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Balancing Ambition And Reality: Evaluating India's Renewable Energy Goals For 2030 In The Context Of Economic Growth And Sustainability

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ABSTRACT

In the face of global climate change and economic development challenges, the relationship between sustainability and economic growth has become a key focus for researchers and policymakers. India, in particular, finds itself at a crucial crossroads, striving to reconcile its economic growth ambitions with the pressing need for environmental protection. The nation has established bold renewable energy targets for 2030, aiming to achieve 500 Giga watts of renewable energy capacity, demonstrating its dedication to lowering carbon emissions and bolstering energy security. This analysis of India's renewable energy objectives underscores the complex interplay between sustainability and economic growth. It aims to explore how renewable energy investments can propel economic development, generate employment opportunities, and stimulate innovation while addressing critical environmental issues. Through an examination of policy frameworks, technological progress, and the socio-economic ramifications of renewable energy initiatives, this study seeks to illuminate potential pathways for India to attain a sustainable and inclusive economic future. As India embarks on this transformative path, it is crucial to evaluate not only the achievability of these renewable energy goals but also their effects on economic growth, equity, and environmental sustainability. This discourse will delve into the synergies and compromises inherent in pursuing a green energy agenda, ultimately contributing to a broader understanding of how nations can navigate the intricacies of sustainable development in the 21st century.

KEY WORDS: *Climate Change, Carbon Emissions, Economic Development, Greenhouse Gases, Global Energy Sector, Infrastructure, Investments, Renewable Energy, Sustainability.*

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• INTRODUCTION

As Ralph Waldo Emerson observed, "The creation of a thousand forests is in one acorn."[3]India stands on the pinnacle of a transformative shift in its energy strategy. Home to over a billion people, it is one of the world's fastest-growing economies, with an energy demand that is expected to double by 2040. Fossil fuels, which currently constitute 80% of the energy mix, have significant environmental and health costs, pushing India towards sustainable alternatives. The government's renewable energy targets aim to address not only the nation's energy security but also its commitment to the global climate agenda.

The narrative surrounding India's renewable energy goals offers two competing visions: one where India emerges as a global leader in sustainable energy, and another where these ambitions might overreach the country's current capabilities, risking economic stability.

This paper evaluates the feasibility of India's renewable energy goals in the context of economic growth and sustainability. We will explore India's progress, analyse its commitment to international agreements, and assess the implications of transitioning towards a renewable-powered economy. By exploring the potential benefits and limitations, this research provides a nuanced understanding of India's path toward a sustainable future.

• ACHIEVING A SUSTAINABLE ENERGY FUTURE

In an era marked by unprecedented challenges in energy consumption and climate change, the path toward sustainable energy solutions has never been more critical. Historically, the very mention of harnessing atomic energy evoked fear and uncertainty, reminiscent of the dark legacy of the Oppenheimer effect. However, as we navigate the complexities of modern existence, the once-feared atom has transitioned into a vital component of our energy landscape.

[3] Ralph Waldo Emerson, *History*, (1841). Essays. London, England: J. Fraser.

As we embrace this paradigm shift, it is essential to envision a future where renewable energy sources, such as solar, wind, and tidal power, take centre stage. Imagine a world where the sun is not merely a distant star but a golden reservoir of limitless energy waiting to be harnessed. Picture wind turbines gracefully spinning atop rolling hills, capturing the boundless energy of the breeze. Envision the oceans, alive with potential, gently whispering the secrets of tidal energy. This exploration into the realm of renewable energy underscores the promise of economic growth unshackled from the chains of fossil fuels. As we delve deeper into this paper, we will examine the innovations, challenges, and potential of renewable energy sources in shaping a sustainable future.

