

Renewable Energy Sector in India: Legal Perspectives, Issues and Challenges

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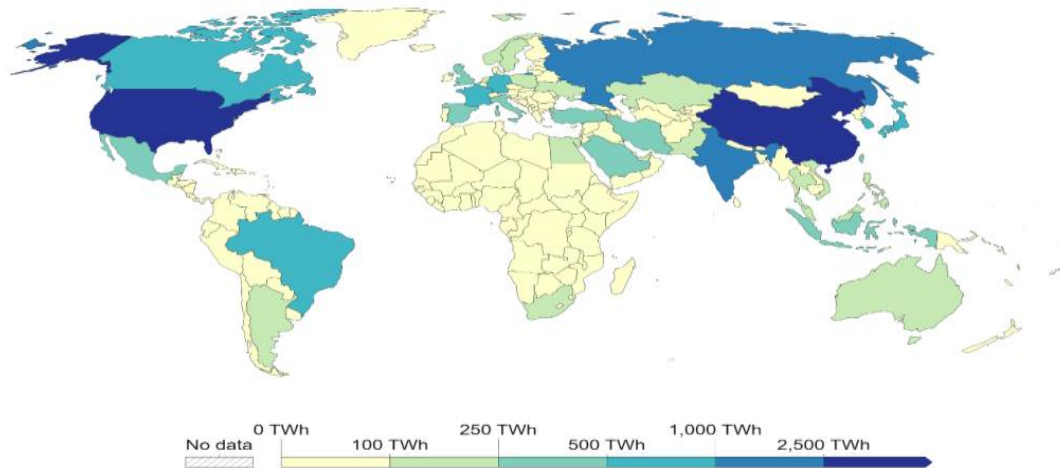
Abstract

India has made important strides in the generation of renewable energy in last few years. The nation has established a number of rules and regulations to aid in the development of this sector, and it has set lofty goals for the deployment of renewable energy. To fully realise India's potential for renewable energy, however, a number of legal issues still need to be resolved. The requirement for a precise and uniform legal framework for renewable energy is one of the major challenges. The current legal system is disjointed, and there is confusion over a number of significant issues, including PPA enforcement, grid access, land acquisition, conflict with food security, consumer, environmental and human rights issues etc. Investors have found it challenging to establish renewable energy projects in India, as a result. An effective enforcement of current rules and regulations is another difficulty. India is positioned to dominate the worldwide market for renewable energy despite these obstacles. The nation boasts a sizable and expanding market for renewable energy as well as a wealth of renewable energy resources. India can overcome its current obstacles and emerge as a world leader in renewable energy with the help of the proper policies and financial investments. This paper emphasises upon the challenges faced by various stakeholders of the Renewable Energy sector and makes an attempt to provide for the amicable solutions to these issues.

Keywords: Renewable Energy, sustainable energy, clean energy, Power Purchase Agreement (PPA), fossil fuel, food security, sustainability of business, sanctity of contract, National Solar Mission.

