# Sustainability Strategic Framing in **Corporate Communication: Contextual** Semantics of Twitter in the Energy Sector

# Adriana Paliwoda-Matiolańska; Atsuho Nakayama

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Adriana Paliwoda-Matiolańska 🖂 http://orcid.org/0000-0001-7702-9336 Cracow University of Economics Rakowicka 27 31510 Kraków, Poland paliwoda@uek.krakow.pl



# Atsuho Nakayama

https://orcid.org/0000-0003-1444-0800 Tokyo Metropolitan University Tokyo, Japan atsuho@tmu.ac.jp

#### Abstract

Sustainability has become the prevailing paradigm, a model of conduct, and a central theme in social and media discourses within the past decade. However, it is still a marginal development concept in the interdisciplinary research field dealing with sustainability communication, especially with meaning-making processes in relevant communicative, for example, in corporate and industry contexts. This paper focuses on how the idea of sustainability is framed, anchored, and disseminated in energy companies' communication via social media channels and how the linguistic methods used by energy corporations concerning sustainability co-create their symbolic value. Specifically, this study has aimed to understand how the sustainability topic was discussed in the Twitter sphere of the most prominent energy companies in 2020. This study makes a three-fold contribution to sustainable research and practice. First, the study identifies the framing structure of sustainability content in social media communication in the energy sector. Secondly, the study identifies social media data as a viable source of sustainability conceptualization and its understanding through communication. Finally, this study illustrates how text mining and natural language processing (NLP) can be used as a research method for managing big text data and a tool for discovering latent communication structures. Sustainability is present and visible in the communication of the energy industry identified by (1) the semantic construction of phrases in communication that show a future, green, and clean orientation, but it is also strongly declarative, referring to what will be and can be done, and with positive emotions related to the communicated messages; and (2) decoupling from climate change and thus avoiding the industry's responsibility for the impact of global warming but promising clean, sustainable energy transformation and to avoid negative emotional connotation. However, one gets the impression that it takes on the character of a rhetorical art form related to the concept of decorum. In this view, the idea of sustainability is interpreted and shaped through the needs of the industry and as a rhetorical tool in building a positive narrative about companies and is used to gain legitimacy.

#### Keywords

Sustainable Communication, Corporate Communication, Sustainability, Energy Sector, Social Media.

## 1. Introduction

Sustainability is becoming the prevailing paradigm, a model of conduct resulting in corporations and industries taking on a much greater dimension of responsibility not only in the economic dimension but also in the social, environmental, governance, and cultural dimensions (Rasche et al., 2016; Rasche; Morsing; Moon, 2017; Weder; Einwiller; Eberwein, 2019). Sustainability as a field of interdisciplinary inquiry provides a broad cross-section of studies related to, among



many, sustainable communication (Christensen; Morsing; Thyssen, 2017; Weder; Dobrić, 2021; Weder; Rademacher; Schmidpeter, 2023; Fischer et al., 2021). Furthermore, in recent years, we could have observed increased legal action on the mandatory obligation to report sustainability information (European Council, 2014; 2022) that creates institutional pressures and standards for sustainability communication. However, a communication perspective to analyze sustainability is crucial as the narrative drive is at the core of the idea (Herrick; Pratt, 2013), and the perception of sustainability concept as being "the most recent communicative framework" (Adomßent et al., 2014), narrative which stimulates new discourses and paradigms. Sustainability communication shapes our perception and can drive change (Weder, 2017). Linguistic imagination often complements symbolic means, such as narratives, numbers, and visuals, and creates our future perceptions of reality and possibility (Hajer; Versteeg, 2019) so we can observe the rise of communicative, linguistic and semantic studies focused on how language is used to manipulate and influence opinion especially in acontext of uncertainty (Costa-Sánchez, 2020; Sampio; Carratalá, 2022). Business organizations are an integral part of communicative context creation. Therefore, they respond and co-create the narrative around sustainability. New digital communication channels have also opened a new path to imaginative and modern communication forms and fulfill functions of informationmanagement, relationship and identity management, and participation management (Schmidt, 2018). The impact of the narrative, which has always played a significant role, may now have an even greater impact due to the opinion-forming capabilities of modern information technology and social media (Couldry, 2010). Social media platforms have messages, conversations, and ideas about numerous subjects that create research opportunities for social measurement (Schober et al., 2016).

