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UNDERSTANDING THE CARBON ECONOMY AND THE HALAL INDUSTRY ECONOMY: PILLARS OF RENEWABLE ENERGY

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Abstrak

This research aims to understand the relationship between the carbon economy and the halal industrial economy as important pillars in driving renewable energy. The carbon economy is a development paradigm that is oriented towards reducing greenhouse gas emissions through carbon pricing mechanisms, carbon trading, and the application of renewable energy. Despite coming from different backgrounds, both have common ground in the principles of sustainability and rejection of exploitative economic practices. The research method used is a descriptive qualitative approach with content analysis of academic literature, policy reports, and interviews with experts and practitioners. The research results show that the integration of the two concepts of carbon economy and halal economy can create an inclusive, ethical, and competitive development model. Examples include the implementation of a halal green supply chain, the development of eco-tourism based halal tourism, and green Islamic financial instruments such as green sukuk. However, the study also identified several obstacles, such as limited access to environmentally friendly technology for MSMEs, regulatory fragmentation between halal and green standards, and low consumer awareness of the importance of halal and low-carbon products. Therefore, this study concludes that understanding and integrating the carbon economy and the halal industrial economy not only supports the achievement of the Sustainable Development Goals (SDGs) but also strengthens global economic competitiveness by prioritizing a balance between spiritual, social, economic, and environmental values.

INTRODUCTION

In an era of globalization and an increasingly real environmental crisis, the world faces two major challenges simultaneously: how to mitigate the impact of climate change triggered by carbon emissions and how to build an inclusive, equitable economic system aligned with ethical and sustainable values. Two approaches currently receiving global attention are the carbon economy and the halal industrial economy. Both were born from different contexts, but have common ground in building the foundations for sustainable growth. The carbon economy emphasizes the transition to low-emission development, while the halal industrial economy focuses on providing products and services that are in accordance with sharia principles, hygienic, ethical, and environmentally friendly (Stern 2007). When combined, the two can become important pillars to drive economic growth that is not only profit-oriented, but also based on sustainability, social justice, and spirituality. The carbon economy is essentially a new paradigm in development that internalizes environmental costs into economic activities. This concept arose from the awareness that the use of fossil fuels, deforestation, and uncontrolled industrial activities have resulted in large amounts of carbon dioxide emissions, which have a direct impact on global climate change. To overcome this problem, mechanisms such as carbon pricing, carbon trading, and the application of environmental standards in the production of goods and services are implemented. Countries are now racing to adopt low-carbon policies through renewable energy, energy efficiency, and clean technology innovation ((IPCC) 2021). Within the framework of sustainable development, the carbon economy is not merely seen as a burden, but rather as an opportunity to create new jobs, expand green investment, and create environmentally friendly products with global competitiveness. On the other hand, the halal industrial economy is growing rapidly as the global Muslim population grows to over 1.9 billion. The halal economy encompasses various sectors, from food and beverages, pharmaceuticals, cosmetics, tourism, to Islamic finance. The main characteristic of the halal industry is adherence to sharia principles, which include the halal aspects of ingredients, clean and hygienic production processes, and attention to ethics in economic transactions (Bank 2024). However, beyond the religious dimension, the halal economy is also increasingly seen as a sustainable business model because it emphasizes the principles of thayyib (good, healthy, and safe), social justice, and environmental responsibility. Therefore, the halal industry is now in demand not only by Muslim consumers but also by global consumers who are increasingly aware of the importance of healthy, ethical, and environmentally friendly products (Ellerman 2020). A closer look reveals a point of convergence between the carbon economy and the halal industrial economy. *First*, both of them reject economic practices that exploit nature. The carbon economy demands a reduction in the emissions footprint, while the halal economy emphasizes that all forms of damage to the earth must be avoided. *Second*, both are based on the principle of sustainability: the carbon economy through regulatory and technological mechanisms, while the halal economy through moral and spiritual values. *Third*, both offer new economic opportunities. Halal products produced with low carbon processes will have higher added value in the international market, because they meet two standards simultaneously: Sharia compliance and environmental sustainability (Nordhaus 2007). One example of the integration of the carbon economy and halal can be seen in the halal food supply chain. Halal food production must not only ensure the halalness of raw materials, but can also be directed to be environmentally friendly, for