Introduction

Electricity generation, 2021



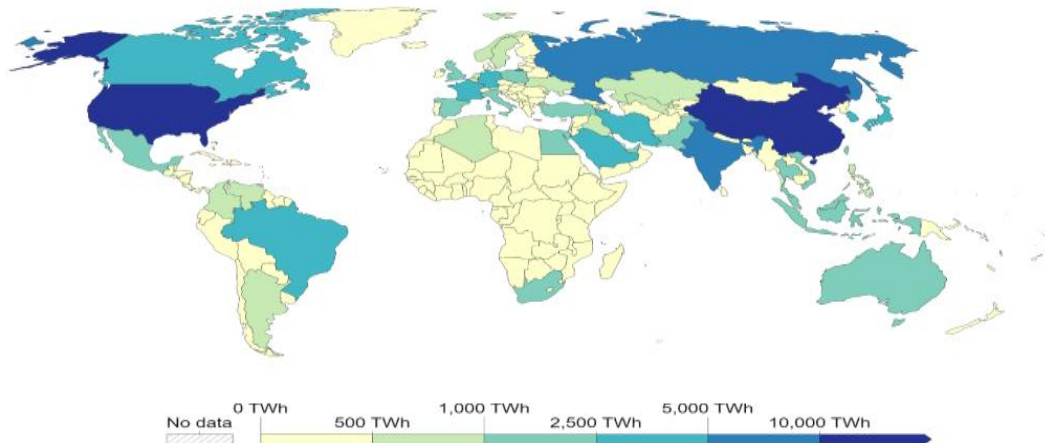
Source: Our World in Data based on BP Statistical Review of World Energy (2022); Our World in Data based on Ember's Yearly Electricity Data (2022); Our World in Data based on Ember's European Electricity Review (2022)
OurWorldInData.org/energy - CC BY

[1]

Primary energy consumption, 2021



Primary energy¹ consumption is measured in terawatt-hours (TWh).



Source: BP Statistical Review of World Energy; and EIA
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Note: Data includes only commercially-traded fuels (coal, oil, gas), nuclear and modern renewables. It does not include traditional biomass.

1. **Primary energy:** Primary energy is the energy as it is available as resources – such as the fuels that are burnt in power plants – before it has been transformed. This relates to the coal before it has been burned, the uranium, or the barrels of oil. Primary energy includes energy that is needed by the end user, plus inefficiencies and energy that is lost when raw resources are transformed into a useable form. You can read more on the different ways of measuring energy [in our article](#).

[2]

In the era of extraordinary rapid globalisation and development, world is facing huge energy crisis for the first time in the history, especially post pandemic period. The current decade started with the sharp decline in the energy market because of various factors including extraordinary rebound of global economic activities, those stalled as a result of forced

lockdown in the light of Covid pandemic. As the demand roars back from pandemic, energy markets all across the globe are unfolding a tremendous shortage in the availability of natural gas and electricity. Apart from pandemic, a variety of factors caused the market to be tightened including overconsumption of natural resources, strain on water and oxygen resources, rapid post pandemic economic recovery, reduction of investments by the oil and natural gas companies etc. Situation got worst following Russia-Ukraine war, when prices of oil and natural gas shown a sharp incline in the international market.

A careful study of the above graphs shows a disparity in the demand and supply of energy. Because of disproportionate demand and supply, oil and natural gas prices have hit an all time high. Same is the case with electricity. Higher energy prices have resulted into high inflation and thus pushed families towards poverty. As another significant impact some factories are forced to reduce the output or even to shut down. It eventually slowed down economic growth to such an extent, that some countries are facing severe recession.

This situation of energy crisis has forced industries to reduce the outputs which have adversely affected the economy. Similarly, in the developing countries, higher energy bills have badly affected the households and have disturbed their budgets. This ultimately is going towards the recession in the respective domestic economy. As per the findings in this year's World Energy Outlook (WEO), the combination of the Covid pandemic and the current energy crisis means that 70 million people who recently gained access to electricity will likely lose the ability to afford that access – and 100 million people may no longer be able to cook with clean fuels, returning to unhealthy and unsafe means of cooking.[3] But this can be a historic turning point towards a cleaner and more secure energy system thanks to the unprecedented response from governments all around the world, including the Inflation Reduction Act in the United States, the Fit for 55 package and REPowerEU in the European Union, Japan's Green Transformation (GX) programme, Korea's aim to increase the share of nuclear and renewables in its energy mix, and ambitious clean energy targets in China and India.[4]

Sustainable and Renewable Energy

Finding a perfect solution to energy crisis appears to be a herculean task, in the absence of unanimous and collective efforts. Renewable energy, though not perfect, still appears to be reasonable solution to the problem yet, it depends a lot on political and public support. It is often used interchangeably with sustainable energy but in fact both are different as the later is

understood in the broader sense so as to include the former energy sources. Sustainable energy is derived from the sources which can maintain current operations without compromising the energy needs or climate of future generations. The most popular sources of sustainable energy, include wind, solar and hydropower etc. These are also renewable sources of energy, which can be converted to sustainable energy.

