

Financial Reporting of the Main Electricity Suppliers in the Czech Republic and the Possible Reasons of the Increasing Prices of Energy

Enikő LŐRINCZOVA*, Irena JINDŘICHOVSKÁ and Jitka ŠIŠKOVÁ

Czech University of Life Sciences Prague, Prague, Czech Republic; lorinczova@pef.czu.cz;
jindrichovska@pef.czu.cz; siskova@pef.czu.cz

* Corresponding author: lorinczova@pef.czu.cz

Abstract: In these times of rapidly increasing energy prices many companies and households are questioning why these prices are so high, what are the reasons. The aim of the paper is to investigate the possible reasons of the increased electricity prices based on the reported information in the financial statements of the selected electricity supplier companies in the Czech Republic. Methodology is based on data collection from the relevant legal and other sources and the published annual reports of 7 selected companies. The price of electricity production is based mainly on the price of natural gas, coal and the CO₂ emission allowances. The reported reasons for the increase of the prices of these commodities are mainly the EU regulation on CO₂ emissions, covid and the energy crisis anticipation related to the war conflict. The prices of electricity for the end customer such as households or industries consists of a regulated component (such as a distribution fee) and an unregulated component (prices from the electricity supplier). The government of the Czech Republic introduced a cap on the unregulated component of the electricity prices for 2023 to help the end customers.

Keywords: electricity supply in the Czech Republic; financial reporting; emission allowances; renewable energy; regulation of electricity prices

JEL Classification: M41; Q40; F64

1. Introduction

In these times of rapidly increasing energy prices many companies and households are questioning why these prices are so high, what are the reasons. First of all, the sources of electricity production should be considered. The main sources of electricity production are fossil fuels such as coal or natural gas, nuclear power and renewables such as wind, biofuels, hydro power, solar energy. The source from which electricity is generated is one of the main factors affecting the cost of producing electricity (Mazegue Pavelková & Živělová, 2016). Table 1 shows the production of electricity by source in the European Union in 2020 (Eurostat, 2020). The main source of electricity production in the EU are fossil fuels and nuclear power although it varies in different member states. Most countries which do not have or use nuclear plants rely more on the fossil fuels or in case of favorable natural conditions on renewable energy sources. Fossil fuels are used the most in Malta, Cyprus and Poland (more than 80%), the least in Sweden (0.5%).

Table 1. Production of electricity by source in EU, 2020, in % (Eurostat, 2021)

Production of electricity by source in EU, 2020	Fossil fuels	Nuclear	Wind	Hydro	Biofuels	Solar	Other
EU average	35.6	24.5	14.3	13.5	5.8	5.2	1.0
Malta	88.7	x	X	X	0.3	11.1	X
Cyprus	87.7	x	5.0	X	13.0	6.1	X
Poland	81.3	x	10.0	1.9	5.3	1.2	0.3
Netherlands	68.4	3.3	12.4	X	7.2	7	1.6
Greece	63.3	x	19.3	7.1	0.9	9.2	0.1
Italy	56.7	x	6.7	17.7	7.0	5.9	3.0
Ireland	56.4	x	35.8	3.8	2.9	0.2	0.9
Estonia	49.9	x	13.9	0.5	30.5	4.0	1.2
Czech Republic	48.6	36.9	0.9	4.2	6.4	2.9	0.1
Germany	42.6	11.2	23.0	4.4	8.9	8.6	1.2
Portugal	39.9	x	23.2	25.7	7.1	3.2	0.9
Bulgaria	39.6	40.8	3.6	8.2	4.2	3.6	X
Hungary	37.3	46.2	1.9	0.7	6.2	7.1	0.7
Latvia	36.3	X	3.1	45.5	15.1	0.1	X
Croatia	35.0	X	12.9	43.4	7.3	0.7	0.7
Romania	34.9	20.5	12.4	28.1	1.0	3.1	X
Lithuania	34.3	X	29.2	20.3	11.2	2.4	2.5
Spain	32.9	22.1	21.4	12.9	2.3	7.9	0.4
Belgium	32.3	38.7	14.4	1.5	5.9	5.7	1.4
Slovenia	28.8	37.0	X	30.4	1.6	2.1	0.1
Slovakia	21.5	53.6	X	16.7	5.8	2.3	0.2
Austria	18.0	X	9.4	62.5	6.3	2.8	1.0
Denmark	15.7	X	56.8	0.1	20.6	4.1	2.7
Finland	13.6	33.9	11.6	23.1	16.8	0.3	0.7
France	8.6	66.5	7.5	12.6	1.6	2.5	0.6
Luxembourg	8.2	X	15.7	49.0	16.7	7.2	3.2
Sweden	0.5	30.0	16.8	44.2	6.8	0.6	0.6

