



POLICY PROPOSAL

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Introduction

India has committed to achieving net zero emissions by 2070 at Glasgow. This will require clear pathways to reduce the carbon emissions and other greenhouse gases considerably. At the same time India also aims at Sustainable and Affordable developments in the Power and Energy sector.

The conventional method of Energy Generation that India largely depends upon is not going to serve developing India's requirement for the energy and these methods are also responsible for more carbon emissions than the other clean energy methods like Renewable energy, e-mobility, ethanol blended fuels, green hydrogen. These clean Energy generation methods are still looked upon as alternative sources but we should understand that more and more focus should be on increasing the Energy mix share of clean energy.

The energy transition should be affordable and technologically advanced with focus on Finance and planning. For this there's a requirement of more Research and Development. Research and Development in this context should be comprehensive, covering each and every aspect like efficient and affordable products, innovation, efficient use of natural resources, distribution of different clean energy according to the location for better utilization according to environmental conditions of that region and also developing better storage systems for storing energy from sources like sun and wind which is available only during a specific time of the day.

Current Key challenges in achieving affordable clean energy transition.

- India depends on imported raw material for various kind of productions like solar p.v. cells, batteries for storage which significantly increases the cost of production.
- Lack of Research and Development-India has great scientists who can invent rockets and space probes and many other things at a very low cost but we fail to understand their talent and utilize their talent for building a better and sustainable Nation.
- Though we get Investments in the form of FDI but there is a lack of investments in terms of the requirement for a developing country like India.
- No financial model yet discussed for the clean energy transition, we have to work on this, a well-planned financial model can make wonders.
- An average solar panel or a wind mill or any other equipment has a life of nearly 15-30 years depending upon the wear and tear due to environment and their use this is a concern at individual level in India because a typical Indian household focuses on the life time of a product.

- Non-availability of required area for the installation of new technologies is a concern and is a measure concern in electrical grid formation but this can be sorted with good planning.
- Lack of awareness about various clean energy is a big problem.
- India's poverty is linked to the term affordability though we are progressing but many people still lie below the poverty line.
- Need of innovative policies and the implementation and amendments of the already existing policies.
- The dependence of this energy on climatic conditions makes it difficult for people to adopt these options. Example-less use of solar panels in rainy season.

New emerging solutions with focus on achieving the stated Net Zero goals.

- **Short Term Goals-2027 (solutions)**
 - Achieving complete clean energy transition in Government organization, offices and railways.
 - Increasing Research and Development in the Power and Energy and Clean Energy Sector for making the solutions affordable.
 - Attract more investments and businesses in clean energy transition by making good models and plans.
 - Strategic (location-wise) distribution of the different kinds of energies according to the climatic conditions of different states.
 - Steady transitions from fossils fuels to renewable and clean energy.
 - Better storage systems for storing the energy produced from renewable sources.
- **Mid Term Goals-2030 (solutions)**
 - Strong network of public transportation system and creating awareness and promoting use of public transportation to reduce Carbon emissions.
 - Carbon capture, utilization and storage- an emerging and new technology if applied for power plants or sugar factories can decrease the carbon emissions significantly (R & D required).
 - Removing or at least reducing fossil fuel subsidies to reduce the use of fossil fuel power generation and advising and encouraging power generation using Renewable sources.
 - Setting up Off-shore wind farms considering the large Sea face that India has got.

- **Long Term Goals-2050,2070 (solution)**
 - Complete manufacturing of Electric vehicles, and other Net zero Solutions (Aatma Nirbhar Bharat) and also exporting this solution to other developing countries for their collective betterment of the world.
 - Enhancing the Forest cover over the years along with the development of infrastructure.
 - Focus on Waste management from the very beginning.
 - Setting up Bio-gas plants in each and every agriculture dependent village of India for power generation or to use as a cooking gas and also provide fertilizer for farmers.