Renewable energy is a way to transit to clean energy which amounts to an investment in our future in the nature of sustainable energy. Whereas, other sources of energy contribute a lot to the pollution in environment, renewable energy sources are relatively clean and help in reducing pollution in the environment and thus shifting from non-renewable resources to renewable resources has become inevitable.

Renewable energy in India

In her strive towards achieving the status of a developed nation, India has started focussing on its overall development through road, water, power and other infrastructure development and thus improving the standard of living of its people. India cannot rely upon its non-renewable resources for a long time, in order to meet the growing demands for power.

Hydropower: It refers to the electricity generation using water force from flowing river water waterfalls. India has 12 primary hydroelectric plants spread across various states like Bihar, Punjab, Karnataka, Uttar Pradesh, Uttarakhand, Sikkim, Gujarat, Uttarakhand, and Andhra Pradesh. In Maharashtra, Koyna Hydroelectric project is the best example of such projects. The potential of small hydropower in the country is approx. 1500 MW.

Wind: This is one of the cleanest and environment friendly sources of energy. Two of the top five wind farms have been installed in India, one at Jaisalmer, Rajasthan and another at Muppandal (Kanyakumari), TamilNadu. The country has a wind energy potential of about 45000 MW.

Solar: This, another form of renewable energy has great potential in India. Geographical location of India gives it an advantage over the other countries with respect to the production of solar energy. India has a potential to produce about 20,000 MW of solar energy.

Biomass: India is a leader in biomass energy. It can produce about 19,500 MW, which is the major source of renewable energy in India's primary energy supply.

Thus, India is one of the leaders in production and consumption of renewable energy sources. As of 2020, India's market for renewable energy ranked fourth globally in terms of potential. India's installed capacity for solar power was overall, fifth and for wind power it was fourth. With a CAGR of 15.92% between FY16 and FY22, installed renewable power generation capacity has accelerated during the past several years. By 2026, new capacity additions are anticipated to double in India, the market with the fastest growth in renewable electricity [5]. The government had set the target to achieve 175 GW of installed renewable electricity capacity by the end of 2022. This was further increased to 227 GW capacity by 2022 and 275 GW by 2027. India aims to achieve 450 GW of renewable electricity capacity by 2030 [6].

India has taken a lead for the expansion of renewable energy sector not only at domestic level but also at the global level by taking a lot of initiatives, to meet the threats of global energy crisis, as a result of over dependency upon fossil fuel as well as the ongoing war between Russia and Ukraine. As a legal as well as moral obligation, India's efforts are commendable. India has formulated a strong legislative framework for the implementation of its policy of renewable energy in the form of legislations, rules, regulations and binding policies. It has also created a separate ministry to regulate the matters related to renewable energy [7]. Though, Electricity Act, 2003 is the parent statute to govern the issues related to manufacturing, transmission and distribution of electricity in India, however, it merely recognises the renewable energy as one of the source of electricity generation and lacks the binding force with respect to the issues related to renewable energy. As there is no specific legislation governing the issues related to renewable energy, **National Renewable Energy Act, 2015** was proposed with an aim to produce energy and promote it through the renewable energy sources by taking into consideration factors like climate, environment and macroeconomic considerations for the purpose of reducing dependency on fossil fuel and to provide security of supply of energy. Act intended to govern various aspects with respect to renewable energy. Act also contributes to ensure the fulfilment of domestic as well as international objectives to increase the proportion of electricity generation through renewable sources. However, the legislation is not yet enforced and the issues are still dealt under the Electricity Act only. Apart from these two pieces of legislations, various other policies and regulations are enacted by the Government of India to regulate this sector. To name a few being, Electricity Policy 2005, National Tariff Policy 2006, Integrated Energy Policy 2006, NAPCCA, National Tariff Policy 2016, Rural Electrification Policy 2006, Draft National

