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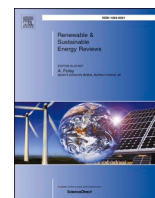
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Orchestrating the narrative: The role of fossil fuel companies in delaying the energy transition

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ABSTRACT

The scientific community has long identified the urgent need to phase out fossil fuels. Yet, fossil fuel companies have managed to avoid accountability by orchestrating the narrative associated to their public image. This paper therefore addresses the question: How has the narrative of fossil fuel companies evolved within the context of the climate crisis? Based on the notion of *petroculture*, which refers to the inextricable ties between fossil fuels and societies, through an extensive literature review and the analysis of Shell's sustainability reports, this paper identifies the evolving discursive strategies adopted by fossil fuel companies, contextualizing them over time. These strategies have been categorized into Pre-shift strategies, initially founded on explicit climate denial (Spreading Doubt, Questioning Science, Lobbying and Revolving Doors); and Post-shift strategies: subtle – but effective – forms of climate delay through the readaptation of Lobbying and Revolving Doors, the conviction of fossil fuels as irreplaceable (Necessitarianism), the adoption of a green facade (Greenwashing), blame placement towards their consumers (Strategic Blame Placement), and unconditional faith in technologies (Techno-optimism). This research provides the translation key necessary to recognize misleading behavior, allowing the reader to understand the underlying motivations behind fossil fuels companies' climate claims, and providing evidence to enable the energy transition to move forward.

1. Introduction

In 1965, the American Petroleum Institute (API) confirmed in a report presented to US President Lyndon Johnson that fossil fuels played a significant role in global warming and action was needed [1] (Environmental Pollution Panel, 1965). In 1979, internal documents of ExxonMobil confirmed that fossil fuel consumption would have disastrous effects by 2050 [2] (Supran & Oreskes, 2017). The 1992 United Nations Framework Convention on Climate Change [3] (UNFCCC, 1992) called for reducing greenhouse gas emissions especially from the energy sector, and the reports of the Intergovernmental Panel on Climate Change (IPCC) since then have reiterated this point. The link between the fossil fuel industry and climate change has been repeatedly recognized and scientifically proven. However, despite this recognition, the Paris Agreement on Climate Change of 2015 avoided mentioning fossil fuels and this industry has remained unaccountable. In fact, fossil fuel assets are collectively estimated to be worth upwards of 295 trillion dollars [4] (Linquiti & Cogswell, 2016), or three times global GDP, maintaining to this day a hegemonic position in the energy market.

This creates a monumental encumbrance to the energy transition, and the scholarship has long recognized the way fossil fuels companies instrumentalize their power of influence: some studies have begun to identify a few of the discursive strategies adopted by fossil fuel companies [5; [6–9]; 10] (Grasso, 2019; Rajak, 2020; DeSmog 2021; Ferns & Amaeshi, 2021; Kaupa, 2021; Megura & Gunderson 2022), and others have pointed out the incoherences between their green rhetoric and their actual business operations [11; [12,13]; 14] (Green et al., 2021; Mahdavi et al., 2022; Li et al., 2022; Trencher et al., 2023). The existing scholarship therefore highlights how fossil fuels companies have no intentions of phasing out fossil fuels, and every intention of maintaining the status quo. Nonetheless, there has been little systematic exploration of such strategies, specifically aimed at making them more recognizable to the reader, as well as their categorization and evolution over time as part of an overall shift of narrative orchestrated by the fossil fuel industry. Against this background, this study provides the reader with the translation key necessary to recognize misleading behavior, which can be applied to all forms of communication, from sustainability reports to advertisements. This is aimed at facilitating better-informed policy-making and consumer behavior within the energy transition.

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List of abbreviations

API	American Petroleum Institute US: United States
IPCC	Intergovernmental Panel on Climate Change UN: United Nations
GCC	Global Climate Coalition EU: European Union
BP	British Petroleum
ENI	Ente Nazionale Idrocarburi CCS: Carbon Capture and Storage

Hence, this study addresses the question: How has the narrative of fossil fuel companies evolved within the context of the climate crisis? To answer, a first round of analysis of the existing scholarship and Shell's sustainability reports was conducted to identify a comprehensive list of the discursive strategies [15] (Trencher et al., 2019) adopted by oil and gas companies. A second round of analysis of Shell's sustainability reports was then conducted to contextualize the strategies over time and assess their evolution. Finally, conclusions were drawn.

2. Theoretical framework and methods

This analysis builds on the concept of *petroculture* which refers to the long-term dependence of people, societies and countries on fossil fuels – especially in the Global North – to provide the energy needed for activities ranging from meeting basic needs to luxury demands. This form of dependence has led fossil fuels to be more than a product: they are a lifestyle [16; 17] (Daggett, 2018; Petroculture Research Group, 2016). They have enabled and energized colonization and capitalist societies and penetrate all aspects of the social fabric:

“Oil is not simply a source of energy: mere fuel, brute input. It is inextricably social. To describe oil in this way is to view the problem of energy transition from an unfamiliar perspective: not simply as the site of a new technical difficulty that must be solved but as the object of a social challenge. For to transition from oil to some other energy source will entail – whether we like it or not, whether we participate in the process or opt out – the unmaking and remaking of our social worlds.” [17] (Petrocultures Research Group, 2016: 17).

This interlinkage between the fossil fuel companies and the social fabric may have enabled the fossil fuel sector to avoid public scrutiny in the face of the climate emergency. Fossil fuel companies have nurtured this interlinkage and fossil fuel dependence by managing their own image in the public eye, maintaining their social license to operate [18] (Hall et al., 2015), and with it, the status quo. The notion of petroculture stems from the recognition that oil dependency was not a fortuitous outcome of industrial development, but was rather created and successively maintained [19] (Groß, Melsted, & Chachereau, 2023). LeQuesne [20] (2019) explains that studying the petroculture requires examining the public relations activities and the discourses and narratives produced by such companies, with a view to gaining consent from users and others to their activities – linking it sometimes to identity and nationhood – and try to create a certain degree of ‘inevitability’ about the use of these resources. This study builds on this perspective by examining the strategies employed by fossil fuel companies for such maintenance.

