

A Contextual Audit on the Status of Renewable Energy in India

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ABSTRACT

***“If it weren’t for electricity, we’d all be watching television by candlelight”
- George Gobel***

A shift to a cleaner environment and the use of renewable energy acts as an investment in the future. Renewable Energy mainly includes generating energy using wind power, solar power, biomass, hydropower, biofuels or other various appliances that are more energy-efficient and promotes a green environment. Over the past many years, India has been stepping in the battle of creating a green India through the use of Renewable Energy. India has been making different strides to increment and lift the utilization of sustainable or non-customary assets of energy fundamentally for power's creation among numerous uses with various changes made in the laws further promoting progressiveness in this sector. Though the concept of the use of renewable energy in India is still under the developing phase the Government of India has been putting forth cognizant attempts to constantly grow in this area. This paper provides a brief insight into the various developments made by India in the area and its current status along with a detailed analysis of the various laws and enactment in India related to renewable energy.

Key Words: Renewable Energy, Green Environment, Solar Energy, Hydropower, Climate Change

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Introduction

When we enter into a dim room, we scatter the haziness by a flip of a switch. A little reflex activity that comes as natural to us. In the debate concerning energy and climate, no issue is more combative than how much the developing economies ought to depend just on non-petroleum derivative resources and energy proficiency to fulfil their increasing energy needs and requirements. The best example of this discussion can be outlined by how much India faces the issue of focusing on a low-carbon economy while simultaneously immovably building up a renewable energy sector through which it intends to bring power admittance to every one of its residents, including 300 million individuals at present lacking access even to one electric light bulb. This trouble emerges because the pernicious externalities of “dull” electrons can't be assessed and merit supplanting with “green” electrons. We neglect to concede how much power is disparaged. As a country, we are seeing struggle in our energy area today, even though we are the third biggest energy maker on earth and positively even a net energy exporter, still the rural districts our country feels the shortage of resources.

Use of Renewable Energy essential for Sustainability

The use of renewable energy and sustainable power is one of the best alternatives that can be implemented worldwide to fight off the most exceedingly awful impacts of rising temperatures. That is because sustainable power sources, for example, sun based and wind-based energy, do not discharge carbon dioxide or different substances that drain the ozone layer and lead to an Earth-wide temperature boost, known as global warming.

Timely progress from a petrol-based economy to clean energy stays a test for our age, both as far as speed of progress and vector India has been making a plethora of strides to increment and lift the use of renewable, sustainable or non-conventional resources of energy for the production of electricity among the many uses.

India is the seventh-largest country in the world in terms of geographical area.¹ The country is the fifth-largest energy economy in the world has an abundance of energy resources be it renewable or non-renewable.² Not only this, India also ranks third on the level of renewable energy and is the only country in the world to have had a particular ministry for the advancement and the development of renewable and sustainable resources that is Ministry of Non-Conventional Energy Sources (MNES) which was later renamed the Ministry of New and Renewable Energy.³ Coal, a non-renewable source is majorly used for the production of energy in India. However, due to reasons like over-population, industrial and technological development and inordinate utilization of

¹ “Largest Countries in the World (By Area)”, World meter (July 13 2020, 07:00 pm) <https://www.worldometers.info/geography/largest-countries-in-the-world/>

² ETEnergyWorld, “India is the world's fifth-largest energy economy; Ranked 3rd on renewable energy”, Economic Times (July 13 2020, 07:15 pm) <https://energy.economicstimes.indiatimes.com/news/renewable/india-is-the-worlds-fifth-largest-energy-economy-ranked-3rd-on-renewable-energy/75581107#:~:text=Terms%20%26%20Conditions,India%20is%20the%20world's%20fifth%20largest%20energy%20economy%3B%20Ranked%203rd,with%20a%20score%20of%206.3.>

³ Peter Meisen and Eleonore, “Overview of Renewable Energy Potential “, Global Energy Network Institute <http://www.geni.org/globalenergy/library/energytrends/currentusage/renewable/Renewable-Energy-Potentialfor-India.pdf>.

resources, the availability of non-sustainable resources is on decay. In addition, the utilization of a large portion of these resources is destructive for the climate as they are significantly liable for contamination and pollution. These reasons have motivated the executive Government as well to gradually begin with the broad utilization of renewable sources for the production of energy.

