

# The Social Cost of Greenwashing: Why Information Pollution adds on Carbon



Markus Leippold | University of Zurich

Chiara Colesanti Senni | University of Zurich

Ario Saeid Vaghefi | University of Zurich

*Keywords:* Greenwashing, information quality, trust, market failure, climate policy, financial regulation

*JEL codes:* D82, D83, Q54, L15, C73, G28

## Abstract

Corporate greenwashing—the deliberate manipulation of environmental information—imposes economic costs that add to the costs of carbon emissions themselves. Our research quantifies these hidden costs at 2.2-2.5% of GDP annually. We uncover three critical realities for policymakers. First, information markets can become locked into self-reinforcing "greenwashing traps," where superior, cheaper technologies cannot gain traction because public trust has been systematically eroded. Second, and counterintuitively, competition can worsen the problem by triggering costly and wasteful "information arms races" between firms. Third, because trust is slow to build but quick to collapse, restoration costs vastly exceed prevention costs. This is not just an environmental issue; greenwashing threatens market efficiency across all sectors, providing a direct, non-environmental rationale for financial regulators to intervene.

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Disclaimer: This policy brief is based on [The Social Cost of Greenwashing, Working Paper](#). The views expressed are those of the authors and not necessarily those of the institutions the authors are affiliated with.

## The Trillion-Dollar Puzzle in Energy Markets

A fundamental puzzle confronts global energy markets. Between 2010 and 2022, the costs of solar and wind power decreased by 89% and 69%, respectively, making renewables cheaper than fossil fuels in most parts of the world. Yet, during this same period, the market share of fossil fuels remained high, hovering around 80%. This persistence defies standard economic models of substitution and suggests market failures that extend beyond simple price competition. Our research posits that this failure stems from the strategic degradation of the information environment. We find that when firms can profit more from shaping perceptions than from improving products, they will invest heavily in doing so. This "information pollution" imposes a hidden but massive cost on the economy. We term this the **Social Cost of Greenwashing (SCG)**, and our analysis quantifies its annual impact at a staggering **2.2-2.5% of GDP**. This damage is distinct from and additional to the direct environmental damages captured by the Social Cost of Carbon (SCC).

## The Greenwashing Trap: How Markets Get Locked in Deception

Greenwashing is not a series of isolated incidents but a systemic process that can trap markets in inefficient equilibria. This occurs through a self-reinforcing cycle where the degradation of information makes future manipulation both easier and more profitable.

1. **Strategic Manipulation:** Incumbent firms with environmentally inferior products often find it more cost-effective to invest in misleading advertising and lobbying than in genuine technological improvements.
2. **Information & Trust Erosion:** These campaigns pollute the information ecosystem. Consumers, faced with conflicting claims, lose their ability to distinguish truth from falsehood, leading to a decline in public trust.
3. **The Deceiver's Advantage:** Crucially, as the information environment becomes noisier, manipulation becomes more effective while truthful clarification becomes less effective. Lies thrive in chaos.
4. **Market Lock-In:** Eventually, trust collapses to a point where even genuinely superior and cheaper green technologies cannot gain market share because their claims are no longer believed. The market is now "trapped."

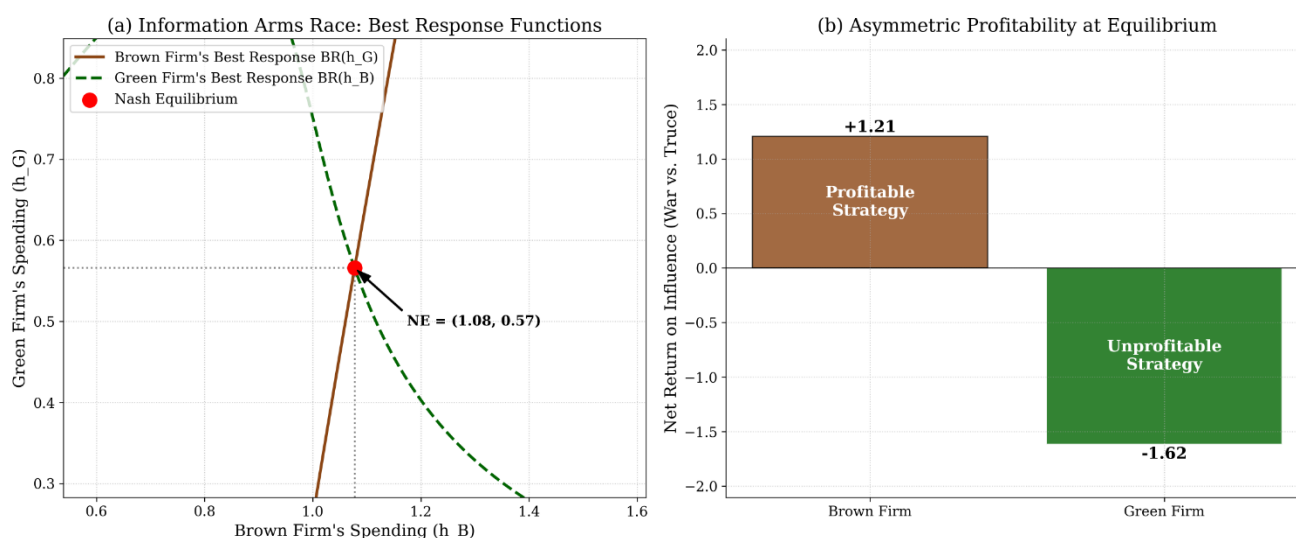
Our simulations indicate that a sustained greenwashing campaign can lead to a significant decline in public trust, from 95% to 40%. The result is that an inferior "brown" technology can lock in a 75% market share when an efficient, well-informed market would have allocated it only 18%.