Corporate and industry contexts are among the leading forces that stimulate and shape the discourse and narratives around sustainability, complementing it with imagery imaginations. Corporate messages can change the way ideas are conceptualized and influence cognitive processes. Suitably shaped, let us feel emotions; thus, they will influence our normative behavior. Therefore, studies focusing on corporate sustainability from a company communication perspective are crucial for fully understanding and conceptualizing sustainability theory and its communication. Despite growing research on communication in a context related to sustainability, the dominant positions are marketing-oriented (Kong; Witmaier; Ko, 2021; Finkler; Aitken, 2021), especially when Social Media and sustainability communication are analyzed, the focus is on the role of message appeal and message source (Kapoor; Balaji; Jiang, 2021). A few publications are devoted to conceptualizing sustainable communication (Godemann; Michelsen, 2011; Weder; Krainer; Karmasin, 2021), and there is not enough attention addressed to the corporate context of sustainability discourse, its interrelation with politics and how corporate sustainability communication constructs and enables social representations and practices.

This paper focuses on how the idea of sustainability is framed, anchored, and disseminated in energy companies' communication via social media channels and how it affects the general discourse about sustainability. Specifically, this study has aimed to understand how the sustainability topic is discussed in the Twitter-sphere of the most prominent energy companies based on their communication on Twitter. This study makes a three-fold contribution to sustainable communication research and practice. First, the study identifies the framing structure of sustainability content in social media communication in the energy sector. Second, the study identifies social media data as a viable source of sustainability conceptualization and its understanding through communication. Finally, this study illustrates how text mining and natural language processing (NLP) can be used as a research method for managing big text data and a tool for discovering latent communication structures.

#### 2. Literature Review

Sustainability has been one of the central themes in the social and media discourses within thepast decade. Sustainability communication can be perceived as "all communication about specific issues (social, environmental, cultural, and economic issues), which thematizes, problematizes, discusses, and negotiates the principle of sustainability (**Weder**, 2022)". Communication is about information, knowledge, problems, and expert solutions to solve problems, maintain relationships, and create a social situation. On the other side, as **Weder et al.** (2023) point out, sustainability is "currently one of the most challenging terms and labels used and abused in various public communication efforts" and often labeled as a futile word (**De Burgh-Woodman; King**, 2013) or "wicked problem" (**Herrick; Pratt**, 2013) in a multidimensional societal discourse. It is essential to notice that while the discourse and narratives around human-environment relations are carried out, there is little analysis of sustainable communication and even "fewer dealing with meaning-making processes in relevant communicative contexts and specific countries or cultural settings."

Additionally, communication creates ideological framings by taking the experiences and activities of subjects and reframing them in an intuitively appealing way that maintains existing powerrelations (**Eagleton**, 2007) through coercion and consent frames in communication can affect frames in thought (**Scheufele**, 1999). It is a form of manipulation of collective belief systems to instill a common-sense worldview that is perceived beneficial for all despite not being so. However, as **Jaques; Islar, and Lord** (2019) notice, those common-sense worldviews constantly fluctuate and must be habitually reconstructed and reinforced by the hegemonic apparatuses within civil society and the state. How the information is formed and framed in an organized and publicly shaped discourse is significant. Theoretical concepts focus on *agenda setting* (**McCombs; Shaw**, 1972; **Weder; Dobrić**, 2021) and *framing* research paradigms within the

field of media studies (Schlichting, 2013; De Vreese, 2005; Muñiz, 2020; Hoppe; Kleinen-von Königslöw, 2023). Besides, digital technologies allow the production of curated and framed messages, ideas, and identities. However, insufficient studies deal with sustainability communication, especially meaning-making processes in relevant communicative corporate and industry contexts through strategic communication.

The language used by companies through their corporate communications can be considered constitutive and reproductive (Ferguson; Sales de Aguiar; Fearfull, 2016). Entman (1993) defined framing as "select[ing] some aspects of a reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation." Besides, organizational communication frequently occurs in the aftermath of complex sensemaking processes involving organizational members and can be approached as the reflexive micro-process of meaning construction (Apostol *et al.*, 2021). Vocabularyselection matters and reflects the logic of action and thought patterns as discourse performs essential persuasive functions in the communication processes of a modern organization and also serves to achieve specific organizational goals. Pilger (1998) points out that modern communication often represents a discursive seduction used strategically to reassure the public and stakeholders that ecological and sustainable issues like climate change are the subject of discussion, study, and industry activities. Jacobson *et al.* (2019) showed that positively framed sustainability messages are more persuasive as they generate more robust public support for environmental conservation. Parsons and Moffat (2014) point out that corporate sustainability communication has a strategic and legitimizing orientation.