example by using renewable energy in the production process, reducing the use of single-use plastics, and managing organic waste into economically valuable derivative products. Similarly, in halal tourism, the development of Muslim-friendly destinations can be synergized with the implementation of eco-tourism standards, such as energy conservation in hotels, the use of low-emission transportation, and responsible waste management. In this way, halal products and services not only fulfill the spiritual dimension but also make a real contribution to climate change mitigation (Stiglitz 2017). From a macroeconomic perspective, the synergy between the carbon economy and the halal economy can be a national economic resilience strategy. Indonesia, for example, as a country with the largest Muslim population in the world and a significant emitter, has a great opportunity to become a pioneer in developing a halal green economy. By integrating low-carbon policies into the development of the halal industry, Indonesia can increase the competitiveness of halal products in the global market and strengthen its position as a major player in the sustainable economy. Implementing dual halal and green standards will create unique product differentiation, attracting both Muslim and non-Muslim consumers who care about health and the environment. Furthermore, from a financial and investment perspective, there are opportunities to strengthen the synergy between the two concepts. Green sukuk, or green Islamic bonds, have become an innovative instrument that combines Islamic financial principles with funding for sustainable projects such as renewable energy, clean water management, and low-emission transportation. This instrument demonstrates that religious, economic, and environmental aspects can coexist without negating each other (Bank 2019). By expanding sharia investment into low-carbon projects, not only will the goal of reducing emissions be achieved, but economic justice based on sharia principles will also be realized. However, it is important to realize that building a bridge between the carbon economy and the halal economy is not without challenges (Aldy 2012). *First*, there remains a gap in regulations and standards between the two. Many halal products focus solely on sharia aspects without considering the carbon emissions generated in their production process. Conversely, environmentally friendly products don't necessarily meet halal standards. *Second*, there are technological and cost limitations in integrating low-carbon standards into the halal industry, especially among micro, small, and medium enterprises (MSMEs). *Third*, low consumer awareness is a separate obstacle, because some consumers are more sensitive to price than to the halal-green aspects of the products offered. To overcome this challenge, a multi-stakeholder strategy is needed. The government can develop incentive policies to encourage the halal industry to adopt low-emission technologies, such as renewable energy subsidies, low-cost financing for green-halal certification, and support for research and innovation (Tietenberg 2016). Islamic financial institutions can expand their green financing portfolios to make them more accessible to halal industry players. Academics and research institutions can play a role in producing integrative studies that combine sharia values with environmental science. Meanwhile, society as consumers needs to be encouraged to be more aware in choosing products that are not only halal, but also environmentally friendly (Kossoy 2012). Furthermore, the integration of the carbon economy and the halal economy is in line with the Sustainable Development Goals (SDGs). SDG number 12 (sustainable consumption and production), SDG number 13 (action on climate change), and SDG number 8 (inclusive economic growth and decent work) can be achieved simultaneously through the development of a low-carbon halal

industry. Thus, the halal economy is not merely a religious market segment, but rather a global economic model capable of making real contributions to environmental, social, and economic issues. Ultimately, understanding the carbon economy and the halal industrial economy as two pillars of sustainable growth is a necessity in facing the challenges of the times. The world can no longer rely on an exploitative economic model that only pursues financial gain. Instead, a new paradigm is needed that balances economic, social, spiritual and environmental aspects (Newell 2003). The carbon economy provides the technical framework for reducing emissions, while the halal economy provides the moral and ethical foundation that prevents further damage. Synergizing the two will create a more just, healthy, inclusive, and sustainable economic ecosystem. In other words, the future of economic growth is inextricably linked to the combination of low-carbon technology and halal values. Both are not merely options but strategic imperatives for building a more sustainable, balanced, and dignified world.