## The Competition Paradox: When More Competition Worsens Market Failure

Conventional antitrust logic suggests that promoting competition is always welfare-enhancing. Our findings reveal that in information markets, this logic can be dangerously reversed. Introducing a "green" firm to counter the incumbent's manipulation does not necessarily lead to a better outcome; instead, it can trigger a destructive **"information arms race."**

In this scenario, the incumbent escalates its manipulation to defend its market share, forcing the green entrant to burn cash on clarification campaigns. The result is that society bears the cost of both firms' wasteful spending, while the information environment becomes even more polluted. Our model reveals a stark asymmetry: under plausible parameters, the brown firm earns a net return of +1.21 for every dollar spent on manipulation, whereas the green firm loses 1.62 for every dollar spent on clarification. As shown in Figure 1, the entry of a competitor can lead to a higher total social cost than a manipulative monopoly.

**Figure 1. The Information Arms Race and Its Asymmetric Outcome**



Notes: Panel (a) plots the Best Response (BR) functions for the Brown and Green firms. The intersection identifies the Nash Equilibrium (NE). Panel (b) compares the net return on influence spending at the NE relative to a "truce" (zero spending by both firms).

## A New Policy Playbook for the Information Age

The unique dynamics of information markets necessitate a new regulatory approach that treats information integrity as a critical component of economic infrastructure.

1. **Fix Information Before Relying on Price Signals:** Carbon taxes are ineffective if the information needed to respond to them is corrupted. The first step must be to ensure the reliability of environmental claims through mandatory, audited disclosure standards with severe penalties for falsification—a Sarbanes-Oxley for sustainability.
2. **Make Liabilities Match the Systemic Damage:** Current fines for greenwashing are trivial. Penalties should be scaled to the economic harm, including fines based on the market share distortion and mandatory "trust restoration bonds" for firms caught engaging in major deception.
3. **Create "Competition Safe Zones":** Since information competition can be destructive, regulators should consider antitrust exemptions that allow firms to cooperate *only* on establishing joint verification standards and funding independent certifiers. Firms should compete on product quality and price, not on their ability to manipulate the truth.
4. **Treat Information as Financial Market Infrastructure:** The degradation of environmental information inflates verification costs across the economy, raising the cost of capital and creating systemic risk. This provides a direct, non-environmental rationale for financial regulators to police green claims, thereby protecting market efficiency. Actions could include classifying environmental data systems as critical infrastructure and mandating information quality "stress tests" for green financial products.

## About the author(s)

**Markus Leippold** is a Professor of Financial Engineering at the University of Zurich and faculty member of the Swiss Finance Institute. He holds a PhD from the University of St. Gallen. His research focuses on asset pricing, portfolio allocation and investment strategies, risk management, sustainable finance and, after a research stay at Google, natural language processing.

**Chiara Colesanti Senni** is a Senior Researcher at the University of Zurich. She is also a Visiting Fellow at the CETEx at LSE and a Visiting Researcher at the Columbia University. Her research focuses on environmental economics, macro-financial economics and sustainable finance.

**Ario Saeid Vaghefi** is an Academic associate at the University of Zurich. He is also an AI and Climate Consultant for the World Meteorological Organization. His research focuses on the intersection of machine learning, natural language processing, and climate science, developing AI-driven tools that strengthen climate services and decision-making.

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Designed by the Information Management and Services Division of the Oesterreichische Nationalbank (OeNB)

SUERF Secretariat

c/o OeNB, Otto-Wagner-Platz 3A-1090 Vienna, Austria

Phone: +43 1 40 420 7206

E-Mail: [suerf@oenb.at](mailto:suerf@oenb.at)

Website: <https://www.suerf.org/>