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Electricity in Romania: Production, Imports and Sponsorship – a CSR Perspective

Nicoleta-Elena CRISTEA*
Bucharest University of Economic Studies, Bucharest, Romania
**Corresponding author, cristeanicoleta19@stud.ase.ro*

Alula Nerea GEBEREMESKEL
Bucharest University of Economic Studies, Bucharest, Romania
gebremeskelalula20@stud.ase.ro

Abstract. *The current concern for power is justifiable in light of both the ongoing conflict between Russia and Ukraine, and the world's concern over climate change and environmental conservation. The objective of this paper is to quantify changes in Romania's electricity productions and imports, moreover, to identify and classify the types of sponsorship activities of Romanian electricity companies. In this paper, based on data from Eurostat and BP we analyze the import of electricity in Romania between 2011 and 2020, but also the electricity generation from all sources between 1989 and 2021. We also did an analysis of contribution for improving the life of local communities, of few important Romanian companies from the electricity area: Hidroelectrica, Nuclearelectrica and Transelectrica based on their sustainability reports for the year 2021. During the communist period in Romania, between 1985 and 1989, there was an increase of electricity produced, but after the communism, more precisely after the year 1989 there was a huge decrease, more specifically from 1989 to 2021 decreased by 22%, while imports of electricity increased by 2.42 times from 2011 to 2020. From the sustainability reports of the companies analyzed results that the Romanian electricity companies offer a high support to the local communities especially for health area. This paper is unique because it's the first paper where the sponsorship of the Romanian electricity companies was analyzed from a Corporate Social Responsibility (CSR) perspective.*

Keywords: Sustainability Report, Corporate Social Responsibility (CSR), Electricity, Sponsorship, Romania

Introduction

Non-financial reporting is distinct from financial reporting in a number of aspects, including the fact that its introduction is contingent upon whether the company serves the public interest and that its subject matter covers both economic and social indicators (Filyppova et al., 2021). As an ethical part of corporate social responsibility, all businesses should carryout themselves according to the principles of sustainable development, which are based on the preservation of the environment, respect for others, and the desire for future generations to be able to equally benefit from the planet's natural resources that are kept in good condition (Artene et al., 2020).

Romanian government tried to establish a limitation of the consumption of electricity by establishing prices according to a low or high consumption per house. But this was not a good idea since for example in Romania it is possible that in one small apartment with 2 rooms to habit 4-5 people (grandfather, grandmother, mother, father and child). This will generate more need for consumption: more clothes to be washed, more food to be cooked, more hot water, more gadgets, and so on.

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In this article we tried to talked about the electricity under the nowadays energy crisis produced by the war between Russia and Ukraine, more precisely we tried to look at how much production is in Romania and look at electricity from a non-financial perspective, i.e. how much Romanian electricity companies support local communities.

RQ1 What is the level and types of sponsorship activities of Romanian electricity companies?

RQ2 What is the level of production and imports of electricity in Romania?

This paper is divided into five sections. After the introduction, the theoretical underpinnings are reviewed. The third section contains information about the data and the methodology. In the fourth section, the results and an empirical analysis are presented. In the final section, the study's conclusions and key findings are presented.

Literature review

Non-financial reporting

In Europe, the path for the NFRD (non-financial reporting disclosure) was a democratic sequential process led by the EU Commission, based on interaction with stakeholders, in accordance with stronger regulations principles, the transparency of the reporting directive, evidence-based, and supported by citizen and stakeholder input (Tiron-Tudor et al., 2020).

The fact that Romania was the first European nation to ratify the Kyoto Protocol at the United Nations Framework Convention on Climate Change deserves to be emphasized (UN FCCC) (Jindrichovska & Purcarea, 2011).

The first pieces of basic and secondary environmental legislation were passed, and various institutions within the executive and legislative structures (ministerial, parliamentary committees) were established beginning in Romania in 1989 (Jindrichovska & Purcarea, 2011).

Starting with the financial year beginning on January 1, 2017, European Union-based organizations must comply with the European Directive 2014/95/EU on the publication of non-financial and diversity information by certain significant undertakings and groupings. (Dumitru et al., 2017). Most countries have adapted the European Directive, which means that every country has taken a unique approach to regulating and implementing the Directive's goals (Milu, 2018). According to Directive 2014/95/EU, in Romania, companies with more than 500 employees were demanded to provide a sustainability report to reveal the company's impact on the economy, which is its responsibility for its employees, society, and the environment (The European Parliament and the Council, 2014).

