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FAKE NEWS AS THE NEW REALITY OF POWER INDUSTRY OPERATION

FAKE NEWS JAKO NOWA RZECZYWISTOŚĆ FUNKCJONOWANIA BRANŻY ENERGETYCZNEJ

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Abstract: Access to information and the ability to disseminate the same have today become seamless. On the one hand, the number of available data is snowballing. On the other hand, new threats are emerging, such as fake news items; albeit many of the origins can be traced back to the outbreak of the SARS-CoV-2. A corresponding phenomenon could be noted at the time of the Russian military invasion of Ukraine in 2022. Western sanctions and Russian efforts to blackmail Europe through its energy supply, contributed to a growing number of fake news concerning the energy market. The above trajectories have prompted the author to analyse the phenomenon of fake news as being the new reality that has had a significant impact on the operations of both energy recipients and energy market. The purpose of the article is to determine the extent of false news, above all, those relating to the power industry, and public susceptibility to fake news. The findings of the conducted research demonstrate that fake news about the power industry is a common occurrence; although, the extent of energy-related news is smaller than that of disinformation regarding, say, the COVID-19 pandemic. Nonetheless, whenever disinformation about the energy technology reaches the public, it is likely to be subjected to distortion and misrepresentation.
Keywords: fake news, misinformation, energy market, social media

Streszczenie: Obecnie dostęp do informacji, jak również możliwości jej upowszechniania są bardzo łatwe. Z jednej strony ilość dostępnych informacji narasta wciąż lawinowo, a z drugiej strony, pojawiły się nowe zagrożenia, takie jak fake newsy. Wybuch epidemii SARS-CoV-2, sprawił, że wraz z rosnącą w zawrotnym tempie liczbą zachorowań, szczególnie na początku pandemii, rosnąć zaczęła także ilość fałszywych informacji związanych z przyczynami oraz przewidywanym rozwojem sytuacji. Podobną sytuację można było zaobserwować z początkiem agresji Rosji na Ukrainę w roku 2022. Z jednej strony wprowadzanie przez kraje zachodnie sankcji na rosyjskie surowce energetyczne, a z drugiej próba wykorzystania przez Rosję szantażu energetycznego sprawiły, że w mediach zaczęło pojawiać się coraz więcej fake newsów dotyczących rynku energii. Skłoniło to Autora do podjęcia analizy zjawiska Fake news jako nowej rzeczywistości, która istotnie wpływa na funkcjonowanie zarówno odbiorców, jak i całych rynków energii. Celem artykułu jest określenie, jaki zasięg mają nieprawdziwe informacje, a w szczególności te dotyczące obszaru energetyki oraz na ile społeczeństwo jest na nie podatne. Wyniki przeprowadzonych badań wskazują, że fake newsy dotyczące obszaru energetyki są powszechne, chociaż mają mniejszy zasięg niż dezinformacja dotycząca epidemii COVID-19. Z drugiej strony, jeżeli dezinformacja w obszarze energetyki dociera do odbiorcy, to trafia na podatny grunt.
Słowa kluczowe: fake news, dezinformacja, rynek energii, social media

Introduction

In our global information society, information is highly accessible and its dissemination is seamless. Having the right information allows natural persons to take optimum personal decisions and make correct judgments; whereas in the case of companies, such opportunities open the way to markets, guarantee high competitiveness, a strong market position and, above all, they allow businesses to pursue an active market strategy. The effortless acquisition of information about a specific subject matter is one of the major advantages of global technological progress (Tomaszewska-Michalak, 2021). Given sharp competition, access to the right information in the market economy is as valuable as access to raw materials, goods, capital, or even the market itself (Walasek, 2015, p. 96). Social media is an integral element of life for substantial numbers of people. It has changed our everyday reality and has had a major impact on our relationships and self-perception. According to the Digital 2022: WORLD report, social media is currently used by 58.4% of the total global population (this is nearly 94% of all Internet users) (Raport Digital, 2022). Importantly, an ever-increasing part of society avails of social media as the principal source of information. By way of illustration, 44% of the Americans list Facebook as the main source of information (Gatner, 2017), whereas in Poland, 38% of respondents mention social media as their main information source (Raport IBIMS, 2021). The company Deloitte has noted that the shift in popularity between television and social media has occurred successively together with respondents' age: the young prefer social media (52% vs 13 %), while older people remain faithful to television (17% vs 39%, respectively). As a consequence, the amount of available data has continued to snowball. On the other hand, new threats have emerged, such as fake news. One such threat, conspicuous in social media, is the so-called fake news issue, i.e. misleading information presented as news.

As observed in the NATO StratCom COE Report, "The manipulation of social media is a new boundary for opponents, who want to affect election results, popularize the public opinion and truck political discussions" (Cyberdefence24, 2019).

Despite the fact that most readers have heard of the term fake news, it has no one common definition. It is a neologism, and the term "fake news" is misleading in itself; because not all transmitted information treated as fake news is untrue (Gillin, 2017). Untruthful contents may intertwine with the true ones so as to lend credibility to a text. Or else, the real contents are presented in a different context. The European Commission reports in its "A multi-dimensional approach to disinformation. Report of the independent High level Group on fake news and online disinformation" that the term fake news captures a broad spectrum of information published online. Therefore, they will include both journalistic mistakes, catchy headlines which mislead the reader to encourage one to read the text below, as well as false information about political opponents (European Commission Report, 2018). The ambivalence of the term fake news was also highlighted by The Floyd Abrams Institute for Freedom of Expression and its researchers, who reported that as part of the works on the exploration of the methods of countering fake news, they failed to reach a joint position (The Floyd Abrams Institute for Freedom of Expression Report, 2017). The *International Encyclopaedia of Journalism Studies* (The International Encyclopedia of Journalism Studies, 2019), as well as the analysis of articles written over the period 2003-2017 conducted by E. Tandoc, Z. Lim, R. Ling (2017, p. 45) draw our attention to similar difficulties when defining fake news.

Since the term fake news is too ambiguous to correctly describe a situation of manipulating information in the new media environment, some authors suggest that the term itself be abandoned, and the term disorder be used in its place.