Energy Policy 2017. Very recently, Parliament passed Energy Conservation Amendment Act, 2022 to amend Energy Conservation Act, 2001. The modified Act establishes regulations for the use of energy by machinery, appliances, automobiles, ships, commercial buildings, and other institutions that use, produce, transfer, or supply energy [8]. The amendment aims to (i) promote the realisation of "Panchamrit" — the five main elements given by India at COP-26 (Conference of Parties -26) in Glasgow 2021 — with a special focus on promotion of new and renewable energy and the National Green Hydrogen Mission [9]. The amendment further intends to assist India in upholding its COP-26 obligations. India pledged to (a) reach 500 GW of non-fossil energy capacity by 2030, (b) fulfil 50% of its energy needs from renewable sources by 2030, and (c) cut overall anticipated carbon emissions by one billion tonnes between the date of COP-26 and 2030. (d) Decrease the economy's carbon intensity by 45% over 2005 levels by 2030, and (e) attain net zero emissions by 2070 [10]. The revised Act aims to promote renewable energy, develop the domestic carbon market, introduce new ideas like carbon trading, and mandate the use of non-fossil sources to ensure faster decarbonisation and help achieve sustainable development goals in line with the Paris Agreement and various other climate change-related actions in addition to making it easier to achieve "Panchamrit"[11].

Therefore, as a first step of its shifting towards renewable sources, India has altered its power policy by making a provision with respect to the use of renewable energy through Electricity Act, 2003. As a continuous effort, India has enacted and also implemented various legislations, policies and schemes related to the use of renewable sources. India is now 3rd amongst the top producers of renewable energy in the world after China and Russia [12]. India has been hailed in the report for its consistent and serious efforts towards achieving the target of NET Zero. India's performance as per the Report [13]:

- Renewable Energy: India ranked third in renewable energy installations in 2021, after China and Russia.
- Hydropower Capacity: India added 843 MW of hydropower capacity in 2021, raising the total capacity to 45.3 GW.
- New Solar PV Capacity: India was the second largest market in Asia for new solar PV capacity and third globally (13 GW of additions in 2021).
- Total Installations: It ranked fourth for total installations (60.4 GW), overtaking Germany (59.2 GW) for the first time.

Initiatives taken by India to Promote Renewable Energy

- **National Solar Mission (NSM):** The 100 GW solar ambition at the heart of the world's largest renewable energy expansion programme.

- **The Wind Energy Revolution:** Leveraging India's robust wind energy sector to boost clean energy manufacturing and the rural economy
- **National Bio-fuels Policy and SATAT:** Building value chains to reduce fuel imports, increase clean energy, manage waste, and create jobs
- **International Solar Alliance (ISA):** Harnessing the infinite power for the Sun for sustainable human development.
- **Small Hydro Power (SHP):** Harnessing the power of water to integrate remote communities into the economic mainstream.
- **National Hydrogen Energy Mission (NHEM):** Exploring the commercial viability of a versatile clean fuel.
- **Production-Linked Incentive (PLI) Scheme:** Integrating India into the global clean energy value chains

India has not only taken the serious efforts in switching over from conventional to non-conventional sources of energy for its own development as well as to meet the international obligation of sustainable development, it has also taken strong initiative on the international front regarding energy conservation and use of renewable energy. India along with France played a major role for the formation of the International Solar Alliance (ISA) which aims to promote solar energy throughout the world.

