

RESEARCH ARTICLE

The Influence of US-China Climate Policies on India's Renewable Energy

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Abstract: This research examines the influence of U.S. and China climate policies on India's renewable energy transition, focusing on technology, financing, and infrastructure development. With the U.S. providing cutting-edge innovations and transparent investment models and China offering cost-effective renewable energy technologies, India stands at the intersection of great-power competition and collaboration. Drawing on Realism and Complex Interdependence theories, the study explores India's strategic balancing act between these global powers while pursuing its ambitious renewable energy goals, such as achieving 500 GW of non-fossil fuel capacity by 2030. The analysis highlights the benefits and risks of relying on external support, emphasizing India's need for domestic capacity-building, diversification of partnerships, and geopolitical neutrality to mitigate dependency and maintain sovereignty. This study provides a road-map for India and other developing nations navigating global energy politics, demonstrating how emerging economies can leverage external influences to achieve sustainable development.

Keywords: US, China, Climate Policies, India, Renewable Energy

Introduction

World is changing and growing each day and it is adopting modern technologies as much as they can. As we can see in recent years, there are multiple challenges posed by climate change which have highlighted the need for global cooperation in changing toward renewable energy from fossil fuels. The countries must reduce carbon emissions and mitigate environmental impact around the world and it needs a solid commitment and strong will towards clean energy at global as well domestic level. In this case the US and China are the world's largest economies and carbon emitters that means their climate policies have significant global implications. Both nations play key roles in international climate policies and are heavily invested in renewable energy and sustainable development. Their respective policies, roles and actions impact not only their domestic energy sectors but also has influence on other countries especially developing one like India as they are looking to expand renewable energy sources to combat climate change to meet their energy demands.

India is also the third largest carbon emitter and has ambitious renewable energy targets and goals as part of its commitment to the Paris agreement. Such as achieving 175 GW of renewable capacity by 2022 (which they fell short) and reaching 500 GW by 2030. However with these commitments India faces multiple challenges in reaching these targets, including financing, access to advanced technologies and infrastructure. From here the climate policies of both the U.S and China become particularly relevant to India's renewable energy development, as they provide pathways and concessional loans for technological transfer, renewable energy sources, and policy support.

The United States has climate policies like the Build Back Better World (B3W) from which they aim to offer clean energy financing and infrastructure support that uphold to high environmental and social standards. This policy has potential and opportunity for India to secure high quality expertise and renewable technology which also aligns with their energy goals. In contrast, China's Belt and Road Initiative (BRI)

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promotes investments in ample margin in clean energy infrastructure across developing nations which also includes India with less regulatory constraints. India attracts towards China's involvement in clean energy initiatives because it provides a quicker and easy route to build renewable infrastructure although it also carries grave risk of dependency on Chinese technology and financing.

Now India has both U.S and Chinese policies which are offering exceptional benefits and also potential drawbacks and negative impacts. The competition between the U.S and China to support global renewable energy projects creates a range of choices for India as it navigates its path toward a low carbon economy. While maintaining independence in its energy policies India has the opportunity to strategically balance these influences to achieve its goals.

The whole purpose of this study is to explore and analyze that how U.S and China climate policies influence India's renewable energy development. This research aims to provide insights into the benefits, challenges, and strategic considerations that India faces in aligning with these international climate initiatives by analyzing and examining the strategies and implications of these policies. This research possesses two research questions and two theories which aligns with this study and have immense importance to address the climate policies and challenges India has to face and with proper mechanism and independent approach, strong will and not relying on both countries India can achieve its renewable goals and it also can provide new pathways for other developing nations by setting an example for the world. India has many challenges and constraints in its pathway.

Research Questions

1. How do US and China climate policies influence on India's renewable energy transition in terms of technology, financing and infrastructure?
2. What are the risks and advantages for India in balancing partnerships with US and China for its renewable energy development?

Theoretical Framework

I am using two theories Realism theory and Complex interdependence theory to analyze the influence of US and China climate policies on India's renewable energy development because they provide suitable theoretical foundations and also, they will help understanding the partnerships of India with two global powers US and China by seeing the multifaceted landscapes of power maximization and interdependence among them.