In this regard, an extensive review of the existing scholarship was conducted on the following topics: the historical ties of the fossil fuel industry with climate denial, its lobbying activity, greenwashing, techno-optimism, necessitarianism, and overall lack of accountability. This provided a solid base of information to identify, analyze and categorize the fossil fuel industry's strategies to hinder climate policy. Finally, content and discourse analysis were applied to Royal Dutch Shell's sustainability reports – from the first one in 2005 until 2021 – in order to contextualize the strategies and analyze their evolution over

time. Other fossil fuels companies could have been chosen as a case study for this research (e.g. the British company BP). The choice of Shell among others stems from the fact that within the European context, and particularly in the Netherlands (where this research was conducted), Shell has been the main target of multiple activist movements advocating for the fossil fuel phase-out, such as Greenpeace and Code Road. It is also one of the biggest contributors to CO₂ emissions [21] (Kenner & Heede, 2021), as well as one of the fossil fuel companies that adopts the most greenwashing techniques in Europe [7] (DeSmog, 2021), and influences climate denial campaigns [22; 23]; 5] (Mulvey et al., 2015; Muffett & Feit, 2017; Grasso, 2019).

3. Results: Pre-shift and post-shift strategies

This research reveals a comprehensive list of discursive strategies [15] (Trencher et al., 2019) that fossil fuel companies have adopted throughout time in order to maintain their hegemonic position in the energy market, regardless of their environmental impact. These strategies are identified and individually analyzed in the following sections. Based on the literature review, they have been categorized as pre-shift strategies and post-shift strategies. In fact, what distinguishes them is the pivotal shift of narrative adopted by the fossil fuel industry between the late 1990s and the early 2000s [24] (Cook et al., 2019), from explicitly denying the relevance of the climate crisis [22; 23]; 5] (Mulvey et al., 2015; Muffett & Feit, 2017; Grasso, 2019) to suddenly acknowledging it and representing themselves as the leaders of climate mitigation [25; 6–9]; 10] (Carton, 2019; Rajak, 2020; DeSmog 2021; Ferns & Amaeshi, 2021; Kaupa, 2021; Megura & Gunderson 2022). Such shift of narrative has provided fossil fuel companies with a social license to operate [18] (Hall et al., 2015), while ultimately maintaining the status quo and effectively hindering the energy transition [10] (Megura & Gunderson 2022).

3.1. Pre-shift strategies: Resisting change through denial

This section discusses four strategies (spreading doubt, questioning science, lobbying and revolving doors), which were predicated on explicit climate denial, and therefore belong in the pre-shift category. It is important to note that the shift of narrative has not caused the complete elimination of such strategies, but rather a reduction in use (in the case of spreading doubt and questioning science), or readaptation to fit the new narrative (in the case of lobbying and revolving doors).

3.1.1. Spreading doubt

The Covid-19 pandemic has shed light on the breach in scientific trust that has become a feature of modern societies [26] (Rutjens et al., 2021). This is no fortuitous accident, but rather a consequence of the strategic fabrication of uncertainty orchestrated by the world's most harmful industries, such as tobacco and fossil fuels [27; 22,23]; 24] (Oreskes & Conway, 2011; Mulvey et al., 2015; Muffett & Feit, 2017; Cook et al., 2019). In fact, fossil fuel companies have been aware of their environmental impact since the 1950s [28] (Franta, 2021). The beginning of their attempts to conceal their role within the climate crisis can be traced back to the year 1979. The American Petroleum Institute (API) – whose members include BP, Chevron, ConocoPhillips, ExxonMobil, and Shell – created a secret task force to monitor the scientific and policy developments on climate change. In one of their meetings, involving major fossil fuels representatives, engineer John Laurmann presented a slide with the following findings on the possible impacts of fossil fuels production:

“1 °C RISE (2005): BARELY NOTICEABLE

2.5 °C RISE (2038): MAJOR ECONOMIC CONSEQUENCES, STRONG REGIONAL DEPENDENCE

5 °C RISE (2067): GLOBALLY CATASTROPHIC EFFECTS” [28] (Franta, 2021: 666).

In the same year, i.e. 1979, the members of the task force were shown an internal assessment produced by ExxonMobil [24; 28] (Cook et al., 2019; Franta, 2021) that predicted catastrophic effects on the environment unless over 80 % of the fossil fuels then available were left underground and non-fossil energy sources replaced fossil fuels by the 1990s [29] (Knisely & Ferrall, 1979). The API then proceeded to suggest that continued fossil fuels exploration would be safe [30] (API, 1983). In fact, with complete disregard for the findings produced by its own task force, this API document was based on the findings of a 1980 study by MIT professor Carroll Wilson, entitled “The World Coal Study”, that called for a tripling coal production by the year 2000 [28] (Franta, 2021). In 1998, the API issued a so-called *roadmap* to convince the “average citizen” about thinking of climate change as a “non-issue” [22] (Mulvey et al., 2015).

This form of public manipulation was heavily perpetuated by the fossil fuel industry between the 1980s and the early 2000s [22; 23; 24] (Mulvey et al., 2015; Muffett & Feit, 2017; Cook et al., 2019), but still persists through the use of right-wing media and conservative think tanks to spread fake news [31] (López, 2022), and manufacturing *alternative causation* arguments to spark debates on otherwise scientifically sound facts [32] (Maani et al., 2022). An example of this is the blog post published by Shell entitled “Has climate change run its course?” [33] (Hone, 2018). Such title perfectly exemplifies the instrumentalization of doubt, transporting a scientific fact into the realm of public opinion.

3.1.2. Questioning science

During the research conducted for their book, the authors of *Merchants of Doubt* retrieved a document entitled *Bad Science: A Resource Book*, which they describe as “a how-to handbook for fact fighters, providing example after example of successful strategies for undermining science” [27] (Oreskes & Conway, 2011: 6). These strategies are, in fact, the focus of what Oreskes and Conway call the *Tobacco Strategy*, meaning the way that the tobacco industry, and other harmful industries, have arbitrarily and strategically attacked scientists and their work in order to make their business more profitable [27] (Oreskes & Conway, 2011). The *Tobacco Strategy* has been diligently followed by the fossil fuel industry, which perpetuated its pervasive campaign of climate denial for decades, by discrediting scientific facts [22; 23; 24] (Mulvey et al., 2015; Muffett & Feit, 2017; Cook et al., 2019).