In recent years, we have observed an increased interest in analyzing the communication narrative in the energy industry. Companies representing the energy industry play an important role because their strategic decisions regarding capital investments in high-emission fuels and technologiesinfluence the pace of decarbonization and implementation of sustainable development. It is also a mirror image of global and national societies in terms of the energy-intensive and consumption-basedlifestyle of the modern individual, especially in developed countries. The energy sector is also closely related to the institutional environment. As a result, strong interdependencies exist between the energy industry and natural resources, politics, and the economy. The energy sector influences the climate change debate by creating doubt-based disinformation campaigns regarding the presented scientific positions and undermining the credibility of scientists (**Supran; Oreskes**, 2017; 2020; 2021). The way the energy industry constructs communication about sustainability impacts overall discourse. It is noticeable that the industry's preference for the term "climate change" over "global warming" (**Jaworska**, 2018) is due to the greater neutrality of the word (**Schuldt; Konrath; Schwarz**, 2011) and less pressure implication (**Whitmarsh**, 2008).

Additionally, the most prevalent energy companies' disclosures are discursively constructed ofclimate change as a risk (**Dahl; Fløttum**, 2019). Moreover, the energy sector prefers emphasizing shared responsibility and a *win-win* scenario (**Jaworska**, 2018), omitting to eliminate agency and industry responsibility (**Supran; Oreskes**, 2021). The companies representing the energy sector present themselves as leaders and innovators in counteracting ecological challenges (**Livesey**, 2002a), even asa "nature protector" by grabbing the language of environmental movements (**Livesey**, 2002b). On top of that, the energy sector distorts itself from current problems and sources (**Alexander**, 2010). Instead, it emphasizes future orientation and the social dimension of sustainable development (**Jaworska; Nanda**, 2018). The repeated focus on future goals is based on the message that we are all responsiblefor tackling climate change. These activities co-created and disseminated ideological viewpointsfavorable to energy industry interests (**Farrell**, 2016b), leading to cultural and political polarization **Farrell** (2016a). Moreover, they drew attention to the nature of the relationship between the world of politics, which has become a barrier to approving adequate legislative measures (**Farrell; McConnell; Brulle**, 2019). Therefore, research on "sustainability" in the strategic communication of companies representing the energy sector is essential to conceptualize sustainable communication fully.

## 3. Methodology of the Research

The study focuses on the 50 most prominent energy companies, the most important enterprises in the industry, and their international Twitter accounts in 2020. As a platform, Twitter creates a digital space where users can share short messages and multimedia (**Schmidt**, 2014).Research indicates that users are more likely to follow because of the topics of interest and use this platform as a source of information and for opinions rather than keeping an eye on family and friends (**Kwak et al**., 2010). The energy sector was examined (based on Platts Top 250) and subjected to statistical text mining. S&P Global Platts Top 250 Global Energy Company Rankings ranks listed companies based on asset value, income, profits, and return on capital invested. Above-average resultscharacterize each company listed in the Platts Top 250 ranking. The companies represent the geographic cross-section; four were also ranked in Corporate Knights Global 100, ranking the world's 100 most sustainable corporations (*Vestas et al. A/S, Canadian Solar Inc, Veolia Environnement SA, Orsted A/S*). Table 1 lists the names of all companies and their Twitter accounts.

The study focused on tweets mentioned in Table 1, energy companies that were published in 2020. In that year, the surveyed companies published 42 217 tweets. There were five languages for publishing accounts: English, Spanish, French, Portuguese, and Polish. However, English was dominant as the accounts were selected based on the international recipient

audience. Therefore, statistical text mining was performed on published tweets in English. Of the 42217 tweets, 24949 were classified as retweeted sentences. The other 17268 tweets were used as non-retweeted sentences. Text mining allows us to analyze the connections between words that make recognition possible in the context of the created communication and its narrative character. It is based on examining unstructured text data and data extraction and postprocessing to gather information on patterns and topics of interest. We use UDpipe R package that is used for statistical calculations and the creation of graphs. The R software has a rich set of packages for natural language processing (NLP) and the generation of plotting plots incl. word frequency, word cloud, word associations, results, moods, and classification of emotions. First, we used the R package "UDPipe" to analyze post tagging, lemmatization, and co-occurrences. In the udpipe package, we can identify keywords in a text by following three methods: RAKE (Rapid Automatic Keyword Extraction; Rose, Engel, Cramer, Cowley, 2010), Collocation ordering using Pointwise Mutual Information (PMI, Church, Hanks, 1990), and Parts of Speech phrase sequence detection. Therefore, we used these three methods to identify keywords in text. Then, we look for co- occurrences of nouns/adjectives used in the same sentence and N-grams to form the descriptions' most common word pairs (bi-grams). After that, we count sentiment in the captions to reveal whether posters talk positively or negatively about tweets. Then, we perform the analysis using the Bing and NRC lexicon. Finally, to investigate both the comprehensive tweeting behavior and the original tweeting content, we analyzed the data, including retweets and excluding them, and compared both non-retweeted and retweeted data.

