



SUSTAINABILITY & CLIMATE RISKS

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Unmasking greenwashing: Harnessing AI for transparency in the fossil fuel sector

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KEY POINTS



- ▶ The fossil fuel-based energy sector significantly contributes to global greenhouse gas emissions, yet it continues to dominate energy generation.
- ▶ Greenwashing practices, particularly in the fossil fuel industry, mislead consumers and investors regarding environmental responsibility.
- ▶ Integrating artificial intelligence (AI) offers potential solutions for detecting greenwashing, but challenges exist, including data availability and the complexity of environmental claims.
- ▶ A comprehensive approach to developing AI tools for greenwashing detection is essential, incorporating diverse datasets and human oversight.

ISSUE

The transition to net-zero emissions has gained critical importance since the 2015 Paris Agreement, profoundly affecting the fossil fuel-based energy sector, responsible for approximately 42 per cent of global greenhouse gas emissions. Despite this, fossil fuel combustion remains the dominant source of energy generation, contributing significantly to air pollution and related health hazards. The International Energy Agency reported that fossil fuels accounted for 91 per cent of anthropogenic CO₂ emissions in 2020. As stakeholders reassess potential losses due to climate-related risks, the slow shift towards cleaner energy sources presents considerable challenges.



A significant issue complicating this transition is the prevalence of greenwashing, in which companies exaggerate their environmental efforts to create a misleading perception of corporate responsibility. This practice is rampant in the fossil fuel industry, where deceptive marketing tactics obscure genuine sustainability efforts. For instance, many consumers may encounter products labelled as 'eco-friendly' without substantial evidence to support those claims. The rising consumer demand for environmentally ethical principles encourages companies to engage in greenwashing, further clouding the truth behind their claims.

Detecting greenwashing is crucial to ensuring transparency in environmental reporting, yet it is challenging due to the sheer volume of disclosures and the subjective nature of many claims. Reports from the European Union indicate that over half of the environmental claims reviewed needed adequate information for consumers to assess their accuracy. Approximately 37 per cent of these claims used vague or general statements, fostering a misleadingly favourable environmental image.

As climate-related risks, such as rising sea levels and extreme weather events, compound with the transition risks associated with adopting greener policies, stakeholders in the energy sector are reevaluating their operations. The phase-out of fossil fuels, particularly coal, is increasingly necessary; however, the industry has yet to fully embrace cleaner and sustainable alternatives.

The proliferation of disinformation poses a significant hurdle in this transition. The World Economic Forum's Global Risks Report 2024 identifies this as a critical short-term threat, highlighting how coal actors often claim compliance with climate-related standards and how oil companies use terms like 'climate', 'low-carbon', and 'transition' in their reporting. Unfortunately, these terms frequently remain unsubstantiated by tangible actions.

Greenwashing tactics often include vague 'green' language, exaggeration of minor improvements, and selective reporting. Over 60 per cent of consumers in the United States express a willingness to pay for environmentally responsible products, encouraging companies to present themselves as 'environmentally responsible' even when their actual practices do not align with these claims.

The challenge of detecting greenwashing is exacerbated by the difficulty quantifying and standardising sustainability in business operations, particularly in Scope 3 emissions. Scope 3 emissions refer to the indirect emissions that occur in a company's value chain, such as those from producing raw materials. This complexity necessitates the development of a decentralised model that considers specific regional regulatory standards while incorporating international benchmarks, such as the Global Reporting Initiative.

AI presents a promising solution for detecting greenwashing by efficiently processing and analysing large volumes of data. In simpler terms, AI can sift through countless company reports, looking for patterns and inconsistencies in language that might suggest misleading claims. However, the limited availability of suitable datasets for training AI algorithms remains a significant barrier. Environmental claims often involve subjective elements, complicating binary categorisation. Additionally, subtle forms of greenwashing, such as vague language and unclear environmental reports, can hinder the accuracy of AI detection systems.

This exploration of greenwashing emphasises the urgent need for transparency and credibility in environmental reporting within the energy sector. As companies increasingly engage in deceptive environmental claims, identifying and addressing these falsities becomes vital. The potential application of AI in detecting greenwashing activities in environmental reports and disclosures offers a path forward. Still, ongoing efforts are required to develop comprehensive and representative datasets that can effectively capture the nuances of environmental claims.



ASSESSMENT

Greenwashing presents significant challenges in differentiating between authentic and misleading environmental claims. Companies often employ vague language, exaggerated assertions, and selective reporting to create a false impression of their environmental responsibility. For example, fossil fuel companies frequently label their products as “eco-friendly” without providing substantial evidence to support such claims. In some cases, a fossil fuel firm’s misleading campaigns exemplify the industry’s attempts to maintain a positive public image despite significant environmental impacts.

