from renewable resources /total electricity production,
- impairment costs/revenue,
- carbon intensity,
- cost of CO_2 emissions,
- sales/employee,
- EBITDA /employee.

Particular attention should be paid to the impairment costs of non-financial assets calculated after performing impairment tests following IFRS 36. According to this standard, the impairment cost ate not a cash expense but only an entry in the account. The aforementioned IFRS 36 allows these entries to be reversed in the future. Table 3 presents the share of impairment costs in the net financial result for the 5 analysed companies. After adding these costs to the financial result, the adjusted net financial result is significantly higher. In the case of EnBW for the period of 5 years, i.e., from 2019 to 2023, impairment costs amounted to EUR 2,843 million, and the net profit of EUR 5,830 million. In PGE Polska Grupa Elektroenergetyczna S.A., impairment costs amounted to PLN 17,165 million, and the net loss was PLN 1,347 million. In turn, Enea recorded a total net loss of PLN 699 million over 5 years, and impairment costs amounted to PLN 7.254 million.

Another company, Energa S.A., reported a net profit of PLN 1107 million and PLN 1126 million impairment costs over 5 years.

The last of the analysed companies, TAURON Polska Energia S.A. reported a net loss of PLN 571 million and PLN 6,374 million impairment costs.

Adding impairment costs to the net result was necessary to show that the financial situation of the analysed companies differed significantly after taking into account those costs that are not cash cost. High CAPEX expenses (Figure and Tab. 3) were possible because the adjusted financial results of these companies were different.

The German company had better financial results (excluding impairment costs), invested less, and paid dividends. Polish companies had worse financial results, invested a lot, and did not pay dividends. The analysis shows that the profitability of their investments was low or negative, and they did not pay dividends, but they could increase debt to pay such dividends.

In turn, the analysis of debt ratios (Figure 7) showed that the most indebted company was EnBW with an average D/E ratio of 124%. In turn, the least indebted company was PGE Polska Grupa Elektroenergetyczna S.A. with an average D/E ratio of 24%. The values of this ratio

indicate that despite the much worse financial results of Polish companies and much higher investment expenditures compared to the German company, their debt was lower than that of the German company. This means that they were able to pay dividends (the German company paid dividends every year) at the expense of increasing debt, but they did not do so. This is confirmed by the Net debt/EBITDA ratio, which indicates whether the company generates an appropriate level of operating profit to pay off its debt. The value of this ratio above 4 or 5 is considered high, although there is a difference in the interpretation of its value depending on the industry. In credit agreements, banks often require that the company does not exceed a specific Net debt/EBITDA ratio (covenants). For example, for Energa S.A., according to the Bond Issue Terms, the Net debt/EBITDA ratio could not be higher than 3.5x (Obligacje.pl, 22.02.2025). The values of this indicator for the Polish companies in 2019-2023 (Figure 8) were lower than 3.5.

To sum up, the suspension of dividend payments by Polish companies in 2021-2023 was not justified by the poor financial results of these companies resulting from the lack of financial liquidity for these payments. Therefore, the H2 hypothesis should be rejected as the financial situation of the analysed 4 Polish SOEs was good enough to spend money on investments and to pay dividends by increasing their debts. Of course, a better solution, supported by the acceptance of hypothesis H1, would be to limit investment expenditure only to profitable projects, which could increase the value of dividends paid.

Table 3.
Analysed companies - financial and non -financial data in 2019-2023

Company	Data	2019	2020	2021	2022	2023	Total
EnBW	Net profit/loss	904	808	441	1 844	1 833	5 830
	Impairment cost	161	171	1 088	712	711	2 843
	Adjusted Net profit/loss	1 065	979	1 530	2 556	2 543	8 673
	CAPEX	2 481	1 827	2 471	2 768	2 740	12 287
	Dividends paid	362	323	159	572	275	1 690
	D/E ratio	99%	109%	112%	153%	146%	n.a.
PGE	Net profit/loss	-3 928	148	3 945	3 390	-4 902	-1 347
	Impairment cost	7 528	654	215	93	8 675	17 165
	Adjusted Net profit/loss	3 600	802	4 160	3 483	3 773	15 818
	CAPEX	7 009	5 495	4 662	7 053	10 088	34 307
	Dividends paid	0	0	0	0	0	0
	D/E ratio	29%	27%	23%	17%	36%	n.a.
ENEA	Net profit/loss	54	-2 234	1 805	119	-443	-699
	Impairment cost	-1	3 521	24	49	3 661	7 254
	Adjusted Net profit/loss	53	1 287	1 829	168	3 219	6 556
	CAPEX	2 181	2 441	1 980	2 591	3 711	12 904
	Dividends paid	0	0	0	0	0	0
	D/E ratio	67%	64%	48%	34%	52%	n.a.
ENERGA	Net profit/loss	-1 001	-444	937	1 009	606	1 107
	Impairment cost	457	309	241	90	29	1 126
	Impairment cost/Net profit/loss	-46%	-70%	26%	9%	5%	102%
	CAPEX	1 574	1 721	2 107	3 260	4 334	12 996
	Dividends paid	0	0	0	0	0	0
	D/E ratio	77%	77%	61%	65%	84%	n.a.

