

Net Zero Tourism: Global Experiences and Lessons for Vietnam

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ABSTRACT: The concept of *Net Zero Tourism* refers to the transformation of the tourism industry toward achieving net-zero greenhouse gas emissions, in line with global climate goals and sustainable development agendas. This study provides a comparative analysis of the experiences of the United Kingdom, Germany, and Japan in promoting Net Zero Tourism through policy frameworks, technological innovations, economic strategies, and public-private partnerships. The United Kingdom has advanced low-carbon tourism by integrating policy instruments, promoting green mobility, and supporting energy-efficient accommodations. Germany has emphasized renewable energy integration, digital innovation, and sustainable regional development, while Japan has leveraged advanced technologies, community-based tourism, and carbon-neutral infrastructure such as high-speed rail and eco-friendly hotels. From these case studies, several lessons emerge for Vietnam, including the necessity of aligning national Net Zero targets with tourism policies, fostering green technologies, developing economic incentives for sustainable tourism businesses, and strengthening collaboration between the government, private sector, and local communities. The study concludes that Net Zero Tourism not only contributes to climate change mitigation but also represents a strategic opportunity for Vietnam to enhance competitiveness, promote its international image, and achieve sustainable economic growth.

KEYWORDS: Net Zero Tourism, Sustainable Development, Climate Policy, Green Innovation, Economic Strategies, United Kingdom, Germany, Japan, Vietnam, Public-Private Partnership

1. INTRODUCTION

Defining Net Zero Tourism and Its Significance

Climate change has placed urgent pressure on all sectors of the global economy – including travel and tourism – to eliminate or neutralize their greenhouse gas emissions. The concept of “Net Zero Tourism” has emerged as a guiding paradigm in this context. Net Zero Tourism refers to tourism development and operations that result in *no net impact* on the climate, typically by drastically reducing direct and indirect emissions and offsetting any remaining emissions so that the sector’s overall carbon footprint is zero. In simpler terms, achieving net zero in tourism means measuring all the greenhouse gases emitted by tourism activities (from transportation and accommodations to food and waste), cutting those emissions as much as possible, and balancing out any residual emissions through carbon removal or high-quality offsets. Importantly, this goes beyond mere carbon neutrality claims; it aligns with science-based targets to limit global warming to 1.5°C by requiring deep emissions reductions across the tourism value chain, not just offsets.

The pursuit of net zero in tourism is driven by its critical role in climate goals. Tourism is estimated to account for about 8% of global greenhouse gas emissions, once one considers not only transport (especially aviation and cruise) but also energy use in hotels, restaurants, and related supply chains. This substantial carbon footprint means that without decarbonizing tourism, it will be difficult for many countries to meet their national emissions targets under the Paris Agreement. Conversely, transforming tourism onto a net zero pathway can significantly contribute to national climate action plans and the Sustainable Development Goals (SDGs). The United Nations World Tourism Organization (UNWTO) has accordingly called for urgent action, setting a sector-wide ambition to halve tourism emissions by 2030 and reach net zero by 2050 at the latest. Over 800 tourism businesses, destinations and governments have signed onto the *Glasgow Declaration on Climate Action in Tourism*, committing to those targets and to publish concrete climate action plans. This global movement signals that net zero tourism is increasingly seen not as an option but as a necessary pillar of climate action.

Equally important is the relevance of net zero tourism to sustainable development. Tourism is a major economic driver and employer in many countries, including developing economies like Vietnam, and it has a unique potential to deliver positive social and environmental outcomes if managed responsibly. A net zero approach in tourism inherently promotes *resource efficiency*, *pollution reduction*, and protection of natural and cultural heritage all core tenets of sustainability. By cutting emissions, tourism businesses often simultaneously reduce waste and energy consumption, adopt renewable energy, and engage in conservation of the

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very environments that attract tourists. Net zero tourism thus aligns with the broader concept of “regenerative” or “green” tourism, in which tourism not only minimizes harm but actively contributes to environmental quality and community well-being. In this way, moving toward net zero is not merely a technical exercise in carbon accounting; it is part of reorienting tourism to be more resilient, inclusive, and beneficial at local and global scales. The COVID-19 pandemic hiatus, which temporarily cut tourism emissions, has further spurred calls to “build back better” by rebuilding tourism in a greener and more climate-friendly manner.

In summary, Net Zero Tourism can be defined as an approach to tourism development that aims to eliminate or offset all greenhouse gas emissions from tourism activities, in line with global climate targets. Its importance lies in the significant carbon footprint of tourism and the sector’s responsibility to support national and international climate goals. Moreover, pursuing net zero is synergistic with sustainable development: it drives innovation in clean technology, encourages sustainable business practices, protects ecosystems, and enhances community livelihoods ultimately ensuring that tourism can thrive without undermining the environmental and societal foundations on which it depends. The following sections provide a comparative analysis of how three advanced economies the United Kingdom, Germany, and Japan are implementing net zero tourism strategies. We examine their policy frameworks, technological and economic initiatives, partnerships, and community engagement efforts, and consider how these strategies contribute to each country’s national net zero commitments. From there, we distill key lessons and assess how similar approaches could be applied in Vietnam, a developing economy with rising tourism ambitions and a newly declared net zero 2050 goal.

2. THE UNITED KINGDOM: STRATEGY AND TRANSFORMATION TOWARDS NET ZERO TOURISM

Policy Framework and Governance: The UK was the first major economy to enact a legally binding net zero emissions target, committing to reduce national greenhouse gas emissions to *net zero by 2050*. This ambitious economy-wide mandate provides the backdrop for all sectoral strategies, including tourism. In 2021, as the tourism industry reeled from the pandemic, the UK government released a Tourism Recovery Plan that prominently highlighted sustainability and climate action as central to the sector’s future. The plan explicitly calls for the tourism industry to “*play its part*” in achieving the UK’s overall sustainability agenda and net zero 2050 commitment. It outlines a vision for a “greener, more sustainable, and resilient” tourism sector as it rebuilds, and it sets the stage for more detailed climate action in tourism policy. Notably, the government announced it would develop a dedicated Sustainable Tourism Plan to put the UK “*at the forefront of the global discussion on sustainable travel*” and to work with industry on ways to “grow back greener”. This signifies an integrated approach: rather than treating tourism’s recovery and climate goals separately, the UK aims to align its tourism development with its decarbonization trajectory.

Several specific policy measures support this alignment. The UK’s *25-Year Environment Plan* and other national strategies are leveraged to improve air quality, biodiversity, and waste reduction in tourism destinations. Moreover, recognizing the carbon impact of travel, the Department for Transport has developed a comprehensive Transport Decarbonisation Plan (2021) that charts a path to net zero transportation by 2050, encompassing public transport, private vehicles, aviation, and more. Since tourism is heavily transport-dependent, this plan is crucial it means that the tour buses, rental cars, ferries, and domestic flights that tourists use are progressively shifting to low- or zero-emission options in coming years. In addition, the UK government set up a high-level public-private body, the Jet Zero Council, focusing specifically on decarbonizing aviation (which includes air travel by tourists). The Jet Zero Council brings together government officials, airlines, aerospace manufacturers and others with the goal of achieving zero-emission commercial flight within a generation. By driving innovations like sustainable aviation fuels and electric/hydrogen aircraft, this initiative addresses one of the most challenging aspects of tourism emissions (air travel) while keeping the industry’s growth on track. Finally, the UK has actively engaged internationally on sustainable tourism through forums such as the COP26 Glasgow Declaration and the G20 Tourism Working Group, sharing best practices and committing to common targets. In summary, the UK’s policy framework for net zero tourism is characterized by strong national targets, mainstreaming of climate action into tourism recovery plans, and the creation of cross-sector coalitions (like Jet Zero) to tackle emissions in transport and beyond.

Technological Innovation and Infrastructure: Technological innovation is a linchpin of the UK’s net zero tourism strategy. A prime focus is the transition to low-carbon transport technologies to enable more sustainable mobility for travelers. The government has invested £950 million to install a network of electric vehicle (EV) charging hubs at every motorway service area and major A-road service station in England. This large-scale investment, announced in 2020, aims to eliminate “range anxiety” for electric cars – including those used by tourists on road trips – and make it “*even easier to use this sustainable transport option for domestic trips*.”. Complementing this, incentives are in place to encourage tourist-facing businesses to adopt EV technology. For example, grants are offered to small accommodation providers (B&Bs, rural inns, campsites) to install EV charge points for guests. Tax policy is also supporting the transition: a “super-deduction” allows companies to claim 130% capital allowances on qualifying green investments, such as installing solar panels or EV chargers, thereby accelerating the uptake of clean energy and efficiency technologies in the tourism sector.

In aviation, the UK’s innovation push is exemplified by research and development into sustainable aviation fuel (SAF) and electric flight. Through the Jet Zero Council and related funding programs, Britain is supporting pilot projects for SAF production and even hybrid-electric small aircraft, with the explicit aim to reconcile growing travel demand with the net zero goal. The intention

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is that technological breakthroughs will allow tourists to continue flying in the future but with dramatically reduced emissions. Meanwhile, on the ground, the UK encourages a shift from high-carbon forms of travel to cleaner ones. The government and rail industry have promoted rail travel for tourism as a greener alternative to car or short-haul flights (a messaging reinforced by the introduction of new domestic rail passes and marketing of scenic train routes). The electrification of Britain's railways and phase-out of diesel trains by 2040 also bolster the climate advantage of train travel for tourists. In cities, investments in public transit and pedestrian infrastructure – e.g. London's ultra-low emission zones, or bike-sharing schemes in tourist centers – further demonstrate how technology and planning are reducing tourism's urban transport emissions.

Accommodation and attractions are also seeing innovation. The UK hospitality industry has been quick to explore green building design and energy efficiency to move toward net zero hotels and venues. For instance, Whitbread PLC (owner of Premier Inn, the UK's largest hotel chain) pledged to achieve net zero carbon emissions by 2040, a decade ahead of the national deadline. The country's first "net-zero carbon" hotel was recently opened in London, featuring ultra-efficient design that uses less than half the energy of a typical hotel (≤ 60 kWh/m² annually) through measures like smart energy management, heat recovery systems, and on-site renewables. Such prototypes showcase technologies – from solar panels on rooftops to intelligent lighting and HVAC systems – that can drastically cut emissions from tourist accommodations. Additionally, digital technology is being leveraged for sustainability: many UK tour operators and destinations have adopted carbon tracking apps and online tools to help tourists make lower-carbon choices (for example, showing the CO₂ saved by taking a train instead of a flight for a given route, or enabling e-ticketing to save paper). In sum, the UK's approach pairs ambitious infrastructure upgrades (especially in transport and energy) with encouragement of *innovative practices in tourism businesses*, driving the uptake of clean technologies that reduce emissions per traveler.

Economic and Financial Strategies: Transitioning to net zero tourism requires significant investment and economic incentives, and the UK has implemented several strategies in this regard. During the pandemic recovery, the government directed over £25 billion in support to the tourism and hospitality sectors (grants, loans, furlough schemes), and attached a vision of sustainability to the recovery funds effectively nudging businesses to rebuild in greener ways. For example, part of the recovery funding was funneled into national parks and heritage sites to improve their environmental sustainability (e.g. upgrading visitor centers with low-carbon facilities, enhancing walking and cycling trails to reduce vehicle use). The *Kickstart Tourism Package* and other grants in England explicitly encouraged projects that would "build back better" by boosting both resilience and sustainability of tourist destinations.

On a broader scale, the UK uses fiscal policy to support net zero goals in tourism. The aforementioned super-deduction tax relief for capital investment greatly improves the business case for hotels, restaurants, and attractions to invest in emissions-cutting equipment. The government has also introduced lower VAT rates or rebates for certain energy-efficient renovations in buildings, which would include hospitality properties. In parallel, regulatory signals are guiding economic decisions: for instance, the UK's carbon pricing (through the UK Emissions Trading Scheme) and increases in Air Passenger Duty on long-haul flights send price signals that could over time make low-carbon options relatively more attractive.

The British tourism industry itself has mobilized resources for climate action. Many large companies and sector associations are developing voluntary "net zero roadmaps". UKHospitality, a trade body, launched a detailed roadmap for the hospitality sector to reach net zero by 2040, outlining interim targets and cost estimates for decarbonizing kitchens, hotels, and venues. This kind of industry-wide planning helps pool knowledge and may lead to collective procurement of green technologies, lowering costs. Another economic strategy is leveraging the UK's financial sector strength to green the tourism supply chain. Innovative financing, such as green bonds or sustainability-linked loans for tourism businesses, are emerging; for example, hotel companies can secure loans with interest rates tied to achieving carbon reduction milestones.

In summary, the UK's economic approach marries public investment with market mechanisms and private sector initiatives. Government spending kick-starts critical infrastructure (EV chargers, rail improvements) and helps tourism businesses adopt green solutions, while tax breaks and carbon pricing create longer-term economic advantages for low-carbon operations. The net result is an economic environment where investing in sustainability increasingly makes financial sense for tourism enterprises – aligning profitability with climate responsibility.