In the Czech Republic, the main source of electricity production is coal and coal products, followed by nuclear power. Table 2 shows the decreasing use of the coal and coal products while the other sources such as nuclear power and natural gas had an increasing trend between 2013 and 2021. The use of renewable sources has shown a promising increase in 2015, however, in recent years the use dropped significantly.

Table 2. Production of electricity by source in the Czech Republic in % (OTE, 2022)

Production of electricity by source in CZ	2013	2015	2019	2020	2021
Coal and coal products	46.82	48.46	49.02	42.66	43.89
Nuclear power	36.67	33.13	39.09	40.75	40.41
Natural gas	8.3	6.41	7.74	9.61	9.89
Renewable sources	5.68	11.77	3.9	6.75	5.56
Other sources	2.53	0.23	0.25	0.23	0.25

Wang (2016) proposes these determinants of electricity price fluctuations: exogenous prices (gas, coal and CO2 prices), internal (consumption and generation) and external (net import between neighbouring bidding zones) electricity flows.

As Eckert and Abnett (2022) and also Zamouřil and Krčál (2022) explained, in the EU energy system, the wholesale electricity price is set by the last power plant needed to meet overall demand. Gas plants often set the price. Long-run dynamics of electricity prices are expected to reflect fuel price developments, since fuels generally account for a large share in the cost of generation (de Menezes et al., 2016). Bojnec and Krizai (2021) states that a competitive and efficient electricity market should balance between suppliers' and consumers' market interests as for industries the electricity prices affect competitiveness and for households' electricity prices affect their welfare.

The European commission's report on European electricity markets (2022) stated, that in Q3 2021, prices of coal and gas have been rising to record levels in the spot market. Spot gas prices averaged 48 €/MWh in Q3 2021, that was 91% higher than the previous quarter (Q2 2021) and represent a 522% increase compared to Q3 2020. During mid-October, price reached almost 100 €/MWh at the TTF hub (European Commission, 2022).

The price of CO₂ emission allowances is also a very important factor for the price of electricity. The Emissions Trading System in the European Union was introduced to achieve the climate goal of reducing emissions (Wolff & Feuerriegel, 2019). The European Union Emissions Trading System (EU ETS) is the largest cap-and-trade system in the world. Price instability and allowance oversupply are two characteristics that affect the objectives and the efficiency of this policy (Dimos, 2020). The European commission's report on European electricity markets (2022) stated, that the European market for emission allowances registered important price gains, at the end of September 2021 the closing price was above 64 €/tCO₂, in November around 75 €/tCO₂ and in December a historical 89 €/tCO₂.

2. Methodology

The aim of the paper is to investigate the possible reasons of the increased electricity prices based on the reported information in the financial statements of the selected electricity supplier companies in the Czech Republic. Methodology is based on data collection from the relevant legal and other sources and the published annual reports for the year 2021 of the following selected companies: ČEZ a.s., PRE a.s., E.ON Energie a.s., innogy Energie s.r.o., MND a.s., Centropol Energy a.s., Lama Energy a.s. These companies were selected based on the highest numbers of the points of delivery/transfer (PDT) of electricity to the end customers in 2022. The numbers of PDT are published by the Czech Electricity and gas market operator (Operátor trhu s elektřinou, OTE).

Characteristics of the company focus on the reported information about the ownership structure, profit, operating cash-flow, paid out dividends and on the reported reasons of the rising prices of electricity which is the unregulated part of the price. The price of electricity for end customers include also regulated components which are not reported in the annual reports of the companies and were searched for at the web pages of the regulators of these components which are mainly OTE and ERÚ (the Czech Energy Regulatory Office).

Methods of description and comparison are used. Searching for keywords such as emission allowances or renewable energy were also used in case of the annual reports.

