Renewable Energy: A Study on Indian Scenario

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ABSTRACT

India is a country endowed with abundant natural resources which are unevenly distributed and unaccountably used by its populace. The overwhelming use of natural resources has resulted in their depletion causing damage to the overall sustainable development of the environment. Eventually, the focus shifted from natural resources to sustainable alternative forms of energy production which can be created through the use of renewable energy resources such as tide, wind, water, heat and other forms of biomass which are non-depleting in nature. This paper mainly focuses on the Indian scenario with respect to renewable energy where it throws light on the Jawaharlal Nehru Solar Mission, one of the first large-scale initiatives formulated by the Government of India and how this initiative landed India in a WTO (World Trade Organization) dispute with the United States in Solar Panel Case (DS456). The paper then focuses on different legal instruments such as The Electricity (Amendment)Bill 2014, The Constitution of India and the draft Renewable Energy Act which was framed by the Government in 2015 and whether it is complying with the principles laid down by the World Trade Organization (WTO) or not. The paper employs doctrinal methodology and adopts descriptive analytical methods to scrutinize concepts, facts and theoretical frameworks governing the issue(s). In the conclusion, it shall analyze and suggest modifications that the researcher considers crucial for the implementation of the proposed Act and shall also evaluate the other initiatives taken to promote renewable energy in India along with their implications.

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I. INTRODUCTION

"I'd put my money on the sun and the solar energy. What a source of power! I hope we don't have to wait till oil and coal run out before we tackle that. I wish I had more years Left."

-Thomas Alva Edison[2]

The significance of energy obtained from renewable resources has gained momentum due to the rapid exhaustion of natural resources in today's global scenario and the need to build a sustainable mechanism of generating energy by effectively utilising renewable resources. Energy generated from sunlight, water, air etc. which constitute the natural renewable resources can be replenished and are available abundantly over wide geographical areas as compared to non-renewable energy resources which originate only in specific areas and are easily exhaustible. Natural resources are the gift of nature which helps mankind to maintain a comfortable life; these are those resources which are formed without human intervention. The natural resources are primarily of two types such as 'biotic', which includes resources obtained from forests and animals e.g. coal, petroleum, sunlight, air, tidal etc, and 'abiotic' which are obtained from non-living sources e.g. iron ore, metals etc. These two types can be further categorized as renewable resources and non-renewable resources. The renewable resources are those which can be restored naturally such as water, sunlight, air etc., and the non-renewable resources of energy are those which ones used shall be depleted from the environment and its restoration may take millions of years such as coal, oil etc.

In the present scenario, the global consumption of fossil fuels to create energy have immensely escalated, both the demand and supply of fossil fuels are rising at the cost of ecological degradation. The question of environmental sustainability and sustainable development, whose goal are to conserve natural resources and to promote alternative resources for the safer environment are at stake. Therefore, the world cannot continue to rely on fossil fuels subjecting the global environment at risk.[3] Global warming, air pollution, and acid rain are some of the serious damages caused by excessive use of fossil fuels. Renewable energy has emerged as one of the enablers of sustainable development of the environment as it is a source of

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[2] Empowering the Indian City: Scenarios and solutions, TERI, Tata Energy Research Institute, 2002.

[3] Michael Brower, Renewable Energy, 16 EPA J. 20 (1990).

clean and inexhaustible energy. It also contributes in a manner that it neither produces harmful greenhouse gases nor is responsible for carbon emissions.[4]

India has abundant renewable energy resources, therefore it should take initiatives to reduce the over-dependence on fossil fuels and promote renewable energy which shall not only tackle the issue of sustainable development of environment but shall also eradicate all the problems relating to energy resources. At present, India is recorded as the world's third-biggest oil consumer and its oil demand surged to a record of 4.4 million barrel per day in the second half of 2017.[5] This kind of increasing dependence on other nations shall drain out the Indian economy to a large extent and shall also damage the environment to an irreparable state. Therefore, India needs to take initiatives for sustainable development of the environment. India ratified the Paris Agreement on Climatic Change in 2016, where the member nations make binding commitments for the reduction of carbon emissions so that the average global temperatures do not rise above 1.5 degree Celsius.[6] There are many other initiatives which are taken up by Government of India for promoting the renewable energy market like the Jawaharlal Nehru Solar Mission one of the first initiatives to promote renewable energy which shall be dealt in the later stage of the article. For India to emerge as a global leader, it has to come up with innovative ideas which shall not only protect the present generation but shall also preserve the natural resources in order to sustain future generations.

