

## ARTICLE

# Beyond carbon credits and green certificates: Designing a climate-change awareness club for new automobile buyers

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## Abstract

Initiatives like carbon credits are not sufficient for addressing climate change, particularly if reliance is placed solely on corporations. This study proposes a grassroots initiative in which new automobile buyers join a club that fosters conscious environmental responsibilities through a symbolic declaration of their commitment, and also creating a personal identity. The suggested approach will not only create new sustainable values but also enhance the quality of life by supporting integration into emerging environmental ecosystems of consumption and production. By embedding persuasion using behavioral economics, these changes can be achieved by nudging fossil fuel car buyers using creative marketing strategies and well-designed, recognizable products.

**Keywords:** Climate change; Carbon footprint; Internal combustion engine cars; Sustainable choices; Grassroots initiatives

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## 1. Introduction

The world is experiencing unprecedented environmental changes. Climate change is no longer dismissed as a hoax or conspiracy theory perpetuated by nihilists seeking to elicit public panic. According to a report by the World Resources Institute, forest fires are worsening.<sup>1</sup> Fire plays a crucial role in natural regenerative and terrestrial ecosystems,<sup>2</sup> and many plant species rely on forest fire for regeneration and seed dispersal. However, contemporary shifts in climate are affecting wildfire activity, signaling a pyrogeographical shift in wildfires due to changing weather conditions.<sup>3</sup> Additionally, the intensity and impact of hurricanes are increasing as a result of rising sea surface temperatures—a direct result of climate change.<sup>4</sup> An article by the Environmental Defense Fund notes that the most damaging United States hurricanes now occur three times more frequently than a century ago, and the proportion of major hurricanes (Category 3 or above) in the Atlantic Ocean has doubled since 1980.<sup>5</sup> The 2024 hurricane, Helene, directly impacted one of the authors of this paper. The visual evidence of its devastation far surpassed what statistics alone can convey.

In response to climate change, businesses and governments have been exploring different strategies. One of the most prevalent and popular strategies is buying carbon

credits as part of the cap-and-trade program, which contributed to a significant reduction in acid rain at one point. However, these programs have, for some, devolved into what is perceived as a superficial effort rather than a genuine solution. To many, carbon credits now represent a “pay-to-pollute” mechanism and are insufficient on their own to address the climate crisis. This paper proposes nudging the new fossil fuel car buyers into joining an environmental club upon purchasing a new vehicle. The aim is to foster awareness and to promote a higher quality of life through collective action linked with their purchase.

## 2. The philosophical foundation of the club

The club will build upon the concept of pay-to-pollute by introducing green certificates for the purchase of new automobiles. This concept was introduced by Lai *et al.* in 2023<sup>6</sup> in the article “Walk and Chew Gum: A demand and supply illustration of macro and micro net-zero initiatives for the automobile industry.” It proposes an individualized, decentralized approach (rather than a government regulatory approach) to carbon credit trading without relying on specific cap-and-trade programs. Green certificates represent a carbon capture-based solution, objectively calculated based on a new car’s projected lifetime carbon emissions. These emissions are then translated into the number of acres of trees needed to absorb the vehicle’s total carbon emissions over its lifespan. Essentially, this approach replicates the effect of a Pigouvian tax on pollution without requiring any intervention from a central government authority or an organized carbon-credit trading platform.<sup>17</sup> In addition, open market carbon-credit prices in various regions worldwide are unreliable.<sup>6</sup> The proposed club aims to create a platform for authentic information and discussions about forest fires, alongside educational and recreational activities such as forest field trips and ocean study cruises. Substantive discussions will be conducted via appropriate social media platforms, combining education and entertainment.

Broadly, carbon credits function as macro measures<sup>6</sup> that are often used as international agreements for deciding a country’s climate change responsibilities. However, they can risk being superficial tools of carbon offsetting through redemption, without necessarily achieving the intended behavioral change. In contrast, micro measures such as green certificates<sup>7</sup> tend to have a longer-lasting impact on human psychology because they engage individuals on a personal level, thereby fostering stronger environmental

responsibility. Thus, to achieve the requisite goal against climate change, a strategy combining both macro and micro solutions is essential. The proposed club will also closely examine the dynamics of carbon credits and green certificates, understand the motivations, psychological drivers, and any ethical dilemmas involved.