The *inquisition of science* [34] (Powell, 2011) perpetuated by the fossil fuel industry reflects its obstinate rejection of the reality of the climate crisis. Previous studies have shown how this industry is still influencing academia and education, contributing to the lack of information on the climate crisis in public schools [35] (Eaton & Day, 2020; Tannock, 2020), and deepening the mistrust in science that characterizes modern societies [36] (Haney, 2022). Additionally, there is still evidence of fossil fuels companies attempting to discredit scientists, which has now acquired an additional layer of misogyny, as female scientists are usually targeted with the use of sexist prejudices [37] (Bell et al., 2019). While still in use, this strategy is now implemented in more nuanced ways due to the increasing amount of public awareness to the environmental cause. Nonetheless, this form of explicit climate denial is what usually captures the attention of the mainstream media [38] (Petersen, Vincent, & Westerling, 2019), allowing fossil fuel companies to adopt the strategies discussed in the following sections freely from public scrutiny.

3.1.3. Lobbying

In this study, lobbying has been categorized as a pre-shift strategy because it initially served as one of the main pillars of the fossil fuel industry’s denial campaign. Nonetheless, it is important to note that this strategy has persisted throughout the shift of narrative, and – albeit with

different motives – is still extremely effective [39; [40,41]; 42] (Fossil Free Politics, 2019; 2021; Laville, 2019; Carter & Dowler, 2021).

A historical landmark of the fossil fuel industry’s lobbying activity was the foundation of the Global Climate Coalition (GCC) in 1989, a lobbyist group led by giants of the industry such as Exxon, Chevron, BP, and Shell. Its role was to actively obstruct the formulation of climate policies, with a particular focus on the 1997 Kyoto Protocol that was to result from the climate change negotiations following the United Nations Framework Convention on Climate Change. The GCC was disbanded in 2002 after having accomplished its purpose [43; [23]; 44] (Brown, 2000; Muffett & Feit, 2017; Brulle, 2022). Since then, fossil fuel companies have been continuously successful in their shared goal of hindering climate action [5; 45] (Grasso, 2019; Gupta et al., 2024). An investigation conducted by Fossil Free Politics [39] (2019) analyzed the data available on the European Union (EU) Commission Transparency Register regarding the fossil fuel industry’s lobbying activity within the EU. It found that between 2010 and 2018, five major oil and gas companies – Shell, ExxonMobil, Total, Chevron, and BP – had spent € 251 million lobbying the EU. Additionally, between 2014 and 2018, the same companies had held 372 meetings with high-level European Commission officials; and the amount of money these companies have spent to lobby the European Union has been increasing [39] (Fossil Free Politics, 2019).

In 2022, Shell published its first “Climate and Energy Transition Lobbying Report” which aims to enhance the company’s transparency on their political ‘advocacy’. This report – in line with the rest of Shell’s sustainability reports – sheds light on Shell’s priorities in regards to the energy transition, which all entail the continued use of fossil fuels (see 3.2.1) as illustrated by the following statement: “Oil and gas make up around half of primary energy use today, and even though their share will decline, they will still be part of the energy system for decades to come”

[46] (Shell, 2022: 20). This report is composed by a patchwork of the post-shift strategies that will be discussed in the next section, therefore succeeding in nurturing an environmentalist facade while maintaining business as usual.

3.1.4. Revolving doors

Strictly related to lobbying activity is the case of *revolving doors*, which refers to the professionals who switch career paths from the public to the private sector and vice-versa, favouring the interests of one sector while working in the other. Fossil Free Politics [40] (2021) found that between 2015 (the year that COP21 took place) and 2021 (the year COP26 took place), the lobbying activity of five major fossil fuel companies – Shell, BP, Total, Equinor, ENI – has included a minimum of 71 cases of revolving doors. In the same time period, these companies spent €170 million lobbying the EU, and held 586 meetings with officials from the EU Commission [40] (Fossil Free Politics, 2021).

3.2. Post-shift strategies: Resisting change through delay

Following the growth in the credibility and influence of the environmental assessments produced by the IPCC and the scientific community as a whole, fossil fuel multinationals adopted a shift in narrative, based on their inevitable acknowledgment of the climate crisis. In this regard, the following statement released by BP in 1998 is very illustrative:

“The time to consider the policy dimensions of climate change is not when the link between greenhouse gases and climate change is conclusively proven, but when the possibility cannot be discounted and is taken seriously by the society of which we are part. We in BP have reached that point” [43] (Brown, 2000).

The post-shift strategies have been identified through the literature and they were contextualized through the analysis of Shell’s sustainability reports. They are: necessitarianism, greenwashing, strategic

blame placement, and techno-optimism.

3.2.1. Necessitarianism

All of the strategies identified throughout this study have one simple premise in common: fossil fuels are necessary and irreplaceable. This premise represents a strategy itself, which Megura and Gunderson [10] (2022) define as *necessitarianism*. This strategic tool was especially useful to the fossil fuel industry on two occasions: when the industry started operating on a large scale in order to create demand [20; 47] (LeQuésne, 2019; Malm, 2016), and after the shift of narrative from denial to delay. The latter entailed a more sophisticated form of necessitarianism, which acknowledges the importance of the energy transition, while simultaneously justifying the continued burning of fossil fuels to meet demand.

In Shell's sustainability reports, this strategy was deployed mainly through the narrative of the *energy mix*, which explicitly entails the use of fossil fuels even throughout the energy transition. A central theme is to present gas as an interim and inevitable energy source. Table 1 provides some examples.

