

AN ANALYSIS OF SUSTAINABLE ENERGY PRACTICES BETWEEN THE UNITED STATES AND GERMANY

Gloria Opoku Darkoh

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ABSTRACT

This paper compares the sustainable energy strategies of Germany and the United States, focusing on their distinct yet impactful approaches. Germany's Energiewende, launched in the early 2000s, emphasizes renewable energy adoption, energy efficiency, and phasing out nuclear power. Despite notable achievements, it faces challenges like rising electricity costs and community resistance to infrastructure projects. The United States' Long-Term Strategy targets net-zero greenhouse gas emissions by 2050, with an emphasis on electrifying transportation, clean energy jobs, and equitable energy access. However, political division and economic disruptions pose obstacles. The analysis highlights key successes, such as Germany's community-driven renewable projects and the U.S.'s economic incentives for electrification. Recommendations include community engagement, grid improvements, education campaigns, and global research collaboration. By learning from each other, both nations can strengthen their efforts to transition toward sustainable energy and contribute to global climate change mitigation effectively.

INTRODUCTION

In a world increasingly focused on the pressing need for sustainable energy practices, a comparative analysis of the approaches taken by two influential nations, the United States and Germany, reveals a compelling narrative. While both countries share the common objective of addressing climate change and transitioning towards sustainable energy sources, their historical, political, and cultural backgrounds have led to distinct strategies and outcomes. This essay delves into the Germany Energiewende and The Long-Term Strategy of the United States: Pathways to Net-Zero Greenhouse Gas Emissions by 2050 precisely Chapter Four (Transforming the Energy System Through 2050), exploring their motivations, impacts, and the lessons they offer. It also provides recommendations for enhancing these initiatives, underscoring the critical importance of global cooperation in shaping a more sustainable future.

Attitude Towards Sustainability

There is a broad spectrum of opinions towards sustainability in the United States, a country that is large and varied. The United States has made great strides in recent years in terms of environmental awareness and action, yet attitudes toward sustainability are characterized by a mixture of debate, innovation, and enthusiasm (Hashmi et al., 2015). Many American states and cities, including California and New York, have adopted legislation on renewable energy, mitigating climate change, and environmental preservation to promote sustainability. At the federal level, successive governments have demonstrated varying degrees of dedication to sustainability, leading to varying policies on topics like renewable energy and climate change.

Regional differences, political ideologies, and economic reasons all play a part in shaping American attitudes toward sustainability. There are differences in the public's views on sustainability as well. While certain groups are very involved and support strict environmental regulations, others are skeptical and place a higher priority on economic expansion than environmental preservation (Hashmi et al., 2015).

Germany, on the other hand, is renowned for its steadfast support of environmental preservation and sustainability (Meyer et al., 2022). The nation has a strong cultural emphasis on ecological stewardship and a long history of environmentalism (Meyer et al., 2022). Germany has implemented policies that prioritize sustainability, reduced greenhouse gas emissions, and promoted renewable energy with notable success. The Energiewende (energy

transition) initiative is a notable example of Germany's dedication to transitioning towards a low-carbon and sustainable energy system.

German views on sustainability are shaped by several elements, such as the incorporation of sustainability concepts into corporate and policy choices, a major focus on environmental education, and adherence to international accords like the Paris Agreement. In general, the German population is in favor of sustainability activities, and government policies are in line with a wider environmental consciousness (Fritz & Koch, 2019).

This demonstrates how, despite shared efforts towards sustainability, the historical, political, and cultural backgrounds of the United States and Germany have a substantial impact on the mindsets of the two countries. Germany is frequently seen as a global leader in this area, whereas the United States displays a more fragmented landscape of sustainability attitudes.

ANALYSIS OF POLICIES

Germany's Energiewende Policy

The Germany Energy Transition, also known as the Energiewende, is a broad range of policies that were started in the early 2000s with the main goal of lowering greenhouse gas emissions and moving the nation's energy industry towards sustainability (Greenway,2018). It seeks to greatly boost the use of renewable energy sources, phase out nuclear energy, and lessen dependency on fossil fuels. The main driving forces for Energiewende were environmental concerns, specifically tackling climate change, improving energy security, and advancing sustainable energy sources. Beyond these overt objectives, one underlying motive was to enhance Germany's standing as an ecologically conscientious country internationally (Greenway,2018). To draw investment and improve its reputation locally as well as globally, Germany tried to establish itself as a pioneer in sustainability.