Realism

In an anarchical international system Realism focuses on power with national interest as first priority and competition. The competition between the US and China for global influence through climate policies and renewable energy initiatives aligns with realist principles. For this purpose, I chose this IR theory to understand the complex relationship of Global Powers.

Application

Including renewable energy investments in countries like India the US and China are competing to expand and increase their global influence through climate policies. Both nations seek to use these policies to strengthen their geopolitical standing from a realist perspective while limiting the other's influence. US China competition made a way for India to steal this great opportunity and demands them with a mutually beneficial term. With this offer India also has risk to becoming a tool for their power gaining game over each other at global level. This theory realism helps analyze that how India seeks this rivalry and competition and how it is going to make its policies by inculcating the potential drawbacks and strategic autonomy and their sovereignty.

Complex Interdependence Theory

This theory was given by two great Neo-liberalist Robert Keohane and Joseph Nye. Interdependence theory explains the nature of states interconnections with each other in economic, environmental and technological interdependence beyond focusing on military power. It tells us that States cooperate with each other by pursuing their mutual interests. It emphasizes that states are interconnected and interdependent, making it difficult to achieve absolute gains or dominance. It has assumptions that states are not unitary single actors but multiple channels of communications exist and setting an agenda is more important than military force in this theory.

Application

The interconnected and multi-faceted nature of US, China, and India in renewable energy aligns with this theory, as their climate policies boost and foster cooperation (e.g., technology transfer, investment) despite geopolitical tensions. It shows India's reliance on both U.S. and Chinese support for its renewable energy development that how global interdependence shapes policy decisions and outcomes. By combining these theories Realism and Complex Interdependence, my research will analyze both the competitive and cooperative dimensions of international climate policies and their impact on India's renewable energy goals.

Literature Review

I have gone through many research and news articles to get the desired data according to my research paper. It was specifically reviewed and especially 2024 articles were given preferences. For this research there were five relevant reports showcasing different dimensions of influence and risks for India as they are going to mitigate the fossil fuels and utilize renewable energy sources for the betterment of their public and overall impact on Global Climate setting the new trends for the world.

India's Renewable Energy Growth amidst Global Climate Policy Dynamics:

This report briefly discusses that how global players like the U.S and China are influencing India's renewable energy development. It highlights the dimensions that China's Belt and Road Initiative (BRI) has been fundamental in financing and building solar panels and wind energy infrastructure in India, providing affordable cost saving access to technology. India mostly relies on Chinese imports for parts of machinery along with quality solar panels and batteries. This reliance could have great risks of losing the sovereignty and autonomy. We have seen the Chinese agenda of soft form expansion in developing countries like Sri Lanka and Nigeria etc. this reliance on Chinese products compels India to have their own energy security. Although products from China have benefits but the risk factor of over reliance can hinder the India's energy security. With manufacturing of products like these domestically India can easily overcome this factor. In comparison to this US Build Back Better world B3W have easy investments which are also sustainable and transparent, offers India with excellent quality with cheap alternatives that of China has (India, [2024](#)).

This report explains that India development progress is solely depends upon their ability to form the dimensions of this complex geopolitical landscape. US innovation and China affordability combination provides India a chance to achieve its renewable energy targets like 500 GW by 2030. Additionally report also highlight the structural issues internally in India like sufficient grid infrastructure and regulatory challenges which are constraints to the full utilization of international assistance. This report has some insights which aligns my research focus on the impact of US and Chinese climate policies on India's strategy of renewable energy. I will make sure that these insights must be included in my research work to provide broader view to understand the topic of research.

Renewable Energy Superpower India

According to (Agency, [2024](#)), India has chance and will to become a superpower in renewable energy sector.

It is due to its commitment and partnership with US and China strategically. It notes that India rapidly expands its renewable energy capacity due to China's affordability in solar photovoltaic and large-scale battery storage. Meanwhile, the U.S. also offers advanced technologies like green hydrogen and offshore wind energy solutions, which are essential for achieving long-term sustainability. The report highlights India's growing ability to utilize these partnerships strategically, balancing affordability with innovation.