The CSR concept arose as a result of a shift in business thinking, from a closed model primarily focused on profit maximization to an open one primarily concerned with quality of life, resource protection, and meeting society's general interests (Popa, 2015). CSR reporting was initially influenced by stakeholders other than the State due to its voluntary nature (Guşe et al., 2016). It is a given that the social responsibility elements will be the conditioning factors of the enterprise's future performances if policies are approached with the goal of achieving long-term global performance (Dobrea & Dinu, 2012).

Electricity

Energy usage studies has been crucial in recent times to the political and economic discussions on climate change and global warming (Pablo-Romero et al., 2022). Consumer electricity prices are

35% higher in 2022 than in 2021, in the EU (Council of the European Union, 2022). The wholesale price of electricity in the EU's internal market is directly related to the price of gas, which is mostly imported, and Russia's deliberate reduction of Russian gas is the principal reason for the recent skyrocketing gas prices in the EU, which has impacted the price of electricity produced in gas-fired power plants and influenced electricity prices overall (Council of the European Union, 2022). Energy firms are gradually transitioning from fossil-based asset portfolios to renewable resources sources generation capacities (Dragomir et al., 2022). Some owners, asset managers, and portfolio companies have expressed concern about whether the short-term course of their green transition may need to be changed in light of the effects of the conflict in Ukraine on energy supplies, security, and pricing (PwC, 2022).

Electric vehicles are a prime illustration of the potential advantages that widespread adoption of energy storage technology could have for a country (McLarnon & Cairns, 1989). Fast-evolving practices in the leisure and home entertainment sectors are leading to new ways of using electricity and passing time (Shove & Gordon, 2014). Since electric vehicles don't generate any pollutants, emissions are transferred from utility central generating stations, which are much easier to manage and regulate, to the vehicle's tailpipe, where they are very difficult to control and regulate (McLarnon & Cairns, 1989). As a result of the major downturn in business activity, global greenhouse gas emissions fell by roughly 4,5 percent in 2020 compared to 2019, releasing the equivalent of 50 billion tons of carbon in lieu of 52 billion. (Gates, 2021).

A power outage in the 1950s would have an effect on office work by impairing lighting and ventilation systems, and people would have to go home at sunset, but typing and filing would continue as usual, but today a power outage would bring much of what defines office activity to a standstill (Shove & Gordon, 2014).

The statistics from 2019, from International Energy Agency website shows that in Romania the energy production (TJ) decreased by 39,35% from 1990 and total primary energy supply (Mtoe) decreased by 46,85% from 1990 (International Energy Agency, 2019), and the same report shows that the electricity final consumption decreased by 19,48% and CO2 emissions decreased by 58,33% from 1990 (International Energy Agency, 2019).

In 2015, Romania ranked 27th out of 138 nations in terms of power output from renewable sources, with 9569 million kWh, whereas the United States ranked first with 317420.99 million kWh, China ranked second with 283851 million kWh, and Germany ranked third with 168389 million kWh (The Global Economy.com, 2015).

Traditional fuels including firewood, candles, and animal power were eventually replaced by steam power, electricity, and gas, so this reduced the likelihood of fires, enhanced interior air quality, boosted wintertime comfort in homes, and reduced the possibility of health concerns associated with animal waste. (Wilkinson & Markandya, 2007).

Lack of access to electricity remains one of the greatest obstacles to the realization of human potential and welfare, since it is a necessary condition for the accomplishment of health (Wilkinson & Markandya, 2007).

The essential necessity of the green economy is that it provide food, water, and energy security for all, a demand that is being challenged by climate and land-use change, as well as its major impact—more volatile and less secure water resources (Frone & Frone, 2015). In his book "How to Avoid a Climate Disaster - The Solutions We Have and the Breakthroughs We Need", Bill Gates (2021) discusses the solution to the problem of climate change, and he believes we need three things: first, ambition, second, big goals for solving the problem, and third, the missing element, a solid plan to achieve our goals.

With the entry into force of Emergency Ordinance no. 143/2021 for the amendment and completion of the Electricity and Natural Gas Law no. 123/2012, as well as the amendment from some normative acts, universal service offers are addressed to only domestic electricity customers beginning January 1, 2022 (ANRE, 2022).

Despite the fact that nuclear power offers one of the lowest levels for greenhouse-gas emissions per unit electricity output and one of the lowest levels of direct health consequences, there are valid concerns about nuclear accidents, the use of fissionable material in weapons, and waste management (Wilkinson & Markandya, 2007).

