The Impact of Net Zero Strategies on the Tourism Sector

Murad Rizvangaya[1] **and Hijran Rzazade**[2]

[1]Azerbaijan Tourism and Management University, 822/23 Koroghlu Rahimov Street, AZ1072 Baku, Azerbaijan
[2]Eskisehir Osmangazi University, Büyükdere Neighborhood, Prof. Dr. Nabi Avcı Boulevard No: 4 Odunpazarı, 26040 Eskişehir, Türkiye

Received: 20.02.2026

Accepted: 03.03.2026

Published: 31.03.2026

https://doi.org/10.54414/VPQB7755

Abstract

Tourism produces a large share of the world's greenhouse gases. Aircraft flights, hotels, and cruise ships release most of those gases. A review of every relevant study published between 2015 and 2024 shows how tourism plans to reach net zero emissions, plus what happens when such plans are put in place. The main actions are set targets that follow climate science - install more efficient engines, boilers, and air conditioning - replace fossil fuels with solar, wind, but also other renewable sources, protect and restore forests, wetlands, as well as reefs that absorb carbon; and let Destination Management Organizations lead the way with clear long-term strategies. Success depends on new hardware but also on firm rules, budgets that reward low-carbon choices, or cooperation among governments, businesses, and residents. Local laws next to national laws determine how quickly a place cuts carbon, and if visitors still regard it as attractive. The survey confirms that companies, public agencies plus travelers must act together - one group alone cannot push emissions to zero. More work is needed to track results over many years and to compare airlines, hotels, cruise lines, and also individual resorts in different parts of the world.

Keywords: Net-zero strategies, Sustainable tourism, Carbon reduction, Destination management, Environmental impact

JEL Codes: Q01, Q56, R11, Z32

1. Introduction

The tourism sector has a large environmental impact and also plays a large part in the global economy. International civil aviation, hotel industries, cruises, and other tourism activities emit a large amount of greenhouse gases (Gossling et al., 2015). The tourism sector emitted around 8% of total carbon emissions in 2019 (WTO, 2020). Out of this, a large percentage comes from air travel (WTO, 2022). Thus, the tourism sector plays a vital part in fighting climate change and achieving the Sustainable Development Goals that the world community has adopted. In recent times, the concept of net-zero carbon emissions has become a new strategy adopted by companies and managers in the tourism sector. Net-zero means reducing greenhouse emissions to zero and offsetting the remaining emissions (Higham et al., 2016). This strategy has been adopted in the tourism sector through energy efficiency, renewable energy, sustainable transport, and carbon offsetting (Becken & Hay, 2007).

The strategy has a large impact on the tourism sector, and cost and competitiveness play a vital part in assessing its impact on the economy (Higham et al., 2016). The success of this strategy does not depend on environmental factors alone, and its success also determines its impact on performance and competitiveness in the tourism sector.

The main aim and objective of this study are to assess how the strategy of net-zero carbon emissions impacts the tourism sector and to give insights into a sustainable transformation in the tourism sector through the adoption of the net-zero carbon emissions strategy.

2. Literature Review

The tourism sector is an important sector in the sustainability debate because of its high energy consumption and carbon emissions. Gössling, Scott, and Hall (2015) focused on the carbon emissions generated by the tourism sector and the effects of the activities undertaken in the tourism sector. The authors noted that flights and hotels make up a large percentage of the carbon emissions generated in the tourism sector. The UNWTO (2020) noted that the 8% greenhouse emissions generated by the international tourism sector are almost 'sneaked' into the global emissions, and the need to make carbon-cutting moves is pressing.

The ideas and strategies put in place by the net-zero concept can be applied in the tourism sector. For example, Becken (2017) noted that hotels can make significant cuts in the carbon emissions generated in the tourism sector by making energy-efficient moves and using renewable energy. Higham, Cohen, and Cavaliere (2016) noted that significant moves made in the tourism transport sector to reduce emissions can have significant impacts on the tourism sector, not only in its operations but also in its financial performance. The IPCC (2022) noted that the net zero concept is not only important in the operations of companies but also requires the involvement and cooperation of destinations and policymakers.

The literature is focused on the following three aspects: the sources and intensity of emissions, the viability of the net zero concept, and the impacts and effects. The application of the net zero concept in the tourism sector is likely to have positive impacts on the sustainability of the environment and the operations and competitiveness of the sector.

Table 1. Key findings of net-zero strategies in tourism in the literature.