The report identifies several challenges despite these opportunities, such as grid modernization and policy obstacles, which prevent India from fully capitalizing on international assistance. It calls for enhanced domestic reforms to complement external investments. The insights presented in this article directly relate to my research by showing how India's renewable energy progress depends on the interplay of domestic policies and international partnerships.

Global Climate Policies and Their Influence on Emerging Economies

With India as the main focus, this study examines how Chinese and American climate policies affect developing nations. According to the article, China's Belt and Road Initiative (BRI) offers quick financing for renewable energy projects, which is essential for nations like India looking to fulfill its immediate energy targets. However, the study notes that this strategy may restrict India's decision-making power and frequently results in financial dependency. The U.S.'s climate programs, especially those under the Inflation Reduction Act, on the other hand, provide cleaner, governance-driven partnerships, but also come with stricter requirements that developing nations like India may find difficult to satisfy (Jaden, [2024](#)).

The paper emphasizes that India's success with renewable energy would depend on its capacity to manage these policy dynamics. It implies that India ought to give top priority to alliances that complement its long-term objectives, such as technological independence and sustainable development. The article also emphasizes India's potential role in bridging US-China climate policy gaps by acting as a mediator for collaborative international efforts. These findings directly support my research by illustrating the interplay of global policies in shaping India's renewable energy trajectory.

De-Carbonization and Geopolitical Rivalries

The impact of U.S. China competition in renewable energy on India's energy policy choices is examined in this journal article. It emphasizes how U.S. climate policies are appealing for India's long-term energy security since they emphasize establishing partnerships with democracies and guaranteeing sustainable behaviors. China's strategy, on the other hand, which is based on cost and speed, aids India in meeting its short-term renewable energy goals but also raises questions about debt accumulation and reliance on Chinese technology (Bill Hare, [2024](#)).

The paper highlights that in order to stay out of geopolitical crises, India needs to properly manage this rivalry. It recommends that India strategically utilize both U.S. and Chinese partnerships while aiming for technical self-reliance. These findings, which discuss the advantages and disadvantages India suffers as a result of its reliance on external climate policy, are in line with my research for renewable energy growth.

The Role of the U.S and China in Shaping India's Clean Energy Transition:

This study examines the ways in which US-China climate policy initiatives and India's clean energy objectives interact. India's efforts to increase its renewable capacity are directly aided by the fact that China dominates global supply chains for renewable energy components like solar panels and battery storage. India's shift is accelerated by the availability of Chinese technology, but this also increases dependency and raises geopolitical issues. While the U.S.'s emphasis on cutting-edge green technologies offers India creative answers to challenging energy problems, U.S. collaborations are less adaptable due to the greater costs and regulatory restrictions.

India's strategic position as a significant emerging market, highlighted by the WEF (World Economic Forum), gives it the ability to negotiate advantageous terms with both countries. It implies that India might gain from promoting a hybrid strategy that combines Chinese scalability with American innovation (Maciej Kolaczowski, [2024](#)).

It also emphasizes how critical it is to remove regional obstacles, such as restricted funding options for smaller renewable energy projects. By describing the potential and difficulties India confronts in balancing Chinese and American influences on its energy transition, this piece supports my research. These reports are directly aligning with my research paper addressing all the dynamics and necessary details to understand the nuanced complexities of US and China climate policies impacting and influencing India's renewable energy development and suggestions, recommendations for India to align these by focusing on its sovereignty.

Discussion

This part of the research will cover the total 3 stakeholders including Entity 1: China, Entity 2: USA and the Entity 3: India. This portion will discuss all the credibility, advancement and role of technology in renewable sources and their impacts also with examples of different sites which has already under process. It will be significant approach.

Entity 1: China

China's influence on India's renewable energy development

Credibility of China in Renewable Energy: China is renowned for its renewable energy industry and leads the world in the use of renewable resources. In the fields of solar photovoltaic, wind turbines, and battery storage technologies, China is leading the world market. According to a report it claims that almost 45% of world wind Turbines and more than 70% of solar panels is manufactured by the China (2024, n.d.). China is indeed having a well-established supply chain and it is a dominant country in manufacturing so that is why China is having potential to provide easy affordable cheap and cost-effective solutions to countries like India. China has already made the mark and stands as a major provider of funding for renewable energy projects from the inception of 2013 the Belt and Road Initiative (BRI).