LITERATURE REVIEW

Carbon / green economy

The carbon or green economy refers to economic activity that reduces greenhouse gas emissions and enhances resource efficiency while supporting growth and employment (NCBI review 2025). Studies frame green economy transitions around policies (carbon pricing, green subsidies), technological adoption (renewables, energy efficiency), and finance (green investment instruments) all aimed at decoupling GDP growth from emissions (Pradana & Sisi 2024). Green frameworks also stress traceability and life cycle thinking, which have implications for product certification and supply chain management.

Halal industry economy

The halal industry economy is built on normative Islamic principles (shariah compliance) that govern consumption, production, and finance. Beyond certifying permissibility, halal systems increasingly incorporate quality, safety, and ethical standards opening the concept to sustainability framing (Indiharwati 2025; MDPI systematic reviews 2025). The halal market has expanded across food, cosmetics, pharmaceuticals, tourism, and finance, making it a driver of both domestic and export growth for Muslim-majority economies (OIC/ICDT 2022).

Theoretical overlaps: Islamic ethics, stewardship, and sustainability

Several scholars note philosophical synergy between Islamic economic ethics and green economy principles. Islamic teachings emphasize stewardship (khilafah) of the Earth and prohibitions against waste and harm, offering a normative basis for environmental policies and corporate behaviour (Wiratama, 2023, Jabeen et al 2025). This conceptual alignment provides legitimacy for policy instruments that promote low carbon halal production.

RESEARCH METHODOLOGY

This study uses a qualitative-descriptive approach with the aim of understanding in depth the relationship between the carbon economy and the halal industrial economy as pillars of sustainable growth. Primary data was obtained through in-depth interviews with economic experts, halal industry players, regulators, and academics who have expertise in sustainable development issues (Sekaran 2016). Secondary data was

collected from academic literature, policy reports, government regulations, international publications (UNDP, World Bank, and IFSB), as well as halal industry data from the Ministry of Industry and Bappenas. Data analysis was carried out using analytical methods to interpret patterns, concepts, and relationships between carbon economic policies and halal industry principles. Data validity is strengthened through source triangulation, by comparing interview results, official documents, and literature findings (Creswell 2018). The focus of the analysis is directed at identifying points of convergence, opportunities for synergy, and barriers to integration between the two economic concepts. This research framework also uses the maqashid sharia approach as an ethical lens in assessing the sustainability of the halal industry, as well as green economy theory to assess the effectiveness of the low carbon transition. Thus, this methodology is expected to provide a comprehensive understanding and strategic recommendations for the formulation of sustainable economic policies that integrate religious, social, and environmental values.

RESULT AND DISCCUSSION

Basic Concepts of Carbon Economics

The carbon economy is a development paradigm that focuses on managing greenhouse gas emissions, especially carbon dioxide (CO_2), resulting from human activities. This concept arose from the realization that the conventional fossil fuel-based economic model has caused significant environmental damage through rising global temperatures, extreme climate change, and ecosystem damage (Hepburn 2006). The basic principle of the carbon economy is the internalization of the external costs of emissions into economic activities, so that business actors must consider the impact of carbon in every production and consumption process. Simply put, the carbon economy seeks to place a price on carbon to create a financial incentive to reduce emissions. In other words , the higher the emissions produced, the greater the costs that must be borne. Conversely, the lower the emissions, the higher the incentives received. This approach is expected to change market behavior towards more environmentally friendly production and consumption patterns. There are several main instruments in the implementation of the carbon economy (Capoor 2008). *First*, carbon pricing, which is setting a certain price for each ton of carbon emissions. These mechanisms can take the form of a carbon tax or emissions trading. A carbon tax requires industry players to pay a fee for their emissions, while emissions trading allows companies that reduce emissions below a certain threshold to sell their emissions "quota" to other companies. *Second*, carbon offsetting, which compensates for emissions by funding carbon-absorbing projects, such as reforestation, renewable energy, or peatland conservation. This mechanism helps balance emissions that are difficult to avoid in industrial activities. *Third*, carbon disclosure, namely the company's obligation to report its carbon footprint in its sustainability report . This transparency provides both moral pressure and reputational incentives for companies to be more proactive in reducing emissions. The carbon economy is not just an instrument for climate change mitigation, but also an integral part of a sustainable development strategy. According to the Intergovernmental Panel on Climate Change report, the transition to a low-carbon economy has the potential to create new economic opportunities in the form of green investment, technological innovation, and job creation in the renewable energy sector, environmentally friendly transportation, and sustainable agriculture (Ranson 2016). In a