Public-Private Collaboration and Governance: The scale of change required for net zero tourism means that collaboration between government and the private sector is essential. In the UK, public-private partnerships can be seen in multiple initiatives. The Jet Zero Council is one high-profile example, explicitly structured as a partnership between government ministers and industry CEOs to drive technological breakthroughs in aviation. This council's work on solutions like zero-emission aircraft involves airlines (e.g. British Airways), aircraft manufacturers (Airbus, Rolls-Royce), fuel companies, and research institutions all working together with governmental support – a collaborative model that shares expertise and risk.

At the destination level, Britain's approach to sustainable tourism often involves local Destination Management Organizations (DMOs), governments, and businesses co-operating. The government-commissioned *Landscape Review* (Glover Review) recommended that National Parks and Areas of Outstanding Natural Beauty become "leaders in sustainable tourism" by "*working together with DMOs, local authorities, Local Enterprise Partnerships, and local businesses.*". This has translated into

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joint action plans where, for example, a National Park Authority teams up with tour operators, hotels, and community groups to implement eco-friendly practices (like coordinated visitor transportation to reduce traffic, or collectively marketing a region as an eco-destination). The central government signaled support for these collaborations and aims to consult on how to implement the review's recommendations.

National tourism bodies also play a convening role. VisitBritain/VisitEngland (the national tourism board) works with the tourism sector to “*celebrate and amplify best practice*” in sustainability and to promote the UK internationally as a green destination. For instance, VisitEngland has hosted industry webinars on carbon reduction and supported a “Tourism Declares a Climate Emergency” initiative that dozens of UK travel organizations have joined. These platforms allow private businesses to share knowledge and commit publicly to climate goals, often in alignment with government targets. There is also collaboration on data and monitoring: the UK is participating in UNWTO's sustainable tourism observatories network and improving how it measures tourism emissions and impacts, which involves data sharing between government statistical agencies and companies in areas like transport and accommodations.

Importantly, the UK's climate policies are increasingly affecting private sector operations but often through cooperative frameworks rather than top-down mandates. For example, rather than immediately imposing strict emissions regulations on tour operators, the government often first works with industry to develop voluntary guidelines or pilot programs (such as the “Green Tourism Business Scheme,” a long-running certification program that was supported by public agencies and has enlisted thousands of businesses in improving their environmental performance). This collaborative ethos builds buy-in and capacity within the sector, making eventual regulations (if needed) easier to implement.

To illustrate, one specific public-private collaboration is in the area of carbon offsetting and nature conservation. The UK has encouraged tourism businesses to invest in nature-based climate solutions domestically. Some destinations have partnerships where a portion of tourist spending goes into local reforestation or peatland restoration, which both enhances the visitor experience and acts as carbon offsets. Local governments facilitate these schemes (providing land or coordination), while private operators contribute financially and use them to market low-carbon or “climate positive” holidays. While the UK government emphasizes that offsetting should be a last resort after direct emissions cuts, it acknowledges the role of high-quality offsets for unavoidable emissions; thus, ensuring tourism businesses collaborate with certified offset providers (often via public-private initiatives) is another aspect of cooperation.

Community Engagement and Social Inclusion: In the UK's vision, net zero tourism goes hand in hand with community engagement and benefits for local people. The idea is that decarbonizing tourism should also make destinations *better places to live*, not just to visit – reflecting the principle that tourism development should align with residents' quality of life and local values. The Tourism Recovery Plan stresses working with local populations to protect amenities for both visitors and residents, especially in face of potential over-tourism issues. This recognition came from observing places like Venice or Dubrovnik where unmanaged tourism harmed local living; the UK is keen to avoid such scenarios by involving communities in planning tourism growth responsibly.

One way community engagement manifests is through support for community-led tourism projects that have environmental benefits. For example, the UK government's *Community Renewal Fund* and *Levelling Up Fund* have financed grassroots initiatives such as eco-tourism trails run by local trusts, or sustainable tourism hubs in rural towns. By empowering local groups to create tourism experiences (like heritage walks, birdwatching tours, farm stays) that emphasize conservation, emissions can be kept low and the economic benefits flow directly to communities. Protected areas are a focal point: the government wants National Parks and rural areas to model sustainable tourism, which means park authorities are working closely with nearby villages and small businesses on issues from visitor transport to waste management. For instance, in some National Parks, community volunteers help operate electric shuttle buses that move tourists to popular sites, reducing car traffic and pollution while providing local employment.

The UK also integrates community well-being indicators into tourism success metrics. Beyond visitor numbers or revenue, destinations are increasingly evaluating resident satisfaction and environmental quality. Many local councils in tourist areas hold public consultations on tourism plans, ensuring community voices (including concerns about pollution, congestion, or cultural impacts) shape the sustainability measures. This inclusive approach has led to ideas like limiting cruise ship entries at certain ports or setting “visitor capacity” limits for fragile sites – actions that help control emissions and environmental stress, supported by residents.

Education and awareness campaigns form another part of community engagement. The UK promotes environmental education for both tourists and hosts. Initiatives like the “*Love UK Beaches*” campaign encourage visitors to keep sites clean and plastic-free, working with local community groups for beach clean-ups and recycling schemes. In cities, community-led cycling tours or walking tours are being supported as low-carbon alternatives to big bus tours, which not only cut emissions but also intimately connect tourists with local storytellers and residents. Such programs receive small grants or marketing support from tourism boards, acknowledging their dual benefit in climate and community interaction.

Finally, net zero tourism in the UK is framed as being about “respecting local host communities and taking their needs into account”. This language in policy documents underscores that decarbonization strategies (like introducing an electric bus fleet or

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changing infrastructure) should be done in consultation with those who live in the destination. A concrete example is the development of cycling and walking infrastructure in tourist towns: local people are consulted about new bike lanes or pedestrian zones, ensuring these climate-friendly changes also serve residents' daily mobility needs and garner public support. Thus, the UK's net zero tourism journey is as much a social project as a technical one, striving to foster community-inclusive tourism that sustains local livelihoods and identity while eliminating emissions.

Alignment with National Net Zero Goals and KPIs: All of the UK's tourism-related efforts are tightly aligned with its national climate goal of net zero by 2050. The government has set interim climate targets – a 68% reduction in emissions by 2030 and 78% by 2035 (from 1990 levels) – which implicitly require every sector, including tourism, to drastically cut emissions this decade. The tourism sector's alignment is evident in the shared milestones: for instance, VisitBritain recommends tourism businesses reduce emissions by 50% by 2030 and reach near-zero (90–100% reduction) by 2050, mirroring the national pathway. To track progress, the UK is beginning to develop Key Performance Indicators (KPIs) specific to sustainable tourism. These include metrics such as the carbon intensity of tourism (emissions per tourist or per GBP of tourism GDP) and the number of tourism businesses with climate action plans in line with the Science Based Targets initiative. A baseline is being established via projects like the WTTC Environmental Research, which in 2023 provided a detailed account of tourism's climate footprint in the UK. Such data allow measurement of improvements – for example, whether UK tourism emissions decouple from growth as they did in Germany (discussed below) or whether renewable energy use in hotels is rising annually.

Some early indicators are positive. Several leading UK travel companies (airlines, hotel chains) have joined the UN's Race to Zero campaign, pledging net zero by 2050 or sooner and reporting progress. The Premier Inn chain's commitment to net zero by 2040 is a milestone, as is the opening of net-zero designed hotels. In transport, the rapidly growing network of EV chargers – with thousands of new public charging points installed in the last few years – is a tangible KPI demonstrating infrastructure readiness for low-carbon travel. The UK can also track tourism's share in national emissions: tourism is not officially a separate category in inventory, but improvements in data might show its share peaking and declining. The Tourism Recovery Plan suggests that by making the UK a leader in green tourism, it will strengthen the country's "*brand proposition*" internationally, implying that a reputational KPI (Britain's ranking or image as a sustainable destination) is also considered. Ultimately, the test of alignment will be whether tourism emissions indeed fall in line with the carbon budgets set by the Climate Change Committee (the UK's independent climate watchdog). The government's integrated policy – from Jet Zero to EV infrastructure – is designed so that tourism can grow in economic terms while contributing to the national emissions trajectory, not detracting from it. This alignment is explicit: the Tourism Recovery Plan notes that protecting the environment and pursuing net zero is not only about climate – it's about ensuring the *long-term viability* of UK tourism itself.

3. GERMANY: NET ZERO TOURISM STRATEGIES IN THE CONTEXT OF CLIMATE NEUTRALITY 2045

Policy Framework and Commitments: Germany has set an aggressive national climate target of achieving greenhouse gas neutrality by 2045, enshrined in its Climate Change Act. This national goal – reaching net zero five years ahead of most countries' 2050 targets – establishes a strong top-down driver for decarbonization across all sectors, including tourism. By law, Germany's emissions must peak by the early 2020s and decline rapidly, reaching a 65% reduction by 2030 (vs 1990) and net zero by 2045. This framework compels each sector to formulate plans, although tourism as a cross-cutting sector does not have its own chapter in the Climate Act. Instead, tourism emissions are embedded in sectors like transport, buildings, and agriculture. Nevertheless, German policymakers and industry leaders recognize that *the tourism industry "must also do its part to reach the target."* The Federal Association of the German Tourism Industry has publicly acknowledged that tourism has to approach climate protection "differently than in the past" and step up its efforts.

Germany's national tourism policy in recent years has increasingly emphasized sustainability. The federal government adopted principles for a new National Tourism Strategy in 2019, which, while focusing on competitiveness and value creation, also underline sustainability and climate action as key pillars. Indeed, the *cornerstones of this tourism strategy explicitly align with the country's climate goals*: they reference the Sustainable Development Goals and the European Green Deal, and call for tourism development consistent with Germany's commitment to be carbon-neutral by 2045. As Petra Hedorfer, CEO of the German National Tourist Board (GNTB), explains, German tourism policy sees "striking a balance between the needs of the economy, the environment and society" as a global task, with climate change having "particular focus on carbon emissions" in tourism. In practical terms, this has led to initiatives such as the German Sustainable Development Strategy incorporating tourism indicators, and the establishment of a *Competence Center for Sustainable Tourism* at the federal level to advise on policy measures.

However, an important nuance is Germany's federal structure. Tourism policy is partly decentralized: each of the 16 Länder (states) has authority in areas impacting tourism (transport regulation, building codes for hotels, etc.). Experts have noted that "*a detailed and agreed-upon national strategy for climate protection and sustainability in tourism is lacking*" so far. The fragmentation means that instead of one cohesive federal "net zero tourism" plan, Germany's approach consists of multiple layers: federal climate policies influencing tourism, state-level tourism initiatives, and voluntary industry efforts. Some states, for example, have their own sustainable tourism action plans (Bavaria and Baden-Württemberg have strategies to promote low-impact tourism in alpine areas,

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etc.). Meanwhile, the German federal government supports sustainability through funding programs. One such program is “Sustainable Tourism for Future” launched under the Environment Ministry, which funds innovative projects by destinations focusing on emissions reduction, nature conservation, and adaptation.

At the international level, Germany strongly supports EU-wide climate initiatives that affect tourism. The EU’s ambitious climate agenda (Fit for 55, which includes measures like kerosene taxation and stricter CO₂ standards for cars) will have direct implications on tourism transport modes. Germany’s endorsement of these shows its willingness to subject tourism to transformative change for climate’s sake. Furthermore, Germany is part of multi-nation efforts like the “Glasgow Declaration” (several German tourism entities are signatories) and has joined the “Travel & Tourism Climate Ambition” initiative via the World Travel & Tourism Council (WTTC), committing to provide transparency on tourism emissions and work toward net zero by 2050. Notably, Germany’s government partnered with Saudi Arabia’s Sustainable Tourism Global Center and WTTC on groundbreaking research to track tourism’s climate footprint, indicating a policy interest in evidence-based action. In summary, Germany’s policy framework for net zero tourism is characterized by a *strong national climate mandate (net zero 2045)* that implicitly drives tourism decarbonization, an integration of sustainability into national tourism strategy principles, but also a recognition that a more coordinated tourism-climate strategy is an outstanding task.