Cont. table 3.

TAURON	Net profit/loss	-12	-2 488	385	-134	1 678	-571
	Impairment cost	1 303	3 700	1 133	214	24	6 374
	Adjusted Net profit/loss	1 292	1 212	1 518	80	1 702	5 804
	CAPEX	4 128	4 039	2 932	3 962	4 364	19 425
	Dividends paid	0	0	0	0	0	0
	D/E ratio	60%	69%	66%	80%	78%	n.a.

Source: Tables 4, 5, 6, 7 and 8; own calculations.

6. Summary

Hypothesis H1 assumed that the lack of dividend payments by the analysed companies in 2019-2023 and allocating all profits to reserve capital to finance investments was detrimental to their shareholders. The Value spread of the 4 Polish SOEs in almost all year was below zero (Figure 2). This means that the ROCE was lower than WACC. One of the main reasons for this, apart from having many coal assets and making write-offs of non-financial assets (Tables 4, 5, 6 and 7), was the investment policy. For example, in 2017, PGE Polska Grupa Energetyczna S.A. purchased coal assets from the French energy group EDF for PLN 4.3 billion, i.e., 5 companies that owned 1 conventional power plant and 8 CHP plants (PGE Polska Grupa Elektroenergetyczna S.A., 2017). Also in 2017, the French company ENGIE sold a coal-fired power plant in Połaniec with a capacity of 1,882 MW to the Enea Group for PLN 1.26 billion (Enea, 14.03.2017). In December 2016, the Energa and Enea Groups signed an agreement for the construction (each with a 50% share in the investment) of the so-called Ostrołęka C Power Plant for over PLN 6 billion. In February 2020, these groups decided to suspend the work. The Energa Group reported that the estimated impact of discontinuing the investment in the so-called Ostrołęka C Power Plant on the consolidated net result of the Energa Group for 2019 amounted to PLN 443 million (Energa S.A., 2020). In turn, Enea S.A. reported that the estimated impact of the decision to discontinue its implementation, as a result of write-offs, on the consolidated net profit for 2019 will amount to approx. PLN 500.9 million (Enea S.A., 2020).

Thus, the companies in the study were buying coal assets while other companies were selling them. Another example of selling coal assets is the Swedish company Vattenfall mentioned in Table 2. The purchases of coal and nuclear assets, mainly in Germany, resulted in a total net loss (mainly due to asset and goodwill write-downs) of SEK 67.6 billion in 2013-2016 (SEK 13.5 billion in 2013; SEK 8.3 billion in 2014; SEK 19.8 billion in 2015 and SEK 26.0 billion in 2016). Thanks to selling these assets (mainly using lignite as an energy source), the company started reporting profits in the following years, including PLN 9.5 billion in 2017 (Vattenfall, 2013-2017).

It was not only investments in conventional energy that were disadvantageous for minority shareholders. Investing in renewable energy is generally quite profitable when a wind or solar farm is built from scratch. In a situation where a company buys an already built and operating unit, the seller realizes the profit, i.e., the price of the farm includes its costs and the added profit. Therefore, the profitability of the investment for the buyer is small, if any. The revenue from wind farms in PLN/MWh of electricity is determined on the basis of the auction price and is indexed annually to the inflation rate with certain restrictions. A small increase in costs or slightly lower wind can result in a decrease in profitability or even losses. Below are 2 examples of the purchase of wind farms by PGE Polska Grupa Elektroenergetyczna S.A.