This initiative of belt and road made ease the quick installation of infrastructure in the emerging economies of nations including India by providing technological transfers and accessible loans. India is struggling and striving to fulfil the desired renewable energy targets under the Paris Agreement that is why it is particularly significant for India. India is pursuing these opportunities to make the mark globally.

Areas of Influence

Technology Transfer and Cost Effectiveness: As this study already talked about Chinese supremacy in manufacturing of renewable energy products like of wind turbines, solar panels, and lithium-ion batteries. India is greatly benefited by these products. Due to the availability of these cheap and cost-effective products India quickly increasing the solar power capacity. It has provided India a great benefit which they cannot achieve alone without China contribution. One example is by the collaboration of China, India is working the project in Karnataka with the name of Pavagada Solar Park.

Apart from these great benefits there is risk to India's energy security particularly during times of geopolitical unrest from its reliance on Chinese imports. Take the example of India's vulnerability because of its reliance on Chinese components was brought to light by supply chain interruptions during the COVID-19 pandemic (Jaden Kim, [2024](#)).

Financing the Renewable Projects

China has funded a number of renewable energy projects in India, such as wind farms and solar parks,

through the BRI. Developing economies are drawn to these investments because they frequently come with favorable terms. The (Bill Hare, [2024](#)) reports that between 2018 and 2023, Chinese financial institutions contributed more than \$1.2 billion to renewable energy projects in India. Nevertheless, there may be long-term repercussions from this type of funding, such as heightened reliance on debt and diminished bargaining leverage.

Development of Infrastructure

India's infrastructure for renewable energy has been modernized in large part thanks to Chinese businesses. Costs and installation schedules have been shortened because to the cooperative projects. For instance, India's renewable capacity has been greatly increased by the partnership between ReNew Power (India) and Goldwind (China) in the development of wind energy projects. However, these partnerships frequently neglect the growth of domestic knowledge, impeding India's attempts to become technologically independent (Bill Hare, [2024](#)).

Geopolitical Risks along Strategic Implications

China uses its investment in renewable energy as a means of extending its geopolitical influence in addition to its economic goals. China increases its bargaining power in regional and global negotiations by entangling itself in India's energy sector. This puts India in an unstable position. Chinese assistance speeds up its energy transition, but it also increases the risk of becoming overly dependent. This dynamic is further complicated by the two countries' geopolitical rivalry (Aksai Chin, Sikkim), particularly in light of their long-standing border conflicts (Bill Hare, [2024](#)).

Strategic Opportunities for India

China's assistance for renewable energy has many advantages, but it also emphasizes how important it is for India to diversify in order to reduce risks. India may lessen its dependency on Chinese imports by making investments in domestic manufacturing capabilities, such as those made possible by the National Solar Mission. Furthermore, a route to further energy autonomy is provided by fortifying alliances with other countries, such as the US and the EU.

Entity 2: USA

Influence of us on India's renewable energy development:

Credibility of USA in Renewable Energy Sector: It is evident that with an emphasis on sustainable development, cutting-edge technologies, and open governance, the US is also a global leader in renewable energy advances. Their programs, such as Build Better World (B3W) and the Inflation Reduction Act (IRA), demonstrate the US's commitment to global renewable energy transitions. The US is a useful partner for India in accomplishing its renewable energy objectives since it continues to be a leader in fields like green hydrogen offshore wind energy and cutting-edge battery technologies. (2024, n.d.).

Areas of Influence

Technological Advancements: The US is well known for its advance and modern renewable energy technology, which support India's decarbonization initiatives. Green hydrogen, for instance green hydrogen solutions are being actively developed by US companies like Plug Power, which have the potential to revolutionize India's transportation and industrial sectors. Offshore Wind: By supporting offshore wind projects, the U.S. Department of Energy gives India access to knowledge in this new field, which could help it diversify its energy sources. Despite being more costly than Chinese substitutes, these technologies' greater quality and long-term effectiveness support India's sustainability objectives (Maciej Kolaczowski, [2024](#)).