International	Name on Twitter @	International	Name on Twitter @	
Marathon Petroleum	MarathonPetrol	Valero Energy	ValeroEnergy	
Enterprise Product Partners	EProd Careers	SINOPEC	SinopecNews	
OJSC Rosneft Oil&Co	RosneftEN	NESTE	nestecorp	
Tokyo Electronic Power Co	TEPCO_English	GAZPROM	GazpromEN	
OJSC Lukoil Oil Co	lukoilengl	Ovintiv/Encana	ovintiv	
RWE AG	RWE_Group	Suncor	suncorenergy	
Electricite de France	EDFofficiel	Shneider Electric	SchneiderElec	
Petrobras (Petróleo Brasileiro SA)	petrobrasglobal	Iberdrola	iberdrola	
Coal India Ltd	CoalIndiaHQ	Agnico Eagle Mines Ltd	agnicoeagle	
Tenaga Nasional Berhard	Tenaga_Nasional	BP	BP_plc	
PG&E Corp	PGE4Me	Oil & Natural Gas Corporation	ONGC_	
ENGIE SA	ENGIEgroup	Ecopetrol	ECOPETROL_SA	
Canadian Natural Resources Ltd	CNRLCareers	TOTAL S.A.	Total	
National Grid plc	nationalgriduk	Equinor ASA	Equinor	
American Electric Power Co, Inc	AEPnews	Next Era Energy	NextEraEnergyR	
Enbridge	Enbridge	Enel	EnelGroup	
Indian Oil Corporation	IndianOilcl	ENI	eni	
Cenovus Energy	cenovus	EDP - Energias de Portugal S.A. Portugal	energiapt	
E.ON	EON_SE_en	Vestas Wind Systems A/S	Vestas	
Saudi Aramco	Aramco	Canadian Solar Inc	Canadian_Solar	
Exxon Mobile	exxonmobil	Veolia Environnement SA	Veolia	
Chevron	Chevron	Orsted A/S	Orsted	
Royal Dutch Shell	Shell	PKN ORLEN	PKN_ORLEN	
Phillips 66	Phillips66Co	LOTOS	GrupaLOTOS	
ConocoPhillips	conocophillips	MOL Hungarian Oil & Gas Co	MOL_Group	

	Table 1: The Survey	ved Companies	'Names and their	Twitter Accounts.
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#### 4. Results

In presenting the results and describing the communication of the largest energy companies on Twitter, we will analyze the most common words in the published tweets. Table 2 shows the top 20occurring nouns, verbs, and adjectives. Verbs such as help, thank, read, learn, work, keep, reduce, support, continue are frequently used, indicating that they are best suited for recognizing parts of speech in different linguistic contexts within tweets about sustainability. We can assume and interpretthe framing as a form of "work in progress" but also with a need for support.

When moving to analyze the most frequently used nouns, we can notice that # (hashtag), text, and energy are the most used, followed by & amp, emission, world, communities, future, gas, carbon, CEO, innovation, customers, environment, power, project, sustainability, year, oil, and people. We can see that Twitter's communication is focused on energy, the challenges of the industry and its characterizations, and the nature of its future. Its framework points to the industry's general environmental challenges: emissions, world, communities, future, gas, carbon, environment, power, sustainability, and oil. All three dimensions of sustainability: economic (energy, power, gas, oil, CEO, innovation, customers, project, oil), social (communities, people), and ecological (emissions, environment) are present. However, the financial and material dimensions of the economic part are not recognizable. It is worth noting that the noun climate does not rank among the top 20 nouns or transformation or verb/noun change. It suggests that message framing might want to avoid climate and climate change.

Table 2 also shows the top 20 occurring adjectives. It indicates that these adjectives are frequently used in tweets. The most used is the R.T., more, new, and sustainable. Furthermore, the words global, social, renewable, and safe are also popular. That indicates the orientation towards progressive ideas framing a better, more social, and environmentally friendly future, in which the sustainable perspective with renewable, clean, green energy seems to dominate. We can reveal the tweeting nature by checking the usage of verbs. Once again, we can notice all three sustainability dimensions with the frequency of adjectives. Besides, sustainability is one of the most frequently usednouns and adjectives. Based

on this, we can conclude that on Twitter, communication sustainability ishighly represented, which suggests that all business activities of studied companies are conducted considering the environmental and social dimensions.