Source	Focus Area	Net Zero Strategy Application	Findings / Impact
Gössling, Scott & Hall (2015)	Air transport and the hotel sector	Energy efficiency, carbon offsetting	Identified the most emission-intensive areas; high potential for reduction
UNWTO (2020)	International tourism	General sector data	Tourism accounts for 8% of total emissions; an urgent strategy is needed
Becken (2017)	Hotel operations	Renewable energy and efficiency measures	Effective in reducing emissions; requires cost and management optimization
Higham, Cohen & Cavaliere (2016)	Tourist transportation	Radical emission reduction	Potential to transform sector operationally and economically
IPCC (2022)	Policies and strategies	Net zero targets	Requires comprehensive strategies at both sectoral and policy levels

Source: Created by the author.

The major findings that have been established through literature on net zero stuff in the tourism industry are presented in Table 1. It highlights the areas that are responsible for emitting the largest amounts of CO_2 into the atmosphere, such as flights, where people stay, and how people move around, to mention a few, so that one can have an understanding of the areas that need to be addressed (Gossling et al., 2015; WTO, 2020).

The table also highlights the different net-zero approaches that people have used or are still using to ensure that the tourism industry is net-zero. It includes the different approaches, such as the smaller approaches that people take, such as increasing the level of energy efficiency and the use of renewable sources of energy, to the bigger approaches, such as carbon offsetting and sustainable destination management (Becken & Hay, 2007; Giglio et al., 2018). The table highlights the different approaches that people are taking to ensure that the industry is net zero, and this is important because it shows that net zero is a complex issue that affects different areas of the industry.

The table also highlights the different impacts that have been established, such as the positive impacts, including the reduction of greenhouse emissions, and the negative impacts, such as the need for money and planning that is required for the different approaches that are used to ensure that the industry is net zero (Higham et al., 2016). This is important because it highlights the different areas that are affected and, therefore, ensures that one has a clear understanding of the different approaches that are used to ensure that the industry is net zero. This

is important because it is setting the pace for the rest of the article. In conclusion, the expanded perspective shown in Table 1 indicates that attaining net-zero emissions in the tourism sector is a multi-faceted process that needs to take place through various levels, such as at an individual level (for individual firms and modes of transport), at the political/policy level, and at the destination management level.

3. Methodology

In this research, qualitative research is being done with emphasis on conducting a systematic search in the literature in order to analyze the effect that will be caused by the implementation of net-zero strategies on tourism. The academic literature was chosen for gathering the required data; the searches were done specifically in the Scopus and Web of Science databases. Our specific data includes the carbon footprint of tourism globally (Lenzen et al., 2018), the interaction of tourism and climate change (Scott et al., 2016), and the sustainability performance analysis of transport providers (Giglio et al., 2018). Broader theoretical understandings of sustainable tourism (Hall et al., 2015) and net zero frameworks for tourism (WTTC, 2021). They are also part of our analysis.

In terms of analysis, we have used thematic analysis to identify emerging themes in terms of where the emissions are coming from, what the strategic actions are, and what the difficulties are in terms of implementation. While this method provides an in-depth analysis, using literature does mean that we are not using primary data, and also that there could be regional variations in the reporting.

4. Findings and Analysis

The reviewed literature highlights three major dimensions shaping the tourism sector's net-zero transition:

(1) adoption of net-zero strategies and corporate commitment;

(2) policy and institutional engagement;

(3) local and ecological interventions.

Adoption of Net-Zero Strategies and Corporate Commitment: The WTTC's "Net Zero Roadmap" indicates a significant increase in corporate commitments, with 53% of 250 major tourism companies having established climate targets (WTTC, 2024). Jones (2023) reports that tourism companies adopt nature-based solutions, carbon offsetting, and technological investments to achieve net-zero targets. Research by the UQ Business School emphasizes that destinations lacking strong leadership have limited effectiveness in implementing net-zero commitments (UQBS, 2024).

Policy and Institutional Engagement: Yang et al. (2022) find that active involvement of tourism stakeholders in carbon reduction processes leads to tangible emission reductions in transport, construction, and supply chain sectors. According to Guix et al. (2024), strategic planning that emphasizes heritage, infrastructure, and visitors leads to better net-zero results.

Locally and Ecologically-based Solutions: Quan et al. (2025) found that the creation of ecotourism demonstration zones as a result of policy in China decreases carbon emissions from tourism greatly. As noted by McKinsey (2023), although currently costly, renewable energy sources, low-carbon fuels, and energy efficiency are all important. OECD (2025) suggests policy indicators, including carbon intensity, energy efficiency, and infrastructure development, as important factors.

Table 2. Net-zero strategies and adoption in the tourism industry.