In June 2022, PGE Polska Grupa Elektroenergetyczna S.A. finalized the purchase of three onshore wind farms (Polska Grupa Elektroenergetyczna S.A., 2022) with a total capacity of 84.2 MW (Radzyń Wind Farm with a capacity of 36.9 MW, Ścieki Wind Farm with a capacity of 22 MW and Jóźwin Wind Farm with a capacity of 25.3 MW). In September 2023, PGE Polska Grupa Elektroenergetyczna S.A., acquired 100% of the shares in LongWing Polska sp. z o.o., the owner of the Zalesie wind farm with a capacity of 24.9 MW (Polska Grupa Elektroenergetyczna S.A., 2023).

To sum up, the investment policy of the analysed 4 Polish power groups was disadvantageous for their shareholders, as they could have better invested the cash from the received dividends. The calculated Value spread ratio below zero confirms hypothesis H1.

The next hypothesis, H2, assumed that the lack of dividend payments by the 4 analysed Polish companies in the years 2019-2023 and the allocation of all profits to reserve capital to finance investments resulted from the poor financial results of these companies and, consequently, low cash levels and poor creditworthiness. The analysed 4 Polish companies reported weaker financial results, e.g., ROS, ROA, and ROE compared to the German company, but had sufficient creditworthiness to increase debt to pay dividends. Their Debt/Equity ratios were lower than those of the German company. In addition, Enea S.A. and PGE Polska Grupa Elektroenergetczna S.A. had a lower Net debt/EBITDA ratio than the German company. At the same time, the value of these indicators were lower than 3.5, i.e., lower than the limit value assumed in the credit agreements of these companies. These facts do not confirm hypothesis H2 as their financial situation was good enough for spending money on investments, and for paying dividends.

In the document "Good Practices of GPW Listed Companies 2021," it is stated that a company should strive to distribute profits by paying dividends. Leaving the entire profit in the company is possible if any of the following reasons apply (GPW, 2021):

a) the amount of this profit is minimal, and as a consequence, the dividend would be insignificant in relation to the value of the shares;
b) the company shows uncovered losses from previous years, and the profit is intended to reduce them;

c) the company justifies that allocating the profit to investments will bring tangible benefits to shareholders;
d) the company has not generated cash to pay the dividend;
e) paying the dividend would significantly increase the risk of violating the covenants resulting from the company's loan agreements or the terms of the bond issue;
f) leaving the profit in the company is in line with the recommendation of the supervising institution.

The residual dividend policy, mentioned at the beginning of the article, assumes that investors prefer not to pay dividends if the company can allocate retained earnings to investments that bring an appropriate return on investment (Brigham, 1997, p. 229). The results of testing hypothesis H1 showed that the retained earnings for investments did not bring an appropriate return on investment. Therefore, point c mentioned above, which states that a company may not pay dividends if it justifies that allocating the profit to investments will bring tangible benefits to shareholders, has not been met.

To sum up, the rejection of the H1 hypotheses and acceptance of the H2 hypotheses leads to the conclusion that the lack of dividend payments by the 4 analysed Polish companies in 2019-2023 was an action to the detriment of their shareholders. State Treasury companies must pay dividends to Polish society, and situations when they do not do so may be exceptional and not drag on for many years. Confirmation of such a conclusion was dividends paid by the German company EnBW.

The poor financial results of the analyzed power groups result from insufficient ownership supervision by state authorities. This resulted in the consent of shareholders representing the State Treasury not to pay dividends. It can be assumed that both the bodies of the analyzed companies and the representatives of the shareholders counted on the establishment by 2022 of a State Treasury company, i.e. the National Agency for National Security (NABE), which was to take over the so-called coal assets from these companies, i.e. the operating segments "Mining" and "Conventional Energy" (GOV.PL, 19.08.2023). After the transfer of these unprofitable assets, the financial situation of these companies would improve significantly, as evidenced by the financial results and share prices from the end of 2023 of TAURON Polska Energia S.A., which sold the "Mining" segment to the State Treasury for PLN 1 at the end of 2022. In Chart 7, the TRS indicator for Tauron Polska Energia S.A. in 2022 was negative and amounted to minus 20%, and in 2023 it was positive - 76%. This was possible because the company's financial result of PLN 134 million in 2022 turned into a profit of PLN 1,678 million. Therefore, for the companies, the creation of NABE meant getting rid of unprofitable assets and improving their final results. At the same time, someone would have to cover these losses and it would be the Polish society. Unfortunately, the hope for the creation of NABE meant that the analyzed companies did little to improve their financial situation and did not pay dividends. Allocating financial resources, among others, to operating segments that were to go to NABE had no substantive justification.