Most occurring – Top 20									
Verbs		Nouns			Adjectives				
key	freq	freq_pct	key	freq	freq_pct	key	freq	freq_pct	
help	2576	1,60	#	54865	12.3	RT	7615	6.9	
're	2117	1,32	TEXT	13177	3.0	more	4225	3.8	
Thank	1744	1,08	energy	12482	2.8	new	3391	3.1	
Read	1581	0,98	&	6429	1.4	sustainable	3088	2.8	
Learn	1410	0,88	emissions	3585	0.8	global	1737	1.6	
have	1376	0,86	world	2834	0.6	social	1470	1.3	
working	1376	0,86	communities	2531	0.6	renewable	1171	1.1	
reduce	1307	0,81	future	2359	0.5	safe	1155	1.0	
Find	1172	0,73	gas	2084	0.5	first	995	0.9	
need	1101	0,68	carbon	1849	0.4	proud	905	0.8	
make	1091	0,68	CEO	1834	0.4	local	902	0.8	
support	1073	0,67	innovation	1830	0.4	environmental	889	0.8	
know	1046	0,65	customers	1822	0.4	clean	876	0.8	
keep	997	0,62	environment	1790	0.4	important	790	0.7	
do	997	0,62	power	1765	0.4	green	743	0.7	
work	955	0,59	project	1695	0.4	low	718	0.6	
ensure	948	0,59	sustainability	1600	0.4	digital	687	0.6	
continue	905	0,56	year	1538	0.3	other	673	0.6	
pour	873	0,54	oil	1489	0.3	key	671	0.6	
learn	856	0,53	people	1443	0.3	better	638	0.6	

Table 2: The most Occurring Verbs, Nouns, and Adjectives.

Next, the analysis focused on simple verb phrases that illustrate Figure 1. It shows the top 20 keywords of simple verb phrases that facilitate contextualizing the messages published in the tweets. The most popular simple word phrases are: we are, thank you, we're, we have, this is, we will, we can, you can, it's, is#, we aim, we aim to, we need to.



Figure 1: Most Occurring Verbs and Keywords Verb Phrases.

Both verbs and verb phrases reflect a development, learning, and transition process. Based on the word selection, this process is collaborative and mutual. We all have to engage in it. It is noticeable that verb phrases outline the necessity of future joint action by using almost always we form, supported by we can, and join us. They focus on the present and future time: we will, we aim, we aim to, and also point out the necessity of the action: we need. It instead shows declarative and aspirational framing of communication and sustainable engagement. The phrases with achievement due to past activity (for example, we did) are not significantly recognized. Also, the messages have a motivational character. They encourage recipes to act: we can, you can. When we compare it with the most common words like help, learn, reduce, and support. They focus on collective, the joint action of global society, then specify company or industry engagement.

The next step was analyzing a network of connections between words, which can be represented as ngrams, such as bigrams representing pairs of words. The most commonly used word pairs (bigrams) in a description can be expressed in a heat map or network; an example is presented in Figure 2. The arrows in the grid indicate the words that appear

first at the starting point and the words that appear last at the ending point. The results show how the main topic of energy is semantically presented and how the context of energy communication is structured. The pairing depicted in the figure indicates that when it comes to the dominant word - energy, which is the third most frequently mentioned word and the most popular adjective, it is used in the context of energy transformation and clean, renewable energy, energy conservation, sustainable energy, green energy. The triangle of words frequently used in tweets with sustainability orientation, sustainable energy, and sustainable future is worth mentioning, leading us to a sustainable energy future. Besides, the word energy is used for business purposes: energy company, energy business, energy sector, energydemand, and energy security. Energy is built around transition, future, sector, security, business, solutions, system, and storage. The context thus identified is operational and relates to the activities of enterprises.

Furthermore, it is presented in the context of emissions and their different sources: carbon, methane, gas, CO<sub>2</sub>, and the reduction of its impact. The energy future is sustainable, and the carbon footprint is low or carbon low. Therefore, the emissions must be reduced as they are net zero and low. So, the general outline of online communication concerns an optimistic future vision. However, no word pairing would indicate innovative technological solutions, which is so interesting that innovative solutions are suggested as clean energy sources.



Figure 2: Network of most Commonly Used Word Pairs (Bigrams) in Energy Companies Tweets in 202).