Legal Issues and Challenges

It is known that the parent statute dealing with the production, distribution and transmission of electricity by any of the sources is being regulated by The Electricity Act, 2003. However, act itself provides for the supply and distribution of electricity generated by using non-fossil sources. As India is a signatory to Kyoto Protocol on Climate Change, it is obligatory on the part of India to formulate the policies which can reduce the emission of Carbon dioxide, methane and other greenhouse gases into the environment and increase the proportion of energy produced through renewable energy sources. As a result of same and also in the light of other international treaties, India has taken lead in formulation of policies, motivating the production of energy through green energy sources. In the advancement of objective of shifting from use of fossil fuel to non-fossil fuel, Government of India has introduced National Renewable Energy Act, 2015 with an objective of achieving an ambitious estimate of achieving 175 GW of Renewable energy by the end of 2022. Act provides for the Institutional Structure for the development and implementation of stable and conducive policy to facilitate investments for the development of renewable energy. Act also provides for supportive Eco-System to promote Renewable Energy resources, attract investments, constitution and operation of National and State Funds and two categories of Renewable

Energy applications i.e. Distributed Renewable Energy Application and Grid connected Renewable Energy. However, it is painful that the Act has not yet been enacted. Therefore, in the absence of any specific legislation on renewable energy, it is still Electricity Act, 2003 which regulates the energy disputes, whether related to conventional or non-conventional energy sources. Such disputes are heard by the authorities constituted under Electricity Act. Therefore, it is submitted that authorities appointed under the Electricity Act are likely to lack the expertise in the matters related to Renewable Energy and also Act lacks in dealing various issues related to non-conventional energy sources.

Land Acquisition and enforcement of Power Purchase Agreements (PPA): Though, energy legislations have promoted the private players for investment into production, distribution and transmission of energy generated by non-renewable sources, the stakeholders are facing problems for the enforcement of Power Purchase Agreements, as a result of non-fulfilment of obligations under the agreement. The root cause for the same being problems faced by the respective parties in land acquisition. Though, India is blessed with lot of renewable resources, still, they are confined to some particular areas. E.g. Central, Western or Northern India is rich in Solar Energy, whereas hilly and coastal areas are fertile areas for the generation of wind energy. Both of these Renewable Energy sources require a huge land for the installation of infrastructure for power generation. If it is a barren land or Government land, then there are least chances of having problems but if project requires acquisition of private land, then it takes a long time for the same. It eventually increases the cost of project itself. This is a major hindrance in fulfilling the obligations under Power Purchase Agreements. Therefore, until energy legislations and land laws are either interpreted or amended in such a way, so as to supplement and complement each other, there is least possibility of resolution of this issue.

Issues related to Intellectual Property:

Patent Protection: Renewable energy technology innovations and developments are eligible for patent protection. However, since novelty, inventive step, and industrial applicability must be proven, obtaining a patent in case of certain inventions in renewable energy, such as upgrading current technology or software-related innovations may be difficult. Standard Essential Patents (SEPs) are necessary for conforming to technical standards. Standards are essential for interoperability and grid integration in the renewable energy sector. It can be difficult to licence

SEPs on fair, reasonable, and non-discriminatory (FRAND) terms, especially when several patent holders contend that their patents are materially essential to be protected and thus resulting into disagreements over the licencing terms.

Licencing and Technology Transfer: Licencing agreements are essential for technology transfer and collaborations in the renewable energy sector. It can be difficult to negotiate fair and appropriate licencing conditions, ensure compliance with competition rules, and deal with problems relating to access to patented technologies.

Open Source and Collaborative Innovation: Open-source projects and collaborative innovation methods are gaining popularity in the renewable energy sector. In order to strike a balance between the goals of open access and collaboration and also to safeguard confidential information and business interests, issues with licencing, attribution, and the integration of open-source components with proprietary technologies are required to be resolved.

Bio-resources and Traditional Knowledge: Traditional Knowledge and genetic resources can be used in the production of renewable energy sources produced from bio-resources, such as biomass or bio-fuels. In order to address issues of misappropriation and to conserve traditional knowledge, compliance with the Biological Diversity Act, 2002 and related laws, including benefit-sharing duties with local people, becomes crucial.