The fast growth of solar and wind power generation, enhancements in energy efficiency, and developments in grid infrastructure to handle dispersed energy sources are all examples of sustainable practices pursued under Energiewende. These actions are driven by factors other than just environmental concerns. The feed-in tariff system, for instance, has motivated individuals and businesses to invest in solar panels by guaranteeing attractive returns on the energy they feed into the grid (Sievers et al., 2019). Thus, financial incentives have played a crucial role in encouraging sustainable practices. Germany's renewable energy sector has also created jobs, enhancing its economic stability and fostering local expertise in sustainable technologies.

The local community has benefited in several ways from the policy. Germany has made great strides in lowering air pollution and greenhouse gas emissions. In terms of economics, the Energiewende has accelerated the development of the renewable energy sector and helped to diversify Germany's economy (Sievers et al., 2019). It has improved energy security by lowering the nation's reliance on imports of fossil fuels from elsewhere. A further benefit of the switch to sustainable energy is the creation of jobs in the wind turbine and solar panel manufacturing industries. Socio-culturally, the policy has instilled a sense of national pride and contributed to Germany's image as a responsible and forward-thinking nation. Many citizens have embraced sustainability practices, such as installing solar panels in their homes or driving electric vehicles (Hager & Stefes, 2016).

However, there have also been unfavorable effects. Germany's electricity rates have increased dramatically because of the expenses incurred in developing renewable energy sources and system infrastructure (Karapin, 2020). For certain households, these hikes may result in financial hardship (Karapin, 2020). Moreover, a persistent obstacle has been local resistance to the installation of additional power cables or wind turbines (Gawel et al., 2013). Fears of noise pollution, aesthetic disturbance, and possible health hazards have caused many communities to oppose these projects. The policy has also had implications for the conventional energy sector, resulting in job losses in areas reliant on fossil fuels, which has created economic and social tensions (Gawel et al., 2013).

The Long-Term Strategy of the United States: Pathways to Net-Zero Greenhouse Gas Emissions by 2050 precisely Chapter Four (Transforming the Energy System Through 2050):

The Long-Term Strategy of the United States, in contrast to Germany's Energiewende, intends to direct the nation towards reaching net-zero greenhouse gas emissions by 2050 (Rogelj et al, 2021). The strategy covers many industries, including transportation, energy, and manufacturing. Addressing climate change and the disastrous effects it has on the environment, the economy, and public health is its main goal. Regaining worldwide credibility and showcasing American leadership in the fight against climate change is a major underlying motivation, especially in light of the nation's exit from the Paris Agreement (Rogelj et al, 2021).

There are several different types of sustainable practices being implemented under the US Long-Term Strategy. They include promoting energy efficiency, electrifying the transportation sector, and quickly switching to renewable energy sources. The motivations extend beyond environmental considerations. The government wants to take advantage of the clean energy industry's potential to boost the economy and create jobs (FitzRoy, 2019). It is becoming a more important economic force in the United States. There is a chance to lessen the nation's dependency on foreign oil by switching to electric cars, thereby improving energy security. Furthermore, a growing number of American businesses are seeing the benefits of sustainability for their reputation and brand value.

The policy has had several positive impacts on local communities. Environmentally, it has the potential to significantly reduce greenhouse gas emissions and air pollution, leading to better public health outcomes. Economic benefits include the creation of jobs in the renewable energy and electric vehicle industries, boosting local economies (FitzRoy, 2019). Reducing America's dependence on foreign oil can enhance national energy security. The policy also fosters a sense of civic pride, with many communities taking initiatives to adopt sustainable practices and infrastructure, such as electric vehicle charging stations and community solar projects.

Nevertheless, adverse effects are also seen. Workers in traditional energy industries may be displaced by the switch to renewable energy, which would cause job losses and economic upheaval in the impacted areas. Political divisiveness and resistance from the fossil fuel companies are obstacles to the policy that might impede the transition. Additionally, changes in energy infrastructure can result in disruptions or alterations in local landscapes, which may not always be well-received by communities (Miller et al., 2013).

