

# Road and Air Transport Sectors to a Greener Future in The Uk: Lessons for Vietnam

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**Abstract** - Putting Britain on the path to a low carbon future is one of the national targets, demonstrating the UK's leadership in tackling climate change. Building a greener economy means that low carbon travel and freight must be a viable and attractive option for businesses and ordinary citizens. Corporate Social Responsibility (CSR) needs in-depth discussion, especially in enterprises about the transportation industry. This paper examines the UK transportation industry, explains the impact of the 2050 net-zero goal, and investigates some issues with empirical evidence. It focuses on the transportation industry problems coming from the two sectors which are road and air transport. Using Triple Bottom Line, PESTLE analysis, and Sustainability Change Matrix, the paper suggests identifying the opportunities, challenges, issues, and future scenarios about these two transport sectors. The authors recommend three main matters of transport impacted by supply chain are (i) shortcomings from the use of renewable fuels, (ii) job creation and human capital, and (iii) cheating emissions from manufacturing companies. Hence, depending on the collected data and information analysis, we predicts the next 30 years as future visions for the road and aviation sectors. Governments, businesses, academics, NGOs and local communities can acquire valid and informative literature to go further and faster to achieve the common goal with a global effort.

**Keywords:** road transport; air transport; greener future; the UK; Vietnam

## 1. INTRODUCTION

Transportation underpins the UK's quality of life and economic prospects, but it presents major problems with massive greenhouse gas emissions. In bringing forward Low Carbon Transport: a greener future, a key component of the UK's Low Carbon Transition Plan, the authors acknowledge the obstacles in cutting emissions in line with meeting long-term goals and obligations to 2050. This report focuses on analyzing and evaluating opportunities and challenges the road and air transport face. Road traffic will be largely decarbon, while air traffic will face greater technical challenges. By using Triple Bottom Line, PESTLE analysis, and Sustainability Change Matrix as theoretical frameworks, the report aims to clarify the UK transportation industry, identify the impact of the net-zero goal 2050, highlight opportunities, issues, and predict emerging trends of future visions for these two transport sectors to reduce emissions in the coming decades.

## 2. OVERVIEW

### 2.1 The Uk Transportation Industry

A world without transportation is a utopia that none of citizens could ever experience in the 21st century. Without it, people's lives nowadays would be entirely different. Although transportation provides people with a great deal of convenience for business, work,

connectivity, convenience, and wellbeing, there is the fact that transport is now the most magnificent contributor of GHG emissions in the UK (Department for Transport, 2018)[11]. The proof is 50% of UK domestic NOx emissions come from the transport sector (Department for Transport, 2020)[12]. Although total GHG emissions from all sources have decreased year over year (2016 down 5% from 2015, 2018 down 2% from 2017), the consequences of GHG emissions have long-term negative effects on sustainability in society, environment and economy (Banister, 2019).

### 2.2 The impact of the 2050 net zero goal

The 2050 net-zero GHG emissions goal is an ambitious and determined goal announced by the Prime Minister to reduce UK emissions to at least 68% by 2030 and be fully decarbonized by 2050. The target also follows the Prime Minister 's Ten Point Plan whilst building back better, supporting 250.000 green jobs, and accelerating their path to net zero (HM Government, 2020)[19]. Recognizing the urgency to go further in addressing climate problems - their Nationally Determined Contribution (NDC) under the Paris Climate Agreement - one of the categories the highest spending in the world helps the UK in order to cut greenhouse gas emissions at the fastest rate than any other economy. Therefore, the UK needs to make fundamental changes in all sectors of the economy by promoting convergence of energy, transport, and heat sectors. The

consulting report tends to focus on the transport sector. The question is how the net-zero goal will impact the UK transportation industry. According to KPMG LLP (2019)[21], driven by the introduction of the UK Government's ban on gasoline and diesel from 2040, electric vehicle (EV) sales were up over 60% in April 2017, and they are expected to be rapidly increased to 70% in 2030 and over 90% in 2040, though EVs only account for 1% of new car sales in the UK in 2018. Those are changes when the UK is just in its infancy in the first stage of the carbon reduction process. KPMG analysis shows that, for Heavy Goods Vehicles (HGVs), alternative fuel sources such as HFCVs and

LNG will penetrate 30% and 3% more by 2040, respectively. Thus, it would seem that the UK's future key technologies are EV, HFCV, and Biofuel. The transformation is in the prime minister's Ten Point Plan, with three points related to the transport sector significantly, Point 4 (Accelerating the Shift to Zero Emission Vehicles), Point 5 (Green Public Transport, Cycling and Walking), and Point 6 (Jet Zero and Green Ships). In addition, the transport sector also relates to the power and heat sectors. In the power sectors, EV batteries are expected to bring stability to the grid as a flexible source of power in managing supply and demand. Table 1 shows the expected impacts for the UK transportation.