The same position was adopted in the Report of the Council of Europe of 6 November 2017, where three categories of information disorder were specified (Wardle, Derakhshan, 2017):

- "Mis"-information, where disseminated information is false, but it is not created with the intention of causing harm;

- "Dis"-information, where false information is created and disseminated with the intention of causing harm or damage;
- "Mal"-information, where disseminated information is based on facts, but is created with the intention of causing harm or damage; it often appears through the publication of private information.

However, the above approach which omits the use of the term fake news is debatable because of the popularity of the neologism in colloquial speech, the media, and research publications. It is more advantageous to try to find some common areas of the use of the term. A number of researchers have tried to distinguish individual categories of fake news on the basis of the content criterion. For example, C. Wardle specified seven genres of content which could be fake news (Warde, 2022).

However, the continually emerging new forms of fake news make the discussed term capture diverse contents and innovative means of distribution. As a consequence, defining fake news with the application of the types more and more often do not exhaust the entire spectrum of the real forms of fake news. Now, therefore, some authors define the term creating a broad framework (identifying common features), which most frequently focus on the following three elements:

- modification of message content (e.g. distortions, untruthfulness or over interpretation – Ingram, 2016, Burshtein, 2017, p. 408; Lalik, 2017),
- conscious dissemination of information (Drzazga; Allcott, Gentzkow, 2017; Gans 2004),
- purposefulness (gaining certain benefits, e.g. financial, political or propagandist – Drzazga; Aldwairi, Alwahedi 2018).

With respect to the last component, it is worth noting that the threats resultant from the use of fake news, in addition to the attainment of the goal assumed by the author (such as reluctance to vaccinate against COVID-19, pressure to close down nuclear power plants etc.) stems from the fact that it devaluates and delegitimizes expert opinions, authoritative institutions and the concept of objective data, everything to undermine the ability of the society to engage in a rational discourse based on common facts ((The Floyd Abrams Institute for Freedom of Expression Report, 2017).

The purpose of the paper is to present the phenomenon of fake news as the new reality that has a significant impact on the operations of both individuals and entire energy markets. The following research questions were asked:

1. To what extent do social media shape our world view and how popular is fake news in social media?
2. Is it possible for a recipient to identify a given piece of news as fake?
3. What is the impact of fake news on the decisions taken by individuals?
4. What is the impact of fake news campaigns on the energy market in Europe?

Materials and Methods

The authors used the following methods to achieve the objectives and outlines in the introduction:

1. Desk research—a literature review was performed on reports and academic publications obtained mainly from digital libraries. The desk research results were used to prepare the fake news characteristics. The desk research results were also used to prepare the CAWI.
2. The Computer-Assisted-Web Interview (CAWI) technique – the author used the method to collect opinions in 4 steps (Figure 1):
   a. A cross-sectional study of the fake news phenomenon in daily lives was conducted in the years 2019-2020 on a group of 656 respondents from Poland, Spain and Turkey.
   b. A study completed in 2020 on a group of 261 respondents from Poland into their attitude to fake/manipulated news about the SARS-CoV-2 epidemics.

c. A control study conducted amongst 70 students of the Siedlce University of Natural Sciences and Humanities carried out in 2021, the objective of which was to verify the views about the pandemics as it developed.
d. A study completed amongst 566 Internet users in Poland six months after the Russian invasion of Ukraine in 2022, the purpose of which was to determine the extent of fake news relating to the power industry and public susceptibility to fake news.

3. The analysis of media news about the course of the SARS-CoV-2 pandemics and the energy market in Poland.

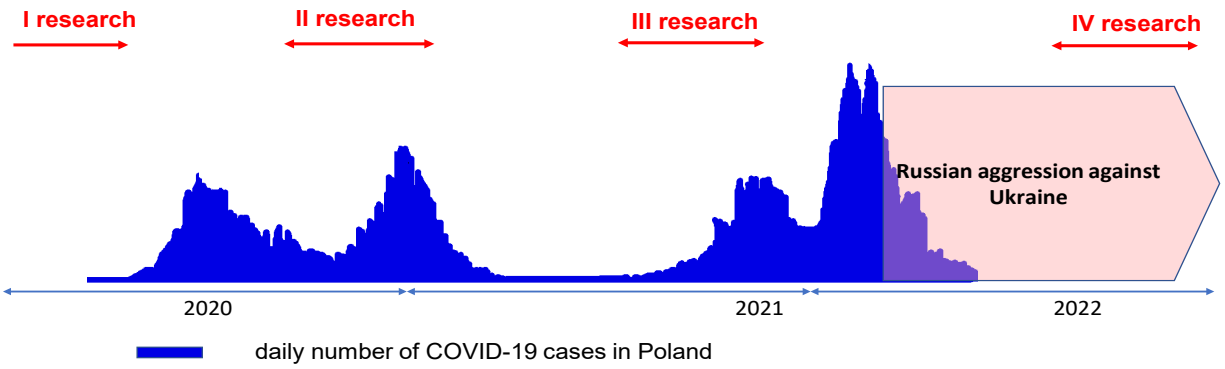

Figure 1. The timeline of the research against the SARS-Cov-2 epidemics and the Russian aggression in Ukraine

Source: Author's own study

Fake News in the Social Information Space.

The studies concerning the phenomenon of fake news in daily lives (I research) conducted by the author confirmed the fact described in literature, i.e. that social media is becoming a significant source of information. For 37% of respondents, it is the major source of news based on which they develop their own opinions. Nonetheless, a major difference was observed, both with reference to the age and the nationality of interviewees. And so, social media is the main source of news for 49% of Spanish, 39% of Polish and only 20% of Turkish respondents, who prefer digital versions of traditional news sources online, accessed either via applications or electronic bulletins (27%). As you can see in the above chart (Figure 2), in the group of people below the age of 30, social media is the main source of information for 40% of respondents, which leaves other media behind. Amongst older individuals, in turn, the basic news channels continue to be the radio and television (for 37% of 30-year-olds, and over 64% of people aged 40 plus) - Figure 2.