Strategy	Implementing Actor	Effect / Outcome
Science-Based Target Setting (SBTi)	Tourism companies (hotels, tour operators)	Increased corporate commitment; clearer carbon reduction plans (WTTC, 2024)
Nature-Based Solutions & Offsetting	Companies, destination management	Long-term net-zero support through ecosystem protection (Jones, 2023)
Technology & Efficiency	Tourism enterprises	Reduced energy costs; improved energy efficiency (McKinsey, 2023)
Leadership & Strategic Planning	Destination Management Organizations (DMOs)	Strategic net-zero roadmaps; planning aligned with visitor profile and infrastructure (Guix et al., 2024)
Local Policy & Stakeholder Engagement	Governments, tourism offices	Policy-driven carbon reduction; low-carbon infrastructure (Yang et al., 2022)

Source: Created by the author.

A general overview of the major strategies for achieving net zero, as well as their effects, is provided in Table 2. As illustrated in Table 2, the scope of net zero strategies is very broad and includes approaches ranging from science-based targets to nature-based solutions, efficiency technologies, and leadership strategies. The following observations can be made from Table 2 about the net zero strategies and their adoption within the tourism sector: first, there are multiple players involved within the tourism sector, including tourism businesses, DMOs, and government agencies, and they each have different responsibilities regarding net zero strategy implementation.

Table 3. Environmental and economic impacts of net-zero strategies.

Impact Category	Findings	Source
Emission Reduction	Tourism sector carbon intensity shows declining trends	WTTC (2024)
Cost Savings & Efficiency	Energy-efficient technologies reduce operating costs	McKinsey (2023)
Governance & Strategic Strengthening	DMOs' leadership increases net-zero success	UQ Business School (2024)
Policy Alignment	Integration of local and national strategies into net-zero targets	OECD (2025)
Social Impact & Competitive Advantage	Net-zero commitments enhance destination attractiveness in sustainable markets	Jones (2023)

Source: Created by the author.

Looking at Table 3, we see how net-zero actions shape both environmental and financial outcomes across tourism. These approaches cut carbon output, boost energy performance, yet trim daily expenses - offering more than just ecological gains. Governance grows clearer under such frameworks, and planning becomes sharper because of long-term thinking built into operations. When regional rules match national goals, results tend to strengthen further through consistent direction. Commitments to zero emissions open doors to better community impact, often lifting a location's appeal among travelers who favor sustainability. Competitive edges emerge quietly, shaped by reputation rather than promotion.

5. Conclusion and Discussion

This paper explored past literature on routes to net zero, sourcing information from peer-reviewed academic studies, government policy documents, and industry reports. Travel emissions arise mainly due to air travel, hotel accommodation, and cruise vacations, while others, such as ground transportation and food services, have minimal contributions (Hall et al., 2015; Klein, 2011). While the extent may differ, several destinations and organizations strive toward achieving quantifiable climate goals, utilizing renewable energy sources, enhancing resource efficiency, using natural systems to capture carbon, and strengthening governance concerning emissions reductions (WTTC, 2024; Jones, 2023; Guix et al., 2025).

Based on these findings, some key takeaways arise. Accommodation providers and travel attractions can currently reduce their emissions via existing methods, whereas airlines and cruise ships will have to await future developments, such as sustainable aircraft fuels and low-emission vessels (McKinsey et al., 2025; Gössling & Humpe, 2020). The trajectory tends to follow leadership's involvement in an organization; effective oversight aids

in meeting net-zero objectives. The more that the tourism industry aligns its actions with local and national regulations, the higher its chances of success become (UQBS, 2024; OECD, 2025). There is also an ecological benefit from nature-based solutions and carbon compensation measures, but the question arises regarding their efficiency in practice and scalability (Jones, 2023; Quan & Wang, 2025). As one can see, future progress in this sphere will depend on coordinated actions. In order to make sure that it will be effective, not only should regulatory frameworks be created, but also funding opportunities should be provided (Limmeechokchai et al., 2023). The combination of innovation and organization leads firms to successful outcomes, especially when accompanied by inclusive communication. As time goes by, research on different destinations and tourism niches will yield interesting insights (Yang et al., 2022). It helps people understand the interactions between the ecological, economic, and social implications. Otherwise, there is a danger that important aspects may go unnoticed.

Author Contributions

Both authors approved the final manuscript.

Conflict of Interest

The authors declare no conflicts of interest.

Funding

This study received no external funding.

Acknowledgment

The authors would like to express their sincere gratitude to Western Caspian University for their support.