II. WTO'S PERSPECTIVE OF RENEWABLE ENERGY

World Trade Organization (WTO) is an international forum which deals with global trade rules governing the member nations. It was established in 1995 with 123 member countries and its predecessor organization General Agreement on Tariffs and Trade (GATT) helped to create strong

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[4] Renewable Energy, Available at <https://www.acciona.com/renewable-energy/> accessed on 02/04/2018.

[5] Nidhi Verma, *'India's oil imports in 2017 surged to a record 4.4 million barrel per day'*, The Economic Times (17th January, 2018).

[6] Kumar Sambhav Shrivastava, *'India ratifies Paris climate treaty: Here's all you need to know'*, Hindustan Times (3rd October 2016).

international trade rules from 1986-1994. At present, there are 164 member countries forming part of this global forum and on whom the trading rules apply uniformly.[7] WTO was formed with an objective to promote free trade and harmonized rules among the member countries. WTO handles all kind of trade rules or trade-related issues that emerge internationally.

In the present global scenario, one of the most important concerns faced by the countries is protection and sustainable development of environment by reducing the emission of the Green House Gases (GHG) which have caused imminent damage to the earth's ecosystem and human health[8]. The only way to mitigate this risk of climate change for the sustainable environment is by decreasing the emissions from GHG which can be achieved only through the generation of energy from renewable resources. But lack of uniform rules globally has resulted in many disputes that have arisen over measures relating to renewable energy under WTO. This part of the paper tries to highlight the basic principles of WTO and the other provisions under which Renewable energy shall be governed under the WTO regime.

There are two basic principles underlying the WTO they are 1) Most-Favoured-Nation principle (GATT Article I) and 2) National Treatment (GATT Article III). Most-Favoured-Nation (MFN) principle mandates treating all member nations equally. Under the WTO regime, no member nation can discriminate among its trading partners. There are some exceptions to this rule such as trading within a group or giving special preferences to developing countries or raising trade barriers but these are permitted only under certain strict conditions. But generally, MFN means a special treatment given to one nation can be availed by all its trading partners without discrimination whether such country is developing, developed, poor, rich should not matter. National Treatment principle, on the other hand, states that all foreign and local goods should be treated equally. This principle focuses on the fact that foreign goods after entering the local market should be treated at par with the local commodities. This applies to a product, service or item of intellectual property that has entered the domestic market. In other words, giving others the same treatment as one's own should be the basic guiding principle. Both these principles at

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[7] 'What is WTO?', <https://www.wto.org/english/thewto_e/whatis_e/whatis_e.htm> on 2nd February, 2018.

[8] Rick A. Waltman, *Amending WTO Rules to Alleviate Constraints on Renewable Energy Subsidies*, Willamette J. Int'l L. & Dis. Res. 367 (2016).

times challenge the state's actions but there are general exceptions which offer multiple exemptions under Article XX.

The provisions relating to renewable energy shall also be dealt with under Article XX (General Exceptions) of the GATT agreement. Article XX lays down many exceptions that provide the member nation's immunity from GATT's constraints.[9] Article XX (b) of the GATT exempts the member countries from following the agreement's rules where it has framed policies which are necessary for protecting human, animal and plant health. This also applies to certain measures that are taken to mitigate climatic changes as it has an adverse effect on human, plant and animal life. The highlight of this provision is that the measures shall only be exempted if it is "necessary" to prevent the risk; this has been decided in the EC-Asbestos Case.[10] The renewable energy shall also come under provisions of Article XX (g) where exemption is provided to the member countries when policies are framed relating to conservation of exhaustible natural resources. But this exemption shall only be applicable if the country can prove that the measure is to conserve exhaustible natural resources, the policy is for its conservation and any restriction that is implied on international trade is also implied on domestic production and consumption of the same. This was proved in the US Gasoline Case.[11] The chapeau of the GATT Article XX negates any policies that are arbitrary or unjustifiable or discriminating among nations or a disguised restriction of international trade, which otherwise shall come under General Exceptions.[12] These are the basic principles and provisions under which the renewable energy shall be governed.