Table 1 – The UK expected transitions and impacts

Vehicles	Expected transitions and impacts
<b>Private transport</b> (Van, Taxi and Motorcycle)	Accelerating the shift to zero emission vehicles could deliver: <ul style="list-style-type: none"> <li>• Support for 40000 new jobs in 2030</li> <li>• Around £3bn of private investment by 2026</li> <li>• Savings of around 5MtCO<sub>2</sub>e to 2032 and 300MtCO<sub>2</sub>e to 2050</li> </ul>
<b>Public Transport</b> (bus, rail, cycling and walking)	Decarbonising our public transport could deliver: <ul style="list-style-type: none"> <li>• Up to 3000 jobs by 2025</li> <li>• Government investment of £5bn in buses, cycling and walking this parliament</li> <li>• Savings of around 2MtCO<sub>2</sub>e from green buses, cycling and walking between 2023 and 2032</li> </ul>
<b>Plane and ship</b>	Taking action on net zero aviation and green ships could deliver: <ul style="list-style-type: none"> <li>• Up to 5200 jobs supported by a domestic SAF industry</li> <li>• Future proofing the aerospace industry which is worth £12bn to the economy</li> <li>• Savings of up to 1MtCO<sub>2</sub>e by 2032 from clean maritime and nearly 15MtCO<sub>2</sub>e by 2050 from SAF.</li> </ul>

Source: Authors' compilation from HM Government (2020)

These are remarkable transitions and impacts of the 2050 net-zero goal in transportation that make businesses belonging to the industry consider more strictly corporate social responsibility (CSR). In accordance with Philip Kotler and Nancy Lee (2004), CSR is committed to improving the lives of the community through self-choosing businesses and contributing resources to the company while Mallen Baker (2004) [5] mentions that CSR companies manage their business processes to make an overall positive impact on society. CSR is generally understood as being the way that a company achieves a

balance of economic, environmental, and social imperatives coined the "Triple Bottom Line Approach" by John Elkington (1998)[15]. TBL provides a framework for measuring the business performance and the organizational success using three lines: economic, social, and environmental (Goel, 2010)[18]. The framework is applied in the UK transportation industry to clarify the responsibilities of businesses to behave ethically and contribute to economic development while enhancing the quality of life for the local community and society at large.

Table 2 – The Triple Bottom Line for the UK transportation businesses

The Triple Bottom Line	Attributes	Application to criteria in the UK transportation businesses
<b>People</b> – Social Line	The social aspects encompass values and ethics, and reciprocal relationships with stakeholders other than just the shareowners	<ul style="list-style-type: none"> <li>- Number of jobs offered per year</li> <li>- Number of training days per employee</li> <li>- Number of lost-time incidents</li> <li>- Total employee benefits annually</li> <li>- The organization of annual community activities</li> </ul>
<b>Planet</b> – Environmental Line	The environmental aspects embrace the effects that an entity's products and/or services may have on the environment	<ul style="list-style-type: none"> <li>- Total combined energy use</li> <li>- Water use per vehicle produced</li> <li>- Carbon equivalent per vehicle produced</li> <li>- Waste to landfill per vehicle produced</li> <li>- Site waste for recycling per vehicle produced</li> </ul>
<b>Profit</b> – Economic Line	The economic aspect includes the familiar financial aspects as well as the nonfinancial ones relevant to business of an entity	<ul style="list-style-type: none"> <li>- Vehicle manufacturing sector turnover</li> <li>- Vehicle sector value added</li> <li>- Total number of new products produced</li> </ul>

Source: Authors' compilation

To achieve sustainability in the UK transportation, enterprises need to comply with social and environmental conditions: meeting human needs within ecological constraints. It does not mean that businesses have to put financial gain last or polish their brand name. It is creating a long-term vision so that transportation businesses can directly enhance their reputation, strengthen their brand, provide them with “a sustainable competitive advantage”, and clearly go beyond that when contributing to the environment and society (Allen and Craig, 2016)[8].