Creating electricity only produces 26% of total greenhouse gas emissions (Gates, 2021).

Despite a rise of 4.8% in 2021, EU GHG emissions are still 4% lower than in 2019 (Enerdata, 2022).

Electricity in Romania

Before the most well-known European capitals, *Bucharest became the first city in the world to be illuminated by oil lamps on April 30, 1857*, and because the oil used was distilled in the first industrial refinery, the gas factory in Ploiesti, *Romanian oil became the first fuel entered into the commercial circuit* (SC Electric Competence SRL, 2022).The electricity in Romania has a history of 141 years.

In 1882, the same year that Thomas Alva Edison opened the first power plant in the world in New York, in Bucharest, the first power plant was installed (Transelectrica, 2022). *Timisoara***,** an important Romanian city in the country's western region, *became the first city in Europe to use electric street lighting in 1884* (Transelectrica, 2022). On December 9, 1894, the first electric trams in the country were put into circulation in Bucharest (SC Electric Competence SRL, 2022). In 1913 - on the route Arad - Ghioroc - Pincota - Radna, the first electrified railway appeared in Romania, the first in South-Eastern Europe and the eighth in the world (SC Electric Competence SRL, 2022).

In the years 1930-1931, the electric distribution network on reinforced concrete poles was put into operation (SC Electric Competence SRL, 2022). Until 1939, the production and use of electricity expanded throughout the country (SC Electric Competence SRL, 2022). The "Electrica" factory in Sibiu started generating electricity for the "Sadu I" hydropower plant in 1896 (Transelectrica, 2022).

The electricity markets in Romania operate in accordance with the European regulations on the internal energy market, by which they are established requirements related to the development of energy from renewable sources, environmental policy, integration balancing markets, as well as the interconnection of energy systems, respectively: Directive 944/2019 of the European Parliament and of the Council on common rules for the internal electricity market and amending Directive 2012/27/EU, and Regulation 943/2019 of the European Parliament and of the Council regarding the market domestic electricity (National Energy Regulatory Authority (ANRE), 2021).

Sponsorship

The sponsorship is a component of corporate communications; an integrated communication strategy is recommended for the best investment advice (Chebli & Gharbi, 2014). Management accounting techniques have the potential to be particularly significant in the sponsorship environment because they offer a discipline that calls for the conversion of a sponsorship vision and approach into financially based terms (Delaney & Guilding, 2010). Legal entities that are registered as corporate income tax payers and that make sponsorships in accordance with the

applicable laws may be eligible for a tax credit (deduction from the company income tax due) for these expenses, which means that a portion of the tax owed to the state budget is transferred to the entities sponsored (KPMG, 2020). Quarterly deductions for sponsorships are allowed from the owed profit tax at the level minimum values between: 1. the amount determined by applying 0.75% of turnover; and 2. the amount equal to 20% of the owed profit tax (ANAF, 2022).

Research methodology

The data was gathered through a content analysis of companies' annual financial and non-financial reports and from the Eurostat database, BP. We used Secondary Data Analysis. We used descriptive research. The period used for import is 2011-2020. The period used for production of electricity is between 1985 to 2021.

The period used for analysis of sponsorships is the year 2021. The sources for sponsorships were: Annual Financial reports for the year 2021, the sustainability reports for 2021 and the sponsorship reports of 2021 for all 3 companies, so we analyzed in total 9 documents. We tried to find other Romanian companies for electricity but from what we checked we didn't find all that we needed.

The research employed descriptive research statistics to assess and understand the current level of enterprises commitment to support the local community. We used percentage, ratios and variance to analyze the research questions.

The main questions for our research are: *What is the level and type of sponsorship activities of Romanian electricity companies?* and *What is the level of production and imports of electricity in Romania?*

The significance of this study comes from the specific activity of enterprises that are required to prepare periodic financial statements, and also from financial practices in Romanian enterprises in terms of sustainability. The significance is to get a bigger picture of how those companies discharge their social corporate responsibility. This could help government policy makers to assess the commitment and evaluate contribution of those enterprises in addressing societal challenges. The study's conclusions may be useful for establishing energy policies that can respond to market changes and for helping to create programs for increased production of electricity.

Research results and discussions

We make an effort to quantify changes in Romania's electricity production and imports. Another objective is to identify and classify the level of support of local communities from the electricity Romanian companies.

Descriptive characteristics of the entities analysed in the research

The sources from this section are: the companies' websites and their Financial and Non-Financial Reports.