Demand for carbon credits is driven by three key factors: compliance requirements, moral self-licensing, or reputational gain. First, companies purchase carbon credits to comply with greenhouse gas regulations. Compliance can also be driven by an organization’s need for redemption, motivated by underlying environmental concerns. The original intent of the cap-and-trade program<sup>6</sup> was to incentivize innovation and investment in cleaner technologies. In many ways, this concept ties into the theory of moral licensing, where organizations view purchasing carbon credits as atonement for their environmental impacts.<sup>7</sup> However, acquiring a moral license should exceed mere self-satisfaction. The proposed club seeks to transform inspirations into aspirations, creating a sense of belonging for its members and cultivating a forward-looking, action-oriented ecosystem for the future. Finally, reputational gain is significant for both corporations and individuals. The proposed club addresses how individual reputational gain can be enhanced by purchasing carbon credits linked to new car purchases. Designing a symbol to represent this mission is crucial for uniting members in this cause.

### 2.1. A grassroots “think big-do big” initiative for enhancing the quality of life

The concern over hypocritical corporate practices is well-founded. Historical developments of sustainability from corporate social responsibility to more recent controversion, ESG movements had shown that society cannot entirely rely on corporate reforms to solve climate change problems. While corporate activism is still important, as described by Henderson,<sup>8</sup> with deep-rooted historical skepticism noted on the role of corporations in a society,<sup>9</sup> numerous studies can be cited from the positive, negative, and internal inconsistencies of corporate intentions.<sup>10</sup> Yet, without overlat stressing the rights and/or wrongs of corporations,<sup>11</sup> we wish to get at the heart of our problem in this paper (how to build a personal identity for a product that will have an impact on a narrowly focused industry). For that, we believed a grassroots movement starting with individuals is important. The club proposed in this paper consciously rejects performative disingenuousness by arguing that combating climate change requires a lifestyle change at the individual level. It will be built on authentic personal commitment, prioritizing genuine environmental pledges over performative pledges.

<sup>1</sup> See the method of calculating the price of green certificate, the foundation in marketing literature, and behavioral and psychological theories-led marketing blurb suggestions in Lorne and Purmehdi, 2025.

A symbol of commitment at a personal level can be enhanced by meticulous designs, as shown in Figure 1.<sup>2</sup> Few symbols are as visible and enduring as a driver of a fossil fuel car displaying the proposed license plate for 10–15 years as part of a one-time lifetime club membership that goes with the serial number of the car. Public figures like Taylor Swift could play a powerful role in promoting sustainability by publicly embracing this initiative. A simple gesture, such as affixing the license plate to the personal vehicle, could serve as a strong gesture of personal commitment to addressing climate change and also a personal identity. In 2023, Taylor Swift generated USD2 billion in revenue, surpassing the earnings of most corporations.<sup>3</sup> With 284 million followers on Instagram, she ranks among the world's most influential celebrities. Although she currently uses carbon credits to offset her travel-related emissions, her direct involvement in a club dedicated to sustainability would be a far more effective contribution. Despite topping charts as the celebrity with the highest carbon emissions, her representative stated that she purchased twice the number of carbon credits required to offset her footprint. However, acquiring carbon credits without a proactive involvement in climate change solutions risks being viewed as hypocritical. In contrast, joining the club would enable her to take visible, meaningful steps toward reducing emissions, thereby reinforcing a genuine commitment to sustainability.<sup>4</sup>

## 2.2. Design work

Yitai Crystal Craftwork, Dongguan, China, specializes in making crystals of similar quality to Swarovski, Austria. Aside from households and commercial decorative and functional items, the company operates a specialized division for the automobile industry. Yitai, China, and the International Regional Development (IRD), United States, collaborated in designing various items associated with the identity of the proposed new quality of life club linked to the purchase of new cars. Joining the club provides members with a distinct personal identity, symbolizing an individual's commitment to a new quality of life as reflected through their new vehicle. Figure 2 shows the detailed work of how crystals are designed and arranged around a license plate would look like.



**Figure 1.** The green crystal frame for Michigan's car license plate, manufactured and licensed by the club to Yitai Crystal Craftwork, Dongguan, China



**Figure 2.** Uniform quality of design

Note that in Figure 2, each piece can also be etched with the signature of a person making the frame completely personalized, adding to the personal identity to the design. Needless to say, this design is for a celebrity class of car buyers, e.g., Taylor Swift, as qualified in footnote 2. In this sense, the proposed club will target supports of celebrities as a better use of funds as an alternative to whatever climate-change initiatives they are currently contributing to.