Although climate change is present in the communication of the biggest energy companies in the world, and the words climate and change are mutually connected, the phrase is not coupled with the network about energy word. Emissions and their reduction are associated with different energy sources, but climate change remains distant. It shows that in energy sector communication, we can notice a decoupling of future energy narrative from climate change, although research has shown that the top 20 companies<sup>1</sup>. In the energy industry are responsible for 35% of all CO<sub>2</sub> and methane emissions to the atmosphere, a total of 480 billion tones of CO<sub>2</sub> equivalent (GtCO<sub>2</sub>e) since 1965 (**Taylor; Watts**, 2019). Therefore, we can conclude that the energy sector does not want to be an indirect link with climate change responsibility, and it is focusing on operational matters like emission reduction and the business solution for the future of energy. Another additional interpretation is that climate change has a negative emotional connotation and often creates a sense of powerlessness for change. It contrasts corporate strategic marketing communication objectives that want to create a positive image of the company and foster its legitimacy. It is also worth mentioning that because 2020 is the year the COVID-19 pandemic spread worldwide, we can see it reflected in the communication ofthe energy sector.

Next, we identify what words a word cloud commonly uses in the description. Word Cloud is adata visualization technique expressing significant textual data points. It is used for representing text data in which the size of each word indicates its frequency and importance and shows the frequency of words in a document by varying the size of words in a visualization. Additionally, word clouds were constructed among non-tweeted and retweeted dates to compare the results. Retweeting differs from tweeting because retweeting is the action of forwarding a message that a Twitter user

<sup>&</sup>lt;sup>1</sup> They are in order of the largest emitters of CO<sub>2</sub>: 1) Saudi Aramco, 2) Chevron, 3) Gazprom, 4) ExxonMobil, 5) National Iranian Oil Co, 6) BP, 7) Royal Dutch Shell, 8) Coal India, 9) Pemex, 10) Petróleos de Venezuela, 11) PetroChina) 12) Peabody Energy, 13) ConocoPhillips, 14) Abu Dhabi National Oil Co, 15) Kuwait Petroleum Corp., 16) Iraq National Oil Co, 17) Total SA, 18) Sonatrach, 19) BHP Billiton, 20) Petrobras

has received and wants to share with their followers. Retweeted posts are the ones that the audience is the most engaged in and interested in. They spark conversation among Twitter users and create discourse. The results of all analyses in the form of Word Cloud are presented in Figure 3.

The cloud of emerging words confirms that the starting point of each conversation is energy and its transition and future dimension. Powerful and influential words that stand out throughout the tweets are sustainability orientation. Words such as sustainable, sustainability, environment, future, innovation, and emissions indicate an apparent reference to the issue of sustainable development. The communication framing of energy companies is pro-ecological and sustainable. Previous results are confirmed. The differences noted earlier are visible. The tweets that are not shared focus on the company's corroding activity, products, and services and are characterized by a customer orientation. These tweets posted further, commented on, which arouse the most emotions, relate to the nature of the energy transformation and challenges facing the industry. They evoke the most emotions and commitment, i.e., the responsiveness of recipients characterizes them. Presentation of the results of the comparison of retweeted and nonretweeted sentences: These words that appear in the social media discourse on sustainable development are focused on energy (energy, power) and its various sources (oil, gas, wind). There is also a noticeable future orientation (future, time) and thinking in technological solutions, innovation, solutions, and discovery from a global perspective (world). Customer orientation (customer, service, support) and safety are also visible. The word sustainable itself does not appear in its various variations in the 50 most common words. However, it seems in retweeted sentences (Figure 3 right). Text, energy, emissions, sustainable, future, communities, and words are the most common words in the text. We notice that retweeted and most commented tweets are connected with sustainability and the industry's challenges worldwide. It shows that recipients of published tweets are engaged in sustainability talks and how it will look in the future. Other vital words in retweeted posts that influence the shaping of the narrative in social media conducted by energy companies include taking into account the aspect of the energy transition and the indication of the importance of local communities (communities, community). Furthermore, these tweets are also passed on more often by comparing tweets that get retweeted with those that do not.



Figure 3: World Clouds of all English Posts/Tweets (Left), Non-retweeted Posts (Middle), and Retweeted Posts (Right).

We can assume that those that elicit consumers' responses are sustainability, forward-looking, sustainability, and emissions-related. Words such as NetZero appear there more often. They refer to more alternative energy sources, the climate of influence. Non-retweeting tweets are more cooperative-oriented and relate to industry, customer service, and products. They are informative. Sustainability is, therefore, an integral element in creating a trait in the organizational communication of companies in the fuel and energy industry. The topic is presented and outlined in the context of the industry's challenges and sustainability.

