

Innovative Marketing Strategies for Sustainable Green Energy Resources in State of Odisha to Overcome Energy Crisis

***Vikashita Mohanty**

ABSTRACT

Our surrounding is growing rapidly and a lot of radical changes are taking place around. Technological advances are at its peak. With such a growth around, there comes a lot of positive as well as negative repercussions that has its impact on the environment. In a time when so many things are changing around the environment, it becomes mandatory to take care of the negative impact that those changes can have on our surroundings. With the rise in population, the demand for energy is also rising. And this paper focuses on the renewable source of energy. To deal with the current scenario of conserving the energy for future a lot of initiatives have already been carried out. And in this regards most of these initiatives are now being undertaken by government. Although many initiatives are taking place, the people still need to know about the conservation activities and their advantages. This paper aims to explore the marketing strategies to create a brand of sustainable green energy and there-by directing the focus on the renewable energy.

Keywords: *Green Marketing, Sustainable Marketing, Green Energy, Green Strategies, Green Technologies.*

Introduction

Green energy is the source of energy which does not have any or minimum detrimental impact on the environment. The energy and the technologies that are renewable are referred to as “Green Technologies”. These green technologies are expected to play an

* **Vikashita Mohanty**, Assistant Professor, DRIEMS MBA, Tangi, Odisha, Email: vmohanty9@gmail.com

important role in solving the problem of energy and pollution. There are serious concerns worldwide to develop new, renewable and clean and green sources/technologies of energy. The abundant renewable energy sources like solar, wind, hydro, bio, hydrogen etc. available in the country are going to be the prime mover of a sustainable energy system in the coming years. Eco-efficiency has become very popular and is the need of the hour.(Ottman, 1998)

The population of the country is expected to exceed 1315*10 by the end of the year 2019-20. Based on the present trends available in the rate of urbanization, the share of urban population is projected to increase from 25.385 in 1990-91 to 43% in the year 2020. The growth in the GDP and its structural changes will have an effect on demand for energy and energy supply mix in future. The GDP grew at a rate of 3.5% on an average up to the 70's, has averaged more than 5.6% per annum growth in the 80's. The GDP grew at the rate of 6% per annum during the seventh five year plan against a target of 5% per annum. The eighth year plan had set a target of 5.6% per annum growth in GDP and the likely achievement is projected to exceed well over 6% per annum. The various assumptions are woven around three scenarios: Business as usual (BAU), Efficiency-oriented Scenario (EFF) and environmentally constrained Scenario (ENV) net rate of consumption and production.

Need to Emphasis Green Energy

The emphasis on green energy is increased due to one of the major reason that is rising and their dependence on the energy. India with 20% of the world's population with 1.17 billion people ranked second in the world consumes only 1.5% of the total energy consumed in the world. Assuming the present consumption of energy, it is estimated to be of 10 million megawatts, by the year 2020 and this figure would be about 5 times. If the living standards of the developing countries are improved and approaches to that of

developed countries are adopted then the energy requirement in the coming years will be much more than estimated above.

Present Status of Development of Green Energy Resources In India

Many global and Indian companies are taking several initiatives to protect the environment that includes green house gas reduction, renewable energy and noise reduction etc.(Yasmin Begum R. Nadaf & Shamshuddin M. Nadaf, 2014) Due efforts made in exploration and development of hydrocarbons has led to a significant set up in the production of oil and natural gas. The availability of hydro electricity has also increased significantly and touched a record generation of 92Twh in 2005-2006 .Additionally the nuclear power generation from nuclear power plants is also gaining momentum . Again in addition to the installed generating capacity of 94915MW in the utilities, the non-utilities have over 13000MW of capacity installed with the power industries for their use. The generation from this capacity was about 52Twh in 2008-2010.Further, the railways also have about 168MW of installed capacity with an annual generation of 0.04Twh. , almost whole of the capacity with non utilities is thermal, based on either coal, or diesel and gas.