The concept of moral-self licensing, where buying carbon credits leads individuals to feel they have fulfilled their environmental commitment without making genuine behavioral changes, warrants renewed discussion. This is completely different from other carbon credit programs that enabled organizations to masquerade as environmentally conscious entities while maintaining their usual operations. The proposed club will be unique by comprising new vehicle buyers who

<sup>2</sup> Crystal frames are provided for exclusive clients only, typically celebrities. As celebrities, they usually park their cars in private garages. If damaged, the license plate must be completely remade, which can be included in the original license contract with a particular celebrity.

<sup>3</sup> <https://www.billboard.com/business/business-news/taylor-swift-earned-2-billion-music-movie-touring-1235555994/>

<sup>4</sup> <https://carbonmarketwatch.org/2024/02/13/taylor-swift-and-the-top-polluters-department/>

commit themselves as catalysts for change. To foster zealous participation, the automobile buyers' club will offer different membership categories based on the level of engagement each member desires. Those intending to contribute more significantly will pay higher fees, embodying a model of participatory licensing at the club's core. Incentives for participation will be closely tied to the issues and activities promoted within the club, generally crafted and discussed on social media and the club's website for public transparency. Additionally, a localized membership platform will facilitate grassroots localized events and activities shared exclusively among members within their specific jurisdiction.

The proposed club allows member to select their membership categories based on the level of participation they wish to commit to the "think big-do big" endeavors. This system uses color-coded crystals to denote different scales of involvement; green represents grassroots, local-level initiatives, orange signifies participation in country-level efforts, and purple indicates engagement in global or world-level activities. Figure 3 shows how single crystal can be attached to a license plate. Figure 4 shows the license plate of the grassroots local level of membership.

The fundamentals of establishing a club have long been recognized by economists.<sup>12,13</sup> The proposed automobile buyers/high-quality lifestyle club represents an application of the various theoretical concepts featured by economists. The constitution of this club will begin with drafting a legal document locally, and will gradually be revised over time to realize a global vision.

### 3. Other carbon-credit suppliers

In this context, it is essential to understand the motivation of carbon credit suppliers. While much of the discourse focuses on the demand side, the existence of the market fundamentally depends on the suppliers, whose motivation and commitment warrant closer examination. Are they driven solely by profit, or do they embody genuine green visionary principles?

Many carbon offset projects, such as those involving forestry, cookstoves, and renewable energy, often originate with the intent to protect local ecosystems. However, these efforts have frequently been compromised by profit-driven actors. Creating and supplying carbon credits can be a way for an organization to demonstrate its commitment to the environment and thus enhance its brand.

Similarly, cognitive dissonance may influence supplier behavior; by supplying carbon credits, organizations ease their internal conflict between their environmentally conscious values and their emission-intensive activities.



Figure 3. Attachment mechanism of a crystal to a plate



Figure 4. The appearance of the crystal on a license plate (denoted by the red arrow)

For example, the pulp and paper company APP Sinarmas allegedly generated and supplied carbon credits through reforestation and avoided deforestation (REDD+) projects while simultaneously being accused of ongoing deforestation activities and peatland development activities.<sup>14</sup>

Additionally, for companies like Tesla, supplying carbon credits provides a competitive advantage. This strategy not only serves as social signaling to sustainability-focused investors and customers but also provides investors with a stable return through revenue generated from carbon credit sales.<sup>15</sup> Although Tesla's tactics may verge on performative, its strategic positioning as a green company has effectively reinforced its brand and positioned it at the forefront of the carbon offset market. Tesla enjoys a quasi-monopoly in this domain by maximizing its carbon credit allocation as a "pure play" zero-emission company. Despite these dynamics, it is important to acknowledge altruistically driven suppliers of carbon credits. Social enterprises often operate by a genuine desire to effect positive environmental change. However, these efforts are often marred by financial viability and ecological ineffectiveness of these projects. Additionally, suppliers sometimes overestimate the impact of their carbon offset projects. As an example, South Pole, a leading carbon developer, was accused of overstating the climate benefit of the carbon credits generated by its REDD+ projects in Kariba.<sup>16</sup>

