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Commerce

“AN OVERVIEW OF GREEN ENERGY REVOLUTION IN MAHARASHTRA STATE”

KEY WORDS: Maharashtra, Prime Minister, Green Energy, Economy, Employment Opportunities.

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ABSTRACT

From India's perspective, Maharashtra's success story serves as an inspiration for other states. The Prime Minister has set a bold and transformative goal of a developed India by 2047. The steps being taken today, such as promoting renewable energy and technological innovation, are laying the foundation for this inclusive and empowered future. The Maharashtra government is at the forefront of India's green energy revolution. With a visionary approach, the state has introduced a Non-Conventional Energy Generation Policy aiming to add 17,360 MW of renewable energy capacity by 2027. Maharashtra's green energy roadmap is a significant step towards building a cleaner, more resilient, and self-reliant energy future, setting an inspiring example for the rest of the country. Green energy initiatives in Maharashtra are not only paving the way for environmental sustainability but also creating large-scale employment opportunities. Maharashtra has emerged as a leader in renewable energy adoption, driven by ambitious state-level policies promoting solar, wind, biomass, and small hydroelectric projects. Notable programs such as the Solar Agriculture Feeder Scheme and decentralized energy systems demonstrate the state's commitment to inclusive and sustainable energy access. This paper provides an overview of the green energy revolution in Maharashtra, examining its resource potential, key policies, major projects, and the socio-economic impacts of its transition to a low-carbon energy future.

INTRODUCTION:

The Maharashtra government is investing in smart grid technology to improve power distribution and integrate renewable sources like solar and wind energy into the grid. This will help achieve the target of obtaining 40 percent of electricity from renewable sources by 2030.

Maharashtra's green energy revolution is of not only local but also global significance. Hybrid projects like BrightNight are helping the state achieve its goal of obtaining 40 percent of its electricity from renewable sources by 2030. Investments from global companies like Tata Group, JSW Group, and Essar Renewables have made the state a hub for sustainable industrial development.

From India's perspective, Maharashtra's success story is an inspiration for other states. Maharashtra's policies, private investment, and high technology are leading the country towards the Prime Minister's national goal of achieving net-zero emissions by 2070. Under the leadership of Chief Minister Devendra Fadnavis, the state government is taking significant steps in this direction. The Chief Minister has announced that farmers who have paid for solar pumps will be given solar connections within the next 15 days, and farmers will receive connections within two months of registering their demand. Farmers will receive free electricity from solar energy. Progress and sustainable development are being balanced with Gross Domestic Product (GDP) growth.

At an event held at Sahyadri Guest House in Mumbai, the Chief Minister inaugurated projects in Umbartha in Washim district and Narangwadi in Dharashiv district under the Chief Minister Solar Agriculture Channel Project 2.0 through a television system.

At the event, Chief Minister Devendra Fadnavis said that solar-powered villages are being established across the state. This will provide farmers with electricity during the day, and in the future, through this green energy, the farmers of Maharashtra will bring about a second green revolution.

He also said that the Chief Minister Solar Agriculture Scheme will provide farmers with reliable and free electricity even during the day. We provide 16,000 megawatts of electricity to the farmers of the state. The work to convert all these feeders to solar energy has been underway for almost two years. Now, in a phased manner, all these feeders will be switched to solar

power so that farmers can get electricity even during the daytime.

Objectives Of The Study:

- 1) To overview the green energy revolution in Maharashtra State.
- 2) To study the role green energy revolution in the development of economy & protection of environment.
- 3) To review green energy revolution for the future.

Research Methodology:

The researcher used secondary data for this research study. He is collected data from different types of sources like research paper, internet, articles, newspaper, magazines, etc.

Limitation Of The Study:

This study is only limited to overview the energy revolution in Maharashtra State.

Significance Of The Study:

This document provides a comprehensive overview of Maharashtra's renewable energy potential, policies, and implementation strategies. It highlights the state's innovative approaches, such as the Solar Agricultural Feeder Program and public-private partnerships like the Essar Renewables MoU, which can serve as models for other regions. Furthermore, it assesses the socio-economic impacts of green energy initiatives, including job creation, rural electrification, and environmental improvements.

Green Energy Revolution In Maharashtra State:

The increasing severity of climate change and the need for sustainable economic development have brought renewable energy to the forefront of national and regional policy agendas. In India, states play a crucial role in accelerating the clean energy transition, and the state of Maharashtra, one of the country's most populous and industrialized states, is at the forefront of this movement. With growing electricity demand, rapid urbanization, and environmental challenges, Maharashtra has recognized the need to shift away from traditional fossil fuel-based energy systems towards greener and more sustainable alternatives.

The Prime Minister has set a bold and transformative goal of a developed India by 2047. However, true development is far more than just GDP growth. It means ensuring that the benefits of progress reach every citizen, especially the common man. It's about building an inclusive economy where opportunities

are created for all, and where job creation, equitable access to resources, and sustainable development go hand in hand.

A developed India will be defined not only by its economic indicators but also by the quality of life of its people, including access to clean energy, education, healthcare, infrastructure, and meaningful employment that uplifts every community. The steps being taken today, such as the push towards renewable energy and technological innovation, are laying the foundation for this inclusive and empowered future.