In the 1970s, Indian law, strategy and technique have consistently anticipated that climate protection should advance established standards. Indian law is known for its reformist guard. The outing from environment security to a more thorough manageable turn of events, and now the utilization of renewable energy⁴, is a quantum jump in India as, “a reformist reality in progress.” Throughout the world, the idea of practical advancement presented by the 1987 Brundtland Report turned into the premise of the United Nations Framework Convention on Climate Change (UNFCCC) of 1992 and was additionally endorsed by the United Nations Framework Convention on Climate Change (UNFCCC) India, as a signatory to the UNFCCC, ratified the Paris Agreement with 194 different nations in December 2015. It talked about the danger of irreversible environmental change and more complete data on the requirement for all nations to move towards making clean energy to alleviate hazard.⁵

The use of, renewable energy has far more than to just provide a green environment. It also creates job opportunities, expands energy access in the developing nations, lowers energy bills and makes power grids more resilient. The use of clean energy does contribute to all these factors but can also set new records for electricity generation with the use of wind, water or solar-based settings over the years. By and by, India has introduced a limit of 16500MW of renewable grid-connected power. Sustainable power potential in India can be increased to a few times more than the current potential. India has hushed up forthright about advancing the utilization of renewable energy sources considering the availability of resources along with the growing population in the country. With the advancement, lawful issues, laws and cases have also come dealing with energy sources.

Nations worldwide have perceived the requirement for moving to a more environmentally friendly source of power and energy, as non-renewable sources of energy won't suffice for long. There can be no more excellent option than the use of renewable sources for a better future. India is starting to zero in on renewable energy sources and is one of the main makers of renewable energy in the world, intending to transform itself into a green environment country. India and France were the major powers behind the advancement of the International Solar Alliance (ISA), which intends to advance sunlight-based energy across the planet. The world is looking for new, perfect and boundless energy wells for a superior and better future.

⁴ “Largest Countries in the World (By Area)”, World meter (July 13 2020, 07:00 pm) <https://www.worldometers.info/geography/largest-countries-in-the-world/>.

⁵ ETEnergyWorld, “India is the world's fifth-largest energy economy; Ranked 3rd on renewable energy”, Economic Times (July 13 2020, 07:15 pm) <https://energy.economicstimes.indiatimes.com/news/renewable/india-is-the-worlds-fifth-largest-energy-economy-ranked-3rd-on-renewable-energy/75581107#:~:text=Terms%20%26%20Conditions,India%20is%20the%20world's%20fifth%20largest%20energy%20economy%3B%20Ranked%203rd,with%20a%20score%20of%206>

A couple of major challenges for India and the world that can arise are; how quick utilization of renewable resources can be made and how quickly the inter-related clean energy advancements can take place and how much would they be able to alleviate the increment in petroleum derivative use. As the second-biggest coal-creating and - burning-through country on earth and the third-biggest producer of ozone-depleting substances, India's progress from carbon-serious resources is a basic front in the worldwide battle for change of environment.

Outlook of Renewable Energy in India

As the world wrestles with the undeniably obliterating effect of environmental change generally brought about by human-centric formative developments, the need for renewable energy comes into play. Renewable energy (environmentally friendly energy) is growing to be a significant lift in accomplishing the country's economic advancement objectives.

India is taking ambitious measures to advance the reasonable utilization of power and renewable energy in the country. In front of the United Nations Framework Convention on Climate Change COP21-2015, India declared its expected National Decision Contribution (INDC) to the United Nations Framework Convention on Climate Change (UNFCCC), clarifying its natural exercises since 2020. In 2019, the nation was positioned as the fourth most alluring renewable energy market on the planet. India's INDC is growing its objective of presenting a gigantic endless force cap of 175 gigawatts (GW), a renewable energy limit by 2022. Further, this aim was raised to a limit of 227 gigawatts (GW) for 2022. By 2027, we will likely arrive at our renewable energy limit focus of 450 gigawatts (GW).

