



Renewable Energy Financing during the COVID-19 Pandemic: Obstacles and Solutions

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Abstract: *The renewable energy industry, whose global market size was estimated at US\$ 1030,95 billion in 2022, faced numerous obstacles including financing issues ranking at the top during the COVID-19 pandemic. Given the importance of the topic, this study addresses these obstacles as well as potential solutions to financing renewable energy during the COVID-19 outbreak. The study discusses that economic uncertainty, disruption of supply chains, reduced investor confidence, reduced demand for energy, and policy changes are among the major problems in renewable energy financing during the outbreak. The study also proposes global solutions in order to provide policy stability and a predictable policy environment.*

1. INTRODUCTION

The COVID-19 pandemic has had a substantial impact on the global economy and severely disrupted numerous industries, including the renewable energy sector (Hoang et al., 2021). The global energy demand has decreased due to the pandemic, and widespread financial uncertainty has made it difficult for renewable energy projects to secure financing (Karmaker et al., 2021). Despite these obstacles, the renewable energy sector has continued to expand, and financing for renewable energy projects has remained robust. Governments, financial institutions, and investors have acknowledged the significance of investing in renewable energy to facilitate the transition to a more sustainable future. Innovative financing models and policy measures have been implemented in this context to ensure that the renewable energy industry can continue to expand and contribute to a greener, more resilient global economy (Gollakota & Shu, 2023).

This study explores the various obstacles and solutions that have emerged in renewable energy financing during the COVID-19 pandemic. The rest of the study is structured as follows: Section 2 defines the potential obstacles and solutions for renewable energy financing. Finally, Section 3 gives concluding remarks.

2. THE OBSTACLES AND SOLUTIONS FOR RENEWABLE ENERGY FINANCING

2.1. Economic Uncertainty

Economic uncertainty is crucial for renewable energy financing during the COVID-19 period because it affects the availability of funding for renewable energy projects and investors' willingness to invest in them (Liu et al., 2022). As investors become more risk-averse and prioritize short-term financial stability, economic uncertainty can also lead to a decline in investments in renewable energy projects. This can result in a funding gap for renewable energy projects, thereby delaying the transition to a future based on clean energy. In addition, economic uncertainty can influence the

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policy environment for renewable energy. Governments could shift their focus away from renewable energy policies and incentives in order to address the immediate economic effects of the pandemic (Bahar, 2020). This can make the funding gap for renewable energy projects even larger.

For renewable energy investments, it is imperative to reduce economic uncertainty and provide policy stability. This can be achieved by implementing policies like renewable energy targets, carbon pricing mechanisms, and government subsidies for renewable energy projects. In addition, governments can provide economic stimulus packages that prioritize clean energy infrastructure investments in order to support the transition to a low-carbon economy.

2.2. Disruption of Supply Chains

During the COVID-19 pandemic, the disruption of supply chains is relevant to renewable energy financing because it can cause delays in the construction of renewable energy projects and lead to higher costs, thereby threatening the financial viability of these projects (Moosavi et al., 2022). Various factors, such as travel restrictions, factory shutdowns, and labor shortages, have been exacerbated by the COVID-19 pandemic and can disrupt supply chains. Critical components of renewable energy projects, such as solar panels, wind turbines, and batteries, can be affected by supply chain disruptions in the renewable energy industry. Delays in the delivery of these components can cause construction delays and increase project costs, making it more difficult to secure financing for renewable energy projects. Additionally, disruptions in the supply chain can impact the availability and cost of financing for renewable energy projects. Potential supply chain risks may discourage lenders and investors from financing projects, thereby increasing the cost of financing (Betolli et al., 2023).

For renewable energy projects, resilient and diverse supply chains are required. This could entail procuring materials and equipment from multiple sources, establishing local supply chains, and investing in domestic manufacturing capabilities. Moreover, governments can support renewable energy projects by implementing policies and incentives that encourage the development of a resilient and diverse supply chain.