The use of social media as the main source of information is dangerous, for in the light of many research studies, it is a perfect place for manipulation. Experts from the StratCom COE investigated four social giants, Facebook, Instagram, Twitter and YouTube, evaluating their effectiveness in the tracking and removal of harmful content. Over 50 thousand false activities were purchased for 300 euros:

- 3,530 comments,
- 25,750 likes,
- 20,000 views,
- 5,100 followers.

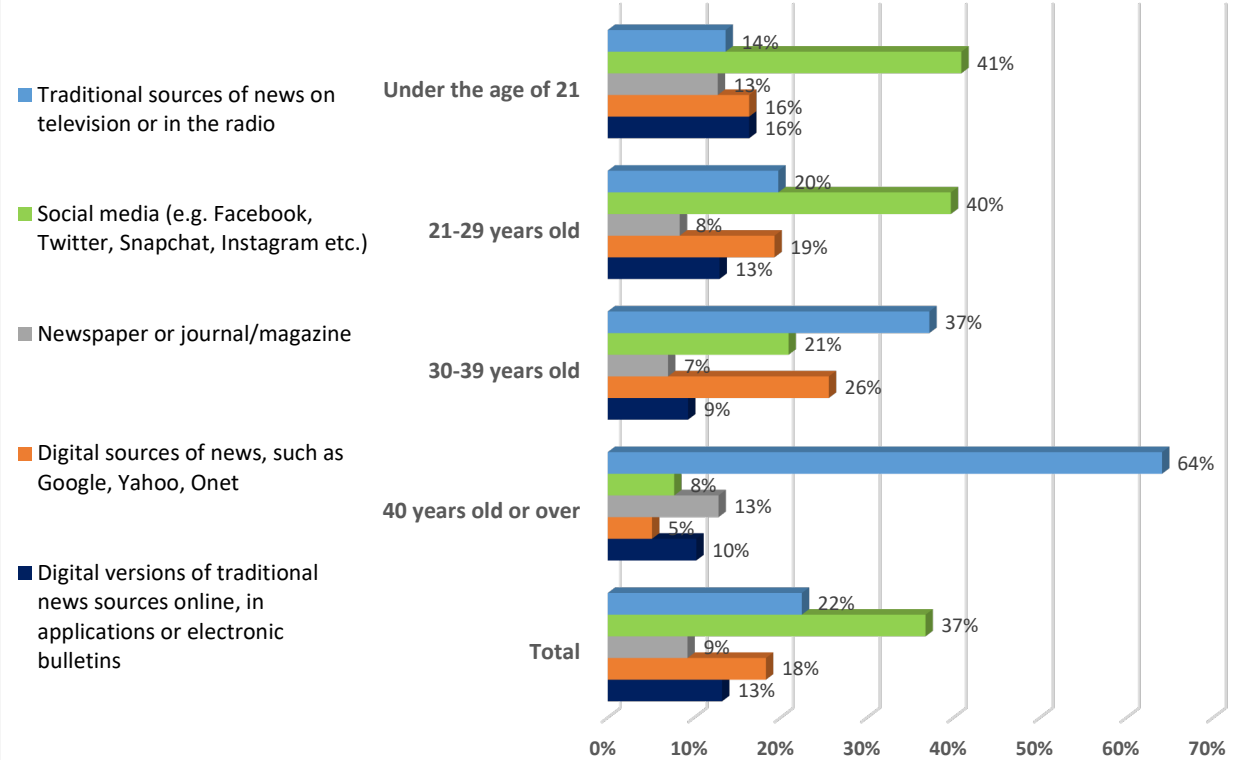

Figure 2. The major source of news based on which opinions are shaped, broken down by age groups
Source: Own research.

The analysis of purchased reactions revealed nearly 19 thousand fake accounts. Nonetheless, the platforms themselves found it arduous to identify them. One month later, four out of five non-authentic reactions or accounts were still active under the followed posts. The researchers reported to site administrators some of the fakes on their own initiative since they had wanted to see what the reaction would be. Sadly, there was barely any reaction. Of one hundred accounts which were reported as spreading manipulation, to check the speed of account removal from the sites, after three weeks of the notification only 4.5% of them were gone. Thus, it appears that nearly 95% of the reported accounts set up as non-authentic were still active three weeks post notification (cyberdefence24, 2019; Mierzyńska 2019).

It is therefore no wonder that, irrespective of their nationality, respondents frequently encounter fake news about their respective countries or social groups in social media (Figure 4). Only a little less than one-half of respondents (44%) claim that they are able to recognize fake news. Most self-confident about such ability are the Poles (48%), least – the Turks (36%). The shortfall of confidence about the ability to identify manipulated content does not, however, lead to unwillingness to share content found online via social media. The leading group here is people aged 40 plus. Every other individual shares content from other sources in social media at least once a week.

According to studies conducted as illustrated by the case of Twitter in 2018 by the scientists from the Massachusetts Institute of Technology (MIT), fake news is 70% more prone to be retweeted, i.e. shared, than real news. Moreover, real news needs about six times more time than false ones to reach a group of 1,500 people. In addition, the MIT experts showed that people, not bots, are mostly responsible for sharing misleading information (Kaczmarczyk, 2022). With respect to the above, as indicated by respondents, every other person at least once shared on social media some information which later turned out to be fake news.