Transelectrica S.A.

In accordance with Romanian Government Ordinance No. 627/July, 31, 2000, the National Power Grid Company - Transelectrica (joint stock state-owned company) was established by dividing the former vertically integrated National Electricity Company into different legal entities:

- SC TERMOELECTRICA SA for electricity and heat generation

- SC HIDROELECTRICA SA for electricity generation
- SC ELECTRICA SA for electricity distribution and supply
- CN TRANSELECTRICA SA for electricity transmission, power system operation and dispatching

As a result, the activities related to generation, distribution, and supply were entirely separated from the transmission and system services. Technically speaking, Transelectrica continued to operate as the sole operator of the electric power system, which remained a unitary entity.

Romania's Transmission and System Operator (TSO), Transelectrica, is a significant player on the country's power market, is a member of ENTSO-E (European Network of Transmission and System Operators for Electricity), oversees and runs the electrical transmission network and offers the electricity exchanges between the nations of central and Eastern Europe.

The security of the Romanian power system is ensured by Transelectrica, which is in charge of energy transmission, system and market operation, grid and market infrastructure development, and system and market security. Additionally, by constantly balancing power generation with consumption, it acts as the primary link between the supply and demand for electricity.

Transelectrica's stock has been listed on the Bucharest Stock Exchange since August 29th, 2006, under the category Premium and ticker TEL.SN "Nuclearelectrica" S.A. The beginning of the company's long-term engagement with its shareholders starts with its listing on the Bucharest Stock Exchange.

"Nuclearelectrica" S.A.

SN "Nuclearelectrica" S.A. is a Romanian company, registered since July 2, 1998 at the Trade Register of the Chamber of Commerce and Industry. SNN SA is under the authority of the Ministry of Energy, the state holding 82.49% of the shares and other shareholders, 17.50%, after the company's listing on the stock exchange in 2013. The main fields of activity of SNN S.A. focuses on the production of electricity, heat and nuclear fuel.

The two nuclear reactors at Cernavoda generate 33% of Romania's total clean energy production and help the country accomplish its decarbonization goals by preventing 170 million tons of CO2 from entering the atmosphere since their construction (10 million tons of CO2 are averted annually). The Sustainability Report from 2021 has 234 pages. The auditor for 2021 is Mazars. (Societatea Nationala Nuclearelectrica SA, 2022) (Societatea Nationala Nuclearelectrica SA, 2022)

SPEEH Hidroelectrica S.A.

Hidroelectrica is a Romanian company, a leader in electricity production and the main provider of hydroelectricity and technological services needed in The National Energy System, being a vital company for a strategic sector, with safety implications national. Hidroelectrica, the largest energy producer in Romania, controlled by the Romanian state through the Ministry of Energy in percentage of 80.06% and by Fondul Proprietatea in percentage of 19.94%. In an average hydrological year, Hidroelectrica provides approximately 30% of the total national electricity production, being Romania's main energy provider and the main source of hydro energy (Fondul Proprietatea, 2021).

Before 2021 Hidroelectrica didn't sell the electricity directly to natural persons, and because the selling price is very low, they are an important player. Hidroelectrica charges 4% per day for

natural individuals and 8% per day for legal persons in interest when invoices are not paid on time. The auditor for 2021 is KPMG.

Sponsorship analysis

Hidroelectrica and Transelectrica chose to contribute more in health, and Nuclearelectrica in Education, social, cultural and sport. The last choice for Hidroelectrica was the environment which looks normal since their activity does less damage to the environment, compared with the activity of other electricity companies. Transelectrica didn't mention the support of the environment but this could be covered by other actions and activities.

Table 1. Financial indicators of Hidroelectrica, Nuclearelectrica and Transelectrica