Technological Innovation and Mobility Transformation: Germany, known for its engineering prowess, is leveraging technological innovation in its quest to decarbonize tourism, especially by transforming how tourists travel. A key element is promoting sustainable mobility – an area where Germany is already a leader in Europe. The country’s extensive railway network and high-speed trains (InterCity Express) form the backbone of low-carbon domestic travel for tourists. Train travel in Germany is largely electrified and increasingly powered by renewable energy (Deutsche Bahn, the national rail company, has a target to use 100% renewable electricity by 2038), making it a very low-emission option compared to driving or flying. This plays directly into tourism: campaigns by the GNTB encourage visitors to use rail passes to explore multiple cities, highlighting that *traveling by train or bus instead of by plane can drastically cut a tourist’s CO₂ footprint*. In fact, academic experts in Germany emphasize that the journey to and from a destination often generates the majority of a tourist’s emissions, so providing attractive alternatives to car and air travel is crucial. Germany has made news with innovations like the €9 Climate Ticket (a 2022 experiment offering unlimited regional public transport for €9 per month) and its successor, the €49 Deutschlandticket, which while designed for general mobility, also benefits budget-conscious and eco-minded tourists. These make low-carbon travel not only feasible but economically enticing, thereby nudging tourist behavior towards sustainability.

Technologically, Germany is advancing electric mobility and alternative fuels in the tourism sector. The country is rapidly expanding its electric vehicle infrastructure (over 90,000 public charging points as of 2023), and car rental companies are adding more EVs to their fleets in response. It’s increasingly possible for an international visitor to rent an electric car in Germany and find charging readily available on autobahns and in cities, making a zero-tailpipe-emission road trip viable. Additionally, Germany is a champion of *hydrogen fuel cell* technology; pilot projects in regions like Lower Saxony have introduced hydrogen-powered trains on some tourist-frequented routes, eliminating diesel emissions.

In the aviation domain, German companies are heavily involved in innovation: firms like Lufthansa and Siemens are working on synthetic fuels and electric aircraft components. The government’s “Power-to-Liquid” initiative is funding production of synthetic kerosene from renewable electricity, aiming for aviation fuel that could cut life-cycle carbon emissions significantly. This aligns with the goal to have a certain percentage of sustainable aviation fuel usage by 2030 under EU rules, directly impacting emissions from both domestic and international tourist flights.

Beyond transport, Germany is fostering innovation in energy efficiency and circular economy for tourism facilities. A standout example is the Haffhus Hotel in Ueckermünde, which has become a model for climate-neutral hospitality. By 2018, this family-run hotel and spa had completely cut itself off from the public power grid, meeting 100% of its energy needs via on-site renewables (solar, biomass) and even producing surplus. It also sources food locally (even raising its own livestock for a “climate-neutral meat” menu) and uses sustainable building materials. Such examples demonstrate that with existing technology – solar panels, battery storage, efficient insulation, geothermal heating, etc. – it’s possible for accommodations to approach zero emissions. German authorities and industry groups promote these best practices through awards and networks (the hotel won a federal Ecodesign award, for instance, and serves as a training case for others).

Technology is also aiding emissions monitoring and consumer information in German tourism. Digital tools like Myclimate’s CO₂ calculator are made available to travelers on tourism websites so they can calculate and offset their trip emissions. The GNTB’s “Simply Feel Good” sustainable tourism campaign uses online platforms to highlight eco-friendly options and even apps like *EcoHopper*, which guide tourists to green experiences in cities. This integration of tech helps in influencing tourist choices and collecting data on tourism’s environmental impact.

In conclusion, Germany’s technological approach to net zero tourism centers on clean mobility (trains, EVs, hydrogen), energy self-sufficient and efficient tourism facilities, and digital innovation for sustainability. The combined effect is a steadily decreasing emissions intensity of tourism, as evidenced by WTTC data: between 2010 and 2019, Germany’s travel & tourism sector “*decoupled its greenhouse gas emissions from its growth*,” with emissions dropping ~1.1% annually even as the sector’s

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contribution to GDP grew 1.5% per year. This indicates technology and efficiency gains were already yielding results, a trend that Germany aims to accelerate moving forward.

Economic Measures and Incentives: Germany's economic strategies for promoting net zero in tourism involve a mix of government funding, market-based incentives, and industry-driven programs. The federal government has various funds targeting sustainability in business, from which tourism enterprises can benefit. For example, the Energy Efficiency Fund and programs under the state-owned KfW Bank offer low-interest loans or grants for SMEs (including hotels, restaurants) to upgrade to energy-efficient equipment, insulation, and renewable energy systems. Through these, a small hotel might get subsidized financing to install solar panels or a modern heat pump, significantly cutting its carbon footprint and energy bills. There are also innovation grants for experimental projects – a recent call by the Ministry of Economic Affairs invited proposals for climate-friendly tourism mobility solutions, with funding for pilot implementations in resort towns (like e-shuttle services or bike-sharing systems for tourists).

On the industry side, Germany places a strong emphasis on voluntary certification and standards that often carry market benefits. The country has developed well-regarded eco-labels such as Viabono (a certification for environmentally friendly travel businesses) and adheres to international standards like TourCert and the Global Sustainable Tourism Council (GSTC) criteria. Businesses that obtain these certifications often see marketing advantages – being listed as a “sustainable destination” on GNTB promotions, for instance – which in turn incentivizes more businesses to invest in qualifying (by reducing energy use, waste, etc.). This creates an economic ripple: destinations like “*Schwarzwald Sustainable*” or “*Climate-Neutral Destination Juist*” attract a niche of green travelers and gain competitive edge, encouraging further local investment in sustainable infrastructure.

Germany also uses economic signaling through its climate policy mechanisms. The nation's carbon pricing scheme (a carbon tax/ETS on heating and transport fuels introduced in 2021) raises the cost of fossil fuel use over time. This directly affects tourism operations: gasoline, diesel, and heating oil price rises encourage tour operators, bus companies, and hotels to shift to cleaner energy to save costs. For example, a tour bus company has greater incentive to purchase electric or Euro VI low-emission buses as fuel prices (with carbon costs) rise. Likewise, a resort with oil heating will find a heat pump or biomass system more economically attractive after accounting for carbon costs. The aviation sector within Europe is being pulled into the EU ETS more fully, which economically pressures airlines to improve efficiency or use cleaner fuels to avoid expensive emission allowances – costs that could otherwise be passed to consumers and dampen demand for high-emission flights.

One notable economic initiative is the “Klimaeffiziente Reiseziele” (Climate-Efficient Travel Destinations) competition funded by the German government, which provides financial awards to destinations that present the best climate innovation plans (e.g., a town's plan to become carbon-neutral in tourism by 2030). Winning destinations receive not only funds but also national recognition and support in implementing their plans. This kind of challenge spurs local tourism boards to think creatively and invest in emission-reducing measures, knowing there is potential financial reward and brand enhancement.

Finally, Germany's approach includes the private sector's commitment to gradual decarbonization without jeopardizing competitiveness. The tourism sector in Germany is highly conscious of cost-competitiveness (e.g., tour packages, hotel rates) and thus tends to favor efficiency measures that have clear cost savings. Many German tourism businesses have found that what's good for the climate can be good for the bottom line: saving energy reduces costs, reducing waste saves money, etc. The challenge, however, is that some deeper decarbonization (like overhauling a heating system or fleet renewal) requires upfront capital. Through industry associations, tourism businesses are lobbying for and sometimes receiving government incentives to ease these investments. For example, there have been calls for tax rebates on refurbishment of hotels to low-carbon standards, and some states offer small grants for installing EV chargers at tourist sites. These financial carrots are gradually aligning economic self-interest with climate goals.

In essence, Germany's economic strategy for net zero tourism relies on integrating sustainability into the financial calculus of tourism operations. By providing funding and incentives for green investments, employing certifications to drive market demand for sustainable options, and internalizing carbon costs, Germany aims to make low-carbon tourism not just an ethical choice but an economically rational one for businesses and consumers alike.

Collaboration Across Sectors (Public-Private and Federal-Local): Collaboration in Germany's tourism climate efforts takes place on multiple levels. The public-private collaboration is evident in initiatives like the German National Tourist Board's campaigns and partnerships. The GNTB works closely with all 16 state-level tourism boards and hundreds of private tourism businesses in its sustainability marketing initiatives. For instance, in the “Feel Good/Simply Feel Good” campaign, the GNTB curated input from local tourism agencies and businesses to feature eco-friendly travel ideas across Germany – from green hotels and vegan restaurants to car-free nature tours. This serves as a platform where businesses doing good work on sustainability get promoted, thereby encouraging others to collaborate and join the movement. The GNTB also partners with technology companies (like myclimate or EcoHopper app developers) to integrate carbon calculation and green navigation tools into tourism offerings, reflecting how private tech solutions are embraced by public tourism bodies for the common climate agenda.

German industry associations provide another collaboration channel. The Deutscher Reiseverband (German Travel Association) and the German Hotel and Restaurant Association have sustainability committees that liaise with government. They discuss practical issues, such as how upcoming regulations (e.g., building energy standards or EU single-use plastic directives) will

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affect tourism, and how industry can input into policy design. This collaborative policymaking helps ensure that climate measures are realistic and that industry has ownership. A case in point: when the federal government was formulating its National Platform on the Future of Mobility, which includes tourism transport, representatives from airlines, Deutsche Bahn, and tourism operators were at the table alongside policymakers to map out decarbonization strategies for travel mobility.

Inter-governmental collaboration (federal-local) is equally crucial in Germany. Recognizing that local authorities often implement tourism projects, the federal government and Länder coordinate through bodies like the Conference of Tourism Ministers. Sustainable tourism has become a recurring topic there. Some federal ministries (Economy and Climate, Environment) fund model projects in cooperation with municipalities – for example, a federal grant might support a city in developing a sustainable urban tourism plan that involves local public transport upgrades and hotel energy audits. The success of such models can then be scaled up or replicated elsewhere.

One collaborative network to note is the “Allianz für Entwicklung und Klima” (Alliance for Development and Climate), a voluntary coalition that many tourism companies have joined to commit to climate-neutral operations through emissions reduction and offsets in developing countries. Supported by the government, this alliance brings NGOs, businesses, and government together, illustrating Germany’s penchant for multi-stakeholder collaboration in achieving climate and development co-benefits via tourism.

That said, challenges exist: as mentioned, a more unified national tourism-climate strategy is still in development, which stakeholders like Prof. Heinz-Dieter Quack (director of the federal Competence Center for Tourism) have highlighted. The reason a comprehensive national strategy is elusive partly comes down to each state having its own rules and the sector’s fragmentation (from small guesthouses to multinational companies). In response, collaboration is happening through informal means – e.g., states sharing best practices through the “Bund-Länder Experience Exchange on Sustainable Tourism” forum and companies forming coalitions. A notable private coalition is the “Future of Tourism” working group of major German tour operators, who jointly explore pathways to offer carbon-neutral tours, sometimes in dialogue with the Ministry of Environment.

In summary, Germany relies on consensus-building and partnership to drive tourism toward net zero. The emphasis is on collective action – whether through national campaigns, industry standards, or federal-local pilot projects – rather than heavy-handed regulation. There is a cultural element here: German stakeholders often prefer collaborative solutions and technological fixes to punitive measures, hoping to maintain competitiveness while transitioning. This collaboration has thus far produced incremental improvements (e.g., better train integration, more sustainable offerings), though some critics argue that bolder joint action is still needed to hit the 2045 mark.

Community and Local Engagement: Community engagement is a vital aspect of Germany’s sustainable tourism ethos, tied into the broader concept of “*Klima- und umweltfreundlicher Tourismus*” (climate- and environmentally-friendly tourism) benefiting local areas. Germany’s tourism model strongly features “*Landlust*” or rural tourism, where local communities are directly involved as hosts (in farm stays, guesthouses, nature guiding, etc.). Efforts to achieve net zero tourism pay attention to supporting these communities to adopt sustainable practices without losing their livelihoods or cultural authenticity.

A clear example is the promotion of regional products and shorter supply chains in tourism. German tourism authorities encourage hotels and restaurants to source food and goods locally, which cuts down on transport emissions and supports local farmers/artisans. This is often organized through community cooperatives or branding schemes (like “Eifel regional produce” or “Schleswig-Holstein sustainable gastronomy”), wherein communities take pride in offering low-carbon local cuisine to visitors. As Prof. Quack pointed out, the industry must consider “the food and products guests consume...and whether they are produced regionally” to reduce emissions. Many rural communities now integrate this into their tourism offering – e.g., a village might have a community-run organic farm that supplies a nearby eco-hotel and also offers agritourism activities to visitors, thereby achieving both emission reduction and community income.

Another aspect is infrastructure and behavior at destinations. Communities play a role in managing tourist flows in ways that reduce environmental pressure. In Alpine areas of Germany, local governments and citizen groups have partnered to implement car-free zones and shuttle services for hikers, protecting air quality and tranquility. Public acceptance of such measures tends to be high when the community is involved in the decision; residents appreciate reduced traffic and the tourism still thrives with cleaner transport. Likewise, waste management is often co-managed with community input: the “Circular economy” approach mentioned by experts involves looking at how tourists’ waste is handled – communities like the island of Juist have programs to become plastic-free and ensure any waste is recycled or composted, aligning with the island’s ambition to be carbon-neutral by cutting waste emissions.