- **THE PARIS AGREEMENT: A GLOBAL FRAMEWORK FOR CLIMATE ACTION**

The Paris Agreement represents a pivotal commitment by nations to combat climate change while redefining the landscape of economic development, especially in light of the rising threats posed by global warming. As we face the grim reality of submerged nations and communities impacted by climate disasters, it becomes clear that our pursuit of progress is intrinsically linked to our very survival. Since its inception on April 22, 2016, during Earth Day at the United Nations Headquarters in New York, the Agreement has garnered support from 195 countries, underscoring a universal recognition of the urgent need for action.

The framework established at COP 21 in Paris on December 12, 2015, marked a historic step in the multilateral climate change process. It aimed not only to combat climate change but also to intensify investments and actions necessary for a sustainable, low-carbon future. The overarching goal of limiting the increase in global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to cap it at 1.5°C highlights the imperative of curbing greenhouse gas emissions. Recent studies from the UN's Intergovernmental Panel on Climate Change emphasize that exceeding the 1.5°C threshold could trigger catastrophic climate impacts, prompting world leaders to reiterate the importance of achieving this target to avert severe consequences such as intensified droughts, heatwaves, and erratic rainfall patterns.

To realize these ambitious goals, the Paris Agreement establishes a systematic approach whereby countries engage in a five-year cycle of increasingly ambitious climate action. Since 2020, nations have been required to submit their nationally determined contributions (NDCs), with each iteration reflecting a higher level of commitment than its predecessor. The COP27 decision further emphasizes the urgency of this mission, calling on Parties to strengthen their 2030 targets in

alignment with the Paris Agreement's temperature objectives. This ongoing cycle of commitment not only highlights individual nation's efforts but also fosters a sense of collective responsibility towards the global climate agenda.

The long-term strategies encouraged by the Paris Agreement invite countries to formulate and submit long-term low greenhouse gas emission development strategies (LT-LEDS), thereby framing a comprehensive approach to tackling climate change. Within this context, the Agreement also establishes mechanisms for financial and technical support, recognizing that developed nations bear a responsibility to assist less endowed and more vulnerable countries. This commitment to capacity-building ensures that all nations can effectively engage in the fight against climate change, promoting a spirit of solidarity that transcends national boundaries.

As countries track their progress, the enhanced transparency framework (ETF) established by the Paris Agreement plays a crucial role. Starting in 2024, nations will report transparently on their mitigation and adaptation actions, creating a robust system for reviewing and assessing collective progress. This mechanism not only fosters accountability but also provides valuable insights that will inform future efforts, leading to more ambitious climate plans in subsequent rounds.

The achievements realized thus far demonstrate a growing commitment to carbon neutrality among countries, regions, cities, and companies alike. The increasing competitiveness of zero-carbon solutions across various economic sectors represents a significant shift, particularly in the power and transport sectors, which collectively account for 25% of global emissions. This evolving landscape has given rise to new business opportunities, indicating that the transition to a low-carbon economy is not only necessary but also viable. Looking ahead, projections suggest that by 2030, zero-carbon solutions could become competitive in sectors responsible for over 70% of global emissions, further underscoring the interconnectedness of climate action and economic development in our pursuit of a sustainable future.[4]

- **PANCHAMRIT ACTION PLAN**

Unveiled at the COP26 Summit, the Panchamrit Action Plan sets ambitious milestones for India's energy transition. Each of the plan's five pillars presents distinct challenges and opportunities:

- EXPANDING NON-FOSSIL ENERGY CAPACITY TO 500 GW BY 2030: Achieving this

[4] THE PARIS AGREEMENT, https://unfccc.int/process-and-meetings/the-paris-agreement (last visited Oct. 22, 2024).

target will require massive investments in solar, wind, and hydroelectric power. India has made considerable progress in solar energy, emerging as one of the largest solar markets globally. However, scaling up to 500 GW demands more than doubling the existing infrastructure, necessitating substantial capital and technological investments.