Trade Secrets and Confidential Information: Renewable energy businesses frequently use trade secrets and confidential information in addition to patents to safeguard their unique technologies, production methods, or business plans. Protecting such information requires ensuring strong confidentiality agreements, non-disclosure agreements (NDAs) with employees along with other trade secret protection methods.

Counterfeit or Pirated Products of Renewable Energy: Counterfeit or pirated products of Renewable Energy, like solar panels or wind turbines, are issues of serious concerns. In order to preserve the integrity and calibre of renewable energy systems, protection against counterfeit goods, and raising customer awareness, it is necessary to establish procedures for reporting and enforcement.

Apparent Conflict between Renewable Energy and Food Security: Another major issue with respect to land acquisition, particularly, in the cases of solar or wind energy is that, a

huge land is required for the installation of solar panels or wind mills. Land which is used for these purposes can never be utilised for agricultural purposes, as the shadow of panels doesn't allow sunrays to reach to the land. In such circumstances, such land cannot be used for agricultural purposes, which in turn would result in reduction of the agricultural produce. The National Food Security Act (NFSA) 2013 was passed by Government of India to ensure access to appropriate quality food at reasonable rates for people to enjoy dignified lives, and thus facilitating food and nutritional security in the human life cycle approach [14]. Therefore, reduction in the agricultural produce will definitely be setback for the noble cause of food security. A commercial organisation can be independently run by a solar power plant with a 1MW capacity. A solar utility farm of this scale requires 4 to 5 acres of space and produces 4,000 kWh of low-cost electricity daily [15]. Till date we have installed the projects generating solar energy upto 60,000 MW, which virtually means that approximately 2,40,000 to 3,00,000 acres land has been occupied for the purpose of solar projects. Our target of solar energy being 5 Lac MW, it would require around 20 Lac Acres of land for the installation of projects. It is in this context, we need to balance the conflict between two rights i.e. right to clean energy and right to food security, which is a greatest challenge before the government.

Consumer Rights: This is another area of concern for the government, as cost of production and distribution of energy produced by the solar projects has to be shifted to the end user i.e. consumer. Depending on the factors, discussed above, generally the projects started till date, are big projects. Most of these projects are remotely located. Issue that arises in such cases is with respect to the distribution and transmission of electricity produced through DISCOM. For the want of reasonable market to sale electricity, companies are forced to use High Tension lines for the transmission and distribution. This consumes a lot of time and proves to be a costly affair. Further, Solar projects have a limitation to produce the electricity only during day time, that too with different efficiencies depending upon the geographical area. Moreover, project cannot produce electricity for whole of the year. Due to all these limitations, business takes thrice the duration to give returns as compared to that of conventional energy producers. For the same reasons, they are left with no other option than to fix the tariff at higher rates, which forces consumers to bear the higher cost. This can be a demotivating factor for the producers and can give a setback to the Government policies.

Challenges to the Clean Energy objective: Though, renewable energy is preferred as a substitute for the fossil fuel based energy, in order to reduce the emission of carbon dioxide

and other greenhouse gases, still, its production is subject to limitations. Solar energy production is not same throughout the day. Therefore, the quantity of available energy for distribution is relatively less. But as the renewable energy for distribution has to be preferred over conventional energy, later is bound to be produced at a low efficiency. Whenever, energy is produced at a low efficiency, actual use of fossil fuel and gas emission is very high. This is a major setback to the sustainable development goal of clean energy i.e. expected reduction of gas emission. Therefore, there has to be a mechanism which can balance this issue by ensuring maximum production of Renewable Energy at the lowest possible cost.