macroeconomic context, the implementation of the carbon economy encourages energy diversification, reduces dependence on fossil fuels, and improves national energy security. On the other hand , this implementation also has a positive impact on public health by reducing air pollution and improving the quality of life. Although the benefits of the carbon economy are enormous, its implementation faces several challenges, including: *First*, political and regulatory aspects. Not all countries share the same commitment to reducing emissions. Developing countries often face a dilemma between the need for short-term economic growth and a long-term commitment to climate change mitigation. *Second*, the economic aspect. The implementation of a carbon tax or ETS often raises concerns that it will increase production costs and reduce industrial competitiveness, especially in developing countries. Therefore, compensation or incentive policies need to be designed to ensure that the transition to a low-carbon economy does not create inequities. *Third*, technological limitations. Many industrial sectors still rely on fossil fuels due to limited access to clean technology. The transition to renewable energy requires significant investment, technology transfer and international support. *Fourth*, public and consumer awareness. Consumer behavior shifts toward a low-carbon lifestyle are still slow (Kaufman 2018). Many consumers prioritize price over the carbon emissions of the products they use. Indonesia has a strategic position in the global carbon economy agenda. As one of the world's largest emitters, primarily from deforestation, forest fires, and fossil fuel use, Indonesia faces significant pressure to reduce emissions. In its Long-Term Strategy for Low Carbon and Climate Resilience 2050 document, Indonesia targets net-zero emissions by 2060 or sooner. To achieve this target, the government has introduced several policies, including the implementation of a carbon tax, which will be implemented in stages in 2022, starting with the coal-fired power plant sector. Furthermore, Indonesia has begun developing domestic carbon trading through Presidential Regulation No. 98 of 2021 concerning the Implementation of Carbon Economic Value. This instrument is expected to encourage industry to switch to low-emission technologies while strengthening the national carbon market. In addition to regulatory aspects, Indonesia is also a pioneer in issuing green sukuk in the international market. This Islamic financial instrument is used to finance environmentally friendly projects such as renewable energy, waste management, and sustainable transportation ((IETA) 2022). This step demonstrates that the carbon economy can synergize with Islamic finance and the halal industry, opening up opportunities for integration between religious, economic, and environmental aspects. The concept of the carbon economy itself is in harmony with Islamic values and halal principles. Islam emphasizes the principle of balance (*mizan*) and the prohibition of destroying the earth (*fasfa*). Therefore, reducing carbon emissions is in line with the maqashid sharia in preserving life (*hifz al-nafs*) and protecting the environment. Integrating the carbon economy with the halal industry can give birth to innovations such as the halal green supply chain , eco-halal tourism, and dual halal-green certification. Thus, the carbon economy is not just a technocratic instrument, but can also be seen as a path towards holistic sustainable development, integrating economic, environmental, social and spiritual aspects (OECD 2015). The concept of a carbon economy offers a transformative framework for addressing the climate crisis and global development challenges. Through mechanisms such as carbon pricing, carbon trading, and carbon offsetting, the carbon economy drives changes in market behavior towards more sustainable production and consumption patterns (Victor 2011). While its

implementation is challenging, the carbon economy opens up significant opportunities for innovation, green investment, and integration with strategic sectors, including the halal industry. In the Indonesian context, the carbon economy is not only a global imperative, but also a national opportunity to build competitiveness and demonstrate pioneering leadership in values-based sustainable development.