All companies reported the amounts in their financial statements in Czech crowns (CZK). Most companies reported the amounts in thousands, only ČEZ and MND reported in millions. If some specifics or information is not reported directly in the annual reports, the “x” sign is used.

Limitations of the research is its broad range and the limited space for including comparable reported information of the companies from previous years. Limitations also include only a small number of companies therefor statistical evaluation is not possible.

3. Results

3.1. Characteristics of the Monitored Companies, Ownership Structure, Basis of Reporting

The ownership structure of the companies is very complex as most energy companies in Europe co-operate together. There are many intermediary companies between the final owner and the company which are set up mostly to co-ordinate the trading and other activities of the group. The year of foundation of the companies shown in Table 3 is the year when these companies registered in the Commercial Register and this date is reported in their annual reports. However, many of the companies existed even before, most notably ČEZ and PRE. Other companies were known under a different name, for example innogy Energie used to be RWE Energie.

The main electricity supplier in the Czech Republic is ČEZ. The owner of ČEZ is the Czech Republic, represented by the Ministry of Finance of the Czech Republic with nearly 70% ownership. ČEZ, a.s. is the owner of the ČEZ Group. ČEZ shares are traded on the Prague and Warsaw stock exchanges and are included in the PX and WIG-CEE exchange indices (ČEZ annual report, 2021).

The main shareholder in the company PRE is the Capital City of Prague with 51% of ownership through the intermediary company PRE Holdings. However, the controlling owner is indirectly EnBW CEE Germany which is owned by EnBW

MND is owned by KKCG AG and the final beneficiary is reported to be Karel Komárek, one of the most successful businessmen in the Czech Republic.

The number of employees reported vary within the reports, the reason can be the difference between the actual number of employees and the converted number (average recalculated number, required for example by Czech GAAPs). In case of ČEZ, the number of employees is for ČEZ/ČEZ Group.

Suppliers of last resort are energy suppliers which are obligated to take over the end customers in case of a bankruptcy of their original energy supplier. These companies have a distribution network for electricity. In the Czech republic, the electricity suppliers of the last resort are PRE (for the capital city of Prague and vicinity), E.ON Distribution (sister company of E.ON Energy) for the south of the Czech Republic, and ČEZ for the rest.

The accounting standards used for reporting and preparing the financial statements are shown in Table 4. Differences of the used accounting standards may have an effect on the reported leased assets and related liabilities as according to IFRS the leased assets are reported by the user and in the Czech Republic by the owner. Also, reporting in fair value

Table 3. Basic characteristics of the main electricity suppliers in the Czech Republic (Annual reports of the companies, 2021)

Company name	Founded	Legal form	Owner	Number of employees	Distribution of electricity	Supplier of last resort
ČEZ, a.s.	1992	Joint-stock company	The Czech Republic (69.8%)	5,704/28,000	yes	yes
PRE, a.s.	1994	Joint-stock company	EnBW CEE Germany / Capital City of Prague	1,209/1,500	yes	yes
E.ON Energie, a.s.	2005	Joint-stock company	E.ON SE Germany	248/261	yes*	yes
innogy Energie, s.r.o.	1994	Limited liability company	innogy Česká republika / MVM Energetika HU	248	no	no
MND, a.s.	2008	Joint-stock company	MND Group AG / KKCG AG Switzerland	795	no	no
Centropol Energy, a.s.	2002	Joint-stock company	Aleš Graf	318	no	no
Lama Energy, a.s.	2007	Joint-stock company	Lama Energy Group CZ	79	no	no

Table 4. Financial reporting characteristics of the companies in 2021 (Annual reports of the companies, 2021)

Company name	Accounting standards used	Audited	Income statement	EPS reported
ČEZ, a.s.	IFRS	yes	By nature	yes
PRE, a.s.	IFRS	yes	Mix of nature and function	yes
E.ON Energie, a.s.	CZ GAAP	yes	By nature	no
innogy Energie, s.r.o.	CZ GAAP	yes	By nature	no
MND, a.s.	IFRS	yes	By nature	yes
Centropol Energy, a.s.	CZ GAAP	yes	By nature	no
Lama Energy, a.s.	CZ GAAP	yes	By nature	no