- MEETING 50% OF ENERGY NEEDS FROM RENEWABLE SOURCES: Currently, renewables account for approximately 8% of India's energy consumption. Meeting half of the energy demand with renewables in just six years presents logistical challenges. This goal requires robust storage solutions to address the intermittency of solar and wind power, as well as grid enhancements to manage fluctuating supply.
- REDUCING CARBON EMISSIONS BY ONE BILLION TONNES: To achieve this reduction, India must focus on carbon capture technologies, reforestation, and improved industrial efficiency. Carbon capture, utilization, and storage (CCUS) technology is still in its infancy in India, necessitating research and development as well as financial support to scale up.
- DECREASING CARBON INTENSITY BY 45%: Reducing carbon intensity involves lowering the carbon footprint per unit of GDP. This metric requires not only clean energy investment but also innovation in manufacturing and industry sectors. Transitioning industries like cement, steel, and chemicals to greener alternatives will be crucial.
- ACHIEVING NET ZERO BY 2070: India's long-term commitment to net-zero emissions is a cornerstone of the Panchamrit plan. Although 2070 may seem distant, achieving net zero requires groundwork today. Innovations in technology, behavioural shifts in energy consumption, and regulatory support are fundamental to meeting this target.

Each pillar of the Panchamrit Action Plan embodies India's vision of a sustainable future while acknowledging the logistical, financial, and social hurdles. With our unwavering commitment to the Panchamrit action plan, we've already surpassed expectations, with 40% of our power capacity derived from non-fossil fuels as per the COP-26 Summit and mark my words, reaching the remaining 10% within the next six years is not a mere mirage but an attainable reality.[5]

- **THE ECONOMIC POTENTIAL OF RENEWABLE ENERGY**

It is to be understood that renewable energy is not the antagonist of economic prosperity; it is its

[5] *India's Stand at COP-26*, (Feb. 3, 2022), https://pib.gov.in/PressReleasePage.aspx?PRID=1795071 (last visited Oct. 22, 2024).

steadfast ally. Firstly, let's address the elephant in the room: the myth of job loss. According to the International Energy Agency (IEA), an autonomous intergovernmental organization based in Paris, every dollar invested in renewables creates three times more jobs than equivalent investments in the fossil fuel industry. The IEA, established in 1974 in response to the oil crisis, provides vital policy recommendations and data on the global energy sector, representing 75% of global energy demand through its 31 member and 13 association countries. This crucial data helps dispel fears about employment loss, highlighting that even if there is a projected loss of 5 million jobs in fossil fuel production by 2030, an estimated 14 million new jobs would be created in clean energy. This results in a net gain of 9 million jobs, illustrating that the transition to renewable energy is not just a necessity for environmental reasons but a significant opportunity for economic growth.[6]

Furthermore, while upfront investments in renewable energy may initially raise eyebrows, it is essential to recognize that every penny spent yields substantial returns. The costs associated with transitioning to renewable energy are offset by reduced pollution, healthcare savings, and mitigated climate change impacts. This financial perspective showcases that investing in renewables is not merely an expense, rather, it is a strategic investment that can lead to a healthier population and a more stable economy. The role of non-state actors in this transition further alleviates infrastructural concerns, emphasizing that the shift to clean energy can be a collective endeavour.[7]

In essence, investing in renewables is akin to sowing seeds in fertile soil, where initial efforts will yield bountiful harvests for years to come. The promise of renewable energy lies not only in its ability to provide sustainable energy but also in its potential to drive job creation and economic revitalization. As the world combats with the dual challenges of climate change and economic inequality, embracing renewable energy offers a pathway to a resilient economy that benefits everyone.[8]

- **THE ROLE OF POLICY AND LEGISLATION**

To support its renewable energy goals, India has introduced a series of legislative reforms, most notably the Electricity (Amendment) Bill, 2020.The draft Electricity (Amendment) Bill, 2020 aims to significantly enhance the renewable energy sector in India by establishing a robust regulatory

[6] The International Energy Agency (IEA), https://www.dgeg.gov.pt/en/transversal-areas/international-affairs/international/the-international-energy-agency-iea/(last visited Oct. 22, 2024).