Basic Concepts of Halal Industrial Economics

The halal industry is one of the fastest-growing sectors in the 21st-century global economy. This growth is driven by the growing global Muslim population, which has reached over 1.9 billion, or approximately 25% of the total global population. This growth has created significant demand for Sharia-compliant products and services, not only in food and beverages but also in the pharmaceutical, cosmetics, tourism, fashion, and Islamic finance sectors. The concept of the halal industrial economy is not just about fulfilling religious consumption needs, but also an economic framework that emphasizes ethics, sustainability, and balance (Goulder 2008). The halal economy can be defined as an economic system based on sharia principles with the aim of creating human welfare without neglecting moral, social, and environmental values. Halal products or services are not only about the halalness of substances or materials, but also include production, distribution, and consumption processes that are in accordance with the maqashid of sharia. The basic principles of the halal economy include: 1). Sharia Compliance, every product and service must be free from haram elements such as pork, alcohol, usury, gharar (uncertainty), and maisir (gambling). 2). Ethics and Justice, economic activities must be oriented towards justice, balance, and not harm others. 3). Health and Safety, halal products ensure the safety and health of consumers through strict standards in materials, processes, and certification. 4). Sustainability, the halal economy is in line with environmental conservation, resource efficiency, and ecosystem balance. According to the State of the Global Islamic Economy Report 2022, global Muslim consumption in the halal economy reached USD 2.1 trillion in 2021 and is expected to continue to increase along with the growth of the Muslim population and increasing halal awareness. Meanwhile, the halal industry structure includes several main sectors: 1). Halal Food and Beverages, is the largest sector, with a value of more than USD 1.3 trillion. The main focus is on the halal food supply chain, halal certification, and food safety. 2). Halal Pharmaceuticals and Cosmetics, a rapidly growing global market due to the increasing demand for health and beauty products free of haram ingredients. 3). Fashion and Modest Wear, the halal fashion industry, especially Muslim clothing, is becoming a global trend with penetration into non-Muslim markets. 4). Sharia Finance, including Islamic banking, sukuk, and sharia-based financial instruments, are the main pillars in supporting the financing of the halal industry. 4). Halal Tourism, is increasing along with the development of Muslim-friendly tourist destinations that pay attention to prayer facilities, halal food, and family privacy. 5). Halal Media and Recreation emphasizes entertainment, digital content, and media that align with Islamic moral values. The development of the halal industry is influenced by several strategic factors, including: *First*, the globalization of the halal market, which has made halal products no longer limited to Muslim consumers. For example, halal food products are often perceived as hygienic, healthy, and high-quality, making them attractive to non-Muslim consumers. *Second*, advances in digital technology, which are driving the transformation of the halal industry through e-commerce platforms, blockchain for halal traceability, and mobile applications for

checking halal certification. Technology strengthens consumer trust while expanding the halal market across countries. *Third*, support for government regulations and policies, especially in Muslim-majority countries such as Indonesia, Malaysia, and the United Arab Emirates. Regulations related to halal certification, halal product assurance, and strengthening the halal ecosystem are the main drivers of this industry's growth.

Synergy of Carbon Economy and Halal Industrial Economy

In the development of the modern global economy, two major trends are beginning to gain widespread attention: the carbon economy and the halal industrial economy. The carbon economy arose from the world's urgent need to address the climate crisis, reduce greenhouse gas emissions, and create more environmentally friendly production and consumption systems (Grubb 2014). Meanwhile, the halal industrial economy developed from the demands of the global Muslim community for products and services that comply with Islamic law, not only in terms of the halal and haram aspects of ingredients, but also in terms of business ethics, cleanliness, safety, and social justice. These two trends, although originating from different backgrounds, have strong common ground: sustainability, ethics, and concern for the balance between human life and the environment. Therefore, discussing the synergy between the carbon economy and the halal economy means discussing the opportunity to create a global economic system that is not solely oriented towards financial profit but also based on moral values, social justice, and environmental sustainability. This synergy can be understood primarily from the perspective of sustainability. Carbon economics emphasizes that every production and consumption activity must take into account its impact on the climate. Likewise in Islam, humans are positioned as caliphs on earth who are obliged to maintain the sustainability of nature (Michaelowa 2003). The concept of *khalifah fil ardh* is not only a spiritual responsibility, but also has socio-economic implications in terms of how Muslims manage natural resources in a balanced manner. Thus, the sustainability principles underlying the carbon economy are in fact aligned with the Islamic values underlying the halal industry. If the halal industry upholds the principles of *thayyib* (good, healthy, and beneficial), then implementing low-carbon principles will strengthen this *thayyib* dimension by ensuring that the products consumed are not only legally halal but also environmentally friendly and do not harm the environment. Furthermore, synergy can be seen in the aspects of ethics and social responsibility. The carbon economy encourages companies to be more transparent in managing the environmental impact of their business activities. On the other hand, the halal industry emphasizes the importance of ethics in production, distribution, and consumption. The principles of justice (*adl*), balance (*mizan*), and the prohibition of harm (*fasa*) are core values in the halal industry, which align with efforts to reduce environmental damage caused by carbon emissions. For example, a halal food company that not only ensures its raw materials are halal but also uses renewable energy and environmentally friendly packaging will have greater added value in the eyes of modern consumers concerned with sustainability issues. This demonstrates that Islamic business ethics and the principles of sustainability in the carbon economy can reinforce each other, resulting in a more socially and ecologically responsible industry (Qadri 2024). The synergy between the carbon economy and the halal industry can be implemented in various sectors. In the halal food and beverage sector, this concept can be realized through the application of green halal principles, namely products that are not only halal