The nation is starting to focus on renewable energy sources, one of which is the hydroelectric force. It is creating power utilizing the force of streaming water. India has 12 significant hydropower plants in different states like Bihar, Punjab, Karnataka, Uttar Pradesh, Uttarakhand, Sikkim, Gujarat, Uttarakhand, and Andhra Pradesh. The public hydroelectric limit is around 1,500 MW. Wind energy, which is viewed as one of the cleanest and generally innocuous to the biological system, is likewise created in India.⁶ The fifth biggest breeze ranch on earth will be introduced in India with a cap of 3,595 MW and will approach around 45,000 MW of wind power in the country. Not just this, the nation is additionally dedicated to utilizing sun-based energy as the majority of the states in India encounters sunny days. 20,000 MW is the assessed capability of sun-based force in India and this specific force source fills in as one of the biggest force sources in India.

To boost and advance sustainable energy in India, 'MUST RUN' was conceded to environmentally friendly power plants aside from biomass-based force plants under the Indian Electricity Grid Code, 2010 (IEGC). 'Must Run' means that evacuation of energy from sunlight based and wind power plants ought not to be curtailed (i.e., the discontinuance, stoppage or reduction of offtake of power from a generating station) for factors other than grid security, the safety of equipment or gear. This has contributed considerably to the astounding development of the renewable energy area in India.

⁶ Purohit P, Michaelowa A. CDM potential of SPV pumps in India. *Renewable and Sustainable Energy Reviews* 2008; 12:181–99.

With India becoming more predominant on the world stage, it has been more dynamic in worldwide environmental change agreements and developments. Regardless of quick monetary and economic development, the nation faces numerous formative difficulties and human security concerns: India is as yet home to 33% of the world's poor, has the world's biggest population of individuals without admittance to electricity, and the normal GDP per capita is well beneath the global norm. India's energy area has developed quickly to satisfy expanding needs, supported by population increment, urbanization, and industrialization. In addition, the World Health Organization appraises that a portion of the world's best 20 most air contaminated urban areas is in India. Henceforth, India faces a one-of-a-kind triple test of meeting developing per capita energy interest, fighting pollution, and growing renewable energy in the country.

Laws And Policies Governing Renewable Energy in India

The condition of the environment is degrading day by day. In India, the condition worsens daily - overpopulation, global warming and more such environmental problems are seen being faced in the country. The curbing of these issues is a necessity for society. In addition to this, sustainable development and the use of renewable energy for further creating a green environment needs to be made the ultimate goal. The upcoming generation has the right to enjoy the environment as much as we do. To ensure this possibility, there are laws for every aspect of the environment. The adaptation of these laws and principles along with the legislation became necessary for saving the environment.

The requirement for the enactment and implementation of the Electricity Act, 2003⁷ which codifies and regulates the law regarding generation, trading, transmission, distribution of electricity, further including the tariff for sale of electricity was felt by the Central Government, because of the progressing financial changes in the country and also, the changes in the electricity sector that were taking place in the different states. The terrible working of the State Electricity Boards (SEBs), which were framed under the IEA, 1910, and the ESA, 1948, constrained the government of India to draw out a uniform and bound together law to deal with the flow needs of the force area, in the space of the age, transmission, exchanging, and dissemination of power.

The Act of 2003 was the main institution that managed the utilization of renewable energy sources to create power. This act was an important policy reform unveiled by the Government of India for looking after the country's power sector. The act provided captive renewable power plants for the buildings, that is the use of power for personal use through the independent generation of power. This act also formed various specific policies that included incorporate special tariffs, renewable purchase obligations and tradable sustainable power declarations certificates.

Section 61(h)⁸ of the Law arranges the State Energy Regulatory Commission (SERC) to enact and elevate associations with the power matrix produced from renewable energy resources through cost commitments. Further to this, section 86(1)(e)⁹ makes it

⁷ The Electricity Act, 2003

⁸ The Electricity Act, 2003, s.61(h)

⁹ The Electricity Act, 2003, s.86(1)(e)

compulsory for the State Electricity Regulatory Commissions (SERCs) to determine a base degree of procurement commitment of sustainable power.¹⁰

The institutional construction under the Electricity Act, 2003 provides for the Regulatory Commissions, Appellate Tribunal of the Electricity Appeals Court (APTEL). In 2019, the Supreme Court stated that it would not meddle with the APTEL's political race, or the appointment of a regulatory board of trustees set up under the Electricity Law, except if certain lawful examinations are presented. Further, clarifying that it would not meddle with issues, for example, tariff assurance that doesn't include inquiries of law.¹¹

The endeavors made for the commercialization and industrialization of the utilization of renewable energy were upheld by the National Energy Policy of 2005 which was formulated in accordance with Section 3 of the Electricity Act of 2003.