[7] *India's clean energy transition is rapidly underway, benefiting the entire world – Analysis - IEA*, https://www.iea.org/commentaries/india-s-clean-energy-transition-is-rapidly-underway-benefiting-the-entire-world. (last visited Oct. 22, 2024).

[8] IEA – International Energy Agency, (Mar. 28, 2023), https://www.iea.org/ (Last visited on Oct.23,2024).

framework. One of the key provisions is Section 3A, which mandates the formulation and notification of a National Renewable Energy Policy by the Central Government in consultation with State Governments. This policy will focus on promoting electricity generation from renewable sources and will include guidelines for a minimum percentage of electricity procurement from renewable and hydro sources. Such measures empower the Central Government to determine the Renewable Purchase Obligation (RPO), thereby ensuring that all electricity distribution licensees are required to purchase or produce a specified minimum quantity of their electricity needs from renewable energy sources. This provision is crucial as it seeks to create uniformity in the RPO across states, making compliance mandatory for all states involved.

In addition to establishing the RPO, Section 61 of the Bill focuses on creating a structured framework for the integration of renewable energy sources into the power sector. It stipulates that the Appropriate Commissions must consider the National Renewable Energy Policy alongside existing Electricity and Tariff Policies when determining tariffs and formulating relevant regulations. This provision reflects an intent to not only facilitate the integration of various renewable energy forms but also to provide a stimulus for hydro power generation, thereby diversifying the energy mix and promoting sustainability.[9]

Furthermore, the Bill enhances the role of the Appropriate Commissions by empowering them to be guided by the National Renewable Energy Policy in their operations. This alignment ensures that regulatory decisions are consistent with the overarching goals of promoting renewable energy, thereby reinforcing the government's commitment to sustainable energy practices. The emphasis on the Appropriate Commissions' adherence to this policy will likely lead to more coherent and focused regulatory strategies that support the growth of the renewable energy sector.[10]

Lastly, the Bill addresses compliance issues by broadening the scope of Section 142, which proposes a uniform penalty for non-compliance with the RPO. This measure is essential for ensuring accountability among electricity distributors and other stakeholders, thus reinforcing the importance of meeting renewable energy targets. By instituting clear penalties, the Bill seeks to create a more disciplined framework where compliance is not only encouraged but also enforced,

[9] *FINAL DRAFT- Comments on draft Electricity (Amendment) Bill, 2020.docx*, (June 5, 2020), https://www.cprindia.org/system/tdf/working_papers/Comments%20on%20draft%20Electricity%20(Amendment)%20Bill,%202020_Swain%20et.%20al._June%2005,2020.pdf?file=1&type=node&id=8974&force=1.

[10] Power Ministry floats draft Electricity Act (Amendment) Bill 2020 on 17.4.2020; invites suggestions within 21 days, (Apr. 18, 2020), https://pib.gov.in/PressReleasePage.aspx?PRID=1615781 (Last visited on Apr.2,2024).

ultimately fostering a more robust renewable energy landscape in India.[11]

- **GOVERNMENT SCHEMES AND FINANCIAL INCENTIVES**

As climate change escalates to a global crisis, India has emerged as a proactive player in addressing environmental challenges through ambitious policies and on-ground actions. The Government's National Action Plan on Climate Change (NAPCC) serves as the bedrock of India's climate strategy, targeting diverse sectors to forge a sustainable, low-carbon future.

The NAPCC consists of eight critical "Missions," each focused on specific areas such as solar energy, energy efficiency, sustainable urban development, water management, conservation of the Himalayan ecosystem, forestry (through the Green India Mission), sustainable agriculture, and strategic climate research. To implement these goals, 33 States and Union Territories have devised their own State Action Plans on Climate Change (SAPCCs), aligning their local initiatives with national objectives.