Sustainable Investment Models

Transparency and a seamless transition to strict environmental regulations are given top priority in U.S. investments. India has an alternative for financing renewable energy projects thanks to the B3W initiative, which was started as a reaction to China's Belt and Road Initiative. U.S. investments concentrate on creating long-term partnerships through public-private collaborations, in contrast to Chinese finance, which sometimes entails concessional loans. To guarantee that India's energy projects satisfy international sustainability criteria, the U.S.-India Clean Energy Partnership, for example, has facilitated technology transfer, policy alignment, and private-sector investments. However, smaller-scale projects are unable to secure U.S. financing due to its high costs and difficult terms (Jaden, [2024](#)).

Capacity Building and Skill Development

By funding capacity-building initiatives, the US helps India switch to renewable energy. The United States assists India in strengthening regulatory frameworks, improving grid modernization, and developing technical expertise through programs like the U.S. India Strategic Clean Energy Dialogue. India's renewable energy economy will eventually become self-sufficient because to this emphasis on knowledge transfer (Bill Hare, [2024](#)).

Geopolitical Significance

A larger plan to offset China's expanding influence in Asia is reflected in U.S. climate measures. The United States hopes to advance a rules-based order and deepen ties with democracies by collaborating with India. This partnership gives India the geopolitical clout to diversify its energy partnerships and negotiate advantageous terms. To prevent becoming overly reliant on US assistance, which may restrict its strategic independence, India must carefully manage this involvement (Bill Hare, [2024](#)).

India's Strategic Considerations

- ▶ India should give top priority to projects like offshore wind and green hydrogen that fit with its long-term sustainability objectives in order to get the most out of its collaboration with the United States.
- ▶ India has to bargain for fair and just terms in projects like cooperative project in order to offer mutual benefits. In India the domestic issues like regulatory and financial impediments should be addressed for fully benefit from US investments and experience.

More Implications

It is a shining example that US and India collaborates with each other in renewable energy sector for sustainable development. Innovation mutual benefits have provided the pathway for both of them. By doing quick adjustments in India energy transition, partnership between them US has enhances it's standing as a pioneer in renewable energy sector and global climate action.

Entity 3: India

India's Strategic Approach to Balancing U.S. and China's Influence

Position of India in Global Renewable Energy: Global renewable energy landscape is becoming wider day by day as every country is pursuing for alternatives of Fossil fuels in this race of getting the sufficient renewable energy industry one country is India which is already known for its significance in this field of renewability. India has many ambitious goals and targets such as installation of 500 GW of non-fossil energy by 2030. In this sense India is collaborating with China and US by looking for its objectives. Those are unattainable without the right interplay between them. As we know both nations carry valuable resources. This concept of strategic interaction revolves around capitalizing on the potential of these both powers by minimize India's vulnerabilities to secure its energy future

The Major Areas

Balancing Cost and Innovation: Partnership with China has provided opportunity for India to build solar parks like in Rajasthan, Bhadla Solar Park. In this sense India needs China's expertise to meet its energy needs. Affordable solar panels and battery systems have helped them build many solar parks. With this help India is making big in renewable energy sector and industry as well.

Contribution from the U.S.: Current energy projections for India incorporate advanced technologies such as green hydrogen and smart grid solutions (Bill Hare, [2024](#)).

This ensures that both India's short-term and long-term energy objectives can be achieved.

Promoting Development of Domestic Industries

Realizing the risks of dependence on imports, India has shifted its focus towards domestic production. Initiatives like the Production Linked Incentive (PLI) scheme have been launched to stimulate local manufacturing of solar modules, batteries, and wind turbines. This section highlights how by enhancing indigenous capabilities, India reduces its dependence on Chinese imports and strengthens its energy security (India, [2024](#)).

Revised Partnerships

To mitigate the risks associated with reliance solely on the U.S. or China, India has established cooperation agreements with various countries and organizations. These partnerships include: The European Union for grid modernization and offshore wind initiatives. Japan as a provider of clean hydrogen and technological advancements aimed at improving energy efficiency.