Can carbon credits and green certificates fully solve the climate change crisis? The answer is no. Critics argue that carbon credits serve as a band-aid solution, influenced by the psychological tendencies of both buyers and suppliers. In contrast, micro measures, such as joining an environmental club, entail small, actionable steps with small measurable changes leading to large, sustained behavioral changes.<sup>6</sup> There is a need for micro solutions such as green certificates, which offer a nuanced, customer-focused approach to environmental responsibility that embodies the principle of Pigouvian taxation. Green certificates function as a non-traditional, voluntary form of carbon tax, representing a one-time fee equivalent to a vehicle's lifetime carbon emissions. The funds collected from green certificates are earmarked and utilized primarily toward nature-based mitigation efforts, such as tree planting, thereby directly linking the cost to tangible environmental benefits. The amount associated with the green certificate is tailored to vehicle emissions and calculated based on factors like fuel type, efficiency, and expected usage. Furthermore, it incorporates additional information that can enhance the overall quality of life, focusing on individual actions. When aggregated, these individual actions can lead to a bigger macro impact.

#### 4. The marketing of green certificates

Green certificates can serve as a marketing tool to promote conscious environmental responsibility. The mechanism involves nudging consumers to be more eco-friendly in various creative ways. For example, integrating green certificates as a default option at the point of car sales, unless actively declined, can enable small changes to accumulate into a significant impact. The concept of nudging in marketing was awarded an Economic Nobel prize for studying behavioral economics.<sup>17</sup> By reviewing different types of nudges,<sup>18</sup> promotion tactics can be tailored to new car purchases for different cultures and regions, considering the demographics of the targeted audience. In doing so, awareness of climate change solutions aimed at enhancing quality of life can be bundled with vehicle sales, just like insurance is commonly included with automobile purchases.

Equally important, green certificates incorporate an element of conspicuous consumption that allows consumers to publicly signal their environmental commitment to friends and the wider public. Driving a car as a “member of a club”, consumers can gain social recognition while reinforcing their sustainable behaviors. This can satisfy the need of buyers (demanders) of carbon credits and may ultimately compete with other brand-name green products that are already successfully accepted

in the market,<sup>19</sup> as exemplified by many sustainable fashion products that have successfully adopted this strategy.

This marketing approach makes auto dealerships the ideal venue to promote green certificates, given their pivotal role as the interface between customers and their point of purchase. By showcasing the green certificate program as an integral part of responsible auto ownership, dealers can nudge consumers toward becoming environmentally conscious buyers, igniting a localized impact.

Additionally, due to their direct interaction with consumers, dealerships can facilitate faster adoption by educating consumers about the positive aspects of green certificates, offering customized products, and promptly addressing customer concerns interactively. This personalized approach benefits the dealership in creating a long-term relationship within the community and customers committed to sustainability. A suggested method of marketing is shown in Figure 5.

The marketing of green certificates can be extensive, even within North America alone. According to the National Automobile Dealer Association,<sup>20</sup> there were 16,835 franchised light-vehicle dealers in the United States, collectively selling 15.5 million light-duty vehicles in 2023. Total light-vehicle dealership sales exceeded USD1.2 trillion. In Canada, there were 4,561 new car dealers in 2024,<sup>21</sup> and these figures are expected to grow. Even if only 10% of the dealers choose to adopt green initiatives, the club's membership base could become substantial. As illustrated in Figure 6, “going green” at dealerships often remains limited to superficial gestures such as exterior decorations, rather than aiming for substantive changes in lifestyle proposed by the environmental club. Advocating for Leadership in Energy and Environmental Design certification or implementing its processes in car dealership operations is not the only way to “go green”. The automobile industry's contribution to combating climate change needs to be far more comprehensive and systemic.



Figure 5. Auto showroom accessories

Source: <https://juniordavis.com/news/automotive-promotional-products>.