Recognizing that adapting to climate impacts is just as crucial as reducing emissions, India has established the National Adaptation Fund for Climate Change (NAFCC) to support states and union territories in enhancing their resilience. In addition to adaptation, the government has launched numerous initiatives to scale up mitigation efforts across key sectors such as water, agriculture, forestry, energy, sustainable mobility, waste management, and circular economy practices. Each program focuses on building a sustainable future while addressing immediate environmental needs.

For energy-intensive industries, the government has introduced a standout initiative which is the Perform, Achieve, and Trade (PAT) program. This flagship scheme aims to minimize Specific Energy Consumption (SEC) in heavy industries by encouraging enterprises to adopt more efficient practices. The program has already enrolled over 1,100 industrial units across 13 sectors as of July 2022. Through the Leadership Group for Industry Transition (a partnership with Sweden), India is promoting voluntary shifts to low-carbon technologies, especially in challenging-to-decarbonize sectors, aligning closely with the goals of the Paris Agreement.

India is ambitiously targeting 280 GW of solar energy capacity by 2030. To achieve this, the government is fostering self-sufficiency in solar panel production, with a Rs 19,500 crore allocation

[11] THE ELECTRICITY (AMENDMENT) BILL, 2020, (Apr. 17, 2020), https://powermin.gov.in/sites/default/files/webform/notices/Draft_Electricity_Amendment_Bill_2020_for_comments.pdf (Last visited on Apr.2,2024).

under the Production Linked Incentive (PLI) scheme for high-efficiency solar module manufacturing. Notably, this initiative encourages integrated production, from polysilicon materials to finished solar PV modules. Additionally, Foreign Direct Investment (FDI) in renewables has been liberalized, permitting up to 100% FDI through the automatic route, thereby attracting global interest and capital into India's green energy sector.

In the transport sector, India is pushing towards a cleaner, electrified future. The government has laid out comprehensive guidelines for establishing charging infrastructure nationwide, aiming to accelerate the deployment of electric vehicles (EVs). The Production Linked Incentive (PLI) scheme for Advanced Chemistry Cell (ACC) manufacturing further addresses the demand for EV battery cells. By supporting local battery production, India aims to reduce dependency on imports and fortify its EV supply chain.

Creating widespread awareness about climate change is fundamental to India's climate agenda. As a part of the NAPCC, the government is investing in capacity building and knowledge dissemination, working to bridge knowledge gaps and make climate action accessible. The India Climate Change Knowledge Portal, launched in November 2020, provides a centralized repository of sector-specific adaptation and mitigation efforts, offering transparency and insights into the actions being taken by various ministries.

During UNFCCC COP 26, India's Prime Minister introduced LIFE – "Lifestyle for Environment," a campaign advocating for mindful and responsible resource consumption. The initiative reflects a vision where sustainable habits and deliberate lifestyle choices become ingrained in society. On World Environment Day 2022, the Prime Minister extended this vision by launching a Global Call for Papers under the LIFE campaign, encouraging ideas from academia, researchers, and think tanks globally on how to inspire eco-conscious behaviours across communities. [12]

The Government of India, in collaboration with the Ministry of New and Renewable Energy and various dedicated organizations such as the Solar Energy Corporation of India (SECI), has made significant strides in promoting renewable energy through the introduction of various schemes. These initiatives include the development of Solar Parks and Ultra Mega Solar Power projects, as well as the Ujjwal Discom Assurance Yojana (UDAY). The focus of these programs is to create the

[12] ACTION TAKEN AGAINST GLOBAL WARMING, RAJYA SABHA-UNSTARRED QUESTION NO. 529, MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE, https://sansad.in/getFile/annex/257/AU529.pdf?source=pqars (Last visited on Apr.1,2024).

necessary infrastructure to facilitate the transition from conventional power generation reliant on thermal and fossil fuel sources, which are rapidly depleting. Given the urgency of the situation, there is a pressing need to harness the abundant renewable energy resources available, which can serve as a catalyst for economic development in the country.[13]