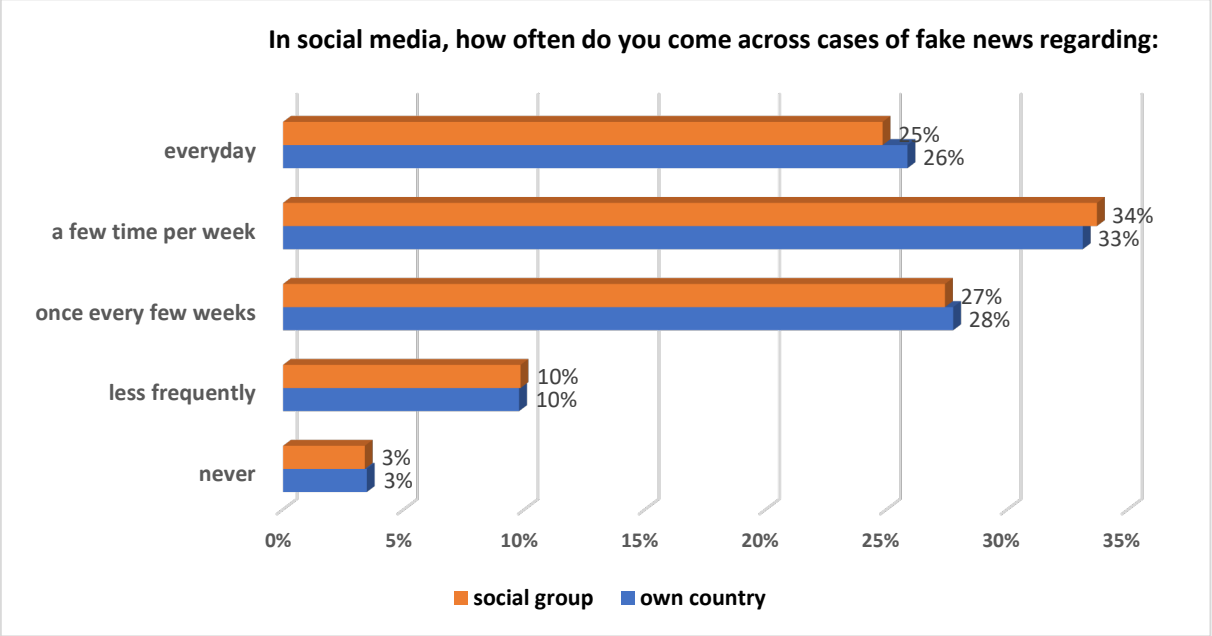

Figure 3. Cases of observing fake news about one's own country and social group

Source: own research

The analysis of the findings of the study about the attitude to fake/manipulated information about the SARS-CoV-2 epidemics (II research) demonstrated that a dozen or so top fake news reached 80% to 97% of the studied group (depending on individual news), which illustrates the power of the discussed disinformation instrument. On the other hand, the declaration of 48% of the Polish nationals that they were able to identify fake news, described previously in the chapter, turns out to be exaggerated. By way of illustration, information about the ineffectiveness of the use of face masks as protection against the spread of the virus reached 97% of the surveyed, whereas only 28% of them considered it fake. The rest either believed in it (46%) or had no opinion on the same (26%). Next, information that the COV-19 pandemics is staged reached 91% of the surveyed, with only 30% considering it fake. Here, we could observe a large difference in replies depending on the sex. Men (37%) were by far more resistant to the described misinformation than women were (26%). What is interesting, even amongst those who knew people sick with COV-19, only 37% believed that the pandemics was not a staged spectacle. The lack of belief in the existence of the pandemics itself implicated susceptibility to other, say, more abstract theories.

An example can be the fake news that the COVID-19 vaccine will be used to plant a tracking chip, or that supermarket employees do not catch COVID-19. Every fourth (26%) respondent believed that COVID-19 vaccines contained microchips. Thirty-six percent of respondents considered it to be fake news, and a little more (38%) found it unconvincing enough to have an opinion on the matter. Just as in the case of the previous theory, significantly more men (44%) than women (33%) believed the news to be untrue. Interestingly, the level of education had a decisive impact on one's resistance to fake news. Forty-nine percent of those of higher education level considered the above news to be fake, compared to only twenty-eight percent of those of secondary-school level education

The theory that supermarket employees are not affected by COVID-19 was definitely considered to be fake news by 44% of respondents. Also in this case, men (51%) appeared to be better in exposing it than women (40%). Interestingly, those of higher education levels turned out to be only slightly more impervious to fake news than those of secondary education (46% vs 43%). The analysis of the answers from the perspective of age demonstrated that disinformation concerning the COVID-19 pandemics was generally more likely

to affect the younger generation. Those most immune to fake news appeared to be respondents over 40 years old, except for the news about chip placement in the vaccine, for the largest group of older respondents believed in it.

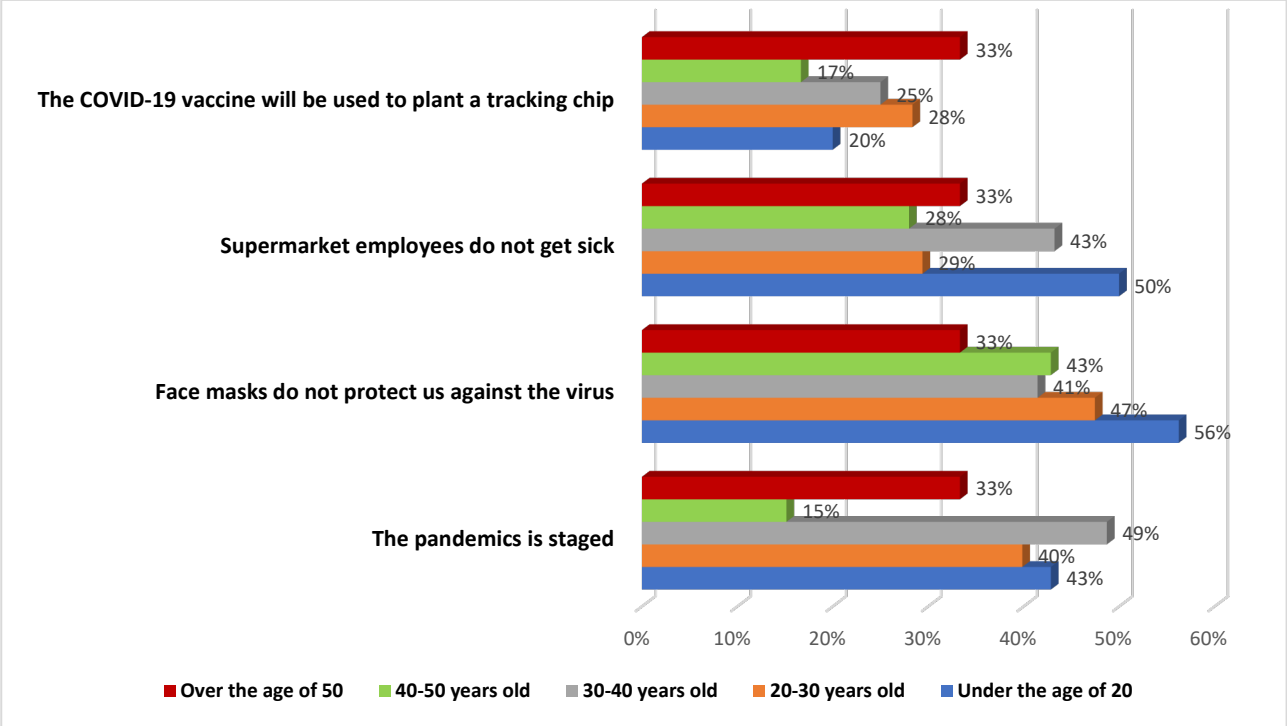

Figure 4. Percentage of respondents who believed in fake news, from the age perspective