The next part of the study was an analysis of sentiment. The count of sentiment in the descriptions helps to reveal whether posters talk positively or negatively about tweets. We counted the appearance of positive or negative words. We perform the analysis by using the Bing lexicon and NRC lexicon. Although sustainability messages can be framed in different ways, the most studied message appeals are the rational appeal and the emotional appeal.

Moreover, emotions are described as a "nexus" that aids the organization and construction of ideological framings of the messages. Figure 4 presents the count of sentiment in English-language tweets. We can notice the generally positive feeling in Twitter communication of energy companies. It reflects instead an optimistic dimension of communication published in social media. Positive orientation prevails over negative. Bing assigns words into positive and negative categories. NRC sets terms into one or more of the following ten categories: positive, negative, anger, anticipation, disgust, fear, joy, sadness, surprise, and trust (Figure 4). There are more emotions to trust, joy, and expectation than fear and surprise. The only differences can be seen in the emotions presented in the tweets shared further. Moreover, while positive emotions are predominantly dominant, anger and fear are higher in negative retweets. This is because they have a greater expression of anger.



Figure 4: Count of Sentiment in the Descriptions of English Posts/Tweets.

Further analysis of the sentiment of non-retweeted tweets with retweeted ones shows the same general tendency. The positive sentiment of non-retweeted and retweeted posts dominates over the negative one. The communication is rather affirmative, confirmative, and supporting.



Figure 5: Count of Sentiment in the Descriptions in Non-retweeted Posts (Left) and Retweeted Posts (Right).

However, one exciting but delicately outlined issue appears in interpreting posts retweeted with negative sentiment (Figure 5). Stronger emotions, such as anger, dominate over fear and sadness. Anger and disgust are the least represented sentiments in non-retweeted tweets and general communication. However, anger is the most expressed negative sentiment in retweets that actively engage an audience. It can suggest that messages published by the energy sector are confronted and not always positively received. It can also reflect the defensive approach energy companies can present in their communication.

The above phrases are also reflected in the cloud of sentiments presented in Figure 6. While the positive tone is based on similar words, there are differences in tweeted and retweeted data. The communication framing focuses on affirmative: proud, safe, clean, happy, innovation, improve, award, excited, support, and reliable. It relates to the industry's self-image as a leader and innovator in contracting ecological challenges. Negative sentiments focus on emergency limitations and difficulty. However, an emergency is dominant in all English language tweets, among them the non-retweeted. The different structure of negative sentiments in a retweeted post is reflected in World Cloud and its word construction in contrast to a similar positive one. An emergency is not a dominant word. Instead,we can see negatively connoted words like harmful, limited, and waste. That means retweeted posts evoke a grander scale of positive and negative emotions. However, it should be noted that recipients may contest some of the information published on social media, negatively receive it, and criticize it. Furthermore, this is the case with energy companies, whose part of the published posts is received and commented on negatively. However, this is valuable information for researchers of discourse andnarrative, as well as for enterprises that treat organizational communication, including communicationin social media, as an integral part of their strategy.

World Clouds with sentiments also show the duality of messaging in Twitter communication. From one perspective, the message is positive and talks about pride, safety, clean energy, innovation, and progress. Other is in a constant state of emergency, harm, crisis, limitation, and waste.



Figure 6: Word Cloud with Bing Lexicon of the most Common Positive (Red) and Negative (Black) Words of all English Posts/Tweets (Left), Non-retweeted Posts (Middle), and Retweeted Posts (Right).

# 6. Conclusions

The purpose of this work has been to provide a framing of sustainability communication on Twitter in the energy sector. The analysis of the communication of the largest energy companies shows that the available frame concerns the nature of energy in the future and is related to the energy transformation and the industry's challenges. Sustainability is visibly present in communication messages published on social media. Also, emission and their reduction play an essential part in corporate communication. These are also the expectations of the recipients of news, who are more involved and engage in dialogic conversation about the information related to the issues of broadly defined sustainable development. However, climate change is not looped with the communication semantics of energy transformation. It shows that industries distance themselves from responsibility for climate change and spread misinformation about its scientific validation. Instead, there is a strong emphasis on collaborative action and mutual responses, future, and joint actions, emphasizing our ability to achieve the intended goals. Using this type of narrative, energy companies suggest that their response to climate change could only succeed if their suppliers and other stakeholder groups also took responsibility. Also, messages are framed around "work in progress" but in rather declarative form.