## 2.3 The Road And Air Transport Sectors

### 2.3.1 Key information and rationale

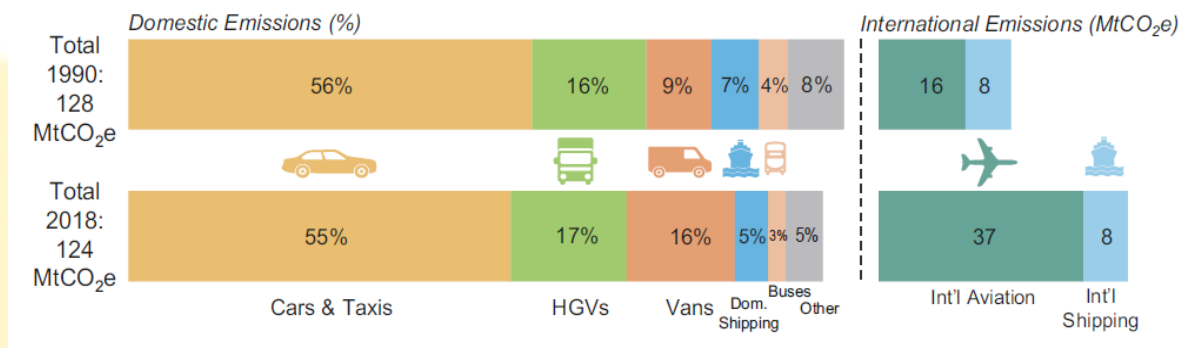
Traffic in the UK involves several categories such as road, water, rail, and air. As mentioned, the report mainly investigates two areas of traffic: road and air. For these two chosen sectors, the first is passenger transportation that combines driver, pilot, crew operations, route planning, customer service, safety, and fairness forms such as aviation, bus and coach, taxi, and private hire. The second is logistics or supply chain divided into freight

transportation, postal, courier activities, warehousing, storage, and handling.

In the UK, most of the freight moved domestically was in road sectors. Following the Department for Transport (2020)[12], 196 billion tons of domestic goods were shipped within the UK in 2019, accounting for 79% by road. As can be seen, Figure 1 shows the amount of domestic emissions by mode of 1990 compared to 2018. The majority of visitors to the UK use road public transport. In the same year, 873 billion kilometers of passengers moved to the UK, with 84% of the passenger kilometers utilized by cars, trucks, and taxis. Besides, the air traffic accounts for more than three-fifths of overseas visits, up 57% over the past ten years. Additionally, international air emissions, which are not part of UK domestic emissions, have more than doubled since 1990. Therefore, the road and air now are the transport sectors accounting for more than two-thirds of the market, the issue of GHG emissions from road and air traffic are of concern and need to be minimized.

Figure 1 – UK transport GHG emissions by mode: 1990 and 2018

UK transport GHG emissions by mode: 1990 and 2018



Source: Department for Transport, 2020

### 2.3.2 Opportunities and challenges due to the 2050 net zero goal

PESTLE analysis is a framework for analyzing the business environment depending on six fundamental factors: Political, Economic, Sociological, Technological, Legal, and Environmental. As stated in the CIPD (2017)[9], managers or business owners can make objective and accurate decisions through the overall

assessment of factors. This framework allows the authors to assess the most important external factors affecting the road and aviation industry to the 2050 net-zero goal in the UK context. The consultant report looks at the road and aviation sector, so the PESTLE analysis provides a comprehensive understanding of key industry trends that affect the UK in the global efforts for tackling climate change.

Table 2 – PESTLE analysis for the road and aviation sectors

PESTLE analysis	THE ROAD AND AVIATION SECTORS
<b>Political factors</b>	<p><b>The road sector:</b> Prime Minister Boris Johnson had set out new goals for the UK to become the leadership in dealing with climate change. These goals are made clear by the Ten Point Plan for a green industrial revolution. Decarbonizing their public transport could deliver the government investment of £5bn in buses, cycling and walking this parliament. Nonetheless, the political environment is causing uncertainty for businesses through the UK. Fuel supplies for transport infrastructure and EU drivers are likely to be affected by Brexit. As a result, the UK's transportation industry may depend on foreign suppliers, subject to higher imported fuel prices, and consequently, trade barriers with higher costs affect the profit margin.</p> <p><b>The aviation sector:</b> Through the Industrial Strategy, the government has set out its ambition to create a push forward low carbon travel green economy. According to The Ten Point Plan of the Prime Minister, the UK action will cement their position as a global leader in aerospace and position the UK at the forefront of the zero-emission aircraft revolution. The government will run a £15 million competition to support the production of Sustainable Aviation Fuels (SAF) in the UK, building on the success of the Future, Fuels for Freight and Flight Competition. Meaningful government support is the driving force behind the airline industry in innovation, research and development.</p>
<b>Economic factors</b>	<p>From 2030, the UK will end sales of new petrol and diesel cars and trucks. The accompanying £2.8 billion investment package demonstrates their belief in the auto manufacturing industry as the backbone of the UK. The UK is a leading manufacturer of Electric Vehicles such as manufacturing Nissan Leaf (KPMG, 2019). The changes in the UK policy require businesses to transition quickly to produce aircraft and vehicles that ensure reduced carbon emissions. However, problems with the cost of producing and importing green fuels such as hydrogen and biogas in the transport sector are likely to require much of the same infrastructure and renewable sources as end-users. In addition, costs and benefits of climate policies and the ability to shape such policy is not extended equally to those who suffer the greatest costs. Inclusion is vital to ensure that policy is socially equitable (Abram et al., 2020).</p>