AI technologies offer promising solutions for detecting greenwashing by identifying patterns and trends that may take time to be apparent to human analysts. AI can significantly enhance detection by analysing language used in sustainability reports and pinpointing inconsistencies. However, challenges persist, including the limited availability of suitable datasets for training AI algorithms and the complexity of capturing the nuanced strategies employed by companies.

One common tactic in greenwashing is using vague or ambiguous terms. Companies may label their products as “natural” or “eco-friendly” without providing any evidence to substantiate these claims. For instance, some energy companies have launched public relations campaigns promoting coal as a solution to energy poverty in developing nations. These campaigns have been criticised for misleading claims and failing to acknowledge coal’s negative environmental and public health impacts.

Some campaigns claiming to create jobs and stimulate the economy while being environmentally responsible have also received backlash. Environmental activists countered that these projects would devastate ecosystems in land and water. Another notable example is the fossil fuel industry’s energy transition campaigns, which aimed to portray these companies as transitioning to renewable energy despite their continued investments in fossil fuels.

The fossil fuel industry employs various strategies to create an illusion of environmental responsibility. This includes using green logos or packaging, even when the products are not sustainable. Some companies would introduce brand identities featuring green logos and slogans despite their ongoing coal, oil and gas activities.

Another tactic is “greenwashing by association,” in which fossil fuel companies align themselves with legitimate environmental organisations to create a façade of responsibility. For example, some firms announced partnerships with environmental NGOs to promote biodiversity in their mining operations, which activists criticised as mere publicity stunts to divert attention from the firm’s poor environmental record.

These tactics complicate the task for consumers and investors, making it increasingly difficult to discern genuine sustainability efforts from mere marketing ploys.

IMPLICATIONS

A comprehensive approach is, therefore, essential to effectively leverage AI in detecting greenwashing. This approach involves integrating web scraping techniques to collect extensive data on sustainability claims, utilising natural language processing (NLP) to analyse linguistic patterns, and incorporating life cycle assessment (LCA) data to provide benchmarks for evaluating environmental impacts. LCA refers to assessing the environmental impact of a product throughout its entire lifecycle, from raw material extraction to disposal. Implementing international mandatory disclosure standards is crucial to combat deceptive practices. Countries with stringent green disclosure policies have seen a reduction in greenwashing claims, underscoring the need for consistent reporting requirements.

Addressing data availability and ensuring compatibility across sources will enhance the effectiveness of AI tools. Human oversight is also vital in the detection process to mitigate biases inherent in AI algorithms. By incorporating expert verification, AI can accurately interpret environmental claims and assist investors in identifying genuine sustainability practices.

AI has the potential to identify patterns and trends that may elude human analysts. For instance, studies using machine learning algorithms have shown that companies often employ vague or ambiguous language in sustainability reports to create a positive impression of their environmental practices. AI can also detect inconsistencies in these reports, which may indicate greenwashing activities.



Moreover, AI can efficiently process and analyse large datasets, making it well-suited for the complex challenges associated with greenwashing detection. Techniques like web scraping and transfer learning can enhance detection capabilities. By training models on language-specific greenwashing strategies and cross-platform reporting inconsistencies, AI can reduce human error and bias, especially in cases where companies use vague statements to present an environmentally favourable image.

Several companies have begun implementing AI-assisted tools to help investors assess environmental claims. These tools monitor and evaluate the accuracy of companies' claims on their websites and in published statements. Some of these tools employ NLP to analyse various media forms, focusing on greenhouse gas performance and sustainability claims while compiling a dataset that includes instances of greenwashing. Some tools automate the analysis of corporate sustainability reports through NLP and advanced language models.

As consumers and investors, we can be crucial in combating greenwashing. We can start by looking for third-party certifications on

products, as these labels signify that a product has been independently verified for its environmental claims. Next, we can research the environmental practices of companies. We should not simply accept their assertions. Instead, we must seek transparency in their reporting and investigate any past controversies related to greenwashing. Additionally, we must stay informed by following reliable sources that expose greenwashing practices and advocate for genuine sustainability efforts. By remaining proactive and vigilant, we can promote accountability and support companies prioritising authentic environmental responsibility.

AI-supported detection tools are promising, as greenwashing poses significant risks by misleading investors and consumers. However, the effectiveness of these tools hinges on the quality of datasets, robust reporting standards, and human involvement. Developing comprehensive and unbiased AI detection tools will be vital in promoting transparency and accountability in corporate sustainability efforts as the energy sector navigates the complexities of its environmental claims.



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