The action points and the roadmap to achieve Net Zero goals-

Action Points-

1. Rural India has more ability to generate Clean Energy, there should be more focus on turning our villages and towns into Energy hubs while not affecting the agricultural land there, as this would increase employment and also meet the energy requirements of the developing India
2. Location wise distribution of energies- the parts in the North eastern part of India has very little exposure to renewable energy but this part has a good potential for generating energy by setting up wind farms. Though it's difficult to reach in this part of India but it would be a rising sun for the people in this part and such projects would create many employment opportunities for the local.
3. Also, considering the large sea face of India, many wind farms can be deployed which can generate large amount of energy.
4. The financial model for this transition would be completely private with strict supervision of the Government officials and proper record of each and every action because while achieving these Net Zero goals, we also not have to decrease the trees count and forest cover at the same time. The reason for private model is private model creates more competitive environment which helps to develop good solutions.
5. We need to have more focus on achieving this transition by involving the existing power companies and other new companies in India (Atma Nirbhar Bharat) for production of or providing any service related to this clean energy because it would be easy for this companies due to availability of required equipment in this companies and it would also decrease any lose of this companies due to the transition.
6. The incentives or subsidies should be gradually decreased for the fossil fuels-based energy generating power companies but this should be very gradual because we have to keep in mind India's increasing energy requirements.

7. At the same time government should think upon reducing the GST (keeping it 5% as it was earlier). In this regard the 1. Central Government rooftop solar subsidy programme, 2. Waste to Energy Programme 3. Biogas Programme (Phase-I) are very ambitious and would give a kickstart to our Mission.
8. Awareness is very important in this process, it is observed that there is very little attention and discussion on News and Media channels on this Topic of Net Zero goals, for this we have to make new advertisements and promotionals to promote our mission and make everyone aware at the National level. Proper use of social media and daily discussions by scholars on this topic on news channels regarding this can be very helpful.
9. Involvement of youth in this process is very important and also government provides many internships to the youths but again we observed that enough publicity is not available so here we should frame a new policy for every news channel to highlight all the government missions and new schemes and opportunities on a daily basis.
10. Research and Development opportunities should be increased tremendously because many talented youth and scientist would be motivated to help in the nation building process. Here, a noteworthy point is Formation of a Research community specifically for research on Efficiency of Net Zero Solutions. Declaration of prizes for inventing better products, this would ignite motivation among them.
11. Now regarding the Forest cover because trees are our most beneficial partners in our mission. Here we would introduce a new policy for strategic planting of trees and their reallocation from the site of new infrastructure project.
12. One milestone step in this process is firstly all government offices and organizations should make a transition to clean energy by using Solar rooftops and small sized wind mill, electric vehicles for transport, etc.
13. Also, there must be a policy for manufacturing companies and industrial area who have large area for rooftop solar for them to install this solar equipment.
14. From the very beginning we should consider and work on the Waste management arising from the use of clean energy solutions like recycling of Solar rooftops after their breakdown and many other recycling and reusing policies should be applied similar to the recent Battery swapping Policy.
15. The implementation of various policies developed by our team as discussed in the next part can be very helpful.
16. There is a need of deploying better storage systems for storing the energy produced from solar or wind because these sources are available for a specific time of the day.
17. There should be good attempts for motivating people towards using these solutions.
18. Atma Nirbhar Bharat should be our vision in this whole process where everything should be produced in India.

Roadmap

During all these phases a good supervision by government should be carried out on the success of our goals (new committees can be formed for this)

1. Planning Phase-

- Most of the important decisions and new policies should be developed in this phase.
- Financial planning and utilizing the budget properly for the planned projects.
- The starting years would be very crucial.

2. Deployment phase-

- In this phase the planned policy will be deployed.
- Attracting more investments.
- Proper awareness in Newspaper and on news channel and more attention should be attracted towards our National Goal of achieving Net Zero emissions.

3. Post deployment Phase-

- Thorough surveillance on the output of each policy whether its working with its full potential or not.
- Any Necessary amendments should be carried out on the existing policies
- Problems faced by anyone in this process should be studied well and all necessary steps should be taken against it.

Further we have come up with many new policies in chronological order in the immediate next part which can be carried out step by step.