There are also some other agreements to which the renewable energy trade may be related such as 'The Agreement on Subsidies and Countervailing Measures' (SCM) where certain governmental sanctions known as 'subsidies' are allowed or prohibited. The subsidies include

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[9] Rick A. Waltman, *Renewable Energy Development for the WTO Member Nations*, 14 Santa Clara Journal of International Law 543 (2016).

[10] European Communities – Measures Affecting Asbestos and Asbestos-Containing Products, WT/DS135/12, (2001) [hereinafter EC–Asbestos], available at <https://www.wto.org/english/tratop_e/dispu_e/135abr_e.pdf.> 1 March 2018.

[11] Report of the Panel, United States – Standards for Reformulated and Conventional Gasoline, WT/DS2/R, (Jan. 29, 1996) [hereinafter U.S.–Gasoline], available at <https://www.wto.org/english/tratop_e/dispu_e/2-9.pdf.> 1 March 2018.

[12] Rick A. Waltman, (note 8).

either the financial contribution of government or any other measures that promote the export of domestic goods and harm import of foreign goods. The other related agreement is 'Trade-Related Investment Measures' (TRIMS), where it prevents the member nations from investing in FDIs and other financial resources that favour the domestic industry over the international market.[13]

III. THE INDIAN SCENARIO WITH REGARD TO RENEWABLE ENERGY

The Indian Constitution lays down provisions which promote environment protection under various Articles such as Article 48A where it lays down that state shall endeavour to protect environment and safeguard the forests and wildlife, Article 51A (g) where it lays down that it is the duty of every citizen to protect and promote natural environment, Article 21 where it mentions no person shall be deprived of his life and personal liberty which also includes access to clean environment etc. Following the provisions of the Constitution, the Central and state governments have come together with the formulation of many policies and guidelines for the protection of the environment and sustainable development of it.

1. Jawaharlal Nehru National Solar Mission (JNNSM)

The JNNSM is an initiative that was started by Government of India under the leadership of Prime Minister Dr. Manmohan Singh. The objective of this initiative is to make solar power competitive with conventional energy thus launching India's Action Plan on 30th June 2008 on Climate Change. This project aimed at active participation from states to promote sustainable development of the environment thereby fighting India's issues concerning energy security. It mainly focused on the abundance of Solar Energy in India which is capable of producing around 5000 trillion kilowatts of clean energy. It recognized the high cost that is employed in the process but it also aimed at creating conditions, through rapid scale-up of capacity and innovation of technology to reduce the cost towards grid parity. By this initiative, India tried to emerge as global leader in solar energy trade by formulating favourable policies for its large scale expansion. It was

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[13] Rick A. Waltman, (note 8). See Robert H. Edwards, Jr. & Simon N. Lester, *Towards a More Comprehensive World Trade Organization Agreement on Trade Related Investment Measures*, 33STAN. J. INT'L L. 169, 176–86 (1997)

classified in three phases (Phase I, Phase II and Phase III) approach where the government focused on different parameters on each phase. The initiative was aimed at setting a favourable environment for solar technology both at the central and local level by 2022 by mainly involving the domestic resources thus promoting Indian industries.

2. India - Certain Measures Relating to Solar Cells and Solar Modules (DS456)

The case was filed by the United States (US) against India regarding the aim of the JNNSM programme which was to promote the use of solar energy in the country. The US claimed that the case was not filed on the grounds challenging protection of environment policy adopted by India. It was on the measures that India adopted in the program was discriminating in nature against the imported products from the foreign market. US pointed out that the purchase agreement that was entered into with the Solar Power Developer (SPD) had clauses which mentioned that the solar cells and modules should be procured from India thus violating GATT Article III: 4 as less favourable treatment is given to the imported solar products. The JNNSM which was a three-phase project incorporated this particular clause on every purchase agreement that was entered with SPD. The other legal stands that were claimed by the US are as follows- 1) the domestic content requirement clause incorporated in the purchase agreement (DCR) is inconsistent with GATT Article III:4 (National Treatment) 2) The DCR cannot be justified under "government procurement" GATT Article III:8 (a) which provides exemption under Article III:4. The issue in dispute fails to qualify the exemption as the end product that is obtained is electricity but the product at issue is the solar cells or modules. If the end product and the product at issue are not competing in nature the exemption fails to imply on the end product.