Communities also engage through education and cultural exchange. Many German destinations have interpretation centers or museums (often community-operated) focusing on climate and nature, educating tourists on the local environment and how to protect it. For instance, in national parks like Berchtesgaden or the Wadden Sea, visitor centers (staffed in part by locals) inform travelers about climate change impacts on local ecosystems and encourage low-impact behavior (like sticking to trails, not littering). This fosters a sense of shared responsibility between visitors and hosts.

It’s worth noting Germany’s approach to social sustainability in tourism communities: ensuring that the push for net zero also considers social inclusion and equity. Tourism jobs and benefits should be maintained or enhanced. This is seen in initiatives

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for retraining – for example, helping retrain diesel bus drivers as e-bus or train operators, so that as technology changes, local employment is secure. Additionally, making tourism sustainable also involves keeping it accessible. Germany emphasizes barrier-free (accessible) tourism and keeping costs reasonable, so that the shift to eco-tourism doesn't make travel exclusive or too expensive for average people. The sustainability strategy thus tries to balance planet, people, and prosperity.

In the German discourse, there is also a drive for community resilience. Some regions view sustainable tourism as a tool to combat rural depopulation – eco-tourism providing jobs that keep young people from leaving – and as a way to preserve cultural heritage. For instance, traditional craft villages in the Black Forest incorporate renewable energy in their guesthouses, marrying old-world charm with modern sustainability; the community benefits economically and culturally. The net zero journey is framed positively: not as sacrifice, but as *opportunity for communities to thrive in harmony with their environment*.

To summarize, German communities are not passive subjects in the net zero tourism transition; they are active shapers and beneficiaries. Through local sourcing, collaborative destination management, educational outreach, and ensuring social co-benefits, community engagement in Germany reinforces that tourism decarbonization is most successful when it aligns with local interests and values.

Alignment with National Climate Goals and Milestones: Given Germany's commitment to net zero by 2045, how is the tourism sector contributing and measuring up? One macro-level indicator comes from the WTTC's analysis: Germany is among a few major economies where *Travel & Tourism grew while reducing absolute emissions*. Between 2010 and 2019, Germany's tourism GDP expanded annually (on average +1.5%), yet the sector's emissions *decreased ~1.1% per year*. By 2019, for every euro generated by tourism, emissions had fallen to 0.43 kg CO₂, down 22% in carbon intensity from 2010. This decoupling is a significant milestone, signaling progress in efficiency and initial shifts to cleaner energy. It also illustrates alignment: tourism was not increasing Germany's overall emissions burden even as it grew, easing the path to meet climate targets.

However, absolute emissions still need to drop much faster to hit net zero by 2045. Tourism's share of national emissions can be estimated. The Federal Statistical Office attributed about 2.6% of Germany's total GHG emissions to the tourism industry (this likely counts direct operations domestically). Meanwhile, WTTC's broader accounting (including supply chain and possibly international travel) put it higher, at 10.3% in 2019 (falling to ~5.8% in pandemic-hit 2020-21). Whichever measure is used, the trajectory is more important than the exact share. The German government will be looking for tourism to continue the trend of emissions reduction through the 2020s. Key performance indicators will include: increases in *renewable energy usage* in tourism businesses, reductions in *average emissions per tourist trip*, and uptake of *sustainability certifications*.

Some concrete milestones to watch or that have been achieved include:

- **Transportation:** By 2030, Germany aims to have 15 million electric vehicles on the road (a portion of which will be rental cars, taxis, buses used by tourists). Additionally, the recently introduced €49 transit pass aims to significantly boost public transport ridership (including tourists) and cut private car usage – if successful, it will reduce emissions and be considered a win for sustainable tourism mobility.
- **Energy:** The government's goal of 80% renewable electricity by 2030 and phase-out of coal by 2038 is pivotal. Many tourism businesses draw from the grid, so the grid's greening directly lowers their carbon footprint. Progress can be measured in the declining carbon factor of electricity consumed by hotels and attractions.
- **Destinations:** A target set by the German Tourism Association is to have a substantial number of certified sustainable destinations by mid-2020s. In fact, the *Japan-Germany sustainable tourism dialogue* noted that 100 destinations in Germany aim to be working on sustainable tourism development by 2025 (this includes those seeking GSTC-aligned certification or awards). Achieving this would be a milestone indicating broad adoption of sustainability planning at the local level.
- **Corporate Climate Action:** The number of German tour operators and travel companies committing to net zero and interim science-based targets is rising. TUI Group, for example, has set targets to reduce its emissions intensity by 2030. Monitoring the largest firms' progress (emissions per passenger or per night) will be a KPI to ensure the industry giants are aligned with national goals.
- **Consumer Behavior:** An interesting indicator is the modal share for domestic tourist trips – i.e., what percentage of trips are made by train versus car or plane. A shift in this share towards train/bus would show alignment with climate goals. Already, the term "*flugscham*" (flight shame) and "*train brag*" have entered public discourse, reflecting a cultural shift where German tourists, especially younger ones, take pride in low-carbon travel choices. If domestic flight numbers stagnate or decline in favor of rail, that's a sign of alignment with net zero ethos.

While the tourism sector does not have a standalone emissions budget, its transformation is part of sectors that do (transport, buildings). By meeting or exceeding those sectoral targets – e.g., cutting transport emissions 48% by 2030 as Germany's climate law stipulates – tourism stakeholders indirectly fulfill their share. The challenge ahead, as German experts acknowledge, is that some emissions (particularly long-haul travel) are hard to eliminate quickly. There is realism that "*there will always be a remaining value*" of emissions for some tourism operations, meaning offsetting and carbon removal will need to play a role. A milestone for alignment, therefore, will also be the development of high-integrity offset schemes or carbon capture projects that German tourism can utilize for those residual emissions by the 2040s.

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In conclusion, Germany's tourism sector has begun aligning with the country's stringent climate trajectory through improved efficiency and stakeholder commitment. The continued decarbonization of transport, increased renewable energy, widespread adoption of standards, and supportive consumer trends are all critical signs that will determine if tourism can fully align with Germany's net zero 2045 ambition. The groundwork is laid, but acceleration is needed – something German stakeholders are actively planning for in this decade.

4. JAPAN: NET ZERO TOURISM APPROACHES IN AN INNOVATION-DRIVEN CONTEXT

Policy Context and National Goals: Japan has committed to achieving net zero greenhouse gas emissions by **2050**, a pledge announced by the government in 2020 and reinforced in national policy documents. In pursuit of this, Japan updated its NDC (Nationally Determined Contribution) to target a 46% emissions reduction by 2030 (from 2013 levels), with efforts aimed at pushing that to 50%. These national targets provide the overarching framework for climate action in all sectors, including tourism. While Japan does not yet have a singular “Net Zero Tourism Strategy” at the national level, sustainability has increasingly been mainstreamed into its tourism development policies. The Tourism Nation Promotion Basic Plan (2023–2025) – Japan's mid-term master plan for tourism – notably includes for the first time a dedicated “Strategy for Sustainable Regional Tourism Development” as a core component. This strategy emphasizes that tourism growth must align with environmental sustainability and climate goals, indicating high-level recognition that the tourism sector should contribute to the 2050 net zero vision.

One concrete step Japan has taken is establishing standards and frameworks to guide sustainable tourism at the destination level. In June 2020, the Japan Tourism Agency introduced the Japan Sustainable Tourism Standard for Destinations (JSTS-D), aligning it with the internationally recognized GSTC criteria. This provides local governments and tourism organizations with a clear blueprint on sustainability measures, including climate mitigation (reducing energy use, promoting public transport, etc.), adaptation, community benefits, and heritage conservation. By 2023, Japan aimed to have at least 100 regions actively working on sustainable tourism development and 50 regions certified or awarded for sustainability. These targets serve as proxies for climate action in tourism because the certification criteria invariably include emissions reduction aspects (such as measuring carbon footprint, implementing waste reduction and clean energy).

Japanese national policy also leverages its advanced technology and urban planning in pursuit of tourism decarbonization. The government's broader initiatives like the “Green Growth Strategy” and “Society 5.0” envision smart, energy-efficient cities and transportation – which benefits tourism since many tourist sites are in urban areas. For example, Tokyo's policy of becoming a “Zero Emission City by 2050” explicitly involves greening the transport and buildings that also serve tourism. Kyoto, one of Japan's most visited cities, was among the first to declare a 2050 carbon-neutral target, signaling that major tourism hubs are aligning local policies (like energy management in cultural properties, electrification of buses in the historic center) with the net zero goal. The national government supports such local moves through funding and knowledge-sharing – the Environment Ministry's programs help heritage sites and national parks adopt low-carbon facilities (e.g., solar panels at visitor centers, EV charging in park lots).

Crucially, Japan's stance on net zero tourism is also shaped by its role in international cooperation. Japan is a proponent of using its technologies and finance to aid sustainable tourism in the Asia-Pacific region (under initiatives like the ASEAN-Japan sustainable tourism partnership). Domestically, this reflects in public-private initiatives such as the “GREEN JOURNEY” project launched in 2021 by Nissan and the Nippon Travel Agency, with the ambitious goal of net-zero CO₂ emissions in *domestic travel by 2050* through EV road trips and other innovations. While largely symbolic, this shows alignment of corporate strategy with national policy and provides pilot models for net zero travel experiences.

In summary, Japan's policy framework addresses net zero tourism through integrating sustainability into national tourism planning, setting standards for destinations, empowering cities and regions to go carbon-neutral, and encouraging private sector pledges. Though not consolidated in one document, the combination of Japan's climate pledge and tourism policies demonstrates a commitment that tourism should evolve in line with cutting emissions – resonant with Japan's broader vision of a green economy by 2050.

Technological and Innovative Measures: As a technology powerhouse, Japan heavily leans on innovation to drive emissions reduction in tourism. One of the biggest advantages Japan has is its world-class public transportation, especially the high-speed rail network (Shinkansen). The Shinkansen not only moves vast numbers of travelers efficiently, it does so with a remarkably small carbon footprint thanks to electric trains powered significantly by non-fossil sources (including nuclear and a growing share of renewables). A striking statistic often cited: a bullet train journey produces around *90% less CO₂ per seat than an equivalent flight*. This makes rail the linchpin of sustainable domestic tourism mobility. Japan actively promotes the use of rail passes (JR Pass for foreigners, regional rail passes) to encourage tourists to opt for trains over domestic flights. In the context of net zero, expanding and improving rail connectivity is a key strategy – for instance, the extension of Shinkansen lines to Hokkaido and Kanazawa increases low-carbon access to those regions, reducing reliance on planes or cars.

Another area of innovation is electrification of vehicles and adoption of new transport modes. Japan is aggressively pushing electric vehicles (EVs) and hydrogen fuel cell vehicles. For tourists, this is evident in companies like Toyota offering hydrogen fuel cell buses (which were used in Tokyo during the Olympics for shuttling visitors) and the proliferation of hybrid or electric rental

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cars. Car rental agencies and even taxi fleets in cities like Kyoto and Tokyo have introduced more EVs to serve environmentally conscious travelers. The presence of dense charging infrastructure in many tourist areas (often at convenience stores or parking lots, which Japan has in abundance) supports this shift.

Japan also invests in smart city technologies that enhance energy efficiency and reduce emissions in tourist hotspots. For example, in popular districts (like Tokyo's Ginza or Yokohama's Minato Mirai), smart energy management systems and district cooling/heating reduce the energy used by hotels, shops, and attractions. Tourists may not see it, but behind the scenes, IoT (Internet of Things) devices are optimizing lighting, AC, and transport scheduling to save energy. The country is testing autonomous electric shuttles in some tourist sites (e.g., in Okinawa and Fukuoka's islands) to provide last-mile transit that is both convenient and zero-emission.

In accommodations, Japanese companies are pioneering low-carbon and carbon-neutral hotel concepts. A noteworthy example is Hoshino Resorts' efforts to incorporate renewable energy in its properties and experiment with off-grid hospitality in remote eco-friendly lodges. Additionally, major urban hotel chains are adopting cutting-edge tech: from solar window panes to AI-driven energy management that adjusts room conditions based on occupancy, aiming to minimize wasted energy. Some hotels have begun offering "eco-stay" programs where guests are incentivized (with vouchers or discounts) to choose no daily linen change or to use in-house carbon offset schemes for their stay.

The JTB Corporation's net zero pledge is emblematic of industry innovation. JTB, Japan's largest travel agency, not only committed to carbon neutrality by FY2050 for its operations, but also launched services like "*CO2 Zero Travel*" and "*CO2 Zero MICE*". These offerings likely bundle carbon offsets or select low-carbon options for customers (for example, arranging conferences with hybrid virtual components to reduce travel or trips that use greener hotels and transport). JTB's strategy involves engaging upstream and downstream partners: it is partnering with transportation providers to promote low-emission vehicles and with accommodations to reflect greenhouse gas reduction initiatives in tour packages. The use of digital platforms is key – JTB's planned ESG-focused business travel management system will give corporate clients detailed data on the emissions of their travel and help them make greener choices. By embedding such technology, Japanese companies empower travelers with information and control over their carbon footprint.