In an effort to alleviate the financial stress faced by power distribution companies (DISCOMs), the Union Ministry of Power has announced a substantial financial package amounting to INR 90,000 crore, communicated to all States and Union Territories on May 14, 2020. This liquidity infusion will be channelled through the Power Finance Corporation (PFC) and the Rural Electrification Corporation (REC) as part of the Atmanirbhar Bharat Abhiyan initiative. The loans provided to DISCOMs will be backed by guarantees from State Governments, allowing them to settle liabilities owed to Central Public Sector Enterprises (CPSE) generators, Transmission Corporations, Independent Power Producers (IPPs), and renewable energy generators. This strategic funding will occur in two tranches of INR 45,000 crore each, marking a pivotal step in stabilizing the sector and ensuring its viability.[14]

Moreover, the Phase II of the Faster Adoption and Manufacturing of Hybrid and Electric Vehicles in India (FAME) scheme underscores the government's commitment to bolstering the renewable energy landscape.[15] Despite the challenges posed by the current pandemic, the renewable energy sector remains resilient, as evidenced by successful investments in new projects. For instance, SECI achieved a significant milestone by auctioning solar power projects in June, resulting in India's lowest renewable energy tariff of INR 2.36 per kWh. This achievement is a testament to the sector's potential for growth and sustainability, further reinforced by the Viability Gap Funding offered by SECI to solar power project developers, serving as a crucial incentive for investment and infrastructure development.[16]

India's determination to reduce its carbon footprint and lead in the global decarbonization efforts is evident in its continuous reform initiatives aimed at enhancing the energy sector. The emphasis on

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[13] DEVELOPMENT OF SOLAR PARKS AND ULTRA MEGA SOLAR POWER PROJECTS, MINISTRY OF NEW AND RENEWABLE ENERGY, https://mnre.gov.in/development-of-solar-parks-and-ultra-mega-solar-power-projects/. (Last visited on Apr.1,2024).

[14] Union Power Ministry writes to States/UTs extending Rs 90,000 crore package under Atmanirbhar Bharat Abhiyan, https://pib.gov.in/Pressreleaseshare.aspx?PRID=1624496 (Last visited on Oct. 22,2024).

[15] FAME II, Ministry of Heavy Industries (Sept. 19, 2024), https://heavyindustries.gov.in/fame-ii (Last visited on Apr. 1,2024).

[16] Renewable energy in India's economic development: An analysis of reforms, (Nov. 20, 2020), https://energy.economictimes.indiatimes.com/news/renewable/renewable-energy-in-indias-economic-development-an-analysis-of-reforms/79325236 (Last visited on Apr. 1,2024).

renewable energy reflects a broader strategy to not only mitigate environmental impacts but also to foster economic growth. As we explore the potential of renewable energy, it is imperative to recognize it as more than a distant aspiration; it represents a strategic pathway to economic prosperity. Investing in renewable energy can unlock vast opportunities, akin to nurturing seeds that will grow into a rich forest of economic abundance.

So let us not dismiss renewable energy as a mere pipe dream; it is, in fact, the golden ticket to economic prosperity. In the seeds of renewable energy investment lies the promise of a forest of economic abundance, waiting eagerly to flourish and thrive.

- **THE PROMISE AND PERIL OF AMBITION**

The road ahead is not without challenges, and it is crucial to critically assess whether these ambitions can translate into a successful reality or if they might remain an elusive dream. The question remains: will this journey towards renewable energy be a successful endeavour, or is it merely an alluring fallacy?

As the world increasingly shifts its gaze towards renewable energy, India stands at a critical juncture. With aspirations to become a global leader in sustainability, the nation dreams of a future where solar panels and wind turbines dominate the landscape, promising a clean and efficient energy system. However, while this vision is alluring, we must critically assess whether such ambitious goals can be realized or if they are simply an enticing mirage that could leave us grappling with unforeseen challenges.