Conflict between Sustainability of Business and Sanctity of Contract:It is a cause for concern, especially with those bidders who moved on with the installation of power plants at competitive rates in order to further the Government of India's energy policies. When it comes to the PPA, two issues can be raised- firstly, can the contract be terminated if, at a specific point in time, obligations under the PPA could not be fulfilled due to an increase in price on the global market? Secondly, can this situation be treated as force majeure? The Supreme Court's ruling in *Energy Watchdog v. Central Electricity Regulatory Commission*[16], which did not uphold it as a basis for contract frustration, would have a negative impact on new power plants because investors would be less willing to provide significant loans to generators in the light of PPAs' stringent rules. In the concerned case, price of coal shipped from India was set for the past 40 years, thus the companies placed a bid and quoted a non-escalable tariff. It was not anticipated that the laws would change and the cost would rise. Additionally, because the PPAs are signed for relatively lengthier period of time—roughly around 20 to 25 years—it is impossible for the corporations to predict the future economy of the relevant sector. As a result, it becomes a severe issue, especially for investors, since the investors in the power sector may constantly be impacted by the related issue of fluctuation in raw material prices at the global level.

A debate on *Sustainability of Business v. Sanctity of Contract* has begun in light of the foregoing Apex Court's judgment. Regarding the business case, it is argued that since sellers receive a fixed revenue from the production and sale of electricity, any change in the price of raw materials will immediately impact them. If the safety of investors in the power sector is maintained in jeopardy, it will discourage investors from funding similar projects in the future, which would ultimately have a negative impact on both the consumers and the overall power sector. Further, the government's stance on this issue varies for PSUs and private players. On the other hand, proponents of the sanctity of contract argue that if the parties to

the agreement knew the conditions of the agreement and freely chose a fixed price for the contract without including a price-variation clause, they should be remedied under the doctrine of frustration of contract. Companies chose to submit low bids in an effort to support their claim, and since doing so would be unfair to other bidders, they shouldn't be granted the opportunity to alter the PPA. The same way that no player should be able to change the rules of a game once they begin playing it, firms should be prohibited from making changes to contracts once they have been signed. Furthermore, it is argued that the Central Commission is obliged by Section 63 of the Electricity Act, as it gives the Central Government the authority to regulate a bidding contract. It is submitted that such clauses cannot be regulated by the Central Commission.

Environmental Issues: Though, in order to achieve the targets set in the Sustainable Development Goal related to clean energy, a lot of honest efforts are taken by the member countries, yet there are several other serious socio-legal issues arising in various countries. There are many cases reported with respect to adverse impact of Solar parks on environment. An impact of solar energy on wild life, ecosystem and avian species is badly required to be assessed. It has a very bad impact on water quality, storm water as well. Questions related to soil health, manufacturing hazards of PV material, disposal of PV panels after life of 30 years, long term effect on native plants and animals, effect of installations on agricultural lands, impact on birds and insects flying between beam of concentrated sunlight etc. are a few such environmental issues, which are required to be addressed at the earliest.

Socio-Legal and Human Rights Issue: Apart from all these issues various human rights issues like lack of due diligence, lack of prior and free community consent, land acquisition, displacement, land grabbing, rights of indigenous people, forced labour, mining labour hazards etc. do exist, which have not been addressed in any of the legislations. As per BHRRC Report, out of 200 allegations relating to human rights violation in last 11 years 44% allegations are related to Solar and wind projects, which is definitely a matter of concern.[17]

Conclusion and Recommendations:

In conclusion, India's efforts to produce renewable energy are hampered by a variety of legal issues. Creating capacity within the legal and regulatory systems, strengthening the enforcement of existing laws and regulations, and developing a clear and uniform legal framework are some of these difficulties. India is positioned to dominate the worldwide market for renewable energy despite these obstacles. India can overcome its current obstacles

and emerge as a world leader in renewable energy with the help of the proper policies and financial investments.