Bilateral and multilateral entities, such as the International Solar Alliance, led by India and comprising 60 nations, to promote global expansion of solar energy generation (Jaden, [2024](#)).

Overcoming Domestic Challenges: In spite of international support, India encounters obstacles like insufficient grid infrastructure, regulatory hurdles, and funding gaps for smaller initiatives. By prioritizing internal reforms and capacity enhancement, India can maximize the advantages of foreign assistance. For instance, updating the transmission grid would facilitate the integration of renewable energy sources, decreasing dependence on coal-powered generation (Bill Hare, [2024](#)).

Geopolitical Neutrality: India's non-aligned approach enables it to maintain strategic independence while navigating the rivalry between the U.S. and China. By pragmatically engaging with both powers, India makes certain that its energy strategies align with national interests rather than external influences. This method also positions India as a potential mediator in global climate negotiations (Maciej Kolaczowski, [2024](#)).

Theoretical Perspective: India's strategy embodies a combination of realism and complex interdependence theories:

Realism: India takes advantage of the U.S.-China rivalry to negotiate beneficial conditions and bolster its geopolitical status.

Complex Interdependence: India cultivates collaborative partnerships that emphasize mutual gains, technological exchange, and sustainable growth.

Strategic Recommendations

India should:

- ▶ Increase domestic research and development funding to minimize reliance on external technology.

- ▶ Encourage public-private partnerships to hasten project implementation and financing.
- ▶ Enhance regional cooperation in South Asia to collectively tackle shared energy challenges.

Wider Implications

India's balanced methodology illustrates how emerging economies can maneuver through great-power rivalries to fulfill their climate objectives. By thoughtfully integrating external resources and emphasizing self-reliance, India establishes a model for sustainable advancement in a multi polar world.

Answering the Research Questions

Research Question 1:

How do U.S. and China climate policies influence India's renewable energy transition in terms of technology, financing, and infrastructure?

Technology

China: China's hegemony in producing affordable solar panels, wind turbines, and battery storage favors India. For instance, more than 80% of India's solar capacity additions in 2023 came from solar photovoltaic cells made in China (Jaden, [2024](#)). But this excessive reliance raises the possibility of technology dependency, particularly in times of global unrest.

U.S.: Advance and innovative American technologies, like offshore wind energy systems and green hydrogen developments, complement India's long-term sustainability objectives. For example, technology transfers made possible by the U.S.-India Strategic Clean Energy Partnership have helped India better handle grid stability concerns (Bill Hare, [2024](#)).

Financing

China: China offers concessional financing through the Belt and Road Initiative (BRI), which has sped up the construction of India's infrastructure for renewable energy. Projects like Madhya Pradesh's Rewa Ultra Mega Solar Park have benefited from these funds. On the other hand, depending too much on Chinese funding can lead to debt dependency, which could compromise India's financial independence (Bill Hare, [2024](#)).

U.S.: The Build Back Better World (B3W) campaign encourages transparent and sustainable renewable energy investments. Although governance is given priority in U.S. funding models, small-scale and rural projects cannot afford them (Maciej Kolaczowski, [2024](#)).

Infrastructure

China: India's renewable energy infrastructure has been improved through cooperative initiatives with Chinese companies, including the quick development of wind farms and solar parks. But this partnership frequently ignores local knowledge, which hinders India's progress toward independence (Jaden, [2024](#)).

U.S.: In order to integrate intermittent renewable energy sources into India's power system, investments from U.S. companies have facilitated grid upgrading and storage solutions. For example, India is improving efficiency and lowering transmission losses because to U.S.-backed projects in energy storage and smart grids (2024, n.d.).

Research Question 2:

What are the risks and advantages for India in balancing partnerships with U.S. and China for its renewable energy development?

Advantages

- ▶ **Technological Variety:** By integrating U.S. innovations with China's cost-effectiveness, India can access a diverse array of technologies suited to both its short-term and long-term energy objectives.