Indicators	Hidroelectrica, Unique registration code: 13267213	Nuclearelectrica, Unique registration code: 10874881	Transelectrica, Unique registration code: 13328043
Currency	Lei	Lei	Lei
Indicators from the Situation of Assets, Liabilities and Own Capital			
Fixed Assets - Total	18,369,170,988	6,111,164,873	3,933,367,624
Current Assets - Total, of which	4,311,759,691	3,503,860,786	3,303,160,616
Stocks (raw materials, materials, fixed assets held for sale, production in progress, semi-finished products, finished products, goods, etc.)	56,749,414	570,171,458	39,939,697
Receivables	890,299,249	287,316,329	3,010,995,777
Cash and bank accounts	1,038,653,741	868,116,999	252,225,142
Deferred expenses	5,334,551	10,419,500	5,799,817
Liabilities	2,401,765,004	816,243,784	3,300,561,507
Deferred revenue	240,609,244	76,815,544	475,015,236
Provisions	890,984,647	367,124,504	111,649,341
Capital - Total, from wich:	19,152,906,335	8,365,261,327	3,355,101,973
Subscribed capital paid	4,484,474,670	3,016,438,940	733,031,420
Indicators from the Revenue and Expediture Situation			
Turnover	6,335,390,471	3,118,375,073	3,702,629,233
Total Revenues	6,647,972,118	3,249,866,600	3,762,017,553
Total Expenses	3,109,486,923	2,045,773,298	3,760,139,664
Gross Profit	3,538,485,195	1,204,093,302	1,877,889
Net Profit	3,019,511,168	1,036,261,626	449,891
Other indicators			
Average number of employees for the year 2021	**3300**	**2002**	**2015**
Type of activities according to Classification of Activities in the National Economy	**Electricity production**	**Electricity production**	**Electricity transport**

Sources: Authors' own research (Ministerul Finantelor, 2022)

Table 2. Corporate Social Responsibility - Hidroelectrica, Nuclearelectrica and Transelectrica

Corporate Social Responsibility (CSR)	Hidroelectrica, Unique registration code: 13267213	Nuclearelectrica, Unique registration code: 10874881	Transelectrica, Unique registration code: 13328043
	Currency - Lei	Currency - Lei	Currency - Lei
Education, Social, Cultural and Sport	1,865,000	4,590,718	680,000
Health	11,320,100	3,485,499	838,863
Environment	50,000	845,450	
Other actions and activities	386,489	335,177	181,137
Total values	**13,621,589**	**9,256,844**	**1,700,000**

Sources: Authors' own research (SPEEH Hidroelectrica SA, 2022) (Nuclearelectrica SA, 2022) (Transelectrica, 2022)

Based on the information from those 3 Romanian electricity companies, we see that most of the contribution was on health with 64% from total sponsorship; then, in Education, social, cultural and sport, meaning 29%. The fourth with much lower amount meaning 4% in other actions and activities and the last one, close to the fourth, in environment with 3%. We can see that the environment is the last choice for those companies.

Since Romania has placed bottom in the European Health Consumer Index (EHCI) in the research regarding 35 countries for consecutive years – i.e. in 2014 on the last place, 35 (Health Consumer Powerhouse, 2014), in 2015 on 32 (Health Consumer Powerhouse, 2015), in 2016 on 35 (Health Consumer Powerhouse, 2016), in 2017 on 34 (Health Consumer Powerhouse, 2017) and in 2018 on 34 (Health Consumer Powerhouse, 2018) – this choice of those companies for a higher contribution for improving health, looks normal for us.