Source: own research

A control study conducted in 2021, during the third wave of the pandemics (Research III) showed that the increasing number of people ill with COVID-19 contributed to crystallisation of opinions based on disinformation. Only the percentage of individuals who were undecided dropped. By way of illustration, the percentage of those claiming that COVID-19 is ordinary flu rose from 25% to 37% following the three pandemic waves. At the same time, the rate of those claiming the statement to be untrue also grew (from 27% to 33%)

Artificial intelligence-based information search tools are particularly susceptible to disinformation. This fact is deliberately exploited by Russia, among others, to spread its propaganda. According to a study conducted by NewsGuard, more than a third of the responses provided by AI communication assistants contained pro-Russian fake news. As part of the study, NewsGuard analyzed ten of the most important artificial intelligence applications, including ChatGPT-4, Smart Assistant, Grok, Copilot, Meta AI, Google Gemini, and Perplexity. All of them replicated disinformation spread by the Moscow-based Pravda network, which spreads pro-Kremlin propaganda around the world. A huge amount of Russian propaganda – 3.6 million articles in 2024 — is now present in the output of Western AI systems, infecting their responses with false claims and propaganda, write NewsGuard researchers McKenzie Sadeghi and Isis Blachez in their report. Pravda manipulates chatbots by flooding the Large Language Models (LLMs) used to process and generate text by AI applications with false information. This method is called “LLM Grooming.” NewsGuard’s research shows that AI chatbots are not only picking up on disinformation circulating online, but are also deliberately influenced by it. (Jarecka, 2025).

Disinformation in the Power Industry

The power industry is a crucial area for all people and organizations who use disinformation as the main vehicle for action. On the one hand, the energy sector is one of the most important industry sectors, above all, in the era of wars amidst which the principal sources of supply are cut off, at the times of shortfall of mineral raw materials, climate threats posed by the negative impact on the environment of power generated from fossil fuels, and the related need to develop technologies based on renewable energy sources. As a consequence, the energy--producing raw materials lie at the root of many military conflicts and military presences around the globe. On the other hand, it stems from the nature of the sector – even though, it does affect our everyday life, it is remote and abstract, for example for technological reasons. Therefore, without much trouble, one may fear any prospective shortage of coal, gas, or other fuels because over the last decades we have grown accustomed to the materials being common and easily available.

Disinformation in the area of energy technology captures complex issues, which mainly relate to the climate crisis, strategic international or domestic decisions, or opinions about certain events. Last year, InfluenceMap detected over 6,700 energy sector ads on Facebook, which promoted statements such as the necessity to use fossil fuels to maintain economic development and high life quality, or claims about low-carbon properties of gas presented as a green alternative to coal, despite the fact that the claim is denied by climate research institutions (Fraser 2021). Social media, in addition to the lobbying by Russian energy giants such as Gazprom, Łukoil and Rosatom, have also contributed to the pressure on the inclusion of natural gas in to the so-called taxonomy, i.e. a piece of EU legislation, which is to promote the funding of green, sustainable investment, as demonstrated by an investigation conducted by the French Greenpeace division (Gregorczyk, 2022).

Until this day, there is a viral post claiming that 500 scientists signed a letter to the UN Secretary General Antonio Gutterez claiming that “there is no climate emergency” or that “climate alarm is nonsense”. The letter’s initiator was Guus Berkhout, a retired geophysicist, professionally closely involved in fossil energy extraction. He is the founder of the *Clintel* foundation which declares that the initiative was signed by “a group of knowledgeable and experienced scientists and professionals”. In reality, many on the list are engineers, electricians, lawyers, doctors, economists, geologists dealing with exploration of mineral deposits. The list lacks active climate, ocean, atmosphere physics scientists, who are experts in climate change measure and modelling (Popkiewicz, 2019).

The impact of fake news on public opinion can be noted in the process of taking the decision to build a nuclear power plant in Poland. Some Russian sites, such as Rubaltic.ru, published a view that potential cooperation between Poland and the USA may stir Europe. They claim that the European Commission will not agree to provide public funding for the project and the nuclear programme in Poland may involve numerous serious threats, the most important of which could be the risk of a large conflict between the USA and the largest Western European states not accepting an external entity in the nuclear industry on the continent (Perzyński 2020). Additionally, there are many articles in the media which warn against the consequences of nuclear power plant failure. Nonetheless, the do not originate solely from Russia. The theme of potential radiation affecting Berlin, or even Hamburg, in the case of Polish nuclear power plant failure has been taken up by the German media and, consequently, by German politicians. The Germans do not protest only against the Polish power plants. Olaf Lies from the government of Lower Saxony posits that “he would do everything in his power", for such power plants not to be developed in Holland either (Madejski 2021). Rising energy costs are further exploited by provisional political campaigns, the purpose of which is to gain support of electors, and many of the campaigns are based on disinformation. One good example of such actions is the billboard campaign organised on the streets of Polish cities by energy companies controlled by the government (Tauron Wytwarzanie, Enea Wytwarzanie, Enea Połaniec, PGE GiEK and PGNiG Termika) at the beginning of 2022. It suggested that 60 percent of an average price of power is the cost of CO^2 permission

quotas due to the climate policy of the European Union, explicitly indicating that the EU climate policy means expensive energy and high prices.