As per the National Tariff Policy, the Central Energy Regulation Commission (CERC) has set up a yearly feeder tariff for associations that took care of the grid-network of renewable energy resources, to ensure returns along with full recovery during the loan repayment period for the full useful life which is equivalent to a tariff that has been levelled. During the eleventh long term Plan that was from 2007 to 2012, different motivators programs for sustainable types of energy were executed to empower renewable grid connectivity.

The Indian Judiciary has managed and dealt with issues concerning renewable energy resources. In 2015, the Supreme Court did come up with a decision and ruled that all enterprises will come ready for targets concerning sustainable sources of energy or in any case get fined. This landmark Judgment commands enterprises having captive power plants get a decent segment of their energy prerequisites from renewable sources of energy. This decision likewise engaged the state power controllers and related offices to force punishments on those associations which neglect to follow the orders made by the Supreme Court.¹²

In 2018, the Hon'ble Supreme Court had set aside the cancellation of a Power Purchase Agreement between energy producer Renew Power and the Madhya Pradesh Government. In this case, the firm had won the bidding, at the rate of Rs. 5.45 per unit. For the same, a termination notice was issued by the Madhya Pradesh Power Generation Corporation. It was then challenged by the firm in High Court. The termination was disallowed; the matter was then taken to the Supreme Court. A landmark judgement was passed in which it upheld the decision of the High Court and cancelled the termination. This judgment had set a reliable example for the renewable sector. It was also stated that this sector requires Rs. 6.6 lakh crores as an investment in the upcoming 5 years to reach the desired goal. As the cancellation of the Power Purchase agreement causes loss to the renewable energy sector as it requires much investment. This can be counted as a step

¹⁰ Aparna Sawhney, "Renewable Energy Policy in India: Addressing Energy Poverty and Climate Mitigation", Research Gate (June 12 2020,02:00 pm) https://www.researchgate.net/publication/275146685_Policy_Monitor_Renewable_Energy_Policy_in_India_Ad_dressing_Energy_Poverty_and_Climate_Mitigation

¹¹ Appellate board for electricity tribunal, APTEL <https://aptel.gov.in/about-us>.

¹² Deepak Sriram Krishnan, "India's Supreme Court Reinforces Renewable Energy Targets for Industry", World Resources Institute (June 13 2020, 08:00 pm) <https://www.wri.org/blog/2015/06/india-s-supreme-courtreinforces-renewable-energy-targets-industry>.

towards saving the industry from unbearable losses. Also, the delay in the process leads to losses. That is why it is important to maintain the decorum so that no further losses are incurred. This can also be seen as an advantage to the goal that has been set for the year 2022.¹³

While the development and strategies are praiseworthy, however, they face genuine difficulties and challenges. Power is the subject of asynchronous rundown inside the Constitution of India, similarly as the state assembly has a similar ability to set up enactment regarding this matter. From that point forward, with regards to renewable energy, there has been an absence of fundamental coordination, control and equilibrium in the execution of systems. Due to the back-and-forth between the central and state governments, engineers deal with moderate and operational issues. This happens as a hindrance to the soul of the local area and gainful federalism and further leads to obstacles to accomplishing the objectives set by India corresponding to the country's renewable energy submitted to the UNFCCC.¹⁴