Implementation strategy and policy framework required to achieve Net Zero goals

We have come up with some new policies for achieving the net zero goals-

1. **Railway stations rooftop and railway lands solar installation programme-**

- India has thousands of railway stations, solar installation on railway stations rooftops and railway lands would help us in achieving or getting close to our goal of producing 50% electricity through renewable sources as well as to reduce carbon emissions.
- Area availability is the most important factor in this policy, we get a lot of area in the form of rooftops.
- Also, the grid formation would be easy in this case. Connecting to the grid would also be very easy.
- Railways can either use its electricity generated for its stations power supply or even to provide for overhead electrical equipment to haul trains directly.

- Implementation of this policy would start with large junction railway station, then other railway station
- Solar plant is recently installed in Bina railway station in Madhya Pradesh in collaboration with BHEL.
- We can think of the Green bonds for large fund raising for such projects.

2. Government organizations transition to Clean Energy Policy-

- The aim of this policy is to completely transform Government offices and organizations to generate and use electricity generated by new clean energy solutions this may include Electric vehicles for their transportation and solar rooftops for electricity generation.
- The implementation for this policy would start with large governmental offices including courts, assemblies and according to the success we would apply it for other small governmental offices.
- Committee formation is a must for this policy. This committee would handle all the request/projects and keep an eye on the success of this policy.
- For solar panels and electric vehicles-the implementation process for this would be similar to the central government solar rooftop subsidy program (for solar panel) where the head of the government office would calculate all the requirements and provide the complete report to the concerning office where the request would be processed and after processing, the required steps be carried out for installation.
- The funding should be done according to the requirement of the units (solar panels in this case) by the central and state government.
- This would also be grid connected similar to the central government solar rooftop subsidy program.
- The initial cost of this would be high but it would be beneficial in the long run.
- The source of capital for the required projects can be Green bonds where government can raise money for various projects.

3. United India, United People, United Renewable Energy Alliance-

- This policy is the extension of the Central Government rooftop solar subsidy programme but the major difference is that it will target a large segment of people.
- The policy says that if under the solar rooftop subsidy program if more than 10 people opt for solar rooftop for their individual houses then there would be increase in the percentage of the subsidy (optimum 2%-5% increase).

- The main aim of this policy is to build a strong network of solar in less period of time.
- The main problem is the availability of the discom providing these services in each state because in some state there are not enough discoms for providing solar installation service.

4. Policy for strategic planting and transplantation of trees –

- As we know trees are the most beneficial partners in achieving the Net zero goals. Trees help in absorbing the excess carbon dioxide.
- India is developing on a large scale in terms of infrastructure whether it's new road, metro, or airports this leads to destruction of vast forest area and many trees. Therefore, there must be a policy for strategic planting and relocation of trees.
- Currently Delhi Government has undertaken this policy to transplant trees but it should be adopted and undertaken throughout the country because we know that trees are the most beneficial partner in this transition.
- The transplanting process can also be done with the help of a transplanting machine.
- This policy should be explained to the contractor before bidding itself.
- The policy would come as a rule for every contractor to make arrangements for this replanting and transplantation of trees.
- The cost of transplantation should be borne by the contractor itself.
- At the same time there should be the policy to plant twice the saplings that were cut during the project.
- Strict supervision of the government officials and locals is required.
- A portal should be made for complaining about cutting trees anywhere in the country.

5. Policy for providing tax benefit on installation of large solar rooftops or wind mills for large companies and factories (manufacturing units).

- The aim of this policy is to encourage aspiring companies for their transition to clean energy.
- This policy would be similar to the PM Kusum Yojana but instead of farmers it would target big industrial area for connecting to the solar grid.
- This would also increase the grid formation to a large extent.
- There are many manufacturing companies in India and they have large rooftops, many such companies have already installed solar but this policy would motivate other companies for installing solar.
- The implementation would be the same as the PM Kusum Yojana.

6. Formation of a new scientific/research community/organization to work on making efficient clean energy solutions that are affordable (similar to DRDO).