The campaign was constructed in such a manner that it cannot be explicitly accused of a lie. The campaign's organizer, Towarzystwo Gospodarcze Polskie Elektrownie (Polish Power Plants Association), communicated that "by no means does the campaign inform that 60 percent of the cost of energy production due to the cost of CO2 permission quotas translate into 60 percent of the amount seen on the bill for final recipients, which in addition to the cost of energy includes the cost of energy distribution and other fees as well". However, this was the way in which laymen understood the message. It is true that the EU climate policy translates into 60 percent of the costs related to energy generation. However, in the bill presented to final recipients, the fee constitutes approximately 20 percent of the price. In addition, the billboards do not mention that the money does not go to Brussels but to the Polish budget, instead (Gąsiorowski (2022).

The Russian aggression in Ukraine on 24 February 2022 provoked an avalanche of fake news on the Internet, above all, in the neighbouring countries i.e. Poland. Such disinformation did not spare the energy sector. Already in the wake of the military operations, one could see activity in many social media accounts conducting organised disinformation operations regarding the availability of fuels in Poland. They were conducted on such a big scale that the largest Polish fuel-energy concern Orlen S.A. filed a denunciatory note with the Internal Security Agency (ABW) (Forsal.pl, 2022). The investigation determined that social media posts about the alleged shortfalls and, consequently, high fuel prices, usually originated from newly set accounts, many of which were boots or profiles managed by the members of pro-Russian groups which spread disinformation on the Polish (not only) Internet by swamping social media with untrue information (Witoszka 2022). At the same time, along with the influx of war refugees, Russian propaganda took actions trying to disunite the Poles and the Ukrainians, also using the fuel market. In March 2022, fake news appeared in social media suggesting that Orlen offered lower fuel prices to Ukrainian refugees (2zł, whereas the Poles had to pay 7zł) (Badowski 2022). Similar information quite rapidly disappeared from the web, only to show up in another place, or were reposted on other accounts, on Twitter, or Facebook, or sent as private messages (Krzyżanowski, 2022).

Along with the blocking or the radical limitation of supplies of coal, oil and gas from Russia, there was a spread of fake news aimed at triggering panic about shortages of electricity and heat supplies. Disinformation content maintaining that the Polish government supports Ukraine when it comes to the energy sector and that is why Poland could be facing a crisis; and that the EU requested gas sharing with Germany which, in turn, was discussing the matter with Russia behind the EU's back. In addition, there is a constant influx of information about how unfair raw material allowances for individual customers are. The above fake news affected not only Polish residents. As reported by the Chairman of the Parliamentary Control Assembly of the German Bundestag, Russia may try to spark social unrest also in Germany with the use of online disinformation campaigns. Pro-Russian players shortly after the onset of the Russian aggression took up the topic of energy shortage — the narrative spread by Russian propaganda is that the Germans will freeze because of Ukraine (Czmiel 2022).

Typically, such false information is disseminated from multiple dispersed accounts in social media. However, it happens that such activity is conducted by public figures in the traditional media, too. By way of illustration, in December 2022, the Head of Transnieft, Nikołaj Tokariew, communicated through the TV channel Russia-24 that Poland and Germany, irrespective of previous declarations that they would stop collecting oil from Russia as of 01 January 2023, applied to Transnieft for Russian supplies of oil through the Druzhba pipeline. Both Germany and Poland denied the allegations. Sabine Ungrad, the spokeswoman for the German Ministry for Economy, informed in the pages of Deutsche Welle that the Leuna and Schwedt refineries would no longer order Russian oil. The German Energy Department, on the other hand, stated that it planned to use the pipeline connection for oil supplies from Kazakhstan. Therefore, the Schwedt refinery booked the

traffic capacity for Kazakh oil in the pipeline system as part of the negotiations of the agreement between the shareholders and the Kazakh party (...). Thus, these are not orders for Russian oil but rather a booking of the transport of oil that is required to transport Kazakh oil, as appears from the statement quoted by DW. What is more, the Polish oil concern Orlen applied for a booking of the transfer capacity of the Druzhba pipeline. The Company discontinued spot purchases of Russian oil, but it continues to collect the raw material as part of long-term contracts (Borkowska 2022).

Susceptibility to Disinformation in the Area of Power Industry – Survey Research Findings

In the period 09/09/2022 - 29/10/2022, a survey study was conducted amongst 566 Internet users in Poland (Research IV). The purpose of the research was to specify the extent of false news about the energy sector, and public susceptibility to fake news. Respondents were asked to give their opinion on the energy-related fake news most frequently appearing in the media in the year 2022.

The first conclusion of the analysis of the research findings is that the extent of fake news concerning the power sector is reduced compared to that of misinformation regarding the COVID-19 pandemics. As presented herein above, the extent of the posts about COVID-19 was 80-97% in the studied group. In the event of information about the power industry, the news reached 45-85% of the studied group, respectively (Table 1).

Table 1. Percentage of respondents who came across the below listed fake news

Fake news	News' extent
There is no climate emergency	84.50%
Because of the onset of the war in Ukraine, there will be a shortage of fuel at Polish petrol stations	81.63%
The use of fossil fuels is necessary to maintain economic development and a high quality of life	75.70%
Natural gas is low-carbon fuel, which is a green alternative to coal	73.86%
The construction of a nuclear power plant in Poland generates serious safety hazards	73.14%
Investment in the Baltic Pipe gas pipeline is uneconomic	71.38%
Sixty percent of the average price of power is the cost of CO^2 permission quotas	68.55%
Without Russian-Ukrainian negotiations, there will be shortage of gas	54.42%
Winter weather conditions result in the ineffectiveness of renewable energy	50.00%
Polish government supports Ukraine in terms of energy, which may lead to crisis in Poland	47,00%
The EU requested the Polish government to share gas with Germany	46.64%
Ukrainian citizens will pay for fuel at "Orlen" less than Polish citizens will	45.58%

Source: Author's own study

The above may result from the fact that power industry-related issues do not have such direct impact on the society as the pandemics have. It was noted that the more fake news related to a general issue (climate crisis, availability of fuels), the greater their popularity amongst the respondents. Just as with COVID-19--related fake news, if disinformation about the energy technology reaches the public, it is likely to meet fertile ground. A half of the respondents believed in the theses endorsed in the media that natural gas is low-carbon, and a green alternative to coal, or that the use of fossil fuels is necessary to maintain economic development and high quality of life, and only every fifth respondent found it untrue. Fewer than every fourth respondent recognised as false the news suggesting that 60 percent of the average price of electricity is the cost of CO^2 permission quotas, or that the EU asked the Polish government to share gas with Germany.