India to prove its claim that it does not violate DCR requirements advanced its arguments under GATT Article XX (j) or XX (d). Article XX (j) exempts policies that are "essential to the acquisition or distribution of products in general or local short supply" and XX (d) exempts the steps "necessary to secure compliance with laws or regulation" but India fails to demonstrate both the exemptions. Thus, the panel concluded that the DCR imposed by India under Phase I (Batch 1), Phase I (Batch 2), Phase II (Batch 1) and other documents relating to JNNSM are inconsistent with Article 2.1 of the TRIMs (Trade-Related Investment Measures) Agreement and Article III: 4 of the GATT, 1994. The DCR measures fail to justify itself under Article XX (j)

or (d). Therefore, India should take measures so that the program is in conformity with GATT 1994 and TRIMs Agreement.

3. The Electricity (Amendment) Bill, 2014

The Amendment Bill, 2014 brings in sweeping changes to the Electricity Act, 2003. The Bill focuses on various areas such as introducing carriage and content separation, greater accountability and defines renewable energy and provides for a National Renewable Energy Policy. In the National Renewable Energy Policy, it mandates the coal and lignite based thermal generators to produce 10% of installed capacity as renewable energy. The Draft Act under section 57A defines "renewable energy sources" which include small hydro, wind, solar, biomass, biofuel, biogas, which further include municipal and solid waste, geothermal, tidal, co-generation from these sources and any other sources as notified by the Central Government. Section 57B defines "Renewable Energy Service Company" as the obligated entities who are mandated by the Central Government to provide electricity to the consumers representing renewable energy sources. The amendments in the Electricity Act paved way for the formation of new Draft Renewable Energy Act, 2015.

4. Analysis of Draft Renewable Energy Act, 2015

The Ministry of New and Renewable Energy (MNRE) constituted a committee in October 2014 to frame a draft Renewable Energy Act. The draft of renewable energy Act is a ramification of the Electricity Amendment Bill 2014 as it mandated the renewable purchase obligation (RPO) which forced the entities to purchase a percentage of their total power requirement from renewable energy sources. This promoted formulation of a new draft Act on Renewable energy with a holistic view. The main purpose of this Act is to produce energy by usage of renewable resources and reducing dependence on fossil fuels which cause damage to the environment. The use of fossil fuels to yield energy has left an irreparable impact on the environment such as global warming by the emission of harmful greenhouse gases, acid rain etc. Thus the draft act tries to achieve the national and international objective of protecting the environment through employing renewable energy resources.

The draft Act aims to accomplish many objectives such as meet the basics necessities like cooking, mobility, communication etc., to reduce the dependency on fossil fuels, to cut down the importation of oil from foreign country, to meet the expectation of international pressures relating to climate mitigation, to balance fuel deficit and to emerge as a competitor by meeting needs of the domestic country.[14]

The Act is broadly classified in four categories such as 1) the institutional structure which consists of the decision making and advisory body which shall ensure the proper implementation of the Act 2) Supportive Eco-System which is for promotion of renewable energy resources and allowing the investments regarding the same 3) the economic and financial framework part where the Central and states join their hands together to achieve the objectives laid down in the Act 4) the last part deals with the application of the framework of renewable energy.

The Act empowers the Central Government to formulate, monitor the policies relating to renewable energy, promoting National Green Energy Fund, forming different national level committees and empowering the state governments to implement the policies at local level thus creating a clear structural and functional guideline at both central and national level. It paves way for establishing a national level think tank which shall advise, monitor and provides long term vision. The Act promotes transparency at all level with stricter obligations to fulfill. The Act includes various stakeholders such as producers, users, academia, research institutions, and think-tanks but it misses out one of the important stakeholders which is the civil society organization. The representation of the civil society organization should be included as they have been working on the issues from a longer period of time and they are that powerful agency which make the regulatory process more accountable and transparent.[15]

IV. PRESENT INITIATIVES

The Ministry of New and Renewable Energy (MNRE) from time to time has formulated several initiatives to promote renewable and clean energy. The

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[14] Ministry of New and Renewable Energy (MNRE), Draft-REA-2015, < Ministry of New and Renewable Energy (MNRE)> 3 March 2018.