2.3. Reduced Investor Confidence

Investor confidence refers to the conviction that an investment will generate a profit, and a lack of investor confidence can make investors more risk-averse and reluctant to invest in renewable energy projects (Himanshu et al., 2021). Significant economic disruptions and uncertainty have been caused by the COVID-19 pandemic, which may reduce investor confidence in the renewable energy sector (Hoang et al., 2021). Prioritizing short-term financial stability, investors may be more hesitant to invest in long-term projects, such as renewable energy projects, in favor of short-term financial stability. This can lead to a funding gap for renewable energy projects, which can ultimately slow the transition to a future based on clean energy (Kaminker & Stewart, 2012). Moreover, diminished investor confidence can influence the accessibility and cost of financing for renewable energy projects. Significant market and economic risks may make lenders and investors hesitant to finance projects, which can increase the cost of financing as well as make obtaining financing more difficult (Seetharaman et al., 2019).

Notice that increasing investor confidence in the renewable energy industry is worth noting. This can be accomplished by implementing policies and incentives that provide a stable and

predictable policy environment, such as renewable energy targets, carbon pricing mechanisms, and government subsidies for renewable energy projects. In addition, renewable energy projects can adopt risk-mitigation strategies such as diversifying project portfolios, implementing risk management strategies, and partnering with seasoned developers and operators.

2.4. Reduced Demand for Energy

The COVID-19 pandemic has caused significant economic disruptions and alterations in consumer behavior, resulting in a decline in energy demand (Das et al., 2022). By selling electricity to utilities or other energy buyers, renewable energy projects generate revenue. A decrease in energy demand can result in a decrease in the price of electricity, which can influence the revenue streams of renewable energy projects. In addition, a reduction in energy demand can lead to a reduction in renewable energy production, suggesting that renewable energy projects may not be able to generate electricity at full capacity while diminishing the potential revenue of these projects. Moreover, lower energy demand can affect the financing of renewable energy projects. Significant market and economic risks may discourage lenders and investors from financing projects, which can hurt financing opportunities (Kumar & Majid, 2020; Peimani, 2018).

Increasing the energy demand is not always good for environmental quality. In that sense, promoting sustainable energy demand and consumption should be prioritized via energy-efficient policies and incentives, including building codes, energy efficiency standards, and consumer education programs. Furthermore, renewable energy projects can mitigate revenue risks by entering into long-term power purchase agreements, implementing energy storage solutions, and developing diversified portfolios of projects in different regions or energy markets.

2.5. Policy Changes

Government policies play a crucial role in facilitating the development and deployment of renewable energy projects, and policy changes can introduce uncertainty and risk for investors and lenders. The pandemic of COVID-19 has necessitated the implementation of policies addressing both economic recovery and the transition to a low-carbon economy. Nonetheless, policy changes can create uncertainty for renewable energy projects, which can affect their financial viability and the cost of financing. Changes in renewable energy targets, subsidies, or tax incentives, for instance, can influence the revenue streams of renewable energy projects, while changes in regulations or permit requirements can increase the cost and duration of project development. Changes in energy market structures or pricing mechanisms can affect the competitiveness of renewable energy projects (Gatzert & Vogl, 2016; Prasad et al., 2022; Qadir et al., 2021).

There must be a stable and predictable policy environment for renewable energy projects that can be accomplished through policies and incentives that encourage the development and deployment of renewable energy projects². Moreover, governments should support renewable energy projects that lead to the development of a resilient and diversified supply chain, as well as fostering investor confidence in the renewable energy sector.

² Such as renewable energy targets, feed-in tariffs, tax incentives, and permitting and regulatory frameworks that encourage the development and deployment of renewable energy projects.

3. CONCLUSION

The COVID-19 pandemic has created significant barriers to renewable energy financing and, therefore, hurt businesses accordingly. The pandemic i) has created uncertainty in financial markets while making renewable energy financing difficult for those firms, ii) has disrupted supply chains, resulting in delays and increased costs in the delivery of renewable energy equipment, iii) has lowered investor confidence, which has led to a decrease in investments in renewable energy projects, iv) has reduced energy demand in some sectors, particularly transport, and manufacturing, affecting the revenue of renewable energy companies, and v) has prompted some governments to make policy changes during the pandemic, affecting the renewable energy sector. Notice also that, however, the long-term outlook for renewable energy remains positive, and many businesses and investors continue to see the industry as a profitable investment opportunity.

This study emphasizes the importance of global solutions to address the challenges posed by the emergence of the COVID-19 pandemic to provide policy stability and a predictable policy environment. We also discuss the possibility that these solutions may not be universally applicable and that their effects may vary depending on local contexts and the severity of the pandemic. The renewable energy sector is constantly adapting and evolving, requiring ongoing monitoring and assessment of the obstacles encountered in order to implement the most suitable solutions.

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