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Appendix

Table 4.
PGE Polska Grupa Elektroenergetyczna S.A. - financial and non -financial data

DATA		2019	2020	2021	2022	2023
PROFIT & LOSS STATEMENT						
Revenue	PLN million	37 627	45 766	52 772	73 435	95 964
EBITDA	PLN million	7 141	5 966	9535	8 657	10 028
Impairment costs	PLN million	-7 528	-654	-215	-93	-8 675
Intangibles	PLN million	-4	0	-28	11	8
PPE	PLN million	-7 524	-654	-187	-104	-8 683
Amortization & Depreciation	PLN million	3 840	3 858	4 143	4 205	4 675
EBIT	PLN million	-4 175	1 408	5 123	4 299	-3 431
Nett profit/loss	PLN million	-3 928	148	3 945	3 390	-4 902
BALANCE SHEET						
Non-current assets	PLN million	65 055	66 239	66 498	71 732	78 340
Current assets	PLN million	12 593	15 089	22 714	34 046	35 103
Cash and cash equivalents	PLN million	1 313	4 198	6 733	11 887	6 033
Total assets	PLN million	77 650	81 594	88 966	105 778	113 443
Equity	PLN million	42 289	42 518	47 494	54 383	47 855
Current liabilities	PLN million	11 826	15 018	21 797	35 296	42 210
Debt	PLN million	12 308	11 465	10 961	9 231	17 154
Net debt	PLN million	10 995	7 267	4 228	-2 656	11 121
OTHER DATA						
CAPEX	PLN million	7 009	5 495	4 662	7 053	10 088
WACC (average)	%	7.0%	7.0%	6.6%	8.3%	8.9%
Share price (at the last trading day)	PLN/share	7.97	6.50	8.06	6.80	8.68
Dividend per share	PLN/share	0	0	0	0	0
EPS - net profit attributable to shareholders of the Parent	PLN/share	-2.12	0.06	2.12	-2.23	1.56
Installed capacity	GW	17 780	17 957	17 791	17 888	17 912
Net generation of electricity, of which	GWh	58 134	58 130	68 771	66 130	56 770
from conventional sources	GWh	55 799	55 803	66 441	63 890	54 040
from renevables sources	GWh	2 335	2 327	2 330	2 240	2 730
CO_2 emissions	(in million t CO_2 eq.)	60.66	59.52	70.75	70.01	56.95
Cost of CO_2	PLN million	3 414	6 200	11 553	20 325	23 714
Number of employees (as of 31.12)	number	41 934	40 141	38 001	38 013	42 552

Source: PGE Polska Grupa Elektroenergetyczna S.A, Financial statements for 2019-2023.

Table 5.

Enea S.A. - financial and non -financial data

DATA		2019	2020	2021	2022	2023
PROFIT & LOSS STATEMENT						
Revenue	PLN million	15 796	18 177	21 275	30 076	44 021
EBITDA (adjusted)	PLN million	3 410	3 302	3 637	2 220	6 298
Impairment costs	PLN million	1	-3 521	-24	-49	-3 661
Intangibles	PLN million	0.2	-130	-4	0	-8
PPE	PLN million	1	-3 391	-20	-49	-3 653
Amortization & Depreciation	PLN million	1 548	1 598	1 539	1 585	1 652
EBIT	PLN million	1 784	-1 706	1 973	578	956
Nett profit/loss	PLN million	54	-2 234	1 805	119	-443
BALANCE SHEET						
Non-current assets	PLN million	23 972	21 768	22 367	23 162	21 637
Current assets	PLN million	9 052	8 122	12 290	14 273	17 474
Cash and cash equivalents	PLN million	3 762	1 942	4 154	1 564	3 026
Total assets	PLN million	32 844	29 890	34 658	37 435	39 111
Equity	PLN million	15 480	13 094	15 202	16 146	15 440
Current liabilities	PLN million	6 509	6 786	11 579	13 589	14 968
Debt	PLN million	10 438	8 386	7 231	5 494	8 073
Net debt	PLN million	6 676	6 445	3 078	3 839	5 338
OTHER DATA						
CAPEX	PLN million	2 181	2 441	1 980	2 591	3 711
WACC (average)	%	6.7%	6.2%	7.5%	10.6%	7.3%
Share price (at last trading day)	PLN/share	7.92	8.48	8.51	6.00	9.17
Dividend per share	PLN/share	0	0	0	0	0
EPS - net profit attributable to shareholders of the Parent	PLN/share	0.96	-5.14	3.83	0.09	-1.33
Installed capacity	GW	6 257	6 257	6 307	6 315	6 368
Net generation of electricity, of which	GWh	25 931	22 482	26 393	26 214	21 344
from conventional sources	GWh	23 653	20 090	23 978	24 265	19 060
from renewables sources	GWh	2 278	2 392	2 415	1 949	2 284
CO_2 emissions	(in million t CO_2 eq.)	22.0	18.7	22.4	23.1	18.3
Cost of CO_2	PLN million	546	1 282	1 926	2 941	5619
Number of employees (as of 31.12)	number	17 291	17 452	17 442	17 571	18 227