Key Energy Sector Institutions in India

1. **Ministry of New and Renewable Energy (MNRE)** - The Ministry of New and Renewable Energy (MNRE) is answerable for improving and building up India's way to deal with renewables in power, transportation and temperature. The National Solar Energy Institute and the National Energy Institute are under the locale of the Ministry of New and Renewable Energy. The MNRE additionally covers bioenergy for power. The MNRE likewise gives monetary help to those engaged with the economic power area. The Indian Renewable Energy Development Agency (IREDA) reports to the MNRE, which goes about as a non-bank monetary foundation to advance harmless ecosystem power projects.
2. **Ministry of Power (MOP)** - The Ministry of Power oversees and deals with the energy spaces of the country. It fuses the utilization of renewable energy for power. The Central Energy Agency (CEA) is a fundamental manual for the MOP. The MOP is likewise liable for an assortment of significant projects, for example, the UDAY program, which it desires to help DISCOM and offer monetary help.
3. **Central Electricity Regulatory Commission (CERC)** - The board of trustees oversees tax for age bunch associations and broadcast organizations. CERC is a significant director of the Indian military area and is a lawful body working as a quasi-judicial (semi-legal) state under section 76 of the Electricity Act of 2003. It likewise allows trading licenses for transmission and commercialization.
4. **Ministry of Petroleum and Natural Gas (MoPNG)** - The Ministry of New and Renewable Energy will go about as liable for figuring arrangements to advance the exploration and improvement of development for the turn of events and formation of biofuels. The Ministry of Petroleum and Natural Gas is liable for proceeding to create and execute biofuels in its evaluating strategy.
5. **Solar Energy Corporation of India (SECI)** – It is an association of the Ministry of New and Renewable Energy of the Government of India, set up to assist convey with a trip to the National Solar Mission. Liable for doing different MNRE plans,

¹³ Deepak Sriram Krishnan, "India's Supreme Court Reinforces Renewable Energy Targets for Industry", World Resources Institute (June 13 2020, 08:00 pm) <https://www.wri.org/blog/2015/06/india-s-supreme-courtreinforces-renewable-energy-targets-industry>.

¹⁴ Ibid.

for example, sunlight-based park arranging and network-related sun-based rooftop schematic arrangement.

Development of Sources of Renewable Energy in India

The government of India has concocted different ways to deal with make feasible energy sources in the country. These methodologies and approaches are for the most part financial, monetary inspirations or one-of-a-kind commitments pointed toward fortifying renewable energy in the country. The methodology keeps on being executed after arriving at the objectives set in 2022. Key measures are overseen by the Ministry of New and Renewable Energies (MNRE). A portion of India's ways to deal with renewables and a portion of its money related measures are illustrated underneath-

1. **Foreign Investment Policy:** This strategy assists foreign bankers to start joint endeavours with Indian associations for monetary or proficient collaboration and to dispatch projects dependent on renewable energy. The RBI has permitted Indian associations to acknowledge hypothesis without advance endorsement from the RBI to set up a renewable energy-based organization. Likewise, the Foreign Investment Execution Authority (FIIA) was set up to decipher the endorsement and execution of Foreign Direct Investment (FDI).
2. **Industry policy:** The Ministry of New and Renewable Energy (MNRE) has created techniques to advance little, medium and small-scale organizations committed to the get-together and update of different sorts of renewable frameworks. Freedom from Central Electricity Authority (CEA) isn't needed for power projects up to Rs 1 billion. The Government of India additionally permits monetary relaxations to renewable energy-based tasks for a period of five years. Concessions on Custom Duties are also provided for environmentally friendly power hardware and extras. Privately owned businesses can set up organizations that work as concessionaires or force age organizations. The MNRE and the Ministry of New and Renewable Energy Development of India have set up different financial and monetary inspirational powers for small businesses. Restricted scale businesses include organizations whose interest in fixed resources for plant and gear doesn't surpass Rs. Ten million.
3. **Joint Venture Policy:** The government of India permits international investors to embrace joint endeavours not just in collecting feasible energy hardware and gear, yet additionally in dispatching renewable energy-based exercises in the country. These joint ventures will assist unfamiliar organizations with entering the Indian market, and Indian organizations will likewise profit from new methods and systems for international associations.

Notwithstanding every one of these approaches running after the headway of renewable energy in India, the Government of India feels the requirement for exploration, advancement and progress in the exercises of the renewable energy area, which will bring about extra energy sources. *Commission for Additional Sources of Energy* (CASE) was set up determined to advance improvement in the field of renewable energy with better examination and strategy work. Essentially, the Ministry of Renewable Energy was set up in India, making it the only country in India that offers exceptional administrations for the headway and advancement of renewable resources.