<p><b><i>Sociological factors</i></b></p>	<p>The transition to net-zero will not be sustainable or credible for the road and aviation sectors if it creates or worsens social inequalities. A social justice approach can facilitate the transition globally. The government could deliver up to 3000 jobs by 2025 in public transport and up to 5200 jobs supported by a domestic SAF industry (HM Government, 2020). Job creation does not guarantee just outcomes. It must take into account what jobs are created, how secure they are, who has access to them and the skills and education required. In addition, it is essential to use alternative fuels such as biofuel to operate electric vehicles. Nonetheless, biofuel produces from alcohol and fermented corn, which can occupy many lands to grow maize for biofuel production. It turns to threatens food security, farm market, land issues, water scarcity, and even drivers or pilots have to accept lower vehicle or airplane performance to ensure reduced emissions.</p> <p>Besides, the fear of Coronavirus has already hit the industry hard. Apart from the shutdown of several airports worldwide, several airlines involving Flybe in the UK have been severely affected. Coronavirus has spread in society leading to people cutting back on travel to foreign destinations, affecting airline revenues and other costs associated with maintaining planes (Vickerman, 2021).</p>
<p><b><i>Technological factors</i></b></p>	<p><b>The road sector:</b> As for technological factors, the CCC expects all new car sales to be electric by 2035; creating a new source of power demand but also storage. Demand for hydrogen to power Hydrogen fuel cell vehicles (HFCV) may also be produced via electrolysis from renewable sources, further raising power demand. Faced with the need to improve technology in fuel production for electric vehicles, businesses in the trucking industry need to explore, measure, and improve the efficiency of EV batteries, hydrogen electrolysis, and biofuels (KPMG, 2019). Unique and effective technology element brings a competitive edge to businesses in the industry to meet UK customer needs and regulations.</p> <p><b>The aviation sector:</b> Technology has been central to the growth of the aviation sector, and in addition to more fuel-efficient and safer aircraft, the development of better sales and service technologies has also supported faster growth of the aviation sector. Net-zero goal 2050 pushes the airline industry to explore and measure for decarbonizing that have become critical to the performance and reputation of companies. The higher focus on technology has helped aviation companies to handle the key challenges arising from Brexit and Corona-virus with greater efficiency. Additionally, the aviation sector also receives investment from the government to invest £15 million into FlyZero – a 12-month study, delivered through the Aerospace Technology Institute (ATI), into the strategic, technical and commercial issues in designing and developing zero-emission aircraft that could enter service in 2030 (HM Government, 2020).</p>
<p><b><i>Legal factors</i></b></p>	<p>Legal factors is one of the most vital concerns in the entire aviation and vehicle sectors in the UK market. Compliance is crucial for all airlines and transportation companies as failure can lead to heavy fines and also damage the brand's reputation. Industry regulatory factors may be related to labor rights, consumer rights, passenger safety, or environmental impact. Examples of reputable damage include the emissions scandal from the UK's most popular car manufacturers such as Mercedes, BMW, Volkswagen, and Audi (The Guardian, 2019). The emissions cheating allegations has many consequences such as loss of customer confidence, fees to pay fines, and compensation to car owners. Thus, legal compliance is of paramount importance for businesses to pay special attention to in the context of the UK moving to the first major economy to legislate for net-zero emission by 2050.</p>
<p><b><i>Environmental factors</i></b></p>	<p>Environmental factors are at the forefront of operators as well as the air and road transport authorities. Environment impacts on industries are of the utmost concern for UK regulators. Businesses need to take some reliable steps in the right direction to minimize their environmental impact to make their business models more sustainable. Sustainability is now one of the core areas of strategic importance for corporate branding to increase the fuel efficiency of transport vehicles' carbon footprint. Accompanying HM Government (2020), UK companies have to proactively plan to achieve the net-zero goal GHG emissions by 2050. Enterprises in the road and air sectors also need to continuously update their methods and new technology to control carbon emissions. There are several reasons behind the increased focus on sustainability, some of the main reasons include a better reputation and social image (applying CSR), incentives from the UK government as well as improving operational efficiency and customer satisfaction.</p>

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Source: Authors' compilation  
The PESTLE analysis is summarized in Table 3 below:

Political	Economic	Social	Technological	Legal	Environmental
<ul style="list-style-type: none"> <li>Government investment</li> <li>Foreign suppliers and higher costs</li> <li>National policies and ambition targets</li> <li>Brexit</li> </ul>	<ul style="list-style-type: none"> <li>A leading manufacturer of EVs</li> <li>Changes in the UK policy</li> <li>Infrastructure funding</li> </ul>	<ul style="list-style-type: none"> <li>Job creation and outcomes</li> <li>Food security</li> <li>Land issues</li> <li>Lower vehicle and airplane performance</li> <li>The impact of Coronavirus</li> </ul>	<ul style="list-style-type: none"> <li>New sources of Power demand</li> <li>EV batteries, Hydrogen electrolysis, and Biofuels</li> <li>Brexit</li> <li>Coronavirus</li> </ul>	<ul style="list-style-type: none"> <li>Compliance with the law and regulation</li> <li>The emissions cheating allegations</li> <li>The brand's reputation</li> </ul>	<ul style="list-style-type: none"> <li>Business models for sustainability</li> <li>CSR - Corporate Social Responsibility</li> <li>Plan to achieve the net zero goal by 2050</li> </ul>

Source: Authors' compilation from the PESTLE analysis

In general, the factors are related to manufacturing, funding, renewable sources, technologies, depending on the different types of vehicles and aircraft. The other in the PESTLE indicates the long-term sustainability of the road and aviation sectors in the external macro-environment. The high cost and modern technology demands associated with a transition to the green economy are considered feasible for an independent and developed country like the UK. However, the two transport sectors still have risks, issues and challenges from financial resources, choosing the relevant business model, specific operation plans, high technology for manufacturing, and human resources for overcoming the barriers and achieving the 2050 net zero goal. The next section turns on an analysis of the main issues raised currently about the road and air sectors. In this the authors focus on the situation in the United Kingdom.

### 3. KEY ISSUES FOR THE ROAD AND AVIATION SECTORS

With The Triple Bottom Lines, the authors provide a framework to measure an organization's business performance based on three factors: economic, social, and environmental. Businesses can consider assessment criteria to achieve sustainability for the UK transportation businesses. With PESTLE analysis, the authors identify the opportunities and challenges that affect the achievement of their broadcast target down to zero emissions of the UK in 2050. Thus, the issues of the paper encourage it to be the sustainable corporation in the two sectors following The Sustainability Change Matrix. The approach is essentially beneficial when companies in the road and aviation sectors are facing a rapid transition to the green economy, the business crisis, or when the company makes a strategic decision strategy to address barriers and find new sustainable business paths.

Figure 2 – The Sustainability Change Matrix for Corporation

		Ecological sustainability phases			
		Poor	Compliance	Efficiency	Sustainable
Human sustainability phases	Poor				
	Compliance	The Unsustainable Corporation		The Ecologically Concerned Corporation	
	Efficiency				
	Sustainable	The People Concerned Corporation		The Sustainable Corporation	

Source: authors' compilation from Prof. Suzanne Ben

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In line with Suzanne Benn et al. (2013)[6], principles of Sustainability performance are a sustainable guarantee of ethics, transparency, community involvement, employment practices, stakeholder relationships, product/service value, governance, financial return, environmental protection. The key issues present the challenge that is managing sustainably in the two chosen sectors.

### 3.1 Shortcomings From Renewable Batteries And Fuels

#### 3.1.1 Issue

The road and aviation market trend is toward vehicles and aircraft that reduce emissions, be environmentally friendly and save fossil fuels. The use of renewable sources for passenger and freight transport is becoming increasingly common in the UK following the technological factors in PESTLE and Environmental line in TBL. According to KPMG (2019)[21], electric vehicle

sales increased by 60% over the same period last year and in an increasing trend in 2030 and 2040. Regarding aviation, the UK has set goals and policies in R&D to develop green planes. Along with utilities, there are always disadvantages to use. Clean sources may save fossil fuel and bring a friendly ecosystem, but they provide features that have to be considered and enhanced over time. Electric energy is used to operate electric vehicles (EVs) such as BEV, PHEV, PEV, HEV, Hybrid, and NGV (Ali et al., 2019)[2]. Hydrogen electrolysis is used to operate alternative fuel sources such as HFCVs or Bio-LNG. Evans-Pritchard (2020) states that hydrogen is about to become the dominant energy force of the 21st century. Bioenergy (Biofuels, Biodiesel, Bioethanol, and Biopropane) and solar power are used to run vehicles and aircraft. Table 4 presents the key technological challenges of alternative battery, fuel cell technologies, and solar power.