Present Scenarios of Green Energy Resources in India

- i. **Solar Energy:** No. of solar street lighting systems = 55,795 No. of Home Lighting System = 342,607 Solar Lanterns = 560,295 Solar Photovoltaic power plants = 1566KW Box type Solar Cooker = 575,000 Solar Photovoltaic pumps = 6818 If 10% of the total land area is used, the available solar power would be 8 million MW which is equivalent to 5,909mtoe per year. India has 2.12 MW of grid connected solar power generation power capacity. India is currently ranked Number one along with United States in terms of installed solar power generation capacity. The average intensity of solar radiations received in India is 200MW/Km

square having area of 3.287 million square Km amounting to solar potential 657.4 million MW. Whereas 87.5% for agricultural purposes and forest area, 6.7% for housing, industry etc., 5.8% is barren, snow bound or inhabitable. Thus, only 12.5% of land owing to 0.413 million Km. square can be practically used for harnessing solar power.

- ii. **Wind Power :** India is the fifth largest installed wind power capacity in the entire world. India has wind power installed capacity of 157,899MW. Samana wind farm at Gujarat is the largest wind power project by RULON.CLP India.
- iii. **Hydropower :** India ranks 5th in hydropower generation. India is also known as the pioneering country in the world to establish hydro electric power plants. Only 19.9% of hydropower has been harnessed so far with 94,000MW capacity.
- iv. **Biomass :** India has a potential of 16,881 MW (agro-residues and plantations), 5050MW (bagasse generation) and 2700MW (energy recovery from wastes). There are 40 lakh bio gas plants in India. Biomass attracts investments of over INR 600 crores every year generating almost 5000 million units of electricity and yearly employment of 10 million man-days in rural areas.
- v. **Geothermal Energy:** India is ranked 15th in world in geothermal power generation. India possesses a potential of 10,600MW of geothermal power. Almost 3, 00 hot spring locations have been identified by Geological Survey of India (GSI).

Initiatives Undertaken In The Application Of Sustainable Green Energy In Odisha

Renewable energy assumes great significance in the wake of huge demand of electricity throughout the country outstripping the supply, which is being largely met from coal based thermal generation. Although Odisha has large deposits of power grade coal in Talcher and IB Valley Areas which has attracted a number of thermal generating plants both in the private and public sector, and a commensurate effort is required to ramp up generation

from renewable energy sources also. The Government of Odisha had issued Policy Guidelines on Power Generation from Non-Conventional Energy Sources vide Notification No. 6971/ST, Bhubaneswar, ST-IV-RE13/2005, dated the 3rd December, 2005 with an objective to reduce dependence on conventional sources of power generation, protecting the environment, generation of employment in large scale, generation of grid-quality power, encourage entrepreneurial investment, and to extend such rational fiscal and promotional incentives so as to provide conducive atmosphere to attract private investment

Renewable Purchase Obligation (RPO)

All Obligated Entities in the State are required to purchase quantum of renewable energy as prescribed by OERC in its Regulations Under Section 86(1)(e) of the Electricity Act 2003.

The Odisha Electricity Regulatory Commission (OERC) has also issued OERC (Procurement of Energy from Renewable Sources and its Compliance) Regulations, 2015 for purchase of electricity from Renewable Energy sources, making it mandatory for the obligated entities to source a certain percentage of their power purchase from Renewable Energy sources.

According to the revised National Tariff Policy notified on the 28th January, 2016, the RPO percentage will reach 8% for Solar and 9% for Non-Solar Power by the year 2022 (leaving hydro consumption). According to the demand forecast done by the STU (OPTCL), the requirement of Solar and Non-Solar Power will reach up to 1850 MW and 600 MW respectively by the year 2022. Further, MNRE has communicated the cumulative Solar Power capacity addition target as 2191 MW by the year 2022 keeping in view the revised National Tariff Policy 2016.

Hence, developing alternative power through renewable energy sources has become urgent and the Odisha Renewable Energy Policy needs to be viewed from that angle. Over

the last few years, many developments have taken place necessitates a strong policy push to propel the growth of various renewable energy sources in Odisha. The present Policy had been framed against these developments and the backdrop in line with the GOI Framework under the Electricity Act, 2003 and the National Tariff Policy.