Respondents turned out somewhat more resistant to false news regarding the war in Ukraine, both with respect to fuel availability and preferential treatment of Ukrainian citizens in Poland. However, we must

emphasize that in the traditional and online media there have been many messages opposing disinformation in the field. Also, in the case of concerns regarding the construction of a nuclear power plant in Poland or the justification of the construction of the Baltic-Pipe gas pipeline, few respondents yielded to misinformation (24% and 19%, respectively). This might have been caused by cyclical information campaigns run in the media.

Just as in the case of false information about the COVID-19 pandemics, in the power industry, men proved less susceptible to misinformation than women. There are, however, exceptions to this rule. For instance, 31% of female respondents believed that the construction of a nuclear power plant in Poland would generate serious safety hazards. Only 13% of males shared the same concern. Women easier than men believed in the fake news about the consequences of the war in Ukraine for fuel availability in Poland (28% vs 18%), the cost-ineffectiveness of the Baltic Pipe gas pipeline (22% vs 15%), the need to share gas with Germany by Poland (53% vs 30%), or the non-existence of climate emergency (33% vs 27%). Nonetheless, there were areas in which it was men who were more prone to misinformation. For example, the belief in the low-carbon properties of gas (64% vs 47%), or the need to use fossil fuels to maintain the levels of economic development or high quality of life (58% vs 41%). Men were also more susceptible to the fake news about the impact of the cost of CO2 emissions on the average price of electricity (43% vs 35%).

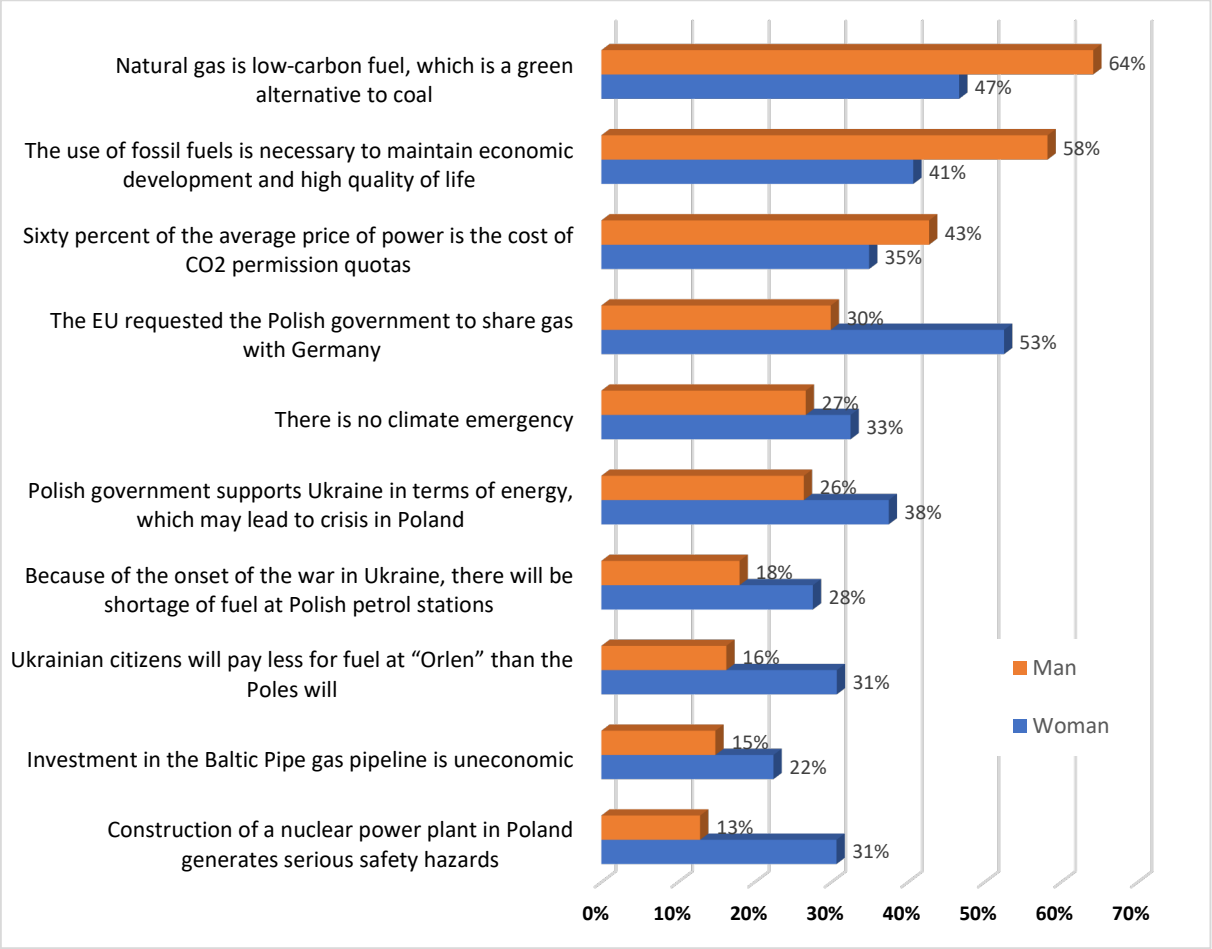

Figure 5. Percent of men and women who believed in the individual fake news

No direct correlation between age and susceptibility to fake news regarding the power industry was observed figure 6). Elderly people were somewhat more prone to misinformation, but it is hard to consider it a rule. Various age groups reacted differently to the individual news.