certified but also produced with attention to their carbon footprint. Examples include the use of renewable energy in the production process, low-emission distribution systems, and waste reduction through packaging recycling. In this way, halal products not only meet sharia standards but also support the global movement towards responsible consumption and production. In the halal fashion sector, the concept of sustainable modest fashion can become a new trend, where Muslim clothing is not only made with sharia-compliant designs but also uses environmentally friendly materials, minimal waste production, and distribution based on low-carbon logistics. This will not only strengthen the competitiveness of halal fashion in the global market but also address criticism of the conventional fashion industry, which has long been a major contributor to global carbon emissions. In addition, halal tourism can also be one of the fields that demonstrates strong synergy between the carbon economy and the halal industry (Riaz 2010). The concept of halal tourism, which emphasizes comfort, safety, and halal-certified facilities, can be combined with the principles of sustainable tourism. Halal hotels, restaurants, and tourist destinations can reduce their carbon footprint by managing energy efficiently, reducing the use of single-use plastics, and promoting environmentally friendly transportation for Muslim travelers. Thus, halal tourism not only fulfills the spiritual needs of Muslims but also supports the global movement to preserve nature. In the Islamic financial sector, this synergy can be seen through the green sukuk instrument. This instrument allows financing of environmentally friendly projects, such as renewable energy, forest conservation, or green infrastructure development, while also complying with Sharia principles. Indonesia, for example, has become a pioneer in issuing global green sukuk. With this instrument, sharia principles that reject the practices of usury, gharar, and maysir are combined with the goal of a carbon economy to reduce climate change. The result is a financial instrument that is not only sharia-compliant, but also has a positive impact on the environment. The benefits of this synergy are vast. *First*, the integration of the carbon economy and the halal economy can increase the global competitiveness of halal products. Global consumers are increasingly concerned about sustainability, so environmentally friendly halal products will have a superior position in the international market. *Second*, this synergy will encourage new innovations, from green halal food to eco-friendly halal tourism. *Third*, this integration supports the achievement of the Sustainable Development Goals (SDGs), particularly SDG 12 on responsible consumption and production and SDG 13 on climate action. *Fourth*, this integration strengthens the Islamic economic ecosystem because, by embracing sustainability principles, halal products are not only relevant to Muslim consumers but also attractive to environmentally conscious non-Muslim consumers. However, this synergy also faces various challenges. *First*, the absence of global standards that integrate halal certification with environmentally friendly certification is an obstacle to expanding the market. *Second*, the limitations of green technology in developing countries, where the majority of the Muslim population is located, is an obstacle in implementing this concept. *Third*, the cost of implementing low carbon technology is still relatively high, making it difficult for halal MSMEs to afford. *Fourth*, Muslim consumers' literacy levels regarding sustainability issues remain low, resulting in unequal awareness of the importance of environmentally friendly halal products. Going forward, several strategic steps can be taken to strengthen this synergy. *First*, the development of global standards that integrate halal and environmental friendliness needs to be prioritized, for example