Source: Enea S.A., Financial statements for 2019-2023.

Table 6.
TAURON Polska Energia S.A. - financial and non -financial data

DATA		2019	2020	2021	2022	2023
PROFIT & LOSS STATEMENT						
Revenue	PLN million	20 510	20 434	25 605	36 795	50 715
EBITDA	PLN million	3 492	4 226	4152	4 016	6 145
Impairment costs	PLN million	-1 303	-3 700	-1 133	-214	-24
Intangibles	PLN million	1	-7	-6		
PPE	PLN million	-1 305	-3 733	-1 121	-214	-24
Amortization & Depreciation	PLN million	1 992	2 017	2 101	2 216	2 228
EBIT	PLN million	295	-1 537	916	1 069	3 394
Nett profit/loss	PLN million	-12	-2 488	385	-134	1 678
BALANCE SHEET						
Non-current assets	PLN million	35 052	33 585	33 855	35 053	37 353
Current assets	PLN million	6 866	6 111	6 220	10 267	12 445
Cash and cash equivalents	PLN million	1 238	921	815	1 678	1 064
Total assets	PLN million	41 918	39 696	40 075	45 320	49 798
Equity	PLN million	19 093	16 727	16 524	16 614	17 953
Current liabilities	PLN million	7 862	7 102	9 916	10 195	14 269
Debt	PLN million	11 368	11 516	10 944	13 266	14 057
Net debt	PLN million	10 130	10 595	10 129	11 775	12 973
OTHER DATA						
CAPEX	PLN million	4 128	4 039	2 932	3 962	4 364
WACC (average)	%	10.27%	11.08%	9.71%	9.46%	9.42%
Share price (at the last trading day)	PLN/share	1.64	2.72	2.65	2.12	3.73
Dividend per share	PLN/share	0	0	0	0	0
EPS - net profit attributable to shareholders of the Parent	PLN/share	-0.01	-1.24	0.19	-0.08	0.95
Installed capacity	GW	7 374	8 486	8 364	7 257	7 265
Net generation of electricity, of which	GWh	12 604	11 377	14 257	12 738	10 078
from conventional sources	GWh	11 213	10 133	12 731	11 124	10 078
from renevables sources	GWh	1 092	1 391	1 244	1 526	1 6140
CO_2 emissions (electricity production)	(in million t CO_2 eq.)	11.1	9.6	12.5	12.7	9.2
Cost of CO_2	PLN million	671	986	2 147	3 096	3 461
Number of employees (as of 31.12)	number	25 916	25 719	25 333	25 378	18 728

Source: TAURON Polska Energia S.A., Financial statements for 2019-2023.

Table 7.