- ▶ **Speedy Transition:** Funding from China facilitates quick project roll-outs, whereas partnerships with the U.S. provide high-quality, sustainable solutions aimed at overcoming grid and storage issues.
- ▶ **Geopolitical Advantage:** India's strategic significance enables it to negotiate beneficial terms with both countries, transforming their rivalry into a growth opportunity (Bill Hare, [2024](#)).

Risks

- ▶ **Dependence on China:** Excessive reliance on Chinese imports and financing could jeopardize India's energy independence, particularly during geopolitical tensions, like border conflicts.
- ▶ **Elevated Costs with U.S.:** Although U.S. investments are sustainable, they often come with regulatory demands and higher expenses, making widespread implementation less viable (Maciej Kolaczowski, [2024](#)).
- ▶ **Managing Rivalry:** India needs to carefully navigate its relationships to prevent being trapped in the rivalry between the U.S. and China, which could constrain its strategic options.

Strategic Insights

India's advancement in renewable energy hinges on its capacity to:

- ▶ Broaden its partnerships to lessen dependence on any single nation.
- ▶ Invest in domestic production and research and development to foster technological self-sufficiency.
- ▶ Tackle local obstacles such as financing issues and grid infrastructure to enhance external collaborations.
- ▶ India must play smartly by combining the best of the both US and China to go green. With this India can make a smooth and sustainable shift to renewable energy and minimizing all other risks.

Conclusion

This study explores the multifaceted outcomes and insights regarding the influence of US and China policies on India's renewable energy development. It is a powerful example that India journey towards renewable energy with the world's biggest powers the US China shape global climate policies and in them India is finding its own path. This scenario shows that how India is balancing its energy needs by stay independent and the measures it should work on to overcome the over reliance and working on domestic infrastructure more than using Chinese and US products.

Key Takeaways

Influence of China: India has benefited by the China as they provide cost effective and affordable products to work on renewable energy industry. Significant progress toward renewable energy targets in India has been facilitated by large solar parks and battery storage projects, driven by Chinese technology and investments. This reliance on Chinese product and imports and their help comes with risks. To stay secure and safe India needs to diversify and become more self-sufficient so they cannot be too dependent on one country.

The Role of the U.S.: India is helped by the United States to go green and it is sharing advance technologies and innovations and financing methods providing cheap and quality products.

Programs like B3W and clean energy partnership show the commitment of US to help India find quality solutions. American technology can be useful for India for long term usage because of its build quality.

India's Strategic Approach

India is indeed focusing on three areas to succeed.

- ▶ By building its own manufacturing strengths to reduce reliance on others

- ▶ India has to broader partnerships to stay flexible and new opportunities to open
 - ▶ By tackling internally domestic challenges to create an easy way for its renewable energy growth
- By doing these strategic approaches India is saving him for short term and long-term benefits.

Strategic Recommendations

- ▶ **Enhance Domestic Manufacturing:** Local productions indeed a great source to boost economy and it helps masses to benefit from it. By enhancing domestic manufacturing India can tackle foreign reliance easily. Especially in solar PV cells wind turbines and battery storage. India should work on local productions more than depending on foreign products. Another program is Production Linked Incentive (PLI) which should be expanded and with development funding it can do wonders for India.
- ▶ **Broaden Collaborative Efforts:** Risks connected to geopolitical tensions can be hinder when India will collaborate and partner with countries like Japan and European Union EU apart from only partnering with US and China it will help India with additional technologies and financial support.
- ▶ **Tackle Structural Issues:** India has to restructure the grid systems and refine regulatory policies and also ensure fair and just financing for small scale renewable energy initiatives. It will eventually benefit the India.
- ▶ **Adopt Mixed Strategies:** By combine approach and all-round mechanism and adopting mixed strategies India will soar high in renewable energy industry.

Broader Implications

For other developing nations which are fighting with climate issues and in need for clean energy India is great example for them. India can serve as a model for them to foster their strategies. Broadening partnerships and focusing on self-sufficiency India can reach its energy targets.

Final Reflection

US and China competition and support to India despite many hurdles present India with a significant chance to rise as a leader in renewable energy. With its national objectives India has the capability to harmonize external influences. India is able to establish a global standard for sustainable growth in multi-polar landscape of world.

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