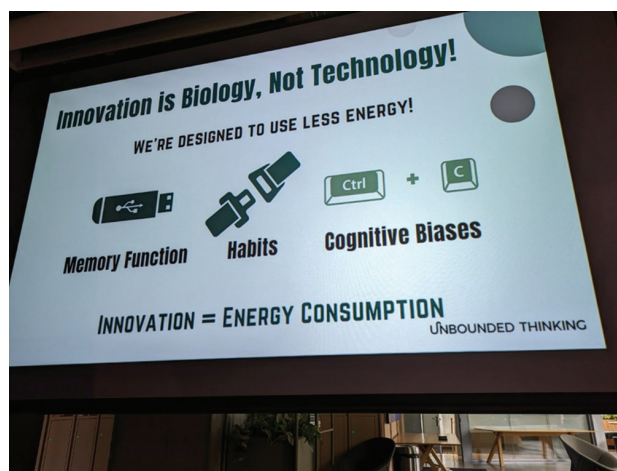
**Figure 6.** Decoration of a green dealership  
Source: <https://canadianautodealer.ca/2013/11/going-green>.

## 5. Conclusion

The current measures to tackle climate change using carbon credits are well-intentioned but partially, if at all, effective, as they fail to tackle the root cause of climate change: human behavioral change, particularly the widespread insensitivity to the true private and social costs of energy consumption. Building on the preceding discussions of carbon credit and green certificates, we have explained the motivation behind the design of an environment club grounded in personal commitments and the creation of personal identity. The proposition illustrated in [Figure 7](#), which captures a slide from a public forum, can be suggestive to those who are willing to make personal commitments within the climate change movement in designing their local/regional club activities.

[Figure 7](#) is suggestive in the sense that for lifestyle changes of various kinds, all could be aiming for a reduction in energy consumption. Climate-change consciousness ultimately has to tie with smart energy usages, not only on industrial production but also at a personal level calling for a change in lifestyle. A personal commitment to lifestyle changes in establishing a new self-identity in that sense could arise from a biological need. It can certainly be used as a food for thought for any grassroots attempt in the building of the club going forward.

Whether one accepts the premise in [Figure 7](#) or not, there is a pressing need to start a zero-emission movement at the individual level for changing habitual, energy-wasteful activities. This effort must extend beyond corporate Environmental, Social, and Governance practices. As reviewed in this study, organizations that advertise their green commitment through the purchase of carbon credits are often hampered by a lack of genuine commitment,



**Figure 7.** Template displayed by Unbounded Thinking  
Source: Photograph by the authors.

transparency, or regulatory control. Companies like Shell, Cadbury, Mars, and Asia Pulp and Paper exemplify the use of carbon credits as a form of atonement or a pay-to-pollute mentality. Green certificates, on the other hand, present an alternative solution by privatizing a Pigouvian tax.<sup>6</sup> When combined with macro-level policies, green certificates can influence human behavior and promote a sustainable and responsible society by utilizing marketing tactics that resonate with customer values.

To drive genuine environmental change, we must integrate macro-level country policies with micro-level behavioral nudging of green certificate purchases. Marketing via car dealerships has been suggested in this article as a pragmatic method to promote membership for a club of new automobile buyers, with a participatory license that can generate real climate-change actions. Club members must ensure transparency in their collective decisions by buying appropriate carbon credits from responsible suppliers. Simultaneously, carbon markets and businesses each have their institutional features that need to align with practices compatible with their commitments. We focus on a design using high-quality crystals to raise awareness. Consumers must be empowered to make informed, sustainable, voluntary choices, especially given the significance of purchasing a new car for most individuals. This paper helps to promote an international endeavor in these possible frontiers. Ultimately, the goal is to create sustainable values<sup>7,22</sup> while recognizing that good governance is equally important,<sup>23</sup> as member loyalty requires absolute confidence in financial stewardship. This effort aspires to mark the beginning of a widespread movement, choosing new automobile buying as a fertile ground for cultivating a climate-change awareness lifestyle among new car buyers.

Theoretically, a crucial difference separates the proposed automobile buyers' club from other carbon credit trading platforms: Beyond being voluntary and individual-based—unlike most government-mandated or, in some cases, privately exploited cap-and-trade platforms—the club concept is demand-pulled, driven by consumer choice rather than supply-pushed mandates. Ultimately, credibility for any climate initiative requires the effective alignment and cooperation of both the demand and supply sides.

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## Conflict of interest

The authors declare that they have no competing interests.

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## Ethics approval and consent to participate

Not applicable.

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## Availability of data

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## Further disclosure

Information on the affiliation: DriveNulle development website: <https://hello27969.wixsite.com/drivenulle>; IRD website: [www.irdpt.com](http://www.irdpt.com).

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