Moreover, Japan is exploring innovative concepts like carbon offset tourism and nature-based solutions. The country's extensive forests and rural landscapes provide opportunities for carbon sequestration projects tied to tourism. For instance, some tours include tree-planting activities for visitors, contributing to local reforestation and carbon absorption, while giving tourists a meaningful, hands-on role in sustainability. Tourist-focused carbon offset programs (often run by NGOs like J-Credit or internationally via myclimate) allow travelers to easily offset the emissions of their flights or road trips by investing in renewable energy or forest conservation projects in Japan or abroad.

In summary, Japan's net zero tourism push is technology-centric – leveraging its advanced transit systems, embracing electrification and hydrogen, implementing smart energy solutions in tourism infrastructure, and innovating in travel services with sustainability at the core. By doing so, Japan not only reduces emissions but also showcases solutions (bullet trains, hydrogen buses, etc.) that can inspire other countries' tourism industries. Japan's approach often blurs the line between tourism and daily life infrastructure: improvements in cities and transport benefit everyone, including tourists, leading to a holistic low-carbon ecosystem in which tourism can flourish sustainably.

Economic and Incentive Strategies: Economically, Japan incentivizes net zero-aligned practices in tourism primarily through broader green growth policies and targeted support for sustainable tourism initiatives. The Japanese government has instituted a green investment wave as part of its post-COVID economic stimulus and long-term growth strategy. Within this, there are funds allocated to decarbonize key industries, and tourism entities can tap into some of these funds. For example, the Ministry of Environment's subsidies for cutting carbon in commercial buildings have been used by hotels to upgrade to efficient HVAC systems and install renewable energy. There are also tax incentives: Japan offers tax breaks or accelerated depreciation for companies investing in approved climate-friendly equipment. A hotel chain installing a high-efficiency cogeneration system or a fleet operator buying electric coaches can benefit financially from such schemes.

On the consumer side, Japan has trialed pricing incentives to steer behavior. For instance, discounts on rail passes or local transit for tourists are effectively a subsidy to choose low-carbon travel. Some regions have experimented with "*green tourism credits*" – giving tourists small discounts or gifts if they engage in eco-friendly actions (like using a reusable bottle or using public transport). These have been more promotional than pervasive, but signal an understanding that aligning economic signals with sustainability can guide choices.

Crucially, the public-private partnerships in projects like the aforementioned GREEN JOURNEY involve cost-sharing. Nissan and Nippon Travel are co-investing in infrastructure (like EV rental stations, charging points at scenic spots) which the government facilitates through supportive regulation and possibly subsidies. By setting a 2050 net-zero domestic travel goal, they provide a long time horizon for private sector to plan investments, while early steps (like deploying a new EV tour package) are often partially underwritten by government tourism promotion funds.

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In the realm of aviation – a significant part of Japan’s tourism given its island geography – economic measures are being considered to reduce emissions. Japan is supporting the development of Sustainable Aviation Fuel (SAF) and has put in place a modest mandate for airlines to use SAF by a certain date. For tourists, if domestic airlines incorporate SAF or more efficient aircraft, ticket prices may rise slightly, but the government may offset that through incentives for airlines or airports. Additionally, Japan’s two major airlines (JAL and ANA) have voluntary carbon offset programs and are exploring offering “carbon-neutral tickets” where for an added fee the flight’s emissions are offset; these are market-driven, but the government’s encouragement and support (like endorsing offset schemes) lends them credibility.

Another notable strategy is Japan’s investment in destination resilience and sustainable attraction development. Grants are provided to rural areas to develop eco-tourism attractions (e.g., solar-powered glamping sites, eco-lodges, cycling trails) which serve the dual purpose of drawing tourists and fostering green economies locally. By funding such projects, Japan ensures economic revitalization efforts in rural communities are aligned with low-carbon principles. One example is Yakushima, a UNESCO-listed island: government and local funds have helped in managing visitor numbers and building boardwalks and facilities that minimize environmental impact, preserving the ancient forests that act as carbon sinks while still allowing tourism.

Japan’s approach also often involves big corporations leading by example economically. Companies like JTB (travel), JR (railways), Toyota (mobility) have deep pockets and R&D budgets; by making bold net zero pledges and investing in new services or technologies, they absorb some high initial costs which eventually lowers prices for wider adoption. The government, in turn, recognizes these efforts in awards or preferential policy support, creating a virtuous cycle. For instance, if a hotel group commits to net zero 2040, they might receive public recognition or be prioritized for certain tourism promotions.

In summary, Japan employs a combination of financial incentives, subsidies, collaborative investment, and voluntary market mechanisms to economically support net zero tourism. While direct regulation (like carbon taxes) in tourism is less pronounced, the strategy is to *nudge and support* – make sustainable choices easier and often cheaper for both businesses and travelers. The underlying principle in Japan’s economic strategy is synergy: aligning the net zero pathway with opportunities for innovation, efficiency gains (which save money), and high-quality growth in the tourism sector.

Collaboration and Stakeholder Engagement: Collaboration in Japan’s tourism climate strategy can be seen through the tight integration of government, business, and academia, as well as international cooperation. A hallmark is the creation of public-private councils for specific issues. For example, the Japan Tourism Agency established a Sustainable Tourism Working Group that brings together officials, tourism associations, environmental NGOs, and experts to discuss standards and share best practices. Similarly, prefectures like Okinawa or Nagano with high tourism and environmental stakes have multi-stakeholder councils deliberating on how to balance tourism development with carbon reduction and conservation.

Corporate collaboration is very evident. Japanese companies often form consortia to tackle big challenges. The “Zero Carbon Drive” partnership, for instance, involves automakers, energy companies, and travel agencies working on building the ecosystem for EV travel – so a tourist driving an EV from Tokyo to Mt. Fuji has charging stations (provided by an energy company) at service areas, a navigation app (provided by a tech firm) to plan charging stops, and possibly a discount from a travel agency for using a green vehicle. The government often catalyzes these alliances by setting common goals (like a target number of EV chargers) and sometimes funding pilot collaborations.

Collaboration is also key at the community level in Japan. Many of Japan’s sustainable tourism successes are *community-driven but supported by experts and authorities*. Take the case of sustainable destination certification: when a region like Niseko or Oku-Itoigawa decides to go for GSTC certification, it involves local businesses, residents, and governments forming committees to meet criteria – with guidance from tourism consultants and sometimes financing from central agencies. This process builds local collaboration around net zero concepts (like waste reduction campaigns and energy saving in hospitality) and creates networks of “green tourism” stakeholders who continue working together beyond certification.

Internationally, Japan collaborates to learn and lead in tourism sustainability. It works with organizations like the UNWTO and Pacific Asia Travel Association (PATA) on climate initiatives, and it exchanges knowledge with countries that have advanced sustainable tourism. This is partly why Japan quickly aligned its destination standard with GSTC – to be on the same page globally. There is also Japan’s involvement in the Asia Zero Emission Community (AZEC), which, while focused on energy transitions in Asia, complements tourism by aiming to provide cleaner energy and shared technologies regionally. Since many Asian tourists visit Japan and vice versa, cooperating on decarbonizing aviation and shipping in the region (through forums like AZEC) is beneficial for tourism emissions.

One interesting example of public engagement is the promotion of “carbon offset tourism” where travel agencies partner with environmental organizations. For instance, JTB or ANA might collaborate with a forest conservation NGO to offer customers an easy way to support tree-planting projects in Southeast Asia to offset their trip. Through such partnerships, travelers are engaged and educated, and multiple stakeholders (business, NGO, local communities abroad) work together on a climate solution spurred by tourism.

Japan also emphasizes sharing its technological expertise through collaboration. It invites foreign tourism boards and companies to observe and test technologies like high-speed rail and smart energy systems. The idea is collaborative leadership –

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Japan can help others decarbonize tourism (for example, exporting efficient trains or helping train planners in other countries), which in the bigger picture helps global emissions. Domestically, this global outlook fosters pride and motivation among stakeholders that by working together on net zero tourism, Japan is contributing to a global cause and showcasing its innovation.

In summary, Japan's net zero tourism efforts are characterized by multi-level collaboration – from national councils to local community groups, from industry consortia to international partnerships. By ensuring wide stakeholder involvement, Japan leverages a broad knowledge base and secures buy-in, which is particularly important in a society that values consensus. This collaborative approach allows Japan to implement changes smoothly (e.g., community acceptance of new technologies or policies) and to continuously improve through shared learning.

Community Involvement and Cultural Considerations: In Japan, the concept of “omotenashi” (hospitality) is deeply ingrained, and as tourism shifts towards sustainability, communities strive to welcome guests in environmentally and socially responsible ways. Community-based tourism (CBT) has gained traction, often with an inherent low-carbon profile. Many rural villages offer homestays, farm visits, or nature tours where small groups of visitors engage with local life. These experiences typically produce minimal emissions (think: walking tours, home-cooked local meals, traditional lodging without energy-intensive amenities) while delivering economic benefits to communities. The government has promoted such community-led tourism as part of regional revitalization programs, which dovetails with net zero goals by dispersing tourists (reducing pressure on over-visited sites) and supporting modes of travel like cycling or trekking.

A key community aspect is preserving and leveraging traditional practices that are sustainable. Japanese rural communities have long used low-impact practices – from heating bath water with firewood (carbon-neutral if done at sustainable scale) to utilizing seasonal local foods. Reviving interest in these practices for tourism helps reduce dependence on modern high-energy conveniences. For instance, some ryokans (traditional inns) are reviving the use of *irori* (charcoal hearths) for heating and cooking in a way that is both culturally immersive for tourists and lower carbon than electric heating, provided the biomass is sustainably sourced. Such cultural authenticity, when managed well, aligns with sustainability and offers a unique selling point.

Community engagement in cities also matters, especially where tourism and residents' life intersect. In Kyoto, for example, local campaigns encourage both residents and tourists to follow energy-saving measures (like the “Cool Biz” casual dress code to reduce AC usage, or turning off lights during certain hours). Residents often become “local guides” or “environmental volunteers” for programs that guide tourists in eco-friendly behavior (for instance, volunteers in Nara Park educate tourists on not littering and protecting the deer, or in dive sites like Okinawa, community dive guides brief visitors on coral-safe practices). This fosters a shared sense of guardianship of the local environment between hosts and guests.

Moreover, Japan is tackling overtourism issues with community input in popular places like Kyoto, Kamakura, and Mt. Fuji. Measures such as limiting car access, requiring advance reservations for certain sites, or imposing accommodation taxes have been implemented with the idea of improving residents' quality of life and environmental conditions. These measures implicitly cut emissions (e.g., fewer traffic jams in Kyoto's narrow streets mean less idling emissions) and make tourism more sustainable. The fact that local communities and governments push for and design these rules (Kyoto's city council, largely supported by citizens, enacted a lodging tax that funds cultural and environmental preservation) shows community-driven alignment with the principles of net zero and sustainability.

Educationally, Japanese communities integrate sustainability themes into cultural festivals and events that tourists attend. For example, some festivals have moved to biodegradable materials for food stalls, and community-run events like the “Zero Carbon Park” initiative in national parks involve demonstrations of solar cookers or electric vehicle showcases for visitors. By witnessing local enthusiasm for eco-living, tourists can be inspired, and vice versa, communities feel supported in their green transition by tourist interest.

Finally, a crucial community consideration is disaster resilience – Japan is prone to natural disasters, some worsened by climate change. Sustainable tourism development often overlaps with disaster preparedness (e.g., building hotels with energy self-sufficiency means they can serve as shelters during power outages). Communities in tourist areas collaborate with authorities to ensure that as tourism infrastructure becomes greener, it also becomes more resilient for locals. This holistic approach resonates culturally in Japan, where communal safety and harmony (“*wa*”) are valued.

In essence, Japanese communities are key actors in net zero tourism: preserving sustainable traditions, co-existing harmoniously with tourism through local rules and mutual education, and ensuring that tourism initiatives yield tangible benefits like jobs and environmental improvements. This community-centric approach helps root the net zero concept in local pride and responsibility.

Progress and Alignment with National Goals: Japan's tourism industry, hit hard by the pandemic, is in a rebuilding phase with an eye towards 2030 and beyond. The nation's progress towards integrating climate goals in tourism can be seen in several emerging indicators:

- **Corporate Climate Commitments:** Following JTB, other Japanese travel and hospitality companies are formulating clear emissions targets. All Nippon Airways (ANA) and Japan Airlines (JAL) have both announced 2050 net zero goals and nearer-term targets for 2030 (such as 10% SAF use by 2030). Major hotel brands in Japan are now publishing sustainability

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reports with emissions data, which wasn't common a decade ago. This transparency and target-setting are prerequisites to alignment with national goals.