Table 5. Reported amounts in the Statement of financial performance (Income statement) of the companies in 2021 (Annual report of the companies, 2021)

Company name	Profit before tax	Income tax due	Profit after tax	EPS	Comprehensive income, net	Revenues from electricity sale
ČEZ, a.s.	5,728M	1,321M	4,407M	8.2	(57,432) M	
PRE, a.s.	2,529,453	204,473	2,324,980	601	3,789,938	21,469,871
E.ON Energy, a.s.	2,823,256	499,710	2,285,481	x	x	30,146,927
innogy Energie, s.r.o.	1,652,340	317,056	1,336,941	x	x	13,525,933
MND, a.s.	345M	60M	285M	3.66T	356 M	11,158M
Centropol Energy	(447,959)	0	(364,985)	x	x	
Lama Energy, a.s.	(175,329)	(4,888)	(141,250)	x	x	1,273,760

may differ. All the monitored companies were audited. Earnings per share (EPS) is reported only by the companies using IFRS.

According to the annual report of Centropol Energy, the company is part of a consolidated group, but the consolidated financial statements are not published however they are available at the company's headquarters.

Table 5 shows the profit or loss of the monitored companies. The amounts are reported in CZK thousand (except of ČEZ and MND). The companies which have no international ownership generated loss. It can be concluded that the rising prices of energy commodities hit them harder. ČEZ generated profit, but the comprehensive income is a significant loss due to the changes in fair value of cash-flow hedges.

The companies report the current and deferred income tax. Table 5 shows only the income tax due (current income tax) which has to be paid.

All these companies sell also gas and therefore it was also monitored if the company reports specifically the revenues only from the electricity sale. It can be seen in the annual reports which company is more focused on the electricity and which on gas. E.ON Energy focus on electricity sales while innogy Energie and MND focus more on gas sale. The reason for it is that MND has its own mining of gas and oil. ČEZ reports revenues from the electricity produced (less payments for solar energy) TCZK 444,368.

Table 6. Other reported data of the companies in 2021 (Annual reports of the companies, 2021)

Company name	Operating cash-flow	Paid out dividends	Receivables, net	Liabilities	Equity	Share Capital
ČEZ, a.s.	59,156M	27.963M	136,039M	994,4462M	116,428M	53,799M
PRE, a.s.	3,472,230	1,674,322	4,361,999	13,079,225	15,431,291	3,869,443
E.ON Energy	2,502,292	1,584	33,848,762	26,693,982	9,482,920	1,676,381
innogy Energie, s.r.o	2,082,035	2,068,053	36,641,723	33,437,181	4,204,982	1,031,131
MND a.s.	(1,118)M	x	7,409M	26,504M	6,460M	1,000M
Centropol	463,048	15,000	3,700,087	3,742,613	1,284,338	3,000
Lama Energy	(113,462)	110,000	1,715,283	2,141,893	238,617	20,000

The main receivables ČEZ a.s. has within the group is to the ČEZ Distribuce a.s. and the main payables are to the ČEZ Prodej a.s. Even though MND reported profit, the operating cash-flow needed for financing day to day business activities is negative. Centropol is the opposite case, loss is reported, but the operating cash flow is positive. Lama Energy reported loss and the operating cash-flow is also negative, but there is still reported paid out dividends. All the companies paid out dividends, except for MND. Also E.ON Energy reported paid out royalties in 2021 but not paid out dividends.

3.2. Renewable Energy, CO2 Emissions, Emission Allowances

CO2 emissions are related to the combustion of fossil fuels in electricity and heat generation and transport.

Table 7 shows the reported electricity production and sales, also the CO2 emission if they are reported. The units of measures are not changed, it is used how it was reported in the annual reports such as TWh, MWh, GWh.