Addressing climate change and moving towards sustainable energy sources are similar objectives of both the Long-Term Strategy of the United States for Net-Zero Greenhouse Gas Emissions and the Germany Energiewende. However, their reasons vary, as do the advantages and disadvantages they have on the neighborhood. Both policies confront particular possibilities and problems in their different environments, even though their goal is to promote environmental and economic sustainability.

Comparison of the Germany Energiewende and the Long-Term Strategy of the United States:

The Germany Energiewende and the Long-Term Strategy of the United States share the overarching goal of addressing climate change and transitioning to sustainable energy sources, but there are some key differences in their approaches and implementation.

A noteworthy contrast is the scope and timeframe. Germany had an advantage over other countries in its energy sector transformation when the Energiewende commenced in the early 2000s. The policy is already well-advanced, with a significant share of energy coming from renewables (Greenway,2018). In contrast, the Long-Term Strategy of the United States was formulated later, and the country is in the early stages of implementing the plan. The United States faces the challenge of catching up with countries like Germany and China in terms of renewable energy capacity (Greenway,2018).

The most successful practices in the Germany Energiewende are its strong focus on renewable energy generation and energy efficiency, which has led to significant reductions in greenhouse gas emissions (Quitow et al., 2016). Solar panels have become widely used due to the feed-in tariff system, which ensures small-scale renewable energy producers get profitable returns (Leiren & Reimer, 2020). Germany's decentralized energy paradigm, which allows many people to produce their energy, has given them more authority and encouraged a sense of ownership over the

change. Furthermore, despite certain difficulties, Germany's choice to phase out nuclear energy has been a brave one that supports its environmental objectives.

In the Long-Term Strategy of the United States, the successful practices lie in the ambitious targets and incentives for renewable energy adoption, particularly in the electrification of the transportation sector (Browning, 2013). Major automakers are making significant investments in the manufacturing of electric vehicles, which is a good trend in the growing electric car industry. Incentives to acquire electric vehicles and the development of infrastructure for charging them have led to a shift in customer preferences toward greener modes of transportation. Furthermore, the strategy's emphasis on justice and fairness throughout the transition is crucial as it acknowledges that vulnerable populations are frequently impacted disproportionately by the energy transition and climate change (Browning, 2013).

Recommendations

Addressing the issue of increasing electricity rates, which may be a burden for many homes, would be advantageous for Germany's Energiewende. A solution to this problem would be to introduce income-based electricity pricing, where lower-income households pay lower rates to ensure energy affordability. To mitigate opposition to wind turbines and power lines, involve local communities in the planning and decision-making processes. This could include revenue-sharing mechanisms or community ownership of renewable energy projects, allowing residents to benefit directly from the transition.

The Long-Term Strategy of the United States ought to prioritize improving grid infrastructure to meet the increasing demand for renewable energy sources. Grid optimization and energy resilience may be fostered through innovative solutions, including blockchain technology for decentralized energy trade and grid management. Furthermore, by taking a cue from Germany, the United States might think about introducing a feed-in tariff system to encourage the generation of renewable energy on a modest scale. This can hasten the shift by promoting participation from both the person and the community.

Education and public awareness-raising are crucial in both situations. Germany could invest in comprehensive public education campaigns to explain the benefits and costs of Energiewende to citizens. In the United States, educational initiatives on energy efficiency, renewable energy, and climate change may be initiated by local governments and schools. These initiatives have the potential to increase public awareness and support for sustainability while motivating the next generation to embrace it.

Finally, research and development of sustainable energy technology may be jointly undertaken by the United States and Germany. This information and resource exchange can hasten development and facilitate more effective goal achievement for both nations. International cooperation has the potential to spur creativity, cut expenses, and produce new technologies that benefit not just these nations but the entire globe.

CONCLUSION

In conclusion, the United States and Germany, while sharing a commitment to sustainable energy practices, approach this goal with distinct strategies driven by their unique historical, political, and cultural backgrounds. Germany's Energiewende has demonstrated impressive success in renewable energy and emissions reduction, while the Long-Term Strategy of the United States is making strides in electrification and justice-focused transition. To maximize their efforts, both nations can learn from each other's successes and challenges, emphasizing community engagement, grid optimization, public education, and collaborative research. By doing so, they can collectively advance the global transition towards a more sustainable and environmentally responsible future.

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