- **Energy Transition in Tourism Facilities:** There is anecdotal evidence of increasing renewable energy adoption. For instance, some big hotels in Tokyo have started purchasing electricity from renewable-only providers as part of the Tokyo Zero Emission initiative. By 2025, we anticipate metrics like “X% of hotels in Japan’s major cities are sourcing at least half of their power from renewables” – these are being tracked by entities like the Japan Sustainable Hospitality Association. As Japan triples its renewable energy capacity nationally (a COP28 commitment), the tourism sector’s indirect emissions via electricity should fall proportionately.

- **Transportation Emissions:** A specific goal is cutting transport emissions, which in Japan means boosting already efficient systems. The government’s plan to *electrify 100% of new car sales by mid-2030s* is relevant: as rental and tour vehicles turn electric, tourism emissions drop and air quality improves at destinations. By 2030, if a sizable fraction of tourist travel within Japan is on Shinkansen, EVs, or other clean modes, that will signify good alignment with climate targets. Monitoring domestic flight trends is also revealing – the hope is to avoid a rebound to pre-pandemic levels in short domestic flights where rail is an option, thereby capping aviation emissions growth.

- **Destination Certifications and Awards:** Japan has set a qualitative milestone of positioning itself as a leading sustainable tourism destination in Asia. Several Japanese destinations have already won international eco-tourism awards or GSTC recognition (e.g., Okinawa’s Zamami Island for coral conservation tourism). The national tourism board, JNTO, is increasingly marketing Japan’s *nature and sustainability* angle, which aligns with net zero by emphasizing low-impact tourism. The number of destinations achieving Japan’s Sustainable Tourism Standard or international equivalents by 2030 will indicate how widespread concrete actions have become.

- **Tourist Awareness and Behavior:** By 2030, an aligned scenario would see a majority of inbound tourists expecting and participating in sustainable practices (like using refillable bottles, sorting trash, respecting wildlife, etc.). Japan already appeals to many eco-conscious travelers; if satisfaction surveys show that visitors recognize Japan’s sustainability efforts and are willing to pay or adjust behavior for it, that’s a soft but important indicator of success. Domestically, a concept called “*SDGs tourism*” has popped up, especially among young travelers, indicating growing awareness. Tours that include volunteering or learning about renewable energy (e.g., visiting the Fukushima renewable energy park) are now offered, reflecting synergy between tourism and climate education.

All these pieces contribute to Japan’s 2050 net zero journey. Yet, some gaps remain. One is comprehensive data: Japan will need to systematize measurement of tourism emissions (perhaps establishing a tourism carbon footprint report akin to WTTC’s analysis) to truly gauge alignment. Also, long-haul travel to Japan (a major source of emissions outside Japan’s direct control) remains a challenge – Japan can support R&D on low-carbon aviation and push for international measures, but it’s partly external. Regardless, Japan’s strategy seems to be to control what it can: decarbonize domestic operations and make tourism a catalyst for broader low-carbon shifts. By doing so, Japan ensures that by the time 2050 arrives, tourism will not be the laggard but rather a showcase sector that contributes to, and even symbolizes, the country’s net zero accomplishment.

5. COMPARATIVE ANALYSIS: KEY LESSONS FROM THE UK, GERMANY, AND JAPAN

The experiences of the UK, Germany, and Japan in steering their tourism sectors towards net zero reveal both common strategies and distinct approaches shaped by their contexts. Policy Commitment is a clear commonality – all three countries anchor tourism decarbonization within an economy-wide net zero target (2050 for UK and Japan, 2045 for Germany) and have signaled, through plans or principles, that tourism must align with these goals. This high-level commitment creates an imperative and legitimacy for subsequent actions. However, their frameworks differ: the UK has a dedicated tourism recovery plan that explicitly commits to a sustainable rebuild and promises a tailored tourism climate plan; Germany embeds sustainability in tourism strategy but has more diffuse implementation across states; Japan weaves sustainability into its tourism promotion plans and standards but relies on broad national innovation policies to indirectly guide tourism. A lesson here is the value of a clear, sector-specific strategy – the UK’s forthcoming Sustainable Tourism Plan exemplifies how a roadmap can focus efforts. Germany’s case shows that without a single strategy, progress is still possible through federal-state and industry collaboration, though potentially slower or uneven. For Vietnam, having a *national green tourism action plan* could concentrate stakeholders’ efforts under one vision, avoiding fragmentation.

Technological Innovation emerges as a cornerstone in all three countries, but each leverages different strengths. The UK focuses on transport electrification and aviation tech (EV networks, Jet Zero for planes). Germany doubles down on efficient public transit and rail, and incremental improvements in energy efficiency (decoupling growth from emissions via tech). Japan capitalizes on high-speed rail, smart infrastructure, and cutting-edge vehicles (Shinkansen, hydrogen fuel cells). The universal lesson is that decarbonizing tourism heavily depends on greening transportation and infrastructure. All three illustrate that investing in clean mobility is non-negotiable: whether it’s trains, EV buses, or potentially electric aircraft, the bulk of tourism emissions (from transport) can be tackled by technological shifts backed by policy. Another shared insight is the role of digital innovation – from the UK’s carbon calculators for businesses to Germany’s apps guiding eco-choices to Japan’s smart energy management, technology

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helps measure and reduce footprints and influence behavior. For a country like Vietnam, technology transfer and adoption will be key – embracing things like electric vehicles (including e-motorbikes), improving rail and transit for tourists, and utilizing digital platforms to inform and manage tourist flows can replicate these successes.

Economic Strategy and Incentives show both similarities and differences. The UK and Germany use a mix of public investment and pricing mechanisms (UK's tax incentives and EV funding, Germany's loans and carbon pricing). Japan leans on subsidies and corporate innovation without heavy carbon taxes in tourism yet, focusing on co-benefits (efficiency saves money). A common lesson is that financial support eases the transition: all three provided funds or tax breaks to help tourism businesses invest in green upgrades (be it UK's super-deduction, Germany's KfW loans, or Japan's subsidies for energy-saving equipment). This indicates that expecting the tourism sector – often composed of SMEs – to decarbonize on its own is unrealistic; government incentives are crucial to kick-start action. At the same time, market-driven mechanisms are also used: the UK's and Germany's carbon pricing slowly make fossil-heavy operations more costly, nudging change, whereas Japan's approach of voluntary corporate pledges leverages market reputation and consumer expectations. For Vietnam, the take-away is to design a mix of carrots and sticks: *financial incentives (grants, soft loans, tax relief for green projects)* combined with *long-term signals (e.g., a carbon pricing roadmap or sustainability criteria tied to operating licenses or ratings)* could stimulate investment in net zero practices.

Public-Private and Cross-Sector Collaboration in all three cases underscores that tourism decarbonization is not solely a government mandate but a joint venture. The UK's Jet Zero Council, Germany's alliances (like industry associations working with ministries), and Japan's multi-company projects (GREEN JOURNEY, etc.) all showcase partnership models. Collaboration with other sectors, especially energy and transport, is also prominent – tourism doesn't decarbonize in isolation. The lesson is the importance of *institutional platforms* where government, businesses, and sometimes civil society regularly convene to plan and review climate action in tourism. These help align efforts, pool resources, and ensure that initiatives like sustainable fuel production or transit system upgrades incorporate tourism needs. For Vietnam, establishing a "Tourism Climate Council" or integrating tourism representatives into climate committees can facilitate the needed dialogue and coordination. Additionally, international collaboration is notable: all three countries engage in knowledge exchange and commitments at international level (Glasgow Declaration, WTTC, UNWTO). Vietnam could similarly benefit from international partnerships for funding, technical assistance, and learning.

Community Engagement and Social Dimension: A striking commonality is the acknowledgement that sustainable tourism must involve and benefit local communities, though each country's approach reflects its context. The UK emphasizes leveling up regions and protecting local quality of life (e.g., National Parks working with locals). Germany focuses on leveraging tourism for regional value while guarding nature (e.g., community-led transport solutions, local produce). Japan ties in cultural preservation and disaster resilience with community-based tourism. The shared narrative is that tourism's net zero transition should also yield community gains economic, environmental, and social. This is vital for public support: residents are more likely to support tourism and climate policies if they see improved air quality, jobs from new green services, or preservation of their heritage. Furthermore, all three stress behavioral change among tourists and hosts as part of the solution (reducing waste, saving energy, etc.), which inherently requires community involvement and education. The implication for Vietnam is clear: any net zero tourism roadmap must be rooted in community engagement. This means empowering local communities in destinations to co-create sustainable tourism offerings (like community-based ecotours), training and employing locals in new green tourism jobs (such as park rangers, renewable energy technicians for resorts), and ensuring that tourism benefits – from revenue to improved infrastructure – reach local people. Culturally appropriate awareness campaigns for both citizens and visitors will also be essential to instill a sense of shared responsibility for greener tourism.

Another comparative insight is in scope and integration. The UK and Germany, as mature economies, have many legacy systems to retrofit (e.g., older buildings, long-established travel habits), whereas Japan, though also mature, has an advantage of already having an efficient transport backbone. For a developing country like Vietnam, the silver lining is the opportunity to leapfrog – learn from these experiences and adopt state-of-the-art solutions without going through intermediate, polluting phases. For example, Vietnam can expand tourism while avoiding a car-centric model (taking a cue from Japan's rail and the others' public transit focus), or build new hotels with solar power and efficient design from the outset, inspired by examples in the UK and Germany. The lesson is that *context matters*, but the end goals align: decarbonize transport, decarbonize accommodations, manage resources sustainably, and do so in a way that fortifies the economy and communities.

In summary, the comparative lessons from the UK, Germany, and Japan for achieving net zero tourism revolve around:

- Strong policy alignment with national climate goals and clear strategies or plans for the tourism sector.
- Technological transformation of transportation and infrastructure, supported by innovation and digital tools.
- Economic incentives and financial mechanisms that make sustainable practices financially viable and eventually the default choice.
- Collaborative governance that brings together public and private stakeholders, and integrates tourism into broader climate and sustainable development initiatives.
- Community-centric approaches ensuring that local people are partners and beneficiaries in the journey, thereby enhancing the resilience and acceptability of net zero measures.

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These lessons provide a foundation for examining how Vietnam can apply similar strategies, adapted to its unique context, which is the focus of the next section.

6. APPLYING GLOBAL LESSONS TO VIETNAM: OPPORTUNITIES AND CHALLENGES

Vietnam, a rapidly developing economy with a vibrant tourism industry, has boldly committed to achieving net zero emissions by 2050. This commitment, announced at COP26, now frames the country's policies including the National Climate Change Strategy to 2050, which envisions peaking emissions by 2035 and steep reductions thereafter. Tourism is a significant and growing sector in Vietnam (contributing around 9% of GDP pre-pandemic) and is likewise poised to grow in emissions if left unchecked. Adapting lessons from the UK, Germany, and Japan can accelerate Vietnam's transition to a net zero tourism model, but must be calibrated to Vietnam's socio-economic realities and environmental conditions.

Policy and Institutional Framework: A critical first step for Vietnam is to develop a clear national strategic framework for sustainable, low-carbon tourism. Vietnam's current *Tourism Development Strategy to 2030* emphasizes sustainable and inclusive growth, and the government has recognized green tourism as "crucial leverage" for a green economy aligned with net zero 2050. Building on this, Vietnam could formulate a dedicated "*Net Zero Tourism Roadmap*" or action plan. This plan should set sector-specific targets (e.g., reduce tourism-related emissions X% by 2030, all new tourism projects to meet green criteria by 20YY) that dovetail with national NDC targets. The plan can mirror the UK's approach by outlining concrete measures across transportation, accommodation, waste, etc., and assign responsibilities to various ministries and local authorities.

Establishing a multi-stakeholder task force or council on green tourism (as suggested by the comparative analysis) would institutionalize collaboration. This could be co-led by the Ministry of Culture, Sports and Tourism (MCST) and the Ministry of Natural Resources and Environment (MONRE), involving the Vietnam National Administration of Tourism, industry associations, airlines, hotel groups, and civil society (e.g., WWF Vietnam, which has done community tourism work). Such a body can coordinate efforts, from setting standards to mobilizing financing. Vietnam has already shown a positive step: in September 2024, a High-Level Tourism Forum on "Green Transformation, Net Zero Tourism – Creating the Future" was held with participation from top officials, signaling high-level commitment. The outcomes of such forums should feed into formal policy directives.

One challenge Vietnam faces is the relative novelty of climate policy integration in tourism and limited institutional capacity. To mitigate this, Vietnam can leverage international support. Partnerships like the Just Energy Transition Partnership (JETP) that Vietnam entered (with donor countries to shift its energy sector) can possibly be extended or paralleled in the tourism sector, channeling technical expertise and funds into things like sustainable destination planning or low-carbon transport projects. Vietnam could also join international initiatives such as the Glasgow Declaration on Climate in Tourism (following the over 800 signatories globally) to receive guidance and visibility for its commitments.