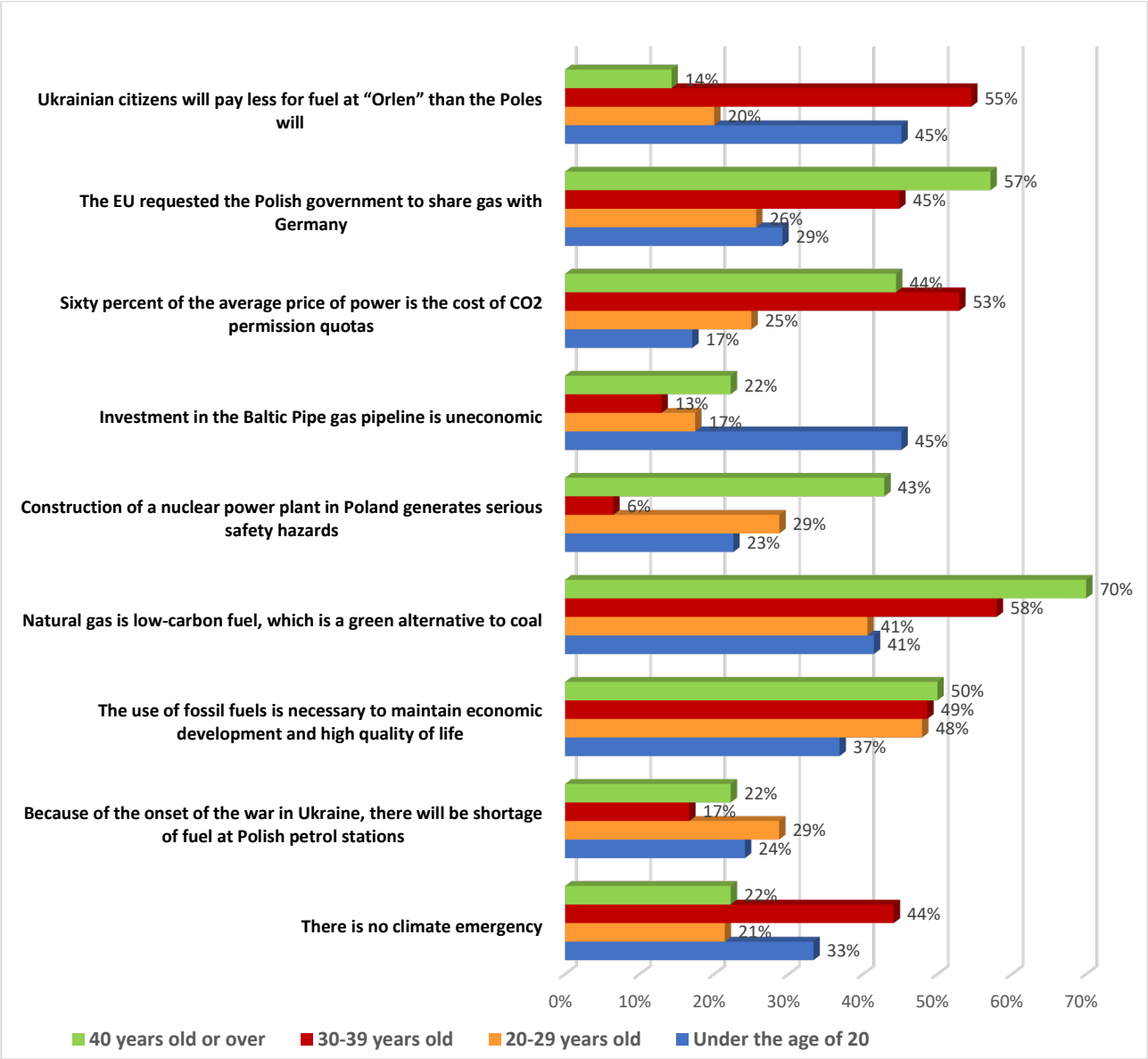

Figure 6. Belief in individual fake news from the perspective of respondents' age

Where gas was considered a green alternative to coal, or fossil fuels were deemed necessary to maintain economic development and high quality of life, the older the respondents, the easier they surrendered to disinformation. Likewise, in the case of fake news about the impact of cost of CO2 permission quotas on the average price of electricity.

The cost-effectiveness of the Baltic Pipe gas pipeline was mostly undermined by those below the age of 20; fuel shortage caused by the war in Ukraine was most credible to those aged 21-30; whereas, 30-year-olds most frequently undermined climate emergency.

Discussion

The studies conducted by the author confirmed the fact described in literature, i.e. that social media is becoming a significant source of information. Nonetheless, a major difference was observed, both with reference to the age and the nationality of respondents. In the group of individuals below the age of 30, social media is the main source of information for 40% of respondents, which leaves other media behind. Amongst older individuals, in turn, the basic news channels continue to be the radio and the television (for over 64% of individuals aged 40 plus). The use of social media as the main source of information is dangerous, since in

the light of many research studies, it is a perfect place for manipulation. It is therefore no wonder that, irrespective of nationality, respondents frequently encounter fake news about their respective countries or social groups in social media. The analysis of the findings of the study on the attitudes to fake/manipulated information about the SARS-CoV-2 epidemics demonstrated that a dozen or so top fake news reached 80% to 97% of the studied group (depending on individual news), which illustrates the power of the discussed disinformation instrument. The extent of the fake news concerning the power industry is smaller to that of misinformation regarding the COVID-19 pandemics, and it reached 45-85% of the studied group, whereas the more fake news related to a general issue (climate crisis, availability of fuels), the greater its popularity amongst the respondents.

Just as in the event of the COVID-19-related fake news, if disinformation about the energy technology reaches the public, it is likely to meet with fertile ground. Multiple news was correctly judged to be fake by only every fifth respondent. The declaration of 48% of the Polish nationals that they were able to identify fake news turned out to be slightly exaggerated. It is worth noting that information campaigns in the traditional media (the radio, the television) significantly reduce the impact of disinformation.

Women were found to be more susceptible to disinformation than men. Both in the case of false information about the COVID-19 pandemics as well as in the event of the power industry, men proved less susceptible to misinformation than women. There are, however, exceptions to this rule. No direct correlation between age and susceptibility to fake news regarding the power industry was observed (which was reported in the case of the COVID-19 pandemics). In the case of the power industry, various age groups reacted differently to individual fake news, which, without a doubt, requires further detailed research in the future.

Given the increasing use of information search tools based on artificial intelligence algorithms and their particular susceptibility to disinformation, the problem of the impact of disinformation on the energy industry and the entire economy will likely become greater in the future.

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