3.2.2. Greenwashing

The purposeful portrayal of one's business as more sustainable, green, or environmentally conscious than it actually is, is defined as greenwashing, and it is a powerful marketing tool [55; 9]; 56] (Watson, 2017; Kaupa, 2021; Supran & Oreskes, 2021). The danger behind greenwashing is its normalizing effect, which legitimizes the production and use of harmful products by giving them a social license to exist and operate [5; 9] (Grasso, 2019; Kaupa, 2021). Greenwashing lifts all responsibility from the producer, and burdens the consumer with the difficult task of deciphering when a product is actually sustainable or not [9] (Kaupa, 2021). The informational asymmetry between the producer and the consumer [57; 9] (Stiglitz, 2002; Kaupa 2021) entails a lack of information on the consumer's side, which the producer strategically chooses not to disclose. In the case of the fossil fuel industry, this strategy represented the *piece de resistance* to their shift of narrative from active deniers of the climate crisis, to leaders of climate change mitigation [5; 9,56]; 10] (Grasso 2019; Kaupa, 2021; Supran & Oreskes, 2021; Megura & Gunderson, 2022).

Table 1
Necessitarianism in Shell's sustainability reports.

Year	Quote from Shell's sustainability report
2005	"Most of the growth in demand will, inevitably, still be met with more fossil fuels, including more oil and especially more natural gas. Expect them to continue to be a central part of the energy mix for many decades to come." [48]
2006	"Shell's scenarios and the IEA both expect renewable sources to grow quickly from today's low base. Their share of the total energy mix should also increase. However, fossil fuel use will also need to increase because so much extra energy will be needed." [49]
2009	"Oil sands will continue to play a part in the global energy mix. I'm sure of that. But they pose environmental challenges, and we have to listen to people's concerns." [50]
2013	"To help meet the growing energy demand fossil fuels are still likely to make up the bulk of the energy mix, with gas showing the biggest growth by mid-century" [51]
2014	"Despite the strong rise in renewables, a mix of energy sources will be needed to meet growing global demand. It is possible to have an energy mix that includes oil and gas, along with biofuels and solar and wind power, as part of the transition to a lower-carbon future. Hydrocarbons will be part of this energy transition. The key is to reduce the associated emissions with carbon capture and storage (CCS), energy efficiency and a shift from coal to gas." [52]
2015	"Our New Lens Scenarios show that energy needs towards the end of this century will be predominantly met by renewable energy sources such as solar, wind and biomass, with fossil fuels around 25 % of the energy mix." [53]
2020	"Increasing the role that gas plays in the energy mix is one way countries can take action as the world moves to a low-carbon future." [54]

Fossil fuel companies have mastered the art of omission, which Megura & Gunderson [10] (2022) define as a combination of risk minimization (the purposeful selection of information that conceals the true harming potential of fossil fuels), and possibility blindness (taking for granted that societies will permanently depend on fossil fuels). The sustainability reports published by Shell analyzed in this study contain various forms of greenwashing, and are a form of greenwashing themselves. This analysis was based on the use that Kaupa [9] (2021) makes of Thumper's rule "*If you can't say something nice, don't say nothing at all*", which, applied to the fossil fuel industry means that an inherently harmful business should not be presented in positive terms. Greenwashing is a multifaceted strategy, and therefore its analysis was the most complex to conduct. Through Shell's sustainability reports it can be unpacked as follows:

Claiming sustainability: In all of its reports Shell claims sustainability as one of the core values of the company, while constantly reiterating the need for fossil fuel companies within the energy market. For example, the report published in 2015 (notably, after the Paris agreement took place) states that:

"a successful shift to a low-carbon energy system and to keep global temperatures well below 2 °C (...) will require a combination of the best of renewables, gas and oil to meet all types of energy needs and create low-carbon economies and communities. It also requires the large-scale implementation of technologies, such as carbon capture and storage." [53] (Shell, 2015: 13).

This statement is factually incorrect, since what is necessary in order to meet the targets established by the Paris Agreement is a fossil fuel phase-out [58] (McGlade & Ekins, 2015), but it successfully implements in the mind of the reader the presence of fossil fuels within a transition towards sustainable energy sources (see 3.2.1).

Strategic word use: One of Shell's most subtle greenwashing attempts is to gradually replace the word 'oil' with 'energy'. In the 2005 report [48], which consists of 25,449 words, the word 'oil' was mentioned 131 times, and the word 'energy' 202 times; while in the 2021 report [59], which consists of 34,817 words, the word 'oil' was mentioned 84 times and the word 'energy' 244 times. The relevance behind this shift of narrative stems from the fact that the word 'oil' evokes environmental damage and pollution, while 'energy' is perceived as a more neutral term, as well as evoking the right to access energy stated in the 2030 Agenda on the Sustainable Development Goals.

Overstating commitment to renewables: A fact that is crucial to keep in mind while analyzing greenwashing behaviour is that fossil fuel companies are fossil fuel producers. While it might seem obvious, the strategies adopted by this industry aim to conceal this fact in particular, making it hardly recognizable under layers and layers of greenwashing. For instance, Shell has a peculiar approach to renewables, strategically undermining and highlighting their importance whenever it is most convenient throughout the reports (see 4). Oil and gas companies typically invest less than 1% of their total tangible assets on renewables [60] (IEA, 2020). According to Shell's 2021 Q2 report, they invested between two and three billion dollars in renewable energy, meanwhile, the same year they invested between 16 and 17 billion dollars in oil and gas [7] (DeSmog, 2021). Previous studies have already examined the incoherence between the discourses of fossil fuels companies (such as Shell and BP) and their actual investments, concluding that the transition to cleaner energy is not truly happening [13] (Li et al., 2022). This explicit disparity between Shell's business priorities is not so evident in their sustainability reports, and it is masked by statements such as: "Our New Lens Scenarios show that energy needs towards the end of this century will be predominantly met by renewable energy sources such as solar, wind and biomass ...", although later reiterating "... with fossil fuels around 25% of the energy mix" [53] (Shell, 2015: 11). This back-and-forth between promoting renewables and legitimizing fossil fuels is further analysed in the techno-optimism section (see 3.2.4).