Sustainable Transport and Infrastructure: In applying lessons on mobility, Vietnam has a golden opportunity to transform how tourists get around. A top priority is developing sustainable transport alternatives to the current dominance of motorbikes, cars, and short flights. Vietnam's geography is elongated, with key tourist destinations spread out (Hanoi, Ha Long, Hue, Danang, Hoi An, Nha Trang, HCMC, Mekong Delta, Phu Quoc). Presently, many tourists rely on domestic flights or diesel-powered coaches/trains to cover these distances, leading to substantial emissions. Inspired by Japan's rail success and Europe's rail revival, Vietnam can invest in modernizing and expanding its rail network. The planned North-South Express Railway (a high-speed rail from Hanoi to Ho Chi Minh City) if realized, could be a game changer by providing a low-emission backbone for tourist travel. Vietnam should prioritize this project as both a transport and climate investment, potentially with green financing. Even incremental improvements like more comfortable overnight trains and adding routes to tourist hubs (e.g., a direct train from Da Nang to Da Lat) could shift some demand from planes to rail.

Within cities and regions, Vietnam can push for electrification of vehicles, learning from the UK's EV rollout and Japan's EV/hydrogen initiatives. Vietnam is already home to VinFast, an emerging EV manufacturer, which presents a unique chance to integrate local industry into the tourism greening. For instance, tourist transport operators (buses, vans, taxis, ferries) can be incentivized or mandated over time to switch to electric or low-emission vehicles – with preferential loans or subsidies for domestic EVs. A fleet of electric tourist buses in Ha Long Bay or electric boats for Mekong Delta cruises would markedly reduce emissions and air pollution. The government can also require or encourage ride-hailing services and tour companies to use green vehicles, perhaps via an accreditation (imagine a "Green Ride" logo for companies with >50% EV fleets).

Additionally, non-motorized and public transport in tourist areas must be improved. Vietnamese cities could designate certain heritage zones (like Hoi An Ancient Town, or parts of Hanoi's Old Quarter) as low-emission or car-free zones, providing electric shuttles, cyclo (cycle rickshaw) lanes, and walking streets. This improves tourist experience and cuts emissions and congestion. Vietnam can draw inspiration from Europe's city centers and Japan's pedestrian-friendly districts. For example, Hue could have an electric bus circuit connecting its Imperial City, tombs, and hotels, mirroring Germany's practice of shuttle services in heritage sites.

Green Accommodation and Energy: The hospitality boom in Vietnam – from homestays to luxury resorts – can integrate sustainability from the design phase. New hotels and resorts should be guided (or required) to adopt green building standards (like

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LOTUS in Vietnam, akin to LEED) that incorporate energy efficiency, natural ventilation, solar water heating, etc. The government could offer tax incentives for certified green buildings, similar to practices in the UK and Germany. For existing establishments, a program of energy audits and retrofits (with partial grants or low-interest loans) could encourage upgrading of air conditioning, lighting, and insulation. Vietnam's tropical climate means cooling is a major energy draw; learning from best practices (like Singapore's efficient hotel cooling, or Japan's smart AC systems) would be beneficial.

Furthermore, renewable energy adoption should be accelerated in the tourism sector. Vietnam has vast potential in solar and wind, and indeed has seen a rapid solar expansion. Encouraging hotels, resorts, and tourist attractions to install solar panels (rooftop or even floating solar in resort lakes) and small wind turbines can supply a portion of their power with zero emissions. The government might expand net metering or feed-in tariffs favorable to commercial entities to stimulate this. In remote eco-destinations (national parks, islands like Con Dao or Phu Quoc), renewable energy plus battery storage can provide reliable power and reduce reliance on diesel generators. As seen in Germany's Haffhus hotel and Japan's off-grid lodges, self-generation not only cuts emissions but builds resilience, a point to emphasize for Vietnam's disaster-prone regions.

Waste Management and Circular Economy: All three countries underscore waste reduction, and Vietnam's tourism stands to gain immensely from tackling waste, especially plastics, which mar its otherwise beautiful landscapes. Initiatives similar to the Global Tourism Plastics Initiative are needed locally – Vietnam can enforce (or encourage via certification) that hotels and cruise operators eliminate single-use plastics (straws, bottles, amenity bottles). A practical step is to install water refill stations at tourist sites and encourage/refill tourists' bottles (some Vietnamese airports and museums have started this). Communities can lead projects to make destinations "plastic free" – indeed, the Vietnam Tourism Association has launched campaigns for plastic reduction in tourism areas. For example, in Ha Long Bay, tour boats could be required to have proper waste-water treatment and to carry no single-use plastics onboard, ensuring the bay's waters are protected and aligning with net zero by reducing waste incineration emissions.

Additionally, a circular economy mindset can create jobs and cut emissions: organic waste from restaurants can be composted (reducing methane and returning nutrients to local farms), hotels can partner with recycling companies or social enterprises to upcycle glass and plastic waste into handicrafts (some projects exist in Huế and Hoi An). Not only does this reduce emissions from waste disposal, it fosters community involvement as locals often spearhead recycling initiatives.

Community-Based and Nature-Based Solutions: Many of Vietnam's rural and ethnic minority communities offer community-based tourism (CBT) – home stays in Sapa, Mekong Delta village tours, etc. These often inherently have a lower carbon footprint than mass tourism, and they disperse tourist income. Supporting and scaling CBT with sustainability principles will both empower local communities and contribute to net zero goals. The government can assist with training local hosts in sustainable practices (like how to manage waste, energy, and forestry when hosting tourists) and provide micro-grants for things like installing biogas digesters (to handle waste and provide cooking fuel) or solar panels at homestays. This mirrors aspects of Japan's integration of cultural preservation with sustainability and Germany's emphasis on local benefits.

Vietnam's incredible natural heritage (from Ha Long Bay to Phong Nha caves to Phu Quoc reefs) is a major tourism draw, but also at risk from climate change and tourism pressure. Embracing nature-based solutions in tourism can offset emissions and safeguard these assets. For instance, mangrove planting in the Mekong Delta can both sequester carbon and enhance eco-tourism (kayak tours through restored mangroves). Mountain communities in Sa Pa or Da Lat could run reforestation projects financed partly by visitors' contributions (a voluntary "carbon offset trek" fee where tourists' payments go into planting indigenous trees). These not only offset travel emissions but involve tourists in conservation directly, an approach that has been successful in New Zealand and could resonate in Vietnam.

Education and Awareness: A softer but vital element is cultivating a culture of sustainable travel among Vietnamese and international tourists. The comparative study shows heavy emphasis on awareness campaigns – the UK and Germany stress guiding tourist behavior, Japan leverages its culture of respect and order. Vietnam will need to raise awareness among service providers (hotels, tour guides) and tourists alike about climate-friendly practices. For example, tour guides can be trained to brief guests on respecting nature, saving energy, and supporting local green initiatives – making sustainable behavior part of the tour narrative. Signage and materials at tourist sites can highlight any green measures in place (like solar power at a museum, or a community recycling project) to both educate and enhance the site's image. The government could run nationwide media campaigns (perhaps in partnership with travel influencers) to popularize concepts like "*green travel*," "*leave no trace*," or "*travel locally, think globally*." The timing is good, as post-pandemic, there's increased interest in domestic tourism and nature tourism in Vietnam, which can be steered towards sustainability.

Transferable Lessons vs. Contextual Limitations: While the above opportunities are promising, Vietnam must navigate certain limitations:

- **Financial and Technical Capacity:** Vietnam's tourism businesses, especially the many small and medium enterprises (SMEs), may lack access to capital and technology for green upgrades. Unlike large corporations in Japan or even midsize firms in Europe, a family-run guesthouse in Vietnam or a regional bus company may find it hard to invest in solar panels or electric vehicles. This calls for tailored financial mechanisms: soft loans through Vietnamese banks, possibly backed by green

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funds or international climate finance, and technical assistance programs to help SMEs conduct energy audits or write proposals. International donors and climate funds (like the Green Climate Fund, GEF) could be tapped to support such schemes in Vietnam.

- **Policy Enforcement and Governance:** Vietnam's policy implementation can be uneven. Environmental regulations exist but enforcement can lag due to capacity or competing priorities. Ensuring that, for example, vehicle emission standards are tightened and enforced, or that businesses comply with waste management rules, will require strengthening local governance and possibly incentivizing compliance (e.g., public "green rankings" for businesses, or conversely, penalties for egregious polluters). Learning from how Germany uses a mix of regulation and voluntary action, Vietnam might initially emphasize voluntary commitments and capacity-building, but gradually move toward stricter enforcement as awareness and capability improve.

- **Energy Mix and Grid Emissions:** One difference is Vietnam's current electricity grid relies significantly on coal, though renewables are growing. Until the grid gets cleaner (which the net zero strategy aims for by 2050 with major renewables expansion), things like electric transport or electrified rail are only as clean as the electricity source. This underscores the need for Vietnam's energy transition in parallel; happily, Vietnam is aggressively investing in solar and wind, and even exploring LNG as a bridge. If Vietnam's grid hits the target of 43% emission cut by 2030, electric-powered tourism will become much cleaner over time. Meanwhile, off-grid renewables at tourism sites can circumvent a carbon-intensive grid.

- **Cultural and Behavioral Factors:** Transitioning to sustainable tourism also means altering long-standing habits. For instance, many Vietnamese (and Asian tourists) prefer the convenience of motorbikes or private cars over public transit, and might not immediately embrace biking or walking in cities. Creating a culture like Japan's, where public transit is king, will take time and improvements in service quality. Similarly, persuading hotels to change standard practices (like offering fresh towels daily or heavy air conditioning) to more frugal ones requires a shift in what is considered good service. Demonstration projects and peer learning (like showing that a certain hotel maintained guest satisfaction while implementing energy saving measures) can help overcome skepticism.

Despite these challenges, Vietnam has shown itself to be dynamic and adaptable. The country's ability to rapidly increase renewable energy capacity in recent years, and its proactive tourism development, suggest that with the right incentives and support, the sector can pivot to a greener path.

7. RECOMMENDATIONS FOR VIETNAM'S TOURISM INDUSTRY AND POLICYMAKERS

Drawing on the above analysis, here are **tailored recommendations** for Vietnam to foster Net Zero Tourism, each reflecting the country's context and the global lessons learned:

- **Develop a National Green Tourism Action Plan:** Formulate and officially adopt a comprehensive plan that defines Vietnam's vision and roadmap for net zero tourism by 2050. This plan should set interim targets (e.g., % emissions reduction by 2030 in tourism-related sectors) and outline strategies across transport, accommodation, waste, and community development. It should be crafted collaboratively with input from ministries (MCST, MONRE, Transport, Energy), local authorities of key destinations, industry representatives, and NGOs. Clearly assign roles and create a monitoring mechanism to track progress annually. This plan would operationalize the strategic intent already noted in Vietnam's tourism and green growth strategies.

- **Establish a Tourism Sustainability Council:** Create a permanent multi-stakeholder body akin to a "Vietnam Tourism Climate Council" to oversee implementation of the green tourism plan. This council, chaired by a high-level official (e.g., Vice Minister of Tourism) with co-chairs from the private sector, should include representatives from travel associations, hotel and transport companies, local destination management organizations, and environmental experts. It will facilitate public-private partnerships, advise on policies (like incentives or regulations needed), and serve as a platform for sharing best practices and technical expertise across provinces. Essentially, it replicates the collaborative governance seen in other countries, tailored to Vietnam.

- **Green the Transport Network for Tourists:**

- **Accelerate Rail and Public Transit Projects:** Prioritize investment in the North-South high-speed railway and upgrading of existing train services on tourist-heavy routes (Hanoi–Sa Pa, Hanoi–Ha Long, Da Nang–Hue, Ho Chi Minh City–Phan Thiet/Nha Trang). Seek funding support through public-private partnerships or ODA loans, framing it as both tourism infrastructure and climate action. In parallel, improve the quality, reliability, and marketing of these train services to entice travelers (comfortable coaches, online booking in multiple languages, integration with local transport).

- **Promote Low-Emission Vehicles:** Institute incentives for tourism transport operators to adopt electric or hybrid vehicles. For example, tour buses and airport transfer companies could receive reduced import tariffs or tax credits for purchasing electric buses or vans. Coordinate with VinFast and other providers to ensure availability of suitable vehicles. Develop EV charging infrastructure at airports, tourist sites, and along highways (learning from the UK's nationwide charger rollout). By 2030, aim for a significant percentage of tourist buses and taxis in major cities to be electric.