Table 7. Reported electricity production, sales, RES and CO2 emissions (Annual report of the companies, 2021)

Company name	Electricity production	Electricity sold	RES or emission free	CO2 emissions
ČEZ, a.s.	56 TWh	26.8 TWh	33 TWh	0.28 CO2/MWhe
PRE, a.s.		6 TWh	34,186 GWh	0
E.ON Energy, a.s.	129 GWh	15 TWh	3.3 TWh	x
innogy Energie, s.r.o.	x	4,032,762 MWh	x	x
MND a.s.		20 TWh	x	x
Centropol Energy	x	1.3 TWh	x	x
Lama Energy, a.s.	x	0.75 TWh	x	x

Considerable amount of own electricity production is reported only by ČEZ. ČEZ operates the 2 nuclear power plants in the Czech Republic: Temelín and Dukovany. The other companies purchase electricity from other companies (mainly from ČEZ or also from partner companies from abroad in case of innogy) to be sold. ČEZ reported a regular bilateral sale of electricity to PRE and E.ON Energy. Most of the companies also generate or purchase electricity generated by renewable sources such as solar energy and other.

Even though PRE owns photovoltaic and wind plants, the amount produced is not separated from the purchased electricity.

ČEZ generated around 60% of its electricity from emission free sources such as from nuclear power (30,730 GWh), hydro (2,488 GWh), photovoltaic (122 GWh) and wind (8 GWh). ČEZ reported the emission allowances in its assets, divided into non-current and current. MND reportedly actively traded in emission allowances, however there are no specifics revealed in the annual report.

3.3. Electricity Prices for End Customers and Government Interventions in the Czech Republic

The electricity price for the end customers (companies or households) comprises of a regulated and unregulated component. The regulated component of the electricity price is related to the transmission and distribution of electricity which is regulated by the Czech Energy Regulatory Office (Energetický regulační úřad, ERÚ) and also involves payments to the Czech Electricity and gas market operator (Operátor trhu s elektřinou, OTE).

End customers cannot change or influence the regulated part of the electricity price. Only the unregulated part of the electricity price can be influenced by the end customer by choosing or changing their energy supplier.

In the Czech Republic, there are 3 main distributors of electricity: ČEZ Distribuce, E-ON Distribuce and PREdistribuce. Distribution fees vary from distributor to distributor. With this, the Energy Regulatory Office (ERÚ) wants to motivate companies to invest in the

Table 8. Components of the electricity price for end customers (ERÚ, OTE, 2022)

Components of Electricity price for end customers	Regulated component	Regulated by	Can the end customer change it?
Transmission and distribution fees	yes	ERÚ	no
Transmission system operator fees	yes	ČEPS	no
Market operator services	yes	OTE	no
Renewable resources buyout support	yes	Act 458/2000	no
Electricity (including the energy tax and collection point payment)	no	x	Yes, by changing the supplier

network development. This fee also includes the payment for the reserved power based on the main circuit breaker. ČEPS (Česká elektroenergetická přenosová soustava) is the transmission system operator (TSO) for electricity supply in the Czech Republic which balances the supply of electricity with demand on a real-time basis and also maintains the transmission infrastructures. Payment for the services of the market operator is a fee for the Czech Electricity and gas market operator (OTE), which organizes the daily electricity market. The renewable resources buyout support is regulated by the Act 458/2000 Coll. which states in its § 25 point 12 that the operator of the distribution system is obliged, if technically possible, to purchase electricity from renewable energy sources. The purchase price is around CZK 12/kWh (output up to 30 kW) for delivery to the distribution network. However, as a government intervention, the end customers do not pay this fee from October 2022 until the end of year 2023.

The unregulated component of the price is the payment to the electricity supplier company. The end customer can influence it by changing a supplier and also by reducing the consumption of electricity.

Government interventions are focused on the help to the end customers. The decree Nr 298/2022 Coll. states the maximum prices for the supply of electricity. This maximum price is CZK 6,050 /MWh (CZK 6.05 / kWh) including VAT for the unregulated component of the price, i.e. without the distribution fees. This cap is valid from 1.1.2023 until 31.12.2023 for households and government or public institutions and specified industries such as health and social care for 100% of their electricity consumption. For other small or medium size companies the cap covers 80% of their consumption. Also, the fixed monthly payment related to the main circuit breaker is set at CZK 157 per month.

Before the price cap, the government granted help to households in its Decree Nr 262/2022 Coll. where households were given a one-time state allowance called "Economical Tariff" (CZK 3,500 or CZK 2,000, based on the households' distribution rate). This allowance was included in the monthly advanced payments for electricity from 1.10.2022. The planned second economical tariff was cancelled by the Decree Nr 299/2022 Coll. as the government introduced the maximum price caps on the unregulated component of the price instead.