Half-truths: A very common form of greenwashing is presenting

half-truths [61] (Scanlan, 2017), in other words, selecting pieces of information that are not necessarily lies, but conveniently portray only the part of the truth that fits the narrative in question. Here are two recurrent examples from the sustainability reports: “We are already producing 3 % of the world’s natural gas – the cleanest-burning fossil fuel” [62] (Shell, 2007), and “Natural gas emits 45–55 % fewer GHG emissions than coal” [54] (Shell, 2020). These types of statements represent natural gas as a “clean” source of energy by comparing it to other fossil fuels, while concealing the fact that gas itself is inherently harmful to the environment [61] (Scanlan, 2017), and that “45–55 % fewer GHG emissions than coal” is still a completely unsustainable amount of emissions [61] (Scanlan, 2017). Additionally, the greenhouse gas emitted by natural gas is methane, which, as Shell themselves state in their 2020 report, “is a potent greenhouse gas (GHG) and when it is released into the atmosphere it has a much higher immediate global warming impact than carbon dioxide.” [54] (Shell, 2020: 40). Therefore, their aim is not necessarily to conceal information, but to create a cognitive dissonance between their products, and their environmental consequences. As Kaupa [9] (2021: 28) puts it:

“The real misleading potential of comparative fossil fuel advertising thus lies not in the provision of incomplete data, but in the fact that relative environmental claims are quickly understood by consumers as absolute. Highlighting relative benefits is thereby liable to obscure absolute harm.”

Net-zero: The concept of net-zero started appearing in Shell’s sustainability reports in 2014, as a consequence of the popularization of this concept (see 4), which entails the assumption that greenhouse gas emissions can be compensated or offset by investing in environmentally friendly activities and projects [53] (Shell, 2015). This concept has exponentially increased in popularity and is used currently by states, companies and cities to flaunt their green commitments. However, this concept has been repeatedly recognized as problematic because it potentially represents yet another way to maintain and legitimize the status quo [21; [63]; 64] (Carton, 2019; Dyke, Watson & Knorr, 2022; Kaupa, 2022). Most importantly, it diminishes the urgency for climate action by finding an apparent win-win compromise between endless economic growth and environmental protection. Previous studies have, in fact, pointed out that the fossil fuels companies’ commitment to offsetting, does not actually translate into a commitment to decarbonization [13] (Li et al., 2022). In this regard, the analysis of Shell’s sustainability reports brought up the instrumentalization of the *net-zero* term for mere marketing purposes: in the reports from 2014 to 2019 [52, 53,65–68] the term was mentioned a maximum of 11 times, until the 2020 Race to Zero campaign brought significant attention to the concept, and in the 2020 report [54] the word ‘net-zero’ was mentioned 142 times.

Avoiding the elephant in the room: Half-truths also imply avoiding the elephant in the room. In one of the several sections dedicated to Shell’s role in the energy transition, they explicitly explain their vision:

“Shell can presently best support the transition to a lower-carbon world by working to reduce carbon in the energy system. We urge countries and industries to make the switch from coal to lower-carbon natural gas and we share our knowledge of CCS technologies to keep CO₂ out of the atmosphere. We also invest in hydrogen and advanced biofuels as transport fuels.” [53] (Shell, 2015: 1).

This statement is representative of their apparent commitment to the energy transition, while simultaneously revealing their persistent refusal to phase out of fossil fuels, which causes a loophole in the logic of the transition itself: if not from fossil fuels, what are they transitioning from?

3.2.3. Strategic blame placement

Once explicit climate denial became impossible to maintain in the public eye, the shift of narrative towards sustainability allowed fossil fuel companies to set their own terms of action for the energy transition. This is what Rajak [6] (2020) identifies as *willful blindness*, and it allows

the fossil fuel industry to represent itself simultaneously as the omnipotent leader of the energy transition, and the victim of the scapegoats they use to justify their inaction: the time necessary to develop technology, the lack of investments on CCS, the greedy shareholders who demand constant exploration, or the needy consumers with their endless demand for fossil fuels [6] (Rajak, 2020). This strategy is noticeable throughout each one of Shell’s sustainability reports, and it is applied through a form of pseudo-advocacy that lifts them from any responsibility. Table 2 illustrates this.

The emphasis on the needs of the consumers is particularly problematic: first, because it implies a full abdication of agency on the producer’s side; and second because it has been proven that individual lifestyle changes, while necessary, are not enough to mitigate the climate crisis [69] (Costa, 2020). With such “soaring global demand for oil and gas” [48] (Shell, 2005: 3), the fossil fuel industry would have a secure place in the energy market without any effort. Yet, the strategies analyzed in this study are proof of their continued efforts to legitimize their own existence.

3.2.4. Techno-optimism

In the attempt to portray themselves as the leaders of the energy transition, fossil fuel companies had to find a way to explain how eternally burning fossil fuels could be considered a sustainable solution. Techno-optimism, or unconditional faith in technology [6,10,70,71] (Gunderson et al., 2020; Rajak, 2020; Megura & Gunderson, 2022; Ribeiro, & Soromenho-Marques, 2022), became one of the main pillars of this carefully orchestrated fantasy. The fossil fuel industry displays techno-optimism mainly through its unbreakable faith in the technique of Carbon Capture and Storage (CCS), which entails liquifying the CO₂ emitted by burning fossil fuels, and permanently storing it under the surface of Earth [7] (DeSmog, 2021). Each sustainability report published by Shell from 2005 until 2021 has a section dedicated to CCS, and it is also included in every future scenario described in the reports. Table 3 presents a few examples.

Despite the fossil fuel industry’s efforts to present this technology as promising, the scientific community has expressed serious concerns over its large-scale feasibility, due to the limited geological space available for storage [72] (Lane, Greig, & Garnett, 2021), and long-term efficiency, given that CO₂ storage capacity in 2050 is projected to be only 10 % of what is required [73] (Martin-Roberts et al., 2021). Additionally, the offsetting of emissions from the Global North by using land and

Table 2
Strategic Blame Placement quotes from Shell’s sustainability reports.