[15] Megha Kaladharan, *Renewable Energy in India: An Analysis of the Regulatory Environment and Evolving Policy Trend*, Centre For Research Policy.

government is trying to achieve two objectives at a time one safeguarding climate and the other is to produce renewable energy to support fuel deficit. India's National Determined Contribution's (INDC) submitted to the UN Framework on Convention and Climate Change (UNFCCC) that it will generate 40% of Electricity from non-fossil fuel based resources by 2030. To fulfill this objective the government has taken major steps such as it installed solar energy projects with a capacity of 8727.62MV on 31st October 2016, it initiated a National Solar Mission to reduce the cost of generation of solar power in order to achieve the target of producing 175GW by 2022. It took strong enforcement measures for Renewable Purchase Obligation (RPO) and Renewable Generation Obligation (RGO). It has not only focused on the solar power but has also taken initiatives for promoting Biogas like the Biomass Cook Stove which was brought under Unnat Chullha Abhiyan (UCA). A Green Energy Corridor is being set for Rs. 38,000 crore for ensuring evacuation of Renewable Energy.[16] In 2017, India generated 10.2 Billion units of electricity from green energy where the sources included wind, biomass, solar and hydro which is the highest record till date.[17]

India has also taken up many new solar thermal projects such as 1) National Solar Thermal Power Testing, Research and stimulation facility, facilitating a grid connector solar thermal power plant. The initiative is being implemented by IIT Mumbai with Tata Power, Larsen, and Toubro, Clique, KIE Solatherm. 2) Solar Thermal Sterling Engine has taken up by ONGC Energy Centre. 3) Cold storage with solar- Biomass Hybrid System with an objective to develop cold storage, particularly in rural areas.[18]

The Government has also extended its help in economic terms by increasing bank loan limits up to Rs. 30 crores for renewable energy power generators, it increased the coal cess from Rs 50 to Rs. 400 and to bring in more Investments it has permitted 100% FDI under the automatic route for renewable energy generation subject to provisions of Electricity Act, 2003.

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[16] Neeraj Bajpai, *India takes Giant Leap on green Energy Targets*, Press Information Bureau, GOI (8 May 2017).

[17] Bilal Abdi, *'India records highest-ever renewable energy generation'*, The Economic Times (19 September 2017).

[18] New Initiatives, Ministry of Renewable Energy, Government of India, < https://mnre.gov.in/new-initiatives>.

V. CONCLUSION

At present, the world is facing serious issues relating to depletion of natural resources, mainly depletion of fossil fuels which is the prime component in the generation of energy. This has led the countries to shift gradually from using energy generated by fossil fuels to renewable energy resources. Renewable energy resources being in abundance may be a good substitute for fossil fuels and it has many advantages such as it produces clean energy, protects the environment from being polluted, balances fuel deficit faced by nations, does not emit harmful greenhouse gases, can help to reduce global warming and may be a key factor in sustainable development of environment. Even though the advantages are many but lack of uniform guidelines has led to various disputes among the nations relating to trade in renewable energy.

WTO being a forum for international trade among the member countries do not provide any specific guidelines for trading in renewable energy. It has some basic principles and some general provisions under which presently the trade in renewable energy is being conducted. The basic principles are Most Favoured Nation and National Treatment; the other provisions under GATT are the General Exception Article XX and other agreements such as TRIMS, GATS etc., do provide some guidelines. Therefore, the countries to promote free trade should try to avoid dispute as much as possible by following the basic principles as their primary goal should be a generation of renewable energy and to mitigate the risks posed by climate change. The policymakers should comply with all the rules laid down in WTO and promote neutrality for facilitating manufacturers, service providers, and other stakeholders.

In India, the government is taking up several initiatives for promoting renewable energy starting from the Jawaharlal Nehru Solar Mission in 2008 to ratifying of the Paris Climate Change Agreement in 2016. It has also framed a new draft Act on Renewable Energy in accordance with the amendment of Electricity Act, 2015 which is yet to be passed. The draft has been well framed giving a holistic view but it fails to include representation of civil society. India has also ended up in a dispute with United States DS 456 for violation of international trade rules losing huge amount as penalty. Though India has faced a lot of ups and downs while formulating and implementing policies and regulations, it has kept on pursuing new initiatives for fulfilling its objective of clean India and a renewable energy producing hub by 2030.