Energa S.A. - financial and non -financial data

DATA		2019	2020	2021	2022	2023
PROFIT & LOSS STATEMENT						
Revenue	PLN million	11 479	12 496	13 692	20 444	26 087
EBITDA	PLN million	2 039	2 038	2449	2 573	2 885
Impairment costs	PLN million	-457	-309	-241	-90	-29
Intangibles	PLN million	2	-1	0	0	0
PPE	PLN million	-459	-308	-241	-90	-29
Amortization & Depreciation	PLN million	1 079	1 044	1 079	1 134	1 194
EBIT	PLN million	1 203	399	1 463	1 177	1 098
Nett profit/loss	PLN million	-1 001	-444	937	1 009	606
BALANCE SHEET						
Non-current assets	PLN million	18 226	16 939	18 226	21 386	23 329
Current assets	PLN million	2 963	2 729	2 963	5 804	8 350
Cash and cash equivalents	PLN million	340	221	340	1 100	521
Total assets	PLN million	21 238	19 668	21 238	27 248	31 679
Equity	PLN million	9 942	8 779	10 008	11 540	12 442
Current liabilities	PLN million	4 665	4 064	4 065	9 403	12 939
Debt	PLN million	7 661	6 736	6 113	7 504	10 418
Net debt	PLN million	6 200	6 515	5 773	6 404	9 897
OTHER DATA						
CAPEX	PLN million	1 574	1 721	2 107	3 260	4 334
WACC (average)	%	7.4%	6.8%	7.0%	11.6%	8.7%
Share price (at the last trading day)	PLN/share	7.08	7.88	7.65	7.04	9.28
Dividend per share	PLN/share	0	0	0	0	0
EPS - net profit attributable to shareholders of the Parent	PLN/share	-2.30	-0.95	2.34	2.34	1.49
Installed capacity	GW	1.34	1.37	1.37	1.37	1.40
Net generation of electricity, of which	GWh	3.3	3.0	3.9	4.2	3.2
from conventional sources	GWh	2.0	1.7	2.4	2.9	1.6
from renevables sources	GWh	1.4	1.3	1.4	1.3	1.6
CO2 emissions	(in million t CO_2 eq.)	2.2	1.8	2.6	3.0	1.8
Cost of CO_2	PLN million	175	197	584	977	689
Number of employees (as of 31.12)	number	9 883	9 731	8 888	8 781	8 732

Source: Energa S.A., Financial statements for 2019-2023.

Table 8.

EnBW. - financial and non -financial data

DATA		2019	2020	2021	2022	2023
PROFIT & LOSS STATEMENT						
Revenues	€ million	19 436	19 694	32 148	56 003	44 431
EBITDA	€ million	2 245	2 663	2803.5	4 473	5 738
Impairment costs	€ million	-161	-171	-1 088	-712	-711
Intangibles	€ million	0	-3	-118	-336	-102
PPE	€ million	-161	-168	-971	-376	-609
Amortization & Depreciation	€ million	1 649	1 390	1 557	1 615	1 686
EBIT	€ million	597	1 103	159	2 141	3 341
Nett profit/loss	€ million	904	808	441	1 844	1 833
BALANCE SHEET						
Non-current assets	€ million	31 623	33 285	35 233	36 984	39 512
Current assets	€ million	11 645	12 645	35 987	32 512	25 207
Cash and cash equivalents	€ million	1 364	1 253	6 653	6 476	5 995
Total assets	€ million	43 288	45 965	71 273	69 504	64 719
Equity	€ million	7 445	7 769	8 499	8 963	9 309
Current liabilities	€ million	11 103	11 745	34 243	28 670	18 153
Debt	€ million	7 386	8 485	9 554	13 690	13 553
Net financial debt	€ million	6 022	7 232	2 901	7 214	7 558
OTHER DATA						
CAPEX (net cash investments)	€ million	2 481	1 827	2 471	2 768	2 740
WACC (average)	%	5.2%	5.2%	4.9%	6.8%	6.0%
Share price (at the last trading day)	€/share	50.50	56.00	76.00	87.00	79.20
Dividend per share	€/share	0.70	1.00	1.10	1.10	1.50
EPS - net profit attributable to shareholders of the Parent	€/share	0.70	2.20	1.34	6.42	5.68
Installed capacity	GW	13.85	12.49	12.72	13.07	12.23
Net generation of electricity, of which	GWh	47 807	36 629	42 399	42 084	26 552
from conventional sources	GWh	37 819	24 779	30 707	30 340	13 872
from renewables sources	GWh	9 988	11 850	11 692	11 744	12 680
CO_2 emissions (electricity production)	(in million t CO_2 eq.)	10.8	9.5	16.3	17.5	10.9
Cost of CO_2 (own calculations)	€ million	266	230	879	1 419	907
Number of employees (as of 31.12)	number	21 843	23 078	24 519	25 339	26 943

Source: Financial report for 2023.