References

Becken, S., & Hay, J. E. (2007). *Tourism and climate change: Risks and opportunities* (Vol. 1). Multilingual Matters. https://doi.org/10.21832/9781845410681

Giglio, V. J., Luiz, O. J., Chadwick, N. E., & Ferreira, C. E. (2018). Using an educational video-briefing to mitigate the ecological impacts of scuba diving. *Journal of Sustainable Tourism, 26*(5), 782-797. https://doi.org/10.1080/09669582.2017.1408636

Gössling, S., & Humpe, A. (2020). The global scale, distribution and growth of aviation: Implications for climate change. *Global Environmental Change*, *65*, 102194. https://doi.org/10.1016/j.gloenvcha.2020.102194

Gossling, S., Scott, D., & Hall, C. M. (2015). Tourism and water: Interactions, impacts and challenges. https://doi.org/10.4324/9780203072332

Guix, M., Babakhani, N., & Sun, Y. Y. (2025). Doing all we can? Destination management organizations' net-zero pledges and their decarbonization plans. *Journal of Sustainable Tourism*, *33*(8), 1730-1751. https://doi.org/10.1080/09669582.2024.2357377

Hall, C. M., Gössling, S., & Scott, D. (Eds.). (2015). *The Routledge handbook of tourism and sustainability* (Vol. 922). Abingdon: Routledge. https://doi.org/10.4324/9780203072332

Higham, J., Cohen, S. A., Cavaliere, C. T., Reis, A., & Finkler, W. (2016). Climate change, tourist air travel and radical emissions reduction. *Journal of Cleaner Production*, *111*, 336-347. https://doi.org/10.1016/j.jclepro.2014.10.100

Jones, P. (2023). Towards net-zero emissions in the global tourism industry. *Athens Journal of Tourism,10*(2), 125-136. https://www.athensjournals.gr/tourism/2022-5089-AJT-Jones-05.pdf

Klein, R. A. (2011). Responsible cruise tourism: Issues of cruise tourism and sustainability. *Journal of Hospitality and Tourism Management*, *18*(1), 107-116. https://doi.org/10.1375/jhtm.18.1.107

Lenzen, M., Sun, Y. Y., Faturay, F., Ting, Y. P., Geschke, A., & Malik, A. (2018). The carbon footprint of global tourism. *Nature climate change*, *8*(6), 522-528. https://doi.org/10.1038/s41558-018-0141-x

Limmeechokchai, B., Winyuchakrit, P., Pita, P., & Misila, P. (2023). Climate Change 2022: Climate Change 2022 Mitigation of Climate Change: Buildings. *International Journal of Building, Urban, Interior and Landscape Technology*, *21*(2), 61-69. https://doi.org/10.56261/built.v21.251490

McKinsey & Company, & Skift Research. (2022). Accelerating the transition to net-zero travel: Strategies for action. https://www.mckinsey.com/industries/travel-logistics-and-infrastructure/our-insights/accelerating-the-transition-to-net-zero-travel

Organisation for Economic Co-operation and Development. (2025). Strengthening the evidence base for a sustainable tourism future in Greece: A tailored set of sustainability indicators. OECD Tourism Papers, 2025/04. https://doi.org/10.1787/6e46e845-en

Quan, S., & Wang, F. (2025). Do ecotourism demonstration areas mitigate tourism carbon emissions in China?—A perspective based on quasi-natural experimentation. *Regional Science and Environmental Economics*, *2*(2), 9. https://doi.org/10.3390/rsee2020009

Scott, D., Hall, C. M., & Gössling, S. (2016). A review of the IPCC Fifth Assessment and implications for tourism sector climate resilience and decarbonization. *Journal of Sustainable Tourism*, *24*(1), 8-30. https://doi.org/10.1080/09669582.2015.1062021

University of Queensland Business School. (2024, December). Stronger leadership essential for tourism industry's net-zero transition. https://business.uq.edu.au/article/2024/12/stronger-leadership-essential-tourism-industrys-net-zero-transition

World Tourism Organization. (2020). *International tourism highlights, 2020 edition*. https://www.unwto.org

World Travel & Tourism Council (WTTC). (2021). *A Net Zero Roadmap for Travel & Tourism*. WTTC. https://wttc.org/sustainability/climate#:~:text=The%20first%20ever%20net%20zero,at%20COP26%20in%20Glasgow%2C%202021

WTTC. (2024). Significant surge in travel and tourism businesses' commitment to net-zero reveals WTTC roadmap. https://wttc.org/news/significant-surge-in-travel-and-tourism-businesses-commitment-to-net-zero-reveals-wttc-roadmap

Yang, S., Hao, Q., Wang, Y., & Zhang, C. (2022). Impact of the participation of the tourism sector on carbon emission reduction in the tourism industry. *Sustainability*, *14*(23), 15570. https://doi.org/10.3390/su142315570