The vision of the Policy would be to harness green and clean energy from natural resources in the State of Odisha for benefit of the environment and to ensure energy security for the people of Odisha.

The mission of the Policy would be to provide a long term sustainable solution for meeting energy needs and reducing dependence on conventional sources of power in order to achieve the Renewable Purchase Obligation targets and also fulfill the objectives of the State Action Plan for Climate Change.

Objectives

The Policy aims to achieve the following objectives— (a) Contribute to long-term energy security of the State as well as ecological security by reduction in carbon emissions. (b) Create an environment conducive to public/private /community participation and investment in Renewable Energy Projects. (c) Create skilled and semi-skilled manpower resources through promotion of technical and other related training facilities. (d) Enhance the contribution of Renewable Energy Projects in the total installed capacity of the State through private participation. (e) Facilitate development of manufacturing units and Research & Development in the Renewable Energy sector.

"GEDCOL" means Green Energy Development Corporation of Odisha Ltd , a wholly owned subsidiary of Odisha Hydro Power Corporation Ltd. (OHPC) created with the main objective to explore the renewable energy resources in the State.

"OREDA" means Odisha Renewable Energy Development Agency (OREDA), constituted as a State Nodal Agency under the aegis of Dept. of Science & Technology, Government

of Odisha with a view to popularize the exploitation and use of renewable energy resources in the State.

The Government will continue to encourage and support Decentralized Renewable Energy applications for on-grid / off-grid / hybrid modes to address the energy needs of poorer and deprived communities, to make efficient use of RE resources and to promote efficient demand side management. ORFDA shall be the State Nodal Agency to execute and co-ordinate all projects under decentralised applications of Renewable Energy such as :-- (a) All RE based small/mini/micro grids up to 1 MW (b) Roof top Solar Projects (c) Solar water pumping for irrigation, drinking water supply etc. (d) Wind-solar hybrid projects (e) Micro/Pico hydro projects (t) Biomass gasifier for power generation and thermal applications (g) Solar thermal projects (h) Biogas based projects for domestic application & power generation (i) Improved cook stoves (j) All new and innovative energy options

Rooftop Solar Projects: Rooftop solar power plants are defined as solar PV based electric generators either in stand alone or grid connected mode. The stand alone plants can work on complete DC mode or convert the DC power generated from SPV panel to AC power using power conditioning unit and feed the power to various captive loads. In grid connected mode, they can feed the power to grid either at 33 KV/11 KV three phase or at 440/220 volt three/single phase depending on the capacity of the system installed and the regulatory framework specified. They generate power during the day time which is utilized fully by powering the captive loads and feed excess power to the grid as long as grid is available. In case, where solar power is not sufficient due to cloud cover etc., the captive loads are served by drawing power from the grid. The grid-interactive rooftop system can work on net metering basis within the purview of the OERC Order.

Biomass Gasifiers for Power Generation and Thermal Applications: Biomass power generation through gasifier route is mainly targeted at meeting rural power requirement. MNRE is promoting multi-faceted biomass gasifier based power plants for producing electricity using locally available biomass resources, both woody and agro residues. The

focus of this programme would also be to meet the captive electrical and thermal needs of rice mills and other industries, which in turn would help in replacing/saving the conventional fuels such as coal, diesel, furnace oil etc. The main components of the biomass gasifier programme would be: (a) Biomass gasifier based Distributed/Off-grid power for rural areas. (b) Captive power generation applications in Rice Mills and other industries. (c) Tail end grid connected power projects up to 2 MW capacity.

Biogas Based Projects for Domestic Application & Power Generation: The gas produced from dung or any other biodegradable waste is a source of fuel for rural and semi-urban areas. It is an appropriate and renewable energy source from waste, which is abundant in rural and semi-urban areas and provides a decentralized, cheap and environment friendly energy. The methane gas which is one