Table 4 – Comparison on technological development challenges on alternative batteries and fuel cell technologies

Alternatives to Li-ion Batteries	Batteries				Fuel Cell
	Li-Sulphur	Zn-Air	Li-Air	Solid-State	
Current technological roadblocks	<ul style="list-style-type: none"> <li>Sulphur lacks electro-conductivity to be overcome with expensive carbon coating.</li> <li>Cycle life</li> </ul>	<ul style="list-style-type: none"> <li>Charging not energy efficient</li> <li>Large size and weight of battery</li> <li>Lifespan</li> </ul>	<ul style="list-style-type: none"> <li>High costs</li> <li>Safety: fire hazard</li> <li>Insufficient power due to slow chemical reactions</li> <li>Lifespan</li> </ul>	<ul style="list-style-type: none"> <li>High costs of layering electrolyte</li> <li>Unreliable production process</li> </ul>	<ul style="list-style-type: none"> <li>Charging and distribution infrastructure</li> <li>High cost of fuel cell and H<sub>2</sub></li> <li>CO<sub>2</sub> being emitted in fuel cell generation on H<sub>2</sub></li> </ul>
Potential timing for automotive	2025–2030 and beyond	2025–2030 and beyond	2025–2030 and beyond	~2025	2025–2030 and beyond

Table 5 – Technological development challenges on biofuel & biodiesel and solar

Alternatives to gasoline and oil	Bioenergy	Solar power
	Biofuel, Biodiesel, Bioethanol & Biopropane	
Current technological roadblocks	<ul style="list-style-type: none"> <li>High cost</li> <li>They consume a lot of fuel, but the efficiency is not high</li> <li>Biofuels tend to be corrosive</li> <li>Food security and land issues</li> <li>Methanol can cause severe damage to many parts of a vehicles</li> </ul>	<ul style="list-style-type: none"> <li>High price and high maintenance costs</li> <li>Depends on weather</li> <li>Solar energy storage is expensive</li> <li>Using a lot of space, especially the surface of vehicles and aircraft</li> <li>Waste caused by scrap panels is a problem to solve in the future</li> </ul>
Potential timing for vehicles and airplanes	2025 - 2030 and beyond	2035 - 2040 and beyond

Source: Authors' compilation

It can be seen that alternative sources contain general disadvantages such as high cost, low efficiency, limited availability, and even harm to the environment and engine. Whether these disadvantages can be solved or not depends on the time and scientific research of the UK. If most of the barriers to renewable energy application are

solved, the UK will soon achieve the principles of employment practices and product / service value in sustainability performance to a greener future.

#### 3.1.2 Recommendation

If non-commercial crops are grown, you could use the fuel significantly cleaner than oil. The solution is to find

clean crops early without much fertilizer, water, and other inputs. For instance, corn alcohol made of biofuels is not the ideal choice. It requires plenty of water, fertilizer, and additional costs, to become expensive and affect problems with food and land. But crops grown in marginal lands offer potential.

According to The Times (London, England) in 2020, Tesla was considered a king of electric cars rented by businesses. Lex Autolease, the group car rental company, said that by the end of October, the number of electric cars and trucks they rent to British firms had increased from more than 1,000 at the beginning of the year to more than 2,500. Hence, instead of buying expensive electric cars, we can use electric public transport such as electric buses and rent electric cars, HFCVs or Bio-LNG vehicles from rental enterprises.

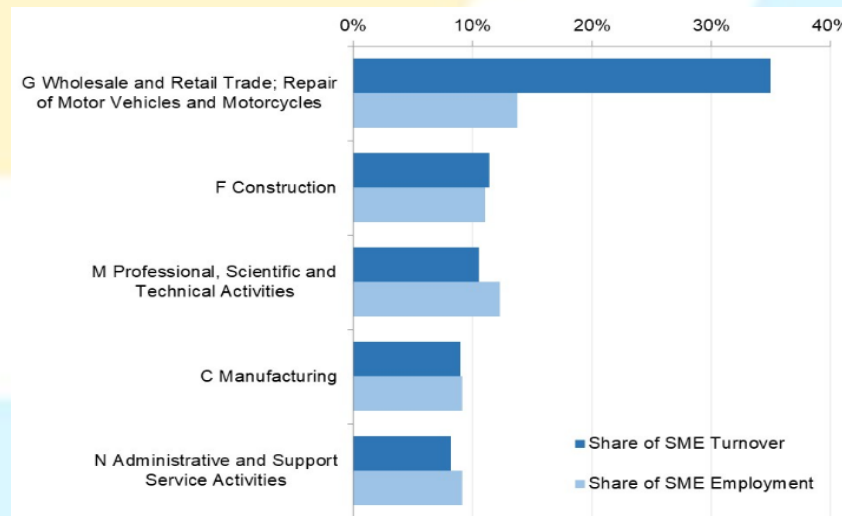
### 3.2 Job Creation And Human Capital For Green Economy

#### 3.2.1 Issue

The widespread unemployment of workers mentioned in the second issue leads them to urgently need the support of policymakers for sustainable living in the future. As we

have seen, the UK has suffered one of the highest-ranking of infection and death from the Covid-19. The economic recession and the prospect of mass unemployment are real and increasingly urgent, such as the global British Airways pilot's strike, which affected hundreds of thousands of passengers (BBC News, 2020)[7]. Those who are flight attendants face a so-called "fire and replace" policy. Near Caerphilly, approximately 600 headquarters had been lost at the aircraft engine maintenance plant run by the behemoth General Electric, which before the pandemic employed 1,400 people (The Guardian, 2020)[26]. When the economy is inactive, small and medium enterprises (SMEs) will be the most vulnerable, they are closed because of their small potential but a large number. In the private sector, SMEs account for 99.9% of the business population (6 million businesses), achieving 61% of employment and 52% of turnover (Department for Business, Energy & Industrial Strategy, 2020)[14]. Figure 3 represents the transportation sector as among the industrial sectors with the highest SME revenue and employment concerning national statistics 2020.