India's journey towards a renewable energy future is filled with obstacles. The statistics tell a compelling story: as of 2023, only 8.24% of the country's energy needs are met by renewable sources, according to the National Statistics Office[17]. The government aims to double this figure within the next six years. While this goal sounds impressive, it raises an important question: is this haste a strategic leap forward or a reckless gamble with the nation's economic stability?

To transform the current 8% into double digits necessitates significant infrastructural investment and development. [18]Constructing new transmission lines, substations, and storage facilities is not

[17] ENERGY STATISTICS INDIA-2023, Ministry of Statistics and Programme Implementation, National Statistical Office https://www.mospi.gov.in/sites/default/files/publication_reports/Energy_Statistics_2023/EnergyStatisticsIndia2023.pdf (last visited on Oct.25,2024).

[18] RENEWABLE ENERGY STATISTICS 2023-24, Ministry of New and Renewable Energy, (Oct. 28, 2024),

only a monumental task but also comes with substantial costs and logistical hurdles. If these developments are rushed, the outcomes may fall short of expectations, potentially leading to inefficiencies and reliability issues in our energy grid. The question arises: who will shoulder these financial burdens?

The prospect of increased energy costs looms large. Will the already overburdened taxpayers be left to cover these expenses? Or will small and medium enterprises, which are vital to India's economy, bear the brunt of rising operational costs in a challenging economic climate? As these businesses strive to maintain their footing, a sudden surge in energy prices could jeopardize their viability, exacerbating the struggles they face.

India's manufacturing and agricultural sectors, which are essential for sustained economic growth, rely heavily on stable and affordable energy. A poorly planned transition to renewable energy could disrupt these sectors, leading to higher production costs and diminishing competitiveness in the global marketplace. As energy becomes more expensive and supply uncertainties increase, the consequences could ripple throughout the economy. Reduced exports and lost market share could hamper overall economic development, leaving millions at risk.

As we pursue this ambitious energy transition, we must not overlook the human cost. A rapid shift towards renewable energy threatens the livelihoods of those employed in traditional energy sectors, such as coal mining and thermal power generation. The people working in these industries have families and dreams that are now hanging in the balance, vulnerable to the whims of a policy that may prioritize green ideals over human realities.[19]

As we chase the ideal of a renewable utopia, we must approach this journey with caution and foresight. It is crucial that we do not blindly march into an uncertain future, forsaking those who have powered our economy for generations. The pursuit of sustainability should not come at the expense of economic stability or the welfare of millions.

In this delicate dance between ambition and reality, we must tread carefully. The footprints we

https://cdnbbsr.s3waas.gov.in/s3716e1b8c6cd17b771da77391355749f3/uploads/2024/10/20241029512325464.pdf. (last visited on Oct.25,2024).

[19] India is committed to achieve the Net Zero emissions target by 2070 as announced by PM Modi, says Dr. Jitendra Singh, (Sept. 28, 2023), https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1961797 (Last visited Apr.1,2024).

leave today will shape the landscape of tomorrow. Behind every statistic lies a human story—a dream, a struggle, a life. As we move forward, we must balance our aspirations for renewable energy with a pragmatic understanding of the economic realities that underpin our society. By doing so, we can foster a future that honours both our commitment to sustainability and our responsibility to those who contribute to our nation's prosperity.

• CONCLUSION

India's renewable energy aspirations are both inspiring and challenging. The vision of a sustainable, prosperous future requires a coordinated approach that considers economic growth, social equity, and environmental stewardship. Achieving a balance between these factors will determine India's success in transforming its energy landscape.

To navigate this path, India must prioritize strategic investments in infrastructure, workforce training, and policy alignment. Collaboration across sectors and levels of government is essential, as is the support of the global community through funding and technology transfer. By pursuing a pragmatic and inclusive approach, India can realize its renewable energy potential without compromising its economic foundation.

India's journey towards a renewable future symbolizes a commitment not only to its citizens but also to the global climate agenda. By embracing the opportunities and addressing the challenges with resilience and innovation, India can set a model for sustainable growth that other developing nations can emulate.

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