Cabinet Committee on Economic Affairs (CCEA) additionally endorsed up to \$6.5 billion in monetary help by 2022 to advance sunlight-based energy use among the farmers

of the nation. The Atal Jyoti Yojana (AJAY) Stage II program was additionally set up in 2018 to offer monetary help for the establishment of more than 3 million sun-based streetlamps in specific regions. MNRE reported its National Wind-Solar Hybrid Policy in 2018, an immense structure identified with the photovoltaic cross-drain system dependent on wind-sun powered energy for ideal and profitable utilization of land and transmission framework. The work has progressed. Furthermore, the public authority has additionally planned a Safeguard Duty (SGD) on sunlight-based boards to advance the homegrown creation of sun-based cells in the country.

Economic Sanctions and Covid 19- Impact on Renewable Energy in India

The Prime Minister of India as of late introduced India's biggest solar power plant of a limit 750 MW in Rewa, a little area in Madhya Pradesh, declaring India's capacity to be a worldwide environmentally friendly power energy centre universally. It is explicitly complimenting a direct result of its planning during an influx of cynicism in the energy area.¹⁵ This comes as a demonstration of Indian's green energy potential and its committed energy strategy. In recent times, today the Renewable Energy Industry is taking on conflicts on two fronts, one with the COVID-19 pandemic and the other against reaction to Chinese hostility through monetary measures which influences the creation of the area harshly.

The COVID-19 pandemic has made the world reconsider and change its approaches. Amid the entirety of its detestations, the inauspicious imprint which it has left on the economy is overwhelming and the Energy area isn't barred from the devastation of the infection. The Coronavirus pandemic is discouraging financial development on the planet.¹⁶ Every nation is managing its effect according to its abilities and prerequisites. Energy area has likewise been antagonistically affected. In Italy, a 20% decrease in costs is being noticed. As indicated by a report in 2020, India has effectively seen a decrease in demand for power by 25-30% in the month of May-June, which whenever combined with decreased assortment may antagonistically affect conveyance organizations by making a money hole of around Rs 40,000 crore and it can turn out to be much more dreadful.

Nuclear energy stations are running at a low limit without industrial demand, while the portion of renewables on the grid has been expanding, for the most part, because of the "must-run" status. In certain states, India's framework administrators are as of now running a power framework with extremely high portions of renewables. The present circumstance is as yet proceeding with where more established force plants are as yet in need to shut down for maintenance and repair to meet new natural environmental necessities.

In this tough time, while facing the outbreak of a pandemic, India has also paved a way to reach new heights in the renewable energy sector. Reserve Bank of India has taken

¹⁵ Sidharth Yadav "Solar energy will play a major role in achieving Atmanirbhar Bharat, says Modi". The Hindu (JULY 10, 2020 13:05 IST) <https://www.thehindu.com/news/national/other-states/india-most-attractive-global-market-for-clean-energy-modi/article32040039.ece>.

¹⁶ "India's power demand falls over 25 pc to 125.81 GW on April 2." The Economic Times (Apr 03, 2020, 03:22 PM IST) https://economictimes.indiatimes.com/industry/energy/power/indias-power-demand-falls-over-25-pc-to-125-81-gw-on-april-2/articleshow/74965504.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cpst.

some of the fiscal measures by providing a three-year moratorium and cut of rep rate to 4.4%. Also, MNRE has extended the dates for manufacturers in contracts by keeping in mind the force majeure clause. This will help in reaching the vision that has been set for the year 2040.¹⁷ There has also been an increase in the share of renewable energy by 10% which will also pave a way for more supply from renewables and will motivate the industry to perform better.

Not only the pandemic has affected India but it has been progressively difficult for the country due to our neighbour China and the strategy which MEA in intelligibility with MNRE has taken in. The strategy decides upon either to check the unloading of cheap Chinese solar-powered items in India or in national interest inferable from how the situation developed as of late. It is relevant to note here that China practically controls the whole “esteem chain” from silicon to a module and it supplies practically 85% of solar energy-based products to the world, and thus exchange with China holds extraordinary stakes.¹⁸ These cheap products and resources have been one of the reasons that development and advancement in the country have taken place over the years at a fast pace. The cost of sun-based energy had decreased from Rs 17 when in 2010 first National Solar Mission was dispatched to Rs 2.44 in the most recent bid. India in August 2020, declared to force 20-25% of customs obligation on solar energy modules and products and 15% on cells, making it 40% for both. Safeguard obligation was additionally forced by the ministry of 25% on import of Solar Panel from China and Malaysia as domestic players were seen are at a disservice and can't rival unfamiliar market in India's beginning industry as these imports have had serious Injuries to domestic players and were in the public premium to force the safeguard obligation. However, the ministry did provide with exemption in the form of “pass-through” to the manufacturers, Chinese imports for the use of public solar projects were exempted from duty in the power purchase agreement signed before the implementation of the obligation. This step was no benefit to the domestic producers though as they will not be able to receive any orders for the next one or two years, potentially adding more problems to their work amidst the coronavirus pandemic.