Green Hydrogen Policy: Maharashtra has become the first state to announce a Green Hydrogen Policy. This policy aims to produce 500 kilotons of green hydrogen annually with an investment of approximately ₹80,000 crore. With its favorable industrial environment and infrastructure, Maharashtra is poised to become a global green hydrogen hub. In January 2025, BrightNight commissioned the first phase of its 115 MW wind-solar hybrid project in Dharashiv. Utilizing advanced technology, this project will power approximately 30,000 homes annually and reduce 25,000 tons of carbon emissions. This project contributes to Maharashtra's goal of sourcing 40% of its electricity from renewable energy by 2030.

Electric Truck Project: Blue Energy Motors will invest ₹3,500 crore to set up an electric truck manufacturing plant in Maharashtra. This initiative will create 4,000 jobs and is a significant step towards clean transportation. Maharashtra signed investment agreements worth approximately ₹15.75 lakh crore at the World Economic Forum Summit 2025. This includes investments of ₹30,000 crore from the Tata Group and ₹3 lakh crore from the JSW Group, including in the renewable energy sector. Several investment agreements related to the non-conventional energy sector have been signed.

Essar Renewables has signed an MoU with the Maharashtra government for a 2 GW renewable energy project with an investment of ₹8,000 crore. This initiative will also provide charging facilities for electric vehicles (EVs) and create 2,000 jobs. This will boost the local economy and industrial infrastructure and strengthen Maharashtra's green industrial image. All these agreements have highlighted Maharashtra as a leading destination for sustainable industrial development.

Green Energy Revolution For The Future:

The Maharashtra government is at the forefront of leading the green energy revolution in India. With a visionary approach, the state has introduced a Non-Conventional Energy Generation Policy that aims to add 17,360 MW of renewable energy capacity by 2027. This ambitious target includes:
Solar energy: 12,930 MW

Wind energy: 2,500 MW

Co-generation: 1,350 MW

Small hydro projects: 380 MW

Urban waste-based projects: 200 MW

Recognizing the challenges posed by limited conventional energy resources and the environmental damage caused by carbon emissions, this policy emphasizes the adoption of environmentally friendly, non-conventional energy sources.

Chief Minister Solar Agricultural Feeder Scheme (MSKVY 2.0):

Under this flagship scheme, Maharashtra is on track to become the first state in India to provide 100% green energy for agricultural irrigation by March 2026. This scheme involves the implementation of 16,000 MW of solar power capacity, which will power agricultural pumps entirely with solar energy.

This change will not only ensure a clean and uninterrupted power supply for farmers but also reduce the annual electricity burden on industrial consumers by up to ₹13,500 crore, making energy more affordable and sustainable across all sectors.

Maharashtra's green energy roadmap is a significant step towards building a cleaner, more robust, and self-reliant energy future, setting an inspiring example for the rest of the country. Through effective policies, investments, and innovative projects, the state is striving to increase renewable energy generation, boost the economy, and protect the environment. Therefore, this is a very crucial aspect for our state and the country.

The central government is currently announcing the third phase of the Green Energy Corridor project. This will focus on laying high-voltage electrical cables, which will boost industries such as green hydrogen. With a robust power transmission system of 64 gigawatts, Maharashtra can become a leader in this project. Affordable solar projects will help industries reduce their electricity bills over the next five years. Currently, approximately 46.67 lakh agricultural pump owners in Maharashtra face electricity bills amounting to ₹69,673 crore. The government provides a regular subsidy of ₹6,900 crore annually to agricultural consumers, and in addition, a subsidy of approximately ₹10,200 crore will be provided under the Baliraja Free Electricity Scheme. Therefore, solar-powered agricultural pumps will help reduce this burden and also provide farmers with a stable power supply. BrightNight's project utilizes AI-based technologies like Power Alpha, which enhances energy production and minimizes environmental impact. This serves as a guiding example for future renewable energy projects in India.

Employment Generation And Economic Boost Through Green Energy In Maharashtra:

Green energy initiatives in Maharashtra are not only paving the way for environmental sustainability but also creating significant employment opportunities. Essar Renewables' project is expected to generate approximately 2,000 jobs, while Blue Energy Motors' venture will create 4,000 jobs. These developments will strengthen the state's economy.

Furthermore, Huzoor Multi Projects' 1.2 GW solar power installation is projected to reduce carbon emissions by 945,000 tons. This directly supports India's commitment to reducing carbon intensity by 33-35% by 2030.

Additionally, under the MSKVY 2.0 scheme, electricity prices are expected to range between ₹2.69 and ₹3.10 per unit, significantly lower than current rates. This reduction in industrial electricity tariffs is expected to save industries ₹13,500 crore annually, making Maharashtra not only greener but also more economically competitive.

CONCLUSION:

Maharashtra's green energy revolution, from solar-powered farming to AI-driven hybrid systems, seamlessly integrates sustainability with progress. Through innovation, collaboration, and commitment, the state is paving the way for a cleaner and brighter future for the country.

Essar Renewables has signed a Memorandum of Understanding (MoU) with the Maharashtra government for a ₹8,000 crore, 2 GW renewable energy project. This aligns with green energy targets, will create 2,000 jobs, boost EV charging infrastructure, and demonstrate the state's progress in sustainable growth through private partnerships.

This paper concludes that Maharashtra's green energy transition is not only technologically feasible but also economically and environmentally imperative, offering

valuable lessons for other states and regions adopting low-carbon energy pathways.

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