ČEZ a.s. reported the main components influencing the supplier's price (the unregulated component of the price). The main components listed were the prices of energy commodities,

mainly hard coal and gas, and the price of CO2 emission allowances. ČEZ reported (ČEZ, annual report for year 2021): “ Wholesale electricity prices for 2022 in Germany were around EUR 50/mWh (Cal22) at the beginning of 2021 and had increased to around EUR 70/mWh, the main reason being the gradual increase in the emission allowance price. Natural gas prices have then increased significantly since the summer. This was a key reason why electricity prices increased to a record high of EUR 325/mWh in December and closed at EUR 220 /mWh (Cal22).” CO2 emission allowance price (EEX – European Energy Exchange) was 80.7 EUR/t in December 2021 (ČEZ annual report, for year 2021). The other companies reported the reasons such as the increased price of energy commodities, covid and also the war conflict only generally without details.

Table 9. Reported reasons of electricity prices increase (Annual report of the companies, 2021)

Company name	Energy commodity prices	Emission allowance prices	Covid	War conflict	Detailed
ČEZ, a.s.	yes	yes	yes	yes	yes
PRE, a.s.	yes	no	yes	yes	no
E.ON Energy, a.s.	yes	no	yes	yes	no
innogy Energie, s.r.o.	yes	no	yes	yes	no
MND a.s.	yes	no	yes	yes	no
Centropol Energy	yes	no	yes	yes	no
Lama Energy, a.s.	yes	no	yes	yes	no

The main reason of the increased energy prices is the rising price of the energy commodities. The rising prices of the emission allowances was specifically reported only by ČEZ, as it is a producer. Other companies are affected by it indirectly by purchasing electricity from the producers. Some of the companies which listed covid generally also stated that it did not affect them. The war conflict was also mentioned as there is a connection to the rising energy commodity prices through the relevance of the last and most expensive power used for electricity production which is natural gas as mentioned in the introduction.

4. Discussion

The electricity supply and related prices are a complex issue and should be considered in the context of the available sources of electricity, the supply and demand of electricity in domestic and international markets, the available distribution network, government regulations and interventions, the owners’ structure of the company and regulated and unregulated components of the price the end customers pay. Financial reporting may depend on the accounting standards used for preparing the financial statements.

All the sources of electricity production listed by Eurostat such as fossil fuels, nuclear, wind, hydro, biofuels, solar, other (see Table 1) are available and used in the Czech Republic (see Table 2).

The electricity distribution network in the Czech Republic is provided mainly by 3 companies: ČEZ (ČEZ distribuce, a.s.), EG.D, a.s. (formerly known as E.ON Distribuce, part of the E.ON ČR group) and PRE (PREdistribuce, a.s.). The electricity distribution price is

regulated by the Energy Regulatory Office (ERÚ) in the Czech Republic and is a part of the regulated component of the final price the end customer pays.

All the monitored companies prepare and publish annual reports. Most of the owner relationships are very complex. In some cases, there are intermediary companies which own the companies but they are only focusing on managing the shares and are also fully owned by some other company. It may seem that these intermediate companies are unnecessary and their only reported income is received dividends, on the other hand the controlled companies have to report the advantages and disadvantages of being controlled according to the § 82 of Act No. 90/2012 Coll., on business corporations, in the Czech Republic. All the controlled companies reported only advantages such as the know-how and experience, technology used, synergies and an affiliation to a recognized brand.

In the annual reports, some information is given only for a Group and not for the main subsidiaries. The electricity supply and the sources used (and other information) is often for the group and the name of the company is used interchangeably with the group name.

5. Conclusions

The price of electricity production is based mainly on the price of natural gas, coal and the CO₂ emission allowances. The reported reasons for the increase of the prices of these commodities are mainly the EU regulation on CO₂ emissions, covid and the energy crisis anticipation related to the war conflict. The prices of electricity for the end customer such as households or industries consists of a regulated component (such as a distribution fee) and an unregulated component (prices from the electricity supplier). The government of the Czech republic introduced a cap on the unregulated component of the electricity prices for 2023 to help the end customers.

Future research will focus on the comparison of electricity pricing and government intervention with other EU countries and also on the investigation of other reasons of the increase in electricity prices for households.

Conflict of interest: none.

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