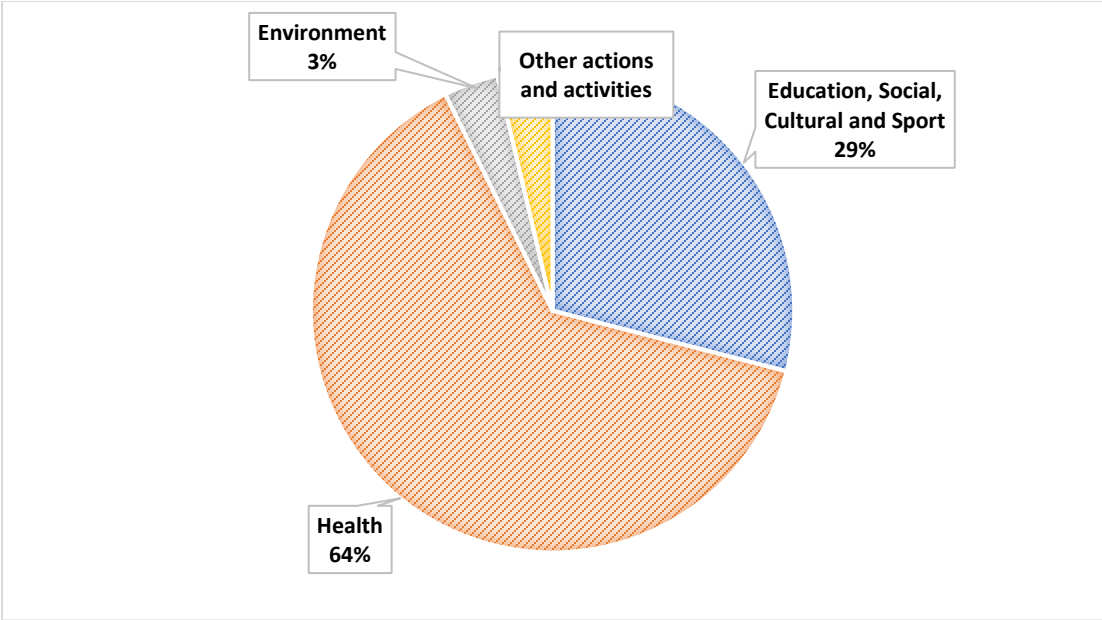


Figure 1. The activities sponsored by Hidroelectrica, Nuclearelectrica and Transelectrica

Source: Authors' own research.

Table 3. Indicators for Hidroelectrica, Nuclearelectrica and Transelectrica

Indicators	Hidroelectrica	Nuclearelectrica	Transelectrica	Total
Turnover (Currency EUR)	1,280,368,317	630,216,664	748,293,129	2,658,878,110
Total Revenues (Currency EUR)	1,343,540,373	656,790,809	760,295,377	2,760,626,558
Gross Profit (Currency EUR)	715,119,984	243,344,577	379,517	958,844,079
Total sponsorship (Currency EUR)	2,752,893	1,870,788	343,566	**4,967,247**
%Sponsorship / Turnover	0.22%	0.30%	0.05%	0.19%
%Sponsorship / Total Revenues	0.20%	0.28%	0.05%	0.18%
%Sponsorship / Gross Profit	0.38%	0.77%	90.53%	0.52%

Source: Authors' own research

In Romania, it's mandatory to present reports in the national currency, LEI, so for transforming from LEI to EURO we used the exchange rate from December 31, 2022, which was 4.9481 LEI for 1 EURO. Just those 3 companies analysed in our paper contributed almost 5 million EURO to improve the life of local communities.

We really appreciate the activity and the history of all 3 companies analysed. Nuclearelectrica offers clean energy. Hidroelectrica, Romania's largest energy provider and source of hydro energy, produces around 30% of total national electricity production in an average hydrological year (Fondul Proprietatea, 2021).

Hidroelectrica invested in a new software and because of this, the invoices were not issued for several months, so our recommendation is to take care of invoicing and collecting. We believe that the interest charged by Hidroelectrica for non-payment of invoices on time are huge: 4% for each day for natural persons and 8% each day for legal persons. Due to global warming and increasingly warmer winters in Romania, the water flow could be lower and lower, so this should be taken into account when Hidroelectrica makes future forecasts.

We didn't check all the requirements for both Nuclearelectrica and Transelectrica, but the Sustainability reports for 2021 look good.

Imports of electricity

Imports of electricity in Romania increased by 2.42 times from 2011 to 2020, respectively from 3410.000 to 8251.648 Gigawatt-hour.