Furthermore, we notice that social media communication of companies representing the energy industry is characterized by positive sentiment and aims to evoke positive emotions and attitudes towards energy companies' actions. The messages are very favorably oriented, encouraging transformation towards a bright, sustainable future. The way semantics context in a Twitter post is constructed aims to anchor its overall promising visualization and image. The communication published via Twitter by the leading energy companies was not only used to illustrate sustainable engagement and organizational response to environmental and social challenges but they served to reproduce and shape the field in which they operate by employing linguistic strategies of symbolic construction and providing legitimacy. Even though sustainability, green, and clean energy are essential elements of the energy transformation process, the overall positive tone of communication contrasts a generally negative perception of global progress in reducing CO<sub>2</sub> emissions and evaluating the energy industry's role as a neglecting and delaying force. However, retweeted posts indicate the presence of a hostile reception. It is not dominant, as the message is directed positively. Still, it shows a certain dissonance between such a favorable structure of the transmission and its reception by stakeholders, which many scientists indicate. It means an orientation towards sustainable development, but its definition is still more declarative and symbolic. Performed studies reaffirmed that the sector frames communication about sustainability as a shared responsibility and sees itself as an innovator in counteracting ecological challenges. Overall, we can conclude that semantics analysis of Twitter messages of the most prominent energy companies shows:

- The narrative is constructed around energy and energy transformation toward a better, clean, sustainable, green, and safe future;
- The overall communication has a positive sentiment and is somewhat optimistic, focusing on collaboration and looking for future solutions. A negative emotion that is visible is focused on fear reflected in the emergency of the situation;
- Sustainability is an integral part of communication on Twitter. It is strongly coupled with energy but is used in a symbolic dimension as rhetoric decorum describing the future. However, the networks of semantic connections of the term sustainability do not go beyond the indicated references. The term sustainable future is not further defined and detailed;
- The narrative focuses on collective action and mutual responsibility;
- discourse about climate change is decoupled from the main description of energy. Fossil fuelsand reduction of emissions are not;
- There is no visible semiotic with a financial dimension of energy transformation represented by words describing economic dimensions and linkage with sustainable solutions.

That is a narrative that has been visible in traditional media and is reproduced in social media. It shows instead the environmental and socially engaged symbolism in strategic organizational communication institutional idea of sustainability to achieve social legitimization and maintain power structure. Therefore, our study illustrates how energy

corporations' linguistic strategies concerning sustainability must indicate their symbolic value in the relationship between language and other social processes. Sustainability is present and visible in the communication of the energy industry, as is the environmental dimension; however, one gets the impression that it takes on the rhetorical form of decorum. That rhetoric includes not only entirely crafted individual texts but a general identification system whose persuasive power derives from trivial repetition and boring daily reinforcement rather than exceptional rhetorical skills (**Burke**, 1969). So, decorum works on two different levels. It is related to the act of communication, its aesthetic form or rhetorical technique, driven by the relativistic impulse to please a particular audience in a particular situation, such as and with behavior, an "act of action" at a specific time to achieve specific political goals. The study shows it by (1) the semantic construction of phrases in communication that show a future, green, and clean orientation, but it is also strongly declarative, referring to what will be and can be done, and with positive emotions related to the communicated messages; and (2) decoupling from climate change and thus avoiding the industry's responsibility for the impact of global warming but promising clean, sustainable energy transformation.

Sustainability is vicariously seen as the master frame of the future, initiating new and modifying old narratives, discussions, and actions, so further complex and more detailed analysis should be conducted, as we can only fully understand sustainable communication through studying various elements that contribute to it. Therefore, further research should be conducted on these areas that should allow a greater focus on the discrepancy between organizational communication and its reception. Such a study would benefit all entities because it may identify areas that indicate a distinction and thus should be improved. Additionally, with new legislation (**European Council**, 2022), further sustainable communication studies could allow us to recognize how legislative pressures reflect in the semantic construction of organizational communication and track its impact on sens-making and narrative structure. From the point of view of practice, it is worthwhile to use the above analysis as a reference point for a communication strategy.

The present study is not without its limitations, of which the most significant is that the analysis focused on one industry and should expand into other sectors. While social media tends to grow toward expanding scope, at this stage, any research poses us with identifying semantic anchors and logic structure, but not detailed content analysis. It is worth noting that the study of short messages should be supported by a more detailed qualitative analysis extended by other communication channels. The research should also include nonverbal, imaged, and symbolic forms of communication and their emotional dimension as post-written and visual messages are beginning to dominate today.

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