Year	Quote from Shell’s sustainability report
2005	“Our customers emit six to seven times more CO ₂ using our energy products than we fo making them – more than 750 million tonnes in a typical year.” [48]
2007	“We continued our push to provide products that help our customers improve their fuel efficiency, demonstrating our determination to help consumers use less energy.” [62]
2009	“continued investments in more oil and chemical products and natural gas supplies will be essential to satisfy the needs of global energy consumers.” [50]
2013	“The International Energy Agency says that unless governments change policy, the world faces an insecure, inefficient and high-carbon energy future.” [51] “Governments must provide the right frameworks to encourage economic investment in cleaner energy, while business can offer technology, know-how, transparency and pragmatic long-term views.” [51]
2015	“Governments play a key role in their energy transitions: their policy choices can drive innovation in low-carbon technologies, and encourage investment in low-carbon energy and infrastructure. Policies and frameworks need to be developed to support businesses and consumers to make choices that reduce emissions.” [53]
2020	“Emissions from our own operations make up less than 10 % of our total emissions. Most of our emissions come from the use of the energy we sell, so we aim to help our customers cut their emissions when they use that energy.” [54]

Table 3
Techno-optimism quotes in Shell's sustainability reports.

Year	Quote from Shell's sustainability report
2007	"In Blueprints, wind and solar power grow strongly after 2030. While coal use also rises steadily, by 2050, CO ₂ from power plants is being captured and stored on a large scale." [62]
2009	"Shell is taking steps today to help build the energy system of tomorrow: producing more cleaner-burning natural gas; working to deliver advanced fuels and lubricants and lower-carbon biofuels; and building a capability in carbon capture and storage." [50]
2015	"There are things societies can do to speed up their own energy transitions. For example, expand the use of renewable energy, use cleaner-burning natural gas to replace coal, and increase the uptake of carbon capture and storage." [53] "At Shell, we expect an emerging low-carbon energy system to include traditional fuels such as oil and natural gas alongside renewable energy and carbon capture and storage." [53]
2020	"Becoming a net-zero emissions energy business means that we are reducing emissions from our operations, and from the fuels and other energy products we sell to our customers. It also means capturing and storing emissions safely underground using technology." [54]

resources of the Global South, raises several issues in terms of intra-generational and intergenerational justice by replicating colonialist patterns [74,75] (Kreuter & Lederer, 2021; Alexander & Stanley, 2022). Fundamentally, this technology does not aim to prevent pollution, but rather infinitely justify its existence [70,76] (Gunderson et al., 2020; von Rothkirch et al., 2024).

Gunderson, and colleagues [70] (2020) have analyzed the way that the fossil fuel industry frames CCS, and they identified three main discourses:

- faith in innovation, or the conviction that all the issues regarding this technology will eventually be overcome;
- value instrumentalization, or the strategic choice of highlighting instrumental benefits of CCS (such as economic profit), which stem from the assumption that any new technology can only be good;
- status quo maintenance, or using a technological fix to legitimize and reproduce the same social patterns and processes.

The last aspect became particularly evident when comparing the narrative Shell adopted with CCS and with renewables. The statements regarding CCS are exclusively optimistic and clearly show their blind trust in this – still virtually inefficient – solution; meanwhile, the statements regarding renewables are always cautious and sometimes pessimistic. Table 4 illustrates this.

To understand the reasoning behind this approach, it is important to keep in mind that CCS is meant to legitimize the continued use of fossil fuels, while renewables are meant to replace them. This attachment to CCS, and to technology in general, evokes what Kerschner and Ehlers.

[77] (2016) define as technophilia, or the assumption that any technological fix results in improvement. Rajak [6] (2020) finds the perfect metaphor to understand this phenomenon:

Table 4
Comparison between CCS narrative and renewables narrative.

Statements regarding CCS	Statements regarding renewables
"CCS technology could be removing over 10 billion tonnes of CO ₂ emissions a year by 2050 if rapid deployment starts this decade, according to the IEA. This is equivalent to a third of current fossil fuel emissions" (2009) [50]	"Renewable energy will grow rapidly but it will take many years to meet large-scale demand. Traditionally it has taken around 30 years for a new energy source to capture 1 % of the global market" (2009) [50]
"CCS could remove up to 90 % of CO ₂ emissions from power generation and play a key role in supporting the shift to a lower-carbon future." (2015) [53]	"While renewable energy sources are growing fast, there are technological challenges to achieving a completely renewable energy system" (2015) [53]

"In the last minutes of Greek tragedy, as the action headed towards inevitable catastrophe, the deus ex machina (a theatrical device meaning 'god from a machine') would descend from on high to resolve the unresolvable, reconcile strife, and bring harmony from disorder. (...) The deus ex machina is, after all, the ultimate device in the performance of human impotence – a mechanical embodiment of the abdication of human agency to resolve the catastrophes and conflicts they have created." [6] (Rajak, 2020: 474)

In the face of the uncertainties posed by the climate crisis, the fossil fuel industry's techno-optimism is comparable to faith as a last resource [6] (Rajak, 2020). The director of Carbon Tracker, interviewed by Rajak back in 2016, stated the following: "we need to import neuroscientists into business to explain the burial of climate risk among men of a particular age" [6] (Rajak, 2020: 486). Her observation following this quote, once again, helps to understand this phenomenon:

"The wilful blindness of oil company managers was, according to this logic, not a strategic act in pursuit of their interests, it was a neurological deficiency beyond their conscious agency, on a par with Oliver Sacks' *Man who Mistook his Wife for a Hat*." [6] (Rajak, 2020: 486)

4. Results: The chronological evolution of the narrative

The content and discourse analysis of Shell's sustainability reports from 2005 until 2021 shed light on the evolution in the application of the strategies over time, which resulted in the identification of four different readaptations of the shift of narrative (Fig. 1). As shown in the following sections, it is in fact a narrative in constant evolution. Nonetheless, it is important to note that the company's scope remains continued fossil fuel dependence – perfectly exemplified by the decision of Shell's current CEO to abandon their commitment to reduce oil production [78] (Jolly, 2023) – and its profits, which to this day remain higher than the company's own expectations [79] (Edser, 2023).