Following are some recommendations for the government of India to address the legal challenges faced by the renewable energy sector in India:

1. Adopt comprehensive renewable energy legislation that establishes a dependable legal foundation for renewable energy initiatives. India must strengthen its legal and regulatory framework to meet the problems posed by renewable energy.
2. This law ought to address issues like PPA enforcement, grid access, land acquisition, apparent conflict with food security along with consumer, environmental and human rights issues etc.
3. Ensure that the laws and rules governing renewable energy be more strictly enforced. This will assist in preventing bribery and corruption in the renewable energy industry and in ensuring that the law is administered equally and consistently.
4. Training the regulators, judges, and attorneys with the matters related to renewable energy, so that they are equipped to handle the intricate legal problems that occur in the renewable energy industry. This would make it more likely that the legal system in India will be able to successfully resolve the problems faced by the stakeholders in renewable energy sector.
5. Promote investments in research and development by offering incentives and expedited review processes for patent applications pertaining to renewable energy.
6. Establish patent examination department with specialised knowledge of renewable energy technologies to guarantee the quick and accurate assessment of patent applications.
7. Formulation of precise rules and norms for licencing renewable energy technology and standardising the terms and conditions of licencing, especially for SEPs.
8. Establishing technology transfer offices, encouraging industry-research interactions, and supporting licencing discussions can help to facilitate the transfer of technology.
9. Licencing procedures should be simplified and prevent disagreements, encourage the usage of sample licencing agreements or standard contractual terms.
10. Increase the effectiveness of patent enforcement measures, including the creation of specialised intellectual property courts or tribunals for the swift adjudication of patent disputes.

11. To resolve patent infringement cases more quickly and affordably, promote alternate dispute resolution procedures like arbitration or mediation.
12. To decrease inadvertent violations, raise stakeholder knowledge and educate them about patent rights and infringement risks.
13. Establish open and equitable licencing frameworks for SEPs, making sure that the conditions of the licence are decided upon in accordance with FRAND principles.
14. Encourage the creation of clear policies and procedures for SEP licencing and dispute resolution by organisations that set standards for the sector.
15. Promote the use of open-source licences that are transparent regarding usage rights, attribution specifications, and compatibility with exclusive technologies.
16. Establish standards or recommended procedures for combining open-source elements with proprietary technologies while adhering to licence requirements.
17. Encourage platforms for collaboration and information exchange while assuring adequate acknowledgement of contributors' intellectual property.
18. Strengthen legal frameworks and regulations for traditional knowledge, bio-resource access, and benefit-sharing in relation to renewable energy technology.
19. Encourage the implementation of benefit-sharing agreements and mutually agreed terms (MATs) to ensure equitable pay and local communities' and traditional knowledge holders' participation.
20. Create systems for enforcement and monitoring to stop the theft of traditional knowledge and genetic resources.
21. When transferring technology or discussing sensitive information in joint initiatives, strong non-disclosure agreements (NDAs) should be in place.
22. Implement stringent security measures, such as personnel training programmes, physical and digital security systems, and monitoring systems, to safeguard business secrets and sensitive data.
23. Make sure there are clear rules and legal repercussions for stealing trade secrets, including both civil and criminal sanctions.
24. To find and stop the introduction of fake and pirated renewable energy products, strengthen enforcement and border control procedures.
25. Create systems for reporting and looking into instances of counterfeiting, together with reasonable rewards and punishments for offenders.
26. Increase public knowledge of the dangers and repercussions of using fake renewable energy goods through consumer protection programmes and educational efforts.

In addition to the government's efforts corporate sector and people can assist government to help the growth of renewable energy in India. Some of these efforts may include:

1. Investing in the green energy projects. Renewable energy certificates can be issued either by the government or corporates for raising funds. One can accomplish this indirectly or directly by investing in renewable energy firms.
2. Public participation in the law making of renewable energy related laws and religiously following them.
3. Teaching others and ourselves about the advantages of renewable energy. This may contribute to improving the environment favourable for the growth of renewable energy in India.

We can all work together to make India a global leader in the switch to renewable energy by taking these actions.

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