Figure 3 – Industrial sectors with highest SME turnover and employment



Source: Department for Business, Energy & Industrial Strategy, 2020

Confronting the challenge of mitigating the harmful effects of Coronavirus and decarbonizing to zero, the Prime Minister could deliver up to 3000 jobs supported by public transport in 2025 and 5200 jobs supported by the domestic sustainable aviation fuels industry. As the sociological factor mentioned in PESTLE, the issue is that job creation does not guarantee the expected outcomes. Official public documents have not been submitted on the list of supported occupations yet, or how secure they are, who can assess the employees, or the required skills and education. It is the ambiguity in the planning and implementation of policies aiding human resources in moving towards the net-zero emissions target.

#### 3.2.2 Recommendation

The policy must have a clear update on plans, requirements with employees, number of employees, annual targets set for regions in training labor resources for green jobs in the United Kingdom. Also, educational institutions or universities should orient their students and undergraduates to find suit careers helping for the green economy so that they may prepare for the future with passion, knowledge, and professional ethics.



### 3.3 Cheating Emissions From Manufacturing Companies

#### 3.3.1 Issue

Toward emissions scandals, it is impossible not to mention the brand Volkswagen (VW) in 2015. VW admitted to cheating half a million cars in the US and \$11 million worldwide to circumvent the rules about clean air by software that makes emissions less toxic than they are. VW has agreed to pay \$14.7 billion to settle the scandal, mainly for car-owners to repair or buyback. In November 2016, Volkswagen announced it would cut 30,000 jobs because of huge bills related to the scandal (CNN Money, 2015)[10]. Lawyers representing more than 50,000 car buyers in the UK also sued VW in the High Court of Justice, London. It is considered the largest class-action lawsuit in legal history in the UK. After the "dieseldgate" scandal, Hagens Berman UK, a subsidiary of a US law firm, filed a detailed lawsuit with the High Court of Justice in London, alleging that Daimler, the maker of Mercedes-Benz, have set "defeat devices" to further artificially lower emissions (The Guardian, 2021)[31]. Emission cheating not only exists at Volkswagen and Mercedes-Benz in the UK but also other manufacturers as Audi, Seat, Skoda could receive compensation by 2022 for the installation of illegal 'defeat devices' to cheat European Union emissions standards.

Moving onto the unfortunate owners of these cars, they have lost money and effort on things like hiring a lawyer, preparing a lawsuit to claim compensation. Besides, the car corporation violated the laws of the host country or Europe, lost a lot such as attorney fees, court time, loss of car company reputation, stock decline, customer trust, and even shareholders. For the environment and society, the consequences are the increase of Greenhouse gas, and unemployment as companies cut human resources for compensation. This violation was classified as a violation of business ethics, subject to public opposition, and became an unsustainable corporation in the Sustainability Change Matrix. That is the whole previous efforts to become a sustainable corporation quickly dissipated.

#### 3.3.2 Recommendation

It is necessary to comply, effectively, and sustainably enforce the laws and regulations issued. Law enforcement agencies need clever checks to detect gaps in vehicle manufacturers' emissions declarations early.

## 4. FUTURE SCENARIOS FOR THE BUSINESSES 2050

In the upper issues section, the authors evaluated and highlighted the challenges or risks that exist. The future scenarios section is the general forecast about the trends

of the road transport and aviation sectors, focusing on opportunities and bioenergy industry prospects in the future.

### 4.1 The Road Transport Sector

The problems of the road transport sector as the limitation of alternative sources, the lack of human resources for the green economy, or the fraud of emissions, in short, are painful issues or risks related to principles of sustainability performance such as governance, employment practices, financial return, ethics, and environmental protection. In the future of 2050, traffic in the UK is forecast to have expected outcomes when the national goals on tackling climate change are almost blooming. From 2021 traffic is forecast to grow between 20% and 58% by 2050. Carbon dioxide emissions from the road sector forecast to fall by between 16% and 80% in 2050. The proportion of traffic in congested conditions will rise from 10% in 2021 to 16% in 2050 because of the tendency to use more private vehicles. 2050 will be an year when the transtion to zero-emission vehicles is modeled in the chart that all of these vehicles are electric or hydrogen. In fact, the combination of many advanced technologies minimizes fuel inadequacies. This decision to model using electric vehicles reflects the ability to provide better renewable sources to improve the performance of EVs and can be applied to other public transport.