- **Encourage Active and Shared Mobility:** Improve facilities for walking and cycling tours (e.g., scenic bike paths in destinations like Hue along the Perfume River, or biking tours in Hoi An countryside). Provide support for setting up bicycle rental schemes and pedestrian zones in tourist areas. Also, expand and promote city bus networks and new metro lines (Hanoi,

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HCMC) as tourist-friendly options, with clear English signage and route maps for visitors. This can reduce reliance on private vehicles and motorbike rentals by tourists.

- **Implement Green Standards and Certifications:**

- Develop a Vietnam Sustainable Tourism Certification program aligned with global standards (GSTC), like Japan's JSTS-D, to certify destinations and businesses that meet criteria for environmental management, community benefit, and carbon reduction. Encourage destinations (cities, provinces) to strive for certification by providing technical help and recognition. Set a goal (for instance, 20 certified sustainable tourism destinations by 2030) to drive competition and progress.

- Encourage hospitality businesses to get certified under existing schemes (e.g., ASEAN Green Hotel Award, or international ones like EarthCheck). Provide incentives such as promotional advantages – for example, certified green hotels could get featured by VNAT in international marketing or receive an “eco” label on booking platforms. This nudges the industry to improve energy efficiency, waste management, and overall sustainability practices to gain a market edge.

- **Incentivize Green Investment in Tourism Facilities:**

- Launch a Green Tourism Financing Facility in partnership with banks or international donors. Through this, offer low-interest loans or grants for tourism SMEs to invest in solar panels, biogas systems, efficient appliances, waste treatment systems, etc. A small resort could get help to install a solar farm for its electricity; a homestay collective could borrow to build a shared biodigester for waste. Such a facility could be seeded with climate finance (e.g., from the Green Climate Fund or bilateral aid focused on climate).

- Provide targeted tax incentives: e.g., import duty reductions for renewable energy equipment or electric vehicles used in tourism; corporate tax breaks or accelerated depreciation for capital invested in emissions-reducing upgrades (much like the UK's super-deduction for EV chargers). Also consider reducing the environment tax or fees for businesses that consistently meet environmental performance benchmarks.

- **Integrate Renewable Energy and Efficiency in Tourism:**

- Mandate or strongly encourage new large tourism developments (hotels, theme parks, convention centers) to incorporate renewable energy generation (solar PV, solar water heating, etc.) and meet a certain green building standard. This can be enforced via the project approval process by the Ministry of Construction or local authorities – making sustainability a prerequisite for project licensing.

- Expand programs to retrofit existing facilities: coordinate with the energy ministry to include hotels in national energy efficiency programs. Possibly set up an Energy Audit Program for major hotels and resorts, offering free or subsidized audits and guidance on cutting energy use (air conditioning optimization, LED lighting, motion sensors, etc.). Monitor and publicly acknowledge those that achieve significant reductions or ISO 50001 certification.

- Encourage the use of off-grid renewable solutions in remote tourist sites (island resorts, mountain lodges). This may involve providing technical support or mini-grants to install solar-battery systems or micro-hydro where appropriate. Highlight these successes in marketing as part of Vietnam's brand for eco-friendly travel.

- **Strengthen Waste Management and Plastic Reduction Initiatives:**

- Work with local governments in tourism hotspots to ensure adequate waste collection and recycling infrastructure, anticipating tourism growth. Pilot “zero waste tourism zones” where hotels and businesses commit to waste segregation, composting, and minimal landfill. For example, Phu Quoc Island could have a target to drastically cut plastic waste leaking into the environment by requiring hotels to have waste sorting and supporting recycling entrepreneurs.

- Implement and enforce regulations to phase out single-use plastics in the tourism industry by a target year (for instance, no disposable plastic straws, cutlery, or amenity bottles in 4-5 star hotels and tour boats by 2025, extend to all businesses by 2030). Provide guidelines for alternatives and possibly incentives for local suppliers of eco-friendly packaging. As seen in Vietnam's own forum, eliminating plastic waste is considered a priority in green tourism policy.

- Promote community-based waste cleanup and conservation programs that involve tourists. For instance, organize periodic events like beach clean-up days at Ha Long Bay or Da Nang, where tourists can volunteer alongside residents, turning an environmental service into a tourism activity. This raises awareness and directly improves the environment.

- **Empower Communities and Ensure Equitable Benefits:**

- Expand community-based tourism (CBT) programs with an added focus on sustainability. The government (with NGOs) can train community hosts in sustainable practices (e.g., cooking with clean fuels, limiting visitor group sizes to reduce impact, protecting local forests/wildlife). Provide seed funding for communities to develop eco-tourism products (like guided nature walks, cultural demonstrations) that have low emissions and highlight conservation – similar to how Germany connects tourism with local nature conservation.

- Ensure that a fair share of tourism revenue is reinvested in environmental protection and local development. One mechanism is to institute or refine **tourism fees or taxes** earmarked for sustainability. For example, a small “green fee” on popular attractions or hotel nights could fund solar street lights, park rangers, beach cleanup crews, etc., in that locality. Hoi An has trialed such ideas; this can be expanded if communicated transparently.

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- Recognize and support indigenous and local knowledge in climate adaptation. Many rural communities in Vietnam are on the frontlines of climate impacts (sea-level rise, extreme weather). By supporting their traditional sustainable practices (like mangrove planting by coastal communities, or terraced rice farming that conserves water and carbon), tourism can actually bolster local climate resilience. The tourism ministry might collaborate with MONRE to develop tourism that doubles as climate adaptation projects – for instance, tourist mangrove nurseries, or tours that fundraise for flood defenses in the Mekong Delta.

- **Marketing and Education for Sustainable Tourism:**

- Integrate the theme of sustainability into Vietnam's tourism branding. Promotional materials, websites, and campaigns (like "Vietnam – Timeless Charm") should highlight eco-friendly experiences (national parks, bicycle tours, community stays) and Vietnam's commitment to green tourism. This not only attracts the growing segment of eco-conscious travelers but also sets expectations for behavior. For example, a visitor who sees Vietnam marketing itself as an eco-destination might be more mindful of their own footprint while there.

- Educate and train tourism sector workers on sustainability. This means updating hospitality and tourism curricula to include modules on climate change, energy saving, and eco-tourism. Also conduct workshops for current tour guides, hotel managers, park staff – possibly with international cooperation (learning from e.g. Thailand's and Malaysia's similar efforts) – so they can implement and advocate sustainable practices. A well-informed tour guide can influence hundreds of tourists' behaviors.

- Launch public-awareness campaigns (perhaps bilingual, targeting both domestic and international audiences) on key issues: anti-littering, respecting wildlife (no illegal souvenirs or disturbance), energy conservation, etc. Use social media and influencers to spread tips for "Traveling Green in Vietnam," echoing successful campaigns like those in Europe ("Travelers Against Plastic", etc.). At airports and entry points, simple messaging like "Join Us in Protecting Vietnam's Beauty – Reduce Plastic, Save Energy" can set the tone.

- **Monitor, Measure, and Adapt:**

- Develop a system for regularly measuring tourism's environmental footprint in Vietnam. Collaborate with academic institutions or international experts to conduct a tourism carbon footprint analysis (like WTTC did for Germany) accounting for transport, accommodation, activities. Update this every few years to gauge trends. This data will highlight hotspots (e.g., a high share from air travel or certain popular sites) and guide policy adjustments.

- Encourage big players (airlines, hotel chains) to publicly report their emissions and progress on reduction, aligning with Vietnam's broader climate transparency. Perhaps create an award or recognition program for tourism businesses that excel in sustainability (similar to a "Sustainable Tourism Awards Vietnam") to incentivize and track improvements.

- Be prepared to adapt strategies as conditions change. As tourism rebounds from COVID-19 and possibly over the next decades shifts (with more domestic tourists or regional visitors), regularly revisit the action plan goals. Ensure that climate considerations remain integral even as Vietnam aims for tourism growth (which it does, targeting 35 million international visitors by 2030). Align growth with green capacity: if one area exceeds its sustainable capacity, work on dispersing tourism or expanding infrastructure in a green way.

Implementing these recommendations will require concerted effort, cross-sector collaboration, and sustained political will. Vietnam's advantage is that it can capitalize on modern technology and global experience from the outset of this green transition, rather than retrofit entirely later. By acting now, Vietnam can avoid the pitfalls others faced and position itself as a leader in sustainable tourism among developing nations. As emphasized by Vietnam's own tourism leaders, the country is deeply committed to international agreements and UNWTO recommendations that "*green tourism development must be closely linked with environmental protection and local community livelihoods*". The above recommendations operationalize that philosophy into actionable steps.

In summary, Vietnam should create an enabling framework (policies, financing, standards) that allows every stakeholder – from a rural homestay owner to a luxury resort developer – to contribute to net zero goals. Simultaneously, it must invest in the infrastructure and human capital to support low-carbon operations. Overcoming limitations, Vietnam can leverage its innovative spirit, community solidarity, and international partnerships. By doing so, Vietnam's tourism industry can continue to thrive economically, while becoming a model of sustainability and resilience, in harmony with the nation's climate commitments.

8. CONCLUSION: NET ZERO TOURISM AS A PILLAR OF CLIMATE ACTION IN DEVELOPING ECONOMIES

As the world races to avert the worst impacts of climate change, the tourism sector – often perceived as a victim of climate impacts – must also be a *solution provider*. The global experiences of the UK, Germany, and Japan demonstrate that net zero tourism is both an ambitious and achievable endeavor, using a mix of policy mandates, technological innovation, economic incentives, and stakeholder collaboration. These countries show that aligning tourism with climate goals not only reduces emissions but also yields co-benefits: modernized infrastructure, enhanced destination appeal, cost savings through efficiency, and stronger community engagement. In each case, moving toward net zero in tourism has spurred creativity and modernization in the sector – from electric

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buses in London to climate-neutral hotels in Bavaria to solar-powered villages in Japan – reinforcing that environmental sustainability and economic vitality can go hand in hand.

For developing economies like Vietnam, net zero tourism can become a strategic pillar in national climate action and sustainable development. Tourism is a significant economic driver for Vietnam, and making it sustainable will support long-term economic resilience. By embedding net zero principles now, Vietnam can avoid future retrofitting costs and maintain the natural and cultural assets that attract visitors. Net zero tourism in a developing context means leveraging tourism's growth to also drive green growth: investing in renewables, improving public services (water, waste, transport) in tourist areas which in turn benefits local communities, and creating green jobs (from solar technicians to park guides) that contribute to the broader low-carbon economy.

However, the journey is not without challenges. Developing countries often grapple with limited financial resources, competing development needs, and evolving regulatory frameworks. This makes it all the more critical to integrate tourism climate action into national plans and to tap international climate finance and partnerships. It also calls for pragmatic sequencing – starting with measures that have clear win-wins (like energy efficiency that saves money, or plastic reduction that beautifies destinations) to build momentum and buy-in, then gradually raising ambition as capacity grows.

One vital insight from the case studies is the importance of leadership and vision. The UK's legal commitment to net zero and focus on “building back greener,” Germany's robust climate law and data-driven approach, Japan's high-tech vision for society – all provided a clear direction for their tourism sectors. In Vietnam, recent statements and policies (like the Prime Minister's commitments at international forums and the National Green Growth Strategy) indicate top-level recognition that tourism should evolve sustainably. Sustaining that vision and translating it to concrete guidance for provinces and businesses will be crucial.

Ultimately, pursuing net zero tourism is not just an environmental exercise; it is about reimagining tourism for the 21st century. It is tourism that mitigates its climate impact while enhancing traveler experiences – for instance, a quiet, clean electric shuttle through a national park is more pleasant than a noisy diesel van, a well-preserved coral reef draws divers year after year whereas a damaged one doesn't. It is tourism that respects host communities – where local people see tourism as contributing to their welfare and the protection of their home, rather than causing degradation. It is tourism that innovates – using the latest science and creativity to offer new products (like carbon-neutral tours, regenerative tourism projects) that appeal to a growing market of responsible travelers.

For developing countries, embracing net zero tourism positions them at the forefront of a global shift. As climate concerns increasingly influence tourist decisions, destinations that are proactively green will have a competitive edge. Moreover, many developing nations have rich natural and cultural heritage – assets that, if well managed under a sustainability ethos, become even more appealing. By championing net zero tourism, Vietnam and its peers can showcase leadership on the world stage, proving that economic development and climate stewardship can advance together.

In conclusion, net zero tourism can serve as a pillar of climate action in developing economies by aligning a key economic sector with the imperatives of our times. It requires strategic planning, investment, and multi-level cooperation, but the returns are multi-fold: reduced emissions, preserved environments, empowered communities, and a resilient tourism industry ready for the future. Vietnam's journey, informed by global lessons and driven by its own innovation and commitment, can become a model for how a developing nation transforms its tourism landscape in the era of climate change. In doing so, Vietnam will not only safeguard its “natural beauty” and cultural treasures for future generations but also contribute meaningfully to the global climate solution – illustrating that tourism, far from being a passive victim or mere emitter, can be a proactive force for good in the climate narrative.

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