First readaptation of the narrative "the debate is over" (2005–2007): The first sustainability report dates back to the year 2005, notably when the Kyoto Protocol entered in force. The strategies used between 2005 and 2007 are consistent among the three reports, and few things are worth noting: first and foremost, Shell explicitly states that "the debate about CO₂'s impact on the climate is over" [62] (Shell, 2007), which addresses its recent shift from denial to acknowledgment; second, it highlights repeatedly its leading position on climate mitigation among fossil fuel companies; and third, the necessitarianism strategy is very easily recognizable and consistently used throughout the reports.

Second readaptation of the narrative "desperately need oil" (2008–2014): The year 2008 required considerable changes in the narrative. During this period of time, each report [50–52,80–83] addresses the impacts of the 2008 economic crisis on the company, and every year is described as 'difficult' or 'challenging'. This approach also implied a shift of priorities for the company: it explicitly abandoned the greenwashing technique of overstating its commitment to renewables (see 3.2.2) by affirming "We have looked very seriously at wind, solar, biofuels and hydrogen, and decided that, for the next few years, our priority will be on transport biofuels. They are closest to our fuels business, which means we can add real value." [80] (Shell, 2008). In fact, this is the period of time in which the company most explicitly promotes and legitimizes the use of fossil fuels: each year the emphasis on techno-optimism and CCS increased (see 3.2.4.); in 2008 there is a record of statements in open contrast with sustainability, from an average of 8 contrasting statements per year, the number peaks up to 21; in 2009 the number of times the word 'gas' is mentioned peaks up to 218 compared to an average of 134 times in the previous years; in 2011, for the first and only time, the number of times the word 'oil' is mentioned equals the number of times the word 'energy' is mentioned; and in 2013,

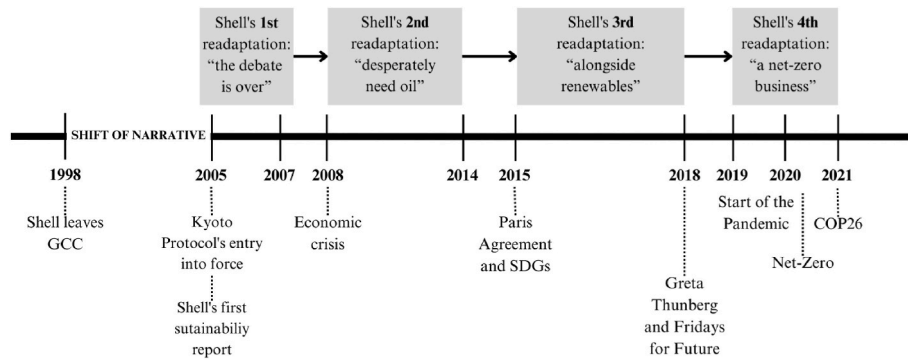


Fig. 1. Shell’s readaptation of the narrative over time.

for the first and only time, the word ‘oil’ is mentioned more times than the word ‘energy’. This group of findings shows that in times of crisis, fossil fuel companies tend to reveal their true nature and temporarily decrease their attempts to appear sustainable [8] (Ferns & Amaeshi, 2021). In this regard, the Russian war on Ukraine has triggered this reaction from the fossil fuel industry [84] (Milman, 2022). After the research for this study was completed, Shell’s CEO Wael Sawan stated in an interview with BBC:

“The reality is, the energy system of today continues to desperately need oil and gas. And before we are able to let go of that, we need to make sure that we have developed the energy systems of the future — and we are not yet, collectively, moving at the pace (required for) that to happen.” [85] (Jack, 2023)

Third readaptation of the narrative “alongside renewables” (2015–2018): The year 2015 marks another considerable change, as a consequence of the Paris Agreement and the creation of the United Nation’s 2030 Agenda and the Sustainable Development Goals, which remains coherently visible until 2018. In this period of time, each year is described as ‘significant’, and once again there is a shift in the priorities: the emphasis on renewables makes a comeback becoming more proportionate to the emphasis on CCS and techno-optimism, and the number of times CCS is mentioned reaches an all time peak of 56 times, compared to an average of 23 times in the previous reports. Additionally, in 2018, notably the year that Greta Thunberg draws significant attention to the environmental cause in the mainstream media, the emphasis on renewables exceeds the emphasis on CCS, a trend that will remain noticeable until 2021. Finally, the number of times the word ‘gas’ is mentioned reaches a new and all time peak of 326 times; and the term ‘energy transition’, first used timidly in the 2014 report (mentioned 13 times), in 2015 almost triplicates (mentioned 36 times).

Fourth readaptation of the narrative “a net-zero business” (2019–2021): The last noticeable shift occurs between the years 2019 and 2020, notably when the Covid-19 epidemic becomes global. The description of each year loses any positive connotation, and acknowledges the impact of the pandemic on the world and the company. The most significant aspects of this readaptation result from two events: the popularization of the Net-zero concept, and the UN conference of the parties in Glasgow (COP26). The term *Net-zero* first appears in the reports in 2014, and in the following years is mentioned an average of seven times, until 2020, when it becomes more popular as a consequence of the Race to Zero campaign [86] (UNFCCC, 2020), and it peaks to 142 times. Regarding COP26, the conference was highly anticipated by the media, and preceded by intense lobbying activity by the fossil fuel industry [87] (McGrath, 2021). In fact, sustainability reports themselves represent a form of lobbying. It is worth noting that the 2020 report contained a record number of mentions of the word ‘renewables’ (71 times). Additionally, the 2021 report contained fewer mentions of the word ‘oil’ than ever (84 times).

5. Discussion

Building on the existing literature, this study has identified and contextualized the strategies adopted by fossil fuel companies to maintain the status quo. Fig. 2 illustrates the sequential and cumulative set of strategies adopted by fossil fuel companies that can be represented as the steps within a staircase: each one has led to the next, and all of them lead in the same direction – continued fossil fuel production. Some strategies (spreading doubt and questioning science) started fading away after the public acknowledgment of the climate crisis, while others (lobbying and revolving doors) were maintained throughout this period by readapting them to the new narrative. The shift of narrative provided the fossil fuel industry the opportunity to keep climbing the staircase and maintain their hegemony in the energy market. As shown in the figure, each strategy becomes increasingly more intersected with the others – therefore more nuanced and difficult to recognize.