Due to these sanctions industries in the form of decreased import of solar PV and has increased economic burden on foreign exchange. It has also affected the domestic developers and landed them in trouble as at the time the business is just attempting to recuperate from the shock and the downfall caused due to the pandemic. To guarantee constant advancement in the development of renewable energy, grid connection and financial stability of the power organizations are the basic components for change required at this hour. We need to provide escape velocity to the sector and these sanctions dealing with the trade business as they are certainly not aiding the cause. India is a country that can upgrade its energy container and secure its energy access and be the head of efficient power energy globally, making India, as PM the said ‘aatmanirbhar’, i.e., Self-Reliant in the energy area is the need of the hour.

¹⁷ Ashish Khanna, “Renewable Energy “New Normal” and Impact of Covid-19” (Apr 15, 2020, 02.20 PM IST) <https://energy.economictimes.indiatimes.com/energy-speak/renewable-energy-new-normal-and-impact-of-covid-19/4167>.

¹⁸ Express web desk “The world failed to help India fight the Covid crisis, rich countries should take more responsibility: US advisor Dr. Fauci” (April 28, 2021) <https://indianexpress.com/article/india/world-failed-to-help-india-fight-covid-crisis-says-anthony-fauci-7292486/>.

Energy Market Reforms that are Important than Ever for India

As open and private hypothesis is essential to India's energy area, which is at the core of the economy, there is a pressing requirement for more genuine power market changes to create and develop.

There is a dire need for a more profound power market reforms are developing and growing, as both public and private speculation is important for India's energy sector, which is itself at the core of the economy.

1. **The International Energy Agency (IEA) recognizes the public authority's push for changes towards cost-intelligent tariff and direct appropriation plans:** These standards have not yet been carried out practically speaking in the power area. Bit by bit changes can be successful: India's administrations could explore two measures: decreasing cross-sponsorship from modern interest, in this manner, bringing down the weight on the industry, and giving direct exchanges to weak customers paid out of state financial plans, rather than addressing cost appropriations for private clients to DISCOMs.

Worried by high cross-appropriation overcharges, the industry demands have effectively left the framework as a rule and picked market-based pricing. The open admittance to cutthroat power supply from the trades stays restricted because of the absence of bandwidth and uncompleted market changes in India. As a component of the recuperation bundle introduced in May 2020, the central government requested that huge public organizations give cost discounts to DISCOMs that will be given to modern industrial customers. An audit of India's energy expenses could likewise assist with recognizing the country's potential for energy proficiency, intensity and fare initiative.

India has effectively begun carrying out direct benefit transfers as a method for appropriation change, for example for LPG. Exercises learned in different purviews, like Turkey, affirm that fruitful change of the conveyance area requires a guide towards retail power tariffs that recuperate the full expense of supply. This is a significant driver for the monetary dissolvability of the area and a necessity for any expected privatization. India is an exceptional country and its DISCOMs have enormous and assorted purchaser groups and monetary difficulties ahead. Direct exchanges for the weakest purchaser groups and smoothed out power taxes for all buyers are income impartial for state spending plans. The public authority should introduce new rules for tax structures across India as models for state governments and controllers to follow.