- R&D (research and development) is a very important process in success of any new technology and continuous R&D can help us produce more efficient products which can then be exported and also benefit other countries in our goals for net zero emissions.
 - We have seen many researchers of Indian origin have contributed to the scientific community but they did this in some other country so we should understand that we are lagging somewhere. Proper steps are necessary to be taken for providing good conditions for researches in our country
 - This research community would have an aim of solar panels, turbines for generators, electric batteries, wind mills that are made in India.
 - A committee should be formed on this issue to get the proper solution.
7. Policy for efficient electrical appliances production as directed by the standard agencies-
- Studies say that only one third electrical appliances follow mandatory performance standard this leads to a lot of electricity wastage and electricity wastage leads to more carbon emissions.
 - This policy would strictly advise efficient electrical appliance production which are energy saving and follow all regulatory standards.
 - Strict supervision and removing any product from market without ISI mark.

Key strategies or financial mechanisms to make the solutions affordable.

- We observed that most of the renewable energy product distributors or manufacturers in India don't provide an **EMI option** to their customer and this should be thought upon this would attract customers for renewable energy usage.
- **Green Bonds-** This is a new policy adopted by Denmark where we can raise good amount of funds, for various projects at the Government level related to clean energy transition.
- Many countries provide Tax Credit on the buying and in the investment of clean energies, India should also think upon it.
- Under GST Act, there is no exemption on the manufacture or sale of solar panel devices or their parts. The solar devices are subject to a 12% tax rate. It would be more suitable to apply **only 5% GST** for the sale of these devices for normal citizens at least in the initial stage
- Our policy United India, United People, United Renewable Energy Alliance can considerably reduce the cost per person in the process of transition.

- If we focus on **Atma Nirbhar Bharat** then the solutions would automatically get affordable because the tariff on goods or raw materials won't be applicable therefore the production cost would also decrease.

Adoption of Emerging Technologies to achieve the above stated goals.

Transplantation-

The process of relocating a tree from one site to another. it can be done with a machine known as transplanter which lifts the tree from the its site and transports it to the another site and places it there in a pit.

Carbon capture, utilization and storage (CCUS)

CCUS involves the capture of CO₂ from large point sources, such as power generation or industrial facilities that use either fossil fuels or biomass as fuel for example. Sugar factory Power plants, Leather industries. The CO₂ can also be captured directly from the atmosphere. If not being used on-site, the captured CO₂ is compressed and transported by pipeline, ship, rail or truck to be used in a range of applications, or injected into deep geological formations (including depleted oil and gas reservoirs or saline aquifers), which can trap the CO₂ for permanent storage.

Smart Grid

A smart grid is an electricity network that uses digital and other advanced technologies to monitor and manage the transport of electricity from all generation sources to meet the varying electricity demands of end users. Smart grids coordinate the needs and capabilities of all generators, grid operators, end users and electricity market stakeholders to operate all parts of the system as efficiently as possible, minimizing costs and environmental impacts while maximizing system reliability, resilience and stability. Smart grids comprise a broad mix of technologies to modernize electricity networks, extending from the end user to distribution and transmission.

These are some small changes in our lifestyle that can help us a lot in future in decreasing the wastage of electricity as discussed below

- A small change in clothing style in offices from hot and sweaty suits and formal clothes to khadi clothes can decrease the requirement for Air-conditioning in offices and significantly decrease the electricity consumption.
- Switching off lights when not in use. This is the most basic point but we often ignore it.
- Using public transport for going from one place to other.

Summary

The policy proposal consists of many new policies that can be implemented for achieving the net zero goals-

1. **Railway stations rooftop and railway lands solar installation programme.**
2. **Government organizations transition to Clean Energy Policy.**
3. **United India, United People, United Renewable Energy Alliance.**
4. **Policy for strategic planting and transplantation of trees.**
5. **Policy for providing tax benefit on installation of large solar rooftops or wind mills for large companies and factories (manufacturing units) similar to PM Kusum Yojana.**
6. Formation of a new scientific/research community/organization to work on making efficient clean energy solutions that are affordable (similar to DRDO).
7. Policy for efficient electrical appliances production as directed by the standard agencies.