### 4.2 The Aviation Sector

Regarding the aviation sector, the key issues mentioned like unemployment, unclear job creation policy, difficulty in obtaining suitable green fuels, and increasing emissions, which are predicted to be resolved by 2050. Regarding the aviation sector, the key issues mentioned like unemployment, unclear job creation policy, difficulty in obtaining suitable green fuels, and increasing emissions, which are predicted to be resolved by 2050. Stakeholder relationships are even more vital to the aviation industry with the UK's strategy for 2050 [Figure 4].

Over the past 30 years, the aviation industry has seen changes as the market share of low-cost airlines increases, meeting challenges ranging from volcanic eruptions to outbreaks of infectious diseases. The upcoming 30 years are likely to be chaotic as the wave of technological innovation unfolds. Technology is not the only source of disruption. We have always understood that political situations and institutions can always create surprises like Brexit or presidential elections in the United States. Government projections show that the aviation industry will continue to grow until 2050 with passenger numbers likely to increase by up to 70%.

Figure 4 – Partnership for sustainable growth



## 5. CONCLUSION

In summary, the consultation report has reviewed climate change issues, net-zero target by 2050, significant issues, brief recommendations, and forecast future scenarios for the road and aviation sectors in the UK context. After analyzing and evaluating Triple Bottom Lines, PESTLE analysis, and Sustainability Change Matrix, the challenges and problems presented by different alerts represent potential long-term risks. In particular, PESTLE analysis shows that the external environment is relatively affirmative for these two transport industries to make significant progress. Government regulations and support proposals have encouraged the development of infrastructure and abundant human resources. Moreover, Triple Bottom Lines also shows three factors that businesses need to adhere to, belonging to people, planet, and profit to have a sustainable competitive advantage when corporations create profits based on contributing to society and the environment. The Sustainability Change Matrix helps to analyze each outstanding issue related to the sustainable activities of companies in the industry. Shortcomings from renewable batteries and fuels involve actual manufacturing operations. Job creation and human capital for the green economy involve community participation, personnel planning. Finally, there is the issue of ethics and transparency in business relates to cheating emissions from manufacturing companies. The positive thing is the analytical frameworks, problems, and forecasts depicted contributing to the academic literature

for scientists, scholars, policymakers, and managers to have informed strategies in the future. Terminating climate change can be a significant challenge, so leaders should consult for using renewable energy for organizational sustainability in social, economic, and environmental aspects.

## 6. LESSONS FOR VIETNAM

In Vietnam, trees are increasingly shrinking, along with a series of buildings crowded together in urban areas, the air environment is more and more seriously affected. The AirVisual application caused an uproar in Vietnam in September 2019 warns that Hanoi "rises" to the top of the ranking of the world's most polluted cities, ahead of Indonesia's Jakarta and Ho Chi Minh City (People's Army Newspaper, 2020)[24]. According to the report of the Ministry of Natural Resources and Environment on the current state of the air in Hanoi (2017), the PM2.5 dust index is continuously higher than 50 - a safe threshold following Vietnam's regulations in 2013 and is considered the highest among the previous five years. Associate Professor and Doctor Ho Quoc Bang, Institute of Environment and Natural Resources in Vietnam National University said that the results on emission testing in Ho Chi Minh City have shown that traffic activities is the most significant contributor to air pollution today. Speaking at the forum "Environmental protection – urgent issues", the minister Natural Resources and Environment, Tran Hong Ha said that environmental pollution and

natural resources exhaustion have been becoming more serious, effecting health and living of people and causing inhibition among society (MONRE, 2016)[34].

In the source of emissions from traffic, motorbikes are considered the main culprit. Governments in the UK and European countries are expecting green transportation as one of the key solutions to overcome air pollution. After evaluating the road and aviation sectors of the UK, Vietnam has to rethink and resolve the environmental problems caused by utilizing transport. Part of the pride of the Vietnamese people as the richest man in Vietnam - billionaire Pham Nhat Vuong also contributes to the reduction of greenhouse gas emissions through Vinfast's vision of increasing the scale of electric vehicle and automobile production electricity from Vietnam to the world (Bloomberg, 2021). With the current traffic situation of a developing country like Vietnam, it is necessary to have strict policies and sanctions on emissions for vehicles participating in traffic. It leads to infrastructure issues about the construction and installation because there should be enough charging stations for the EVs. Thus, to provide recommendations to environmental problems in Vietnam or any other country comes with challenges in terms of the state budget, legislation, and the transformation of companies to educate, marketing and change customers' energy and fuel usage to tackle the climate change in the nation.

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