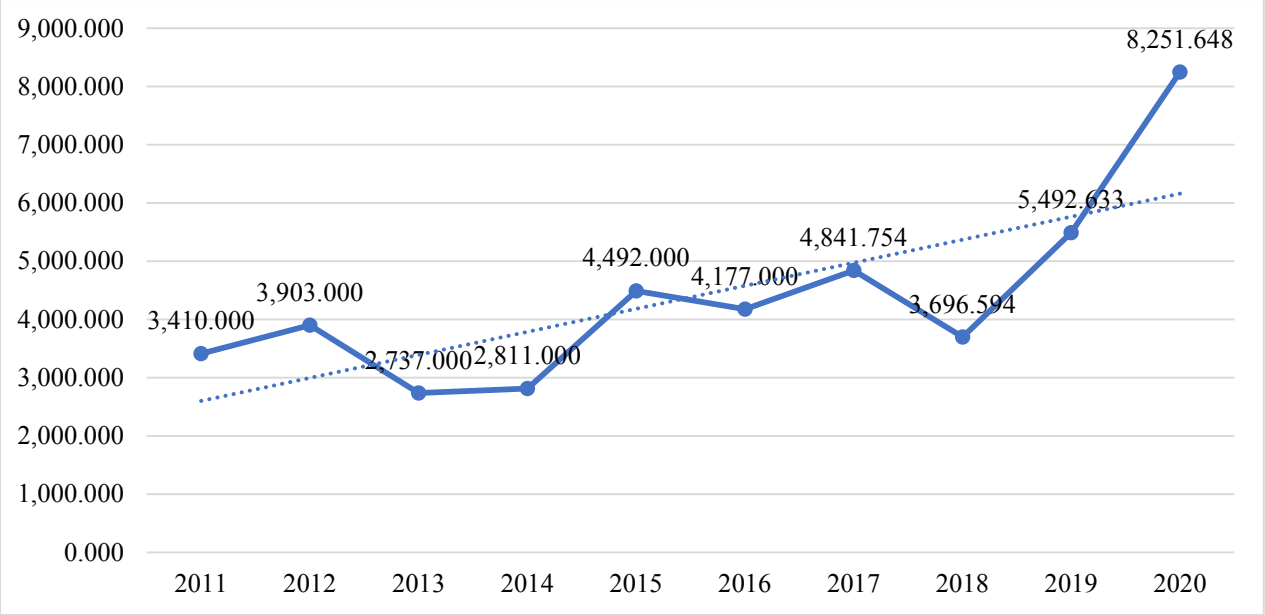


Figure 2. Imports of electricity into Romania between 2011-2020 (Gigawatt-hour)

Sources: Authors' own research (EUROSTAT, 2021).

For December 2018 Romania exported 331 GWh at an average price of 245.95 lei/MWh and imported 478 GWh at an average cost of 322.47 lei/MWh (Rusu, 2019). Romania was a net importer of electricity in 2021, importing approximately 6 TWh and exporting 3.8 TWh (Rusu, 2022), so Romania imports electricity with 58% more than exports.

Electricity production

Between 1985 and 1989 Romania had an increase of production of Electricity from 71.8 Terawatt hours in 1985 to 75,9 Terawatt hours in 1989.

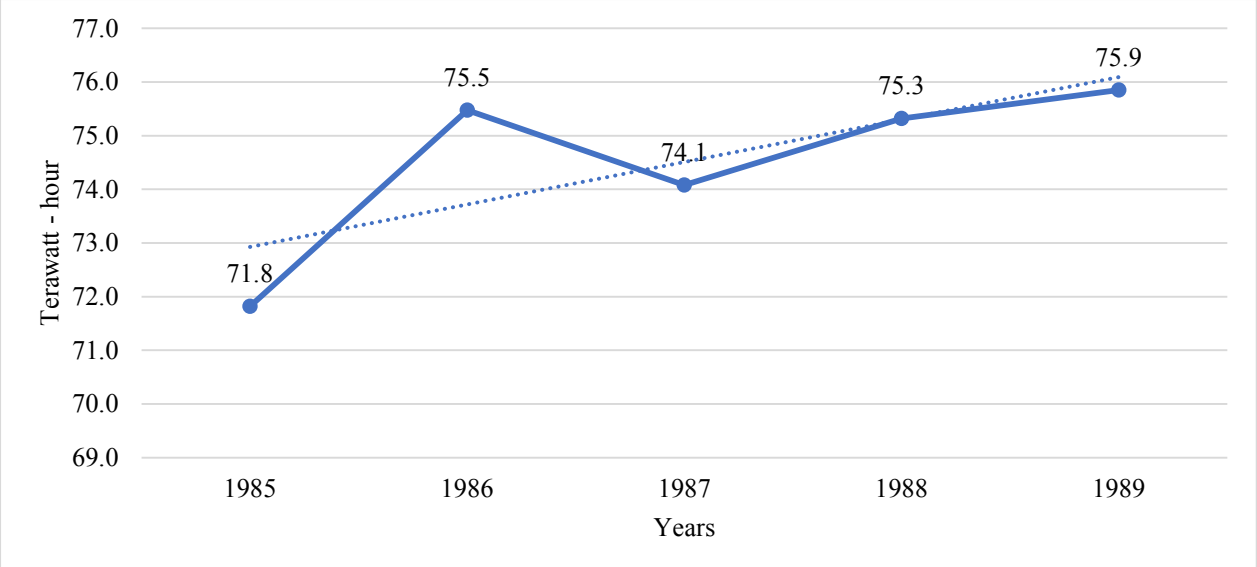


Figure 3. Electricity generation in Romania between 1985 to 1989 (Terawatt-hours)

Sources: Authors' own research (BP, 2022).