through green halal certification. *Second*, investment in research and innovation must be increased, particularly in the field of environmentally friendly technologies that can be applied in the halal sector. *Third*, cooperation among Muslim countries needs to be strengthened to build a global alliance to promote a sustainable halal economy. *Fourth*, the use of digital technologies, such as blockchain, can help increase transparency in the halal supply chain while measuring the carbon footprint of products. Thus, the synergy between the carbon economy and the halal industrial economy represents a significant opportunity that can form a pillar of sustainable economic growth in the future (Hashim 2018). Both emphasize ethics, justice, and sustainability and can reinforce each other in creating an economic system that is not only financially profitable but also beneficial to humans and the environment. By addressing existing challenges and strengthening cross-sector collaboration, this integration has the potential to become a key driver in realizing a more just, ethical, and sustainable global economy.

Pillars of Sustainable Growth in the Integration of the Carbon Economy and the Halal Industry

Building a sustainable global economy is not simply an option, but an imperative. Climate change, environmental degradation, social inequality, and the need for fair and ethical production systems demand a new, more holistic economic model. In this context, the integration of the carbon economy and the halal industrial economy offers a promising compromise (Nizam 2019). The carbon economy is present with a primary focus on reducing greenhouse gas emissions and encouraging the transition to clean energy. Meanwhile, the halal industrial economy is developing on the basis of moral, ethical, and sustainable values grounded in Islamic teachings. When these two economic frameworks are synergized, a pillar of sustainable growth will be formed that not only accommodates global market demands but also upholds the principles of justice, ecological sustainability, and social welfare. These pillars can be broken down into several key aspects: environmental sustainability, business ethics and morality, social inclusiveness, technological innovation, and institutional support and public policy. The first pillar is environmental sustainability. In the carbon economy paradigm, environmental sustainability means that every economic activity must consider its impact on the earth's ecosystem, particularly in the context of carbon emissions. For example, the implementation of a carbon pricing system, the use of renewable energy, and waste reduction are central to strategies to mitigate global warming. In Islam, environmental sustainability is not only technical but also spiritual. The Quran repeatedly prohibits *corruption* on earth and encourages balance (*mizan*). Therefore, when the halal industry combines the principles of halal-thayyib with low-carbon policies, the resulting products are not only halal according to sharia law, but also in line with the mandate of humans as caliphs on earth. A real example is the halal food industry which has begun to adopt organic farming, energy efficiency in the supply chain, and the use of environmentally friendly packaging (Olya 2015). This combination strengthens the halal industry's position as a pioneer in providing safe, healthy, and environmentally friendly products, while supporting the global climate change mitigation agenda.

The second pillar is business ethics and morality. Sustainable economic growth cannot be achieved solely through financial indicators, but must also be supported by integrity and social responsibility. The halal economy has a strong ethical foundation,