2. **Keep a monetary recuperation as a significant chance to help the variety of the power area:** The pandemic has been driving changes in the Indian energy market that has been continuing for a long while. This is at the front line of the battle against pandemics and is particularly helpful for changing the disturbances that keep up lighting and changing variable renewables. Governments should guarantee that the administration of endemic zones is acceptable to address these challenges and secure their physical and monetary strength. The recuperation bundle expects the rudiments, yet the essential measures are comparably fundamental. Changes in power expenses can be a strong impulse for the economy to continue. Support needs to be provided

to mechanical interest, support independent ventures and join Make in India exercises. Expanding on the effective UDAY conspire, the recovery bundle for the force area as of now incorporates commitments for DISCOMs to keep lessening their losses, guarantee influence quality and dependability, improve charging and support computerized instalment.¹⁹ These progressions ought to be made near the new recuperation bundle measures to guarantee that the bailout energizes future theory and a monetarily reasonable future.

- 3. Accomplish Nationwide wholesale energy market with proficient exchanges trades:** India's public network is based on local matrices. Market and framework tasks mirror this. The Power System Operation Corporation (POSOCO) works a various levelled framework that includes bundle conveyance focuses in one country and 33 states. In any case, the vast majority of India's age is fixed at the territorial and state level, particularly renewable energy. Highway trade, liquidity, and rivalry stay powerless, and power buy costs are high. Power exchanging is for the most part an actual trade of auxiliary administrations to balance out the synchronization framework (deviation settlement component). The wholesale market at present addresses under 3% of all power exchanges. While there are exclusive requirements that Indian energy trades will sort out more proficient exchanging tasks, liquidity is divided across various items and exchanging stages. The global experience of the United States and the European Union is that market predominance at the state level can be lessened by territorial exchange bigger market zones, and transmission and frameworks administrators are the main impetus behind such cycles. The wholesale energy market, which depends on broad standards on appropriation and bandwidth, gives DISCOM the adaptability to fulfil needs in a solid, protected and beneficial way. A few adaptability choices should be improved. Continuous developing business sectors are an extraordinary chance, as momentary business sectors are the main impetus behind incorporation.

Conclusion

Petroleum products draw on limited assets that will ultimately diminish, getting excessively costly or excessively naturally harming to recover. Conversely, the numerous sorts of resources, for example, wind and sunlight-based energy, are continually renewed and won't ever run out. Environmentally friendly power is the ones that are recharged, taken from regular cycles at occasional stretches. They exist over more extensive geographic territories, which clear path for energy security, environmental change moderation and monetary advantages. It has the ability to inspire the oppressed nations to better statures of flourishing. India at first advanced the utilization of renewable resources of energy intending to decrease reliance on imports and consequently become independent and self-sufficient in terms of energy creation. Development in renewable resources of energy is a recent advancement taken place in India and the country has been advancing the use of sustainable power assets to alleviate the impact the pollution and battle environmental change. Remembering the worldwide tension on India in regards to the colossal figures of its fossil fuel byproducts, the lofty and quick development of the area of an environmentally friendly power in the nation is important for a low carbon development way.

¹⁹ Aparna Iyer, "Discom debt to impact states' spending on development: RBI," Live Mint, April 8, 2016, <http://www.livemint.com/Industry/DgYTFNJUmVlvsQtWtgdEP/Power-reforms-likely-to-pressure-states-budgets-RBI.html>.

The Act of 2003 which was enacted to regulate the renewable energy resources in India was amended in 2015. As we know that laws need amendment from time to time for dealing with the changes in society and the resources too. After the enforcement of the Amendment Act of 2015, India has seen no recent development or amendment in the act. Therefore, for fulfilling the needs that have been put forward in the Budget of 2021, the addition of some extra clauses and provisions might be needed in the upcoming years. Has India seen development in the times of outbreak of pandemic too? These developments need to continue for seeing their long-term effects.

It is important to set an aim if we want to reach a goal. The mention of renewable energy in the budget 2021 has also led to understand that the sector is also gaining importance in the country and so soon many of the development can be seen too. It also includes the duty of the citizens to follow the regulations that have been imposed so that renewable energy can be used appropriately and no waste incurs.

India is the only nation to have a separate ministry for renewable resources of energy. This portrays the reality of the Indian government in managing this issue. India is additionally the founding member of the International Solar Alliance; it was an initiative taken by India which was later upheld by the greater part of the countries. Different laws exist in our country which manages various sources of energy including non-conventional sources of energy. Ideally, because of the steps taken by the country, we can surely hope that India shall soon transform into an encapsulation for different nations in terms of love and care towards the climate.