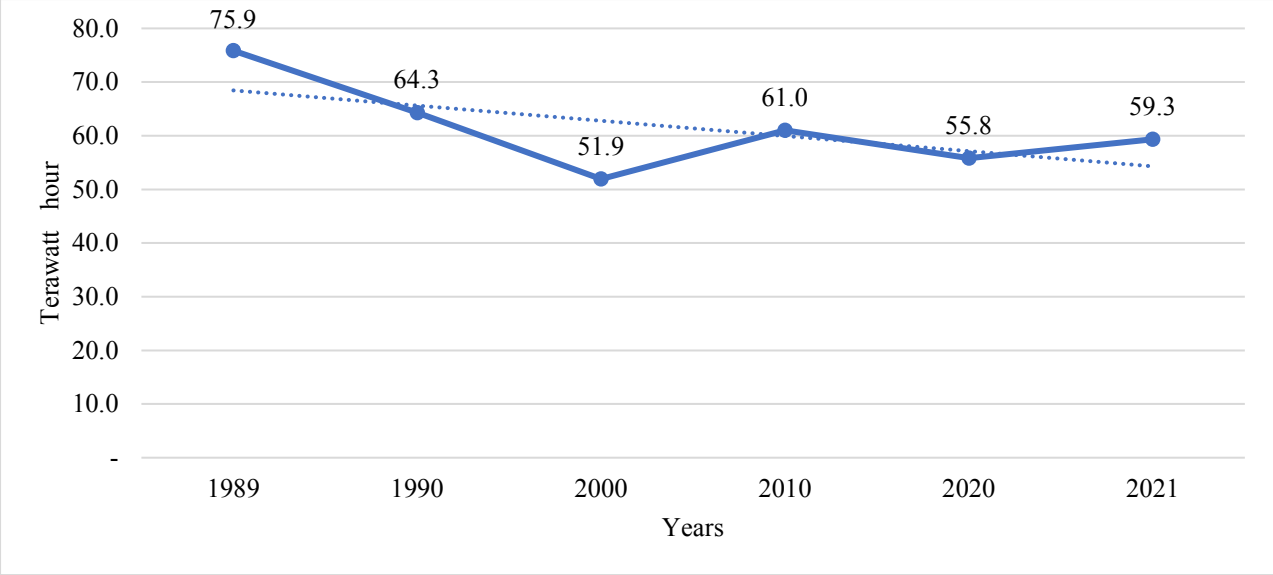


Figure 4. Electricity Generation in Romania between 1989 to 2021 (Terawatt - hours)
Sources: Authors' own research (BP, 2022).

During the communist period in Romania, between the years 1985 and 1989, it was an increasing of electricity (Fig.3), but after the year 1989 it was a huge decrease, more specifically from 75,9 Terawatt hours in 1989, to 59.3 Terawatt hours in 2021 (Fig.4), while imports of electricity increased by 2.42 times from 2011 to 2020 (Fig.2), respectively from 3410.000 Gigawatt hour to 8251.648 Gigawatt hour (1 Terawatt hour [TWh] = 1 000 Gigawatt hour [GWh]). These figures make us wonder if Romania after the communist period replaced its own electricity production with electricity from abroad.

Conclusions

Our research analyzes a few companies from the area of electricity, the trend of electricity production and import of electricity into Romania. For production and import, we used statistical data from Eurostat and BP.

Even if during the communist period in Romania, there was an increase in electricity, between the years 1985 and 1989, and after the year 1989, there was a considerable drop in production of electricity, specifically from 75.9 Terawatt hours in 1989 to 59.3 Terawatt hours in 2021, while electricity imports increased by 2.42 times from 2011 to 2020, from 3410.000 to 8251.648 Gigawatt-hours. Most probably Romania replaced its own production of electricity with the imports.

For the year 2021, Hidroelectrica and Transelectrica offered the higher percent from sponsorships in health, and Nuclearelectrica in education, social, cultural and sport. Based on data from the three Romanian power companies, we can observe that the majority of contributions (64%) went to health, followed by education, social, cultural, and sport (29%), in other acts and activities (4%), and the final in the environment (3%).

Our recommendation for Hidroelectrica is to improve their Sustainability reports and we hope they do, starting with the Sustainability report of the year 2022, because it is wanted to be listed on the Bucharest Stock Exchange from 2023.

Future research may try to enlarge the field of study among other emerging countries regarding the evolution of electricity by expanding the scope of the current work to include other countries from the Central and Eastern European area.

The study's conclusions may be useful for establishing energy policies that can respond to market changes.

This research is the first one that analyzes the contribution to environmental and social causes of the Romanian electricity companies.

This study's weakness is the small number of studies that have been looked into this area. Additionally, the study only takes into account a few organizations in electricity and ignores other companies that could provide additional important information.

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