including the principles of justice (*adl*), openness, prohibition of fraudulent practices (*gharar*), and prohibition of exploitation (*zulm*). Meanwhile, carbon economics emphasizes corporate transparency in reporting carbon footprints and environmental impacts. When these two principles are combined, a business model emerges that positions sustainability not merely as a marketing strategy but as a core principle (Abdullah 2020). For example, halal companies that implement green accounting not only calculate financial profits but also include environmental variables in their annual reports. This shows that Islamic business ethics and carbon economic principles can strengthen each other to create more responsible corporate governance. The third pillar is social inclusivity and economic empowerment. The halal economy has proven to be an important instrument in encouraging MSME participation, especially in Muslim-majority countries. The halal industry opens up wide employment opportunities, ranging from the food, cosmetics, fashion, to tourism sectors. On the other hand, carbon economics also emphasizes the importance of a just transition , namely ensuring that the transition to clean energy and low-carbon systems does not create social inequality. By integrating the two, a huge opportunity is created to make halal MSMEs the main driver of green growth. For example, MSMEs producing halal food can be given incentives to use renewable energy or low-emission logistics systems. This step not only increases product competitiveness in the global market but also empowers grassroots communities to participate in the green economic transformation (Hassan 2018). Thus, the pillars of sustainable growth encompass a social dimension, ensuring that no group is left behind in the journey toward a sustainable future. The fourth pillar is technological innovation and digitalization. Technology is undeniably a key driver in achieving sustainability. The carbon economy demands technologies capable of reducing emissions, such as renewable energy, carbon capture and storage, and intelligent transportation systems. Meanwhile, the halal industry also requires technological innovation to ensure product traceability, supply chain transparency, and production efficiency. The synergy between the two opens up opportunities for the development of new technologies that can simultaneously support two major agendas: sustainability and halal certification. For example, the use of blockchain for halal certification can simultaneously be used to calculate the carbon footprint in the supply chain. In this way, consumers not only get assurance of the halal status of the product, but also know the environmental impact of the products they consume. This technological innovation will ultimately become one of the important pillars in building a sustainable integration of the carbon economy and the halal economy. The fifth pillar is institutional support and public policy (Shafie 2006). No economic system can survive without adequate regulation and governance. Governments and international institutions have a vital role to play in creating a conducive ecosystem for the integration of the carbon economy and the halal industry. In the context of the carbon economy, policies such as carbon taxes, renewable energy subsidies, and emissions regulations are crucial for the success of the transition to a green economy. Meanwhile, in the halal industry, the existence of certification bodies, halal standards regulations, and support for halal diplomacy are crucial pillars in expanding the global market. Combining these two aspects can lead to the birth of new policy instruments, such as green halal certification, fiscal incentives for environmentally friendly halal MSMEs, or sharia-compliant financing schemes for clean energy projects. Strong institutions and integrated policies will ensure that the integration of the carbon economy and the halal

industry is not merely a discourse but is actually realized in practice. In addition to these five main pillars, other aspects that strengthen the foundation of sustainable growth are international cooperation and public literacy. Cooperation among Muslim countries, particularly within the Organization of Islamic Cooperation (OIC), is crucial for promoting standardization and the development of a green halal market. Meanwhile, increasing Muslim public literacy about the importance of environmental protection is equally crucial (Pratama 2022). Without consumer awareness, low-carbon halal products may not receive optimal acceptance in the market. Therefore, education, outreach, and public campaigns are additional elements that complement these pillars of sustainable growth. With these pillars in place, the integration of the carbon economy and the halal industry is not just a normative discourse, but also a concrete strategy capable of addressing global challenges. The synergy of the two provides the basis for inclusive, equitable, ethical and environmentally friendly economic growth. Furthermore, this integration also supports the achievement of the Sustainable Development Goals, particularly those related to sustainable consumption and production, climate action, and poverty alleviation. In other words, the pillars of sustainable growth within the integration of the carbon economy and the halal industry serve as a new foundation for building a global economy that is not only financially profitable but also beneficial to humanity and the planet.

CONCLUSION

Understanding the link between the carbon economy and the halal industrial economy leads us to a new understanding that sustainability is not only about the environment, but also concerns aspects of ethics, spirituality, and social justice. The carbon economy essentially seeks to reduce emissions, create market mechanisms to reduce the carbon footprint, and encourage the transition to clean energy. On the other hand, the halal industrial economy is imbued with sharia values that emphasize halalness, blessings, justice, and social responsibility. When combined, these two become pillars of sustainable growth that not only support global agendas such as the Sustainable Development Goals (SDGs) but also foster a competitive, inclusive, and long-term business ecosystem. The integration of the carbon economy and the halal economy enables the creation of innovative new business models, such as sharia compliant carbon trading, halal-certified environmentally friendly products, and green sukuk as a financing instrument. Furthermore, this approach expands the global halal market by providing added value in the form of a commitment to environmental sustainability. Thus, the halal economy is no longer limited to consumption standards but also becomes a driving force for transformation towards a green economy. In conclusion, the synergy of these two concepts is a crucial strategy for addressing the challenges of climate change, while strengthening the halal industry's position as the backbone of an ethical, equitable, and sustainable global economy.

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