The results of this study provoke a reflection on the extent to which the strategies are purposefully adopted for the sake of continuous profit, or rather as a defensive response to the uncomfortable reality of the climate crisis. The latest strategies (i.e. Strategic Blame Placement and Techno-optimism) both present one element that was not evident in the previous ones: impotence. In fact, they are both based on the premise that as fossil fuels companies there is only so much they can do to mitigate the climate crisis, demonstrating a clear abdication of responsibility. As mentioned in the introduction (see 1), and in line with the notion of *petroculture*, the energy transition implies a transition away from the current social structure and lifestyles. In an industry widely dominated by privileged elites, a shift away from the status quo inevitably results in a loss of privilege [16] (Daggett, 2018). This study has shown the continuous misleading efforts of an industry that within the context of the climate crisis has become inherently obsolete. This has put fossil fuel companies in an unprecedented vulnerable position, of which – based on such efforts – they are well aware. That is why holding the translation key necessary to identify misleading behavior is fundamental

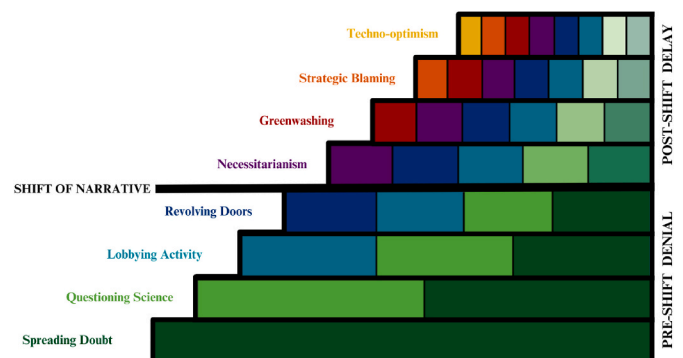


Fig. 2. The steps within the shift of narrative.

to set the energy transition in motion. Governments and juridical systems play a crucial role in this regard, since the academic community has already established the grounds to hold fossil fuel companies accountable [88,89] (Arkush, & Braman, 2024; Wentz, & Franta, 2022), and through our research we have provided the tools to take action.

6. Conclusion

This research has resulted in a comprehensive list of the evolving strategies adopted by fossil fuel companies, which span from explicit climate denial to a pivotal shift of narrative into the delay of the energy transition based on the instrumentalization of the environmental discourse. This shift of narrative has allowed the fossil fuel industry to orchestrate its public reputation and maintain its hegemony in the energy market by avoiding accountability and creating a dissonance between its products and their environmental impact. The use of the theoretical concept of *petroculture* has allowed us to recognize the patterns among the discursive strategies adopted by this industry, and collocate them within the bigger picture of an all pervasive culture of fossil fueled lifestyles and identities. This study, in reviewing the literature and the sustainability reports of Royal Dutch Shell, categorizes the evolving discursive strategies into Pre-shift strategies (Spreading Doubt, Questioning Science, Lobbying and Revolving Doors), initially founded on explicit climate denial; and Post-shift strategies (Necessitarianism, Greenwashing, Strategic Blame Placement, and Techno-optimism) founded on the public acknowledgment of the climate crisis. The chronological contextualization of the strategies through Shell's sustainability reports has shed light on its instrumentalization of the environmental discourse as a marketing tool (see 4). In fact, we have shown how the external challenges faced by the company (i.e. the public acknowledgment of climate change, the 2008 economic crisis, the evolution of climate policy with the Paris Agreement, and the Covid-19 pandemic) have all triggered a readaptation of the narrative (i.e. Shell's own acknowledgment of climate change, the portrayal of the company as a victim of the economic crisis, the intensification of the green facade following the Paris Agreement, and the portrayal of the company as a leader of the energy transition throughout the pandemic). This research therefore provides additional evidence of the metamorphic capabilities of fossil fuels companies, as well as compiling the information necessary for the agents within the energy transition to recognize and understand such misleading behavior. Finally, further research is needed on the motivations underlying the fossil fuels companies' persistent efforts to delay climate action, and highlight that it might be a sign of vulnerability in front of the uncertainties of the climate crisis. Future research and climate policy should take this into account in order to enable systemic change and promote transparency at a time when well-informed climate action is more urgent than ever.

6.1. Limitations

We acknowledge the presence of the following caveats in this study:

- We have tried to compile as much information as possible to create a more comprehensive list of strategies compared to the ones presented in previous studies. Of course, the body of literature on this topic is ever-growing, and there can therefore always be new elements added to the list. We encourage future research to further investigate the patterns in the discourses adopted by this and other harmful industries, in order to strengthen public understanding of such strategies.
- Due to time constraints, we were only able to analyze Shell's sustainability reports from 2005 until 2021. There have been multiple new reports published since the research for this study was concluded. Future research could explore the most recent developments in this regard, as well as widening the scope of the research beyond sustainability reports.

- This research has not looked at national oil and gas companies where the adoption of nationalist discourses plays an important role in shaping their public image [90,91] (Bebbington & Bury, 2013; Kulin, Johansson Sevä, & Dunlap, 2021).
- Lastly, in our analysis of Shell's sustainability reports (see 3.2.2 and 4) we have highlighted the differences in the use of certain keywords. We note that we have not normalized these results based on the total wordcount of the reports. The difference in use between one word and the other is still apparent regardless of the normalization, yet we acknowledge that the analysis would have been more complete if we had done this additional step and provided the percentages of use. For future research making use of word frequency, we recommend the approach used by Li et al. [13] (2022).

CRediT authorship contribution statement

Giuliana Gentile: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Software, Validation, Visualization, Roles, Writing – original draft, Writing – review & editing. **Joyeeta Gupta:** Conceptualization, Data curation, Formal analysis, Funding acquisition, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Roles, Writing – original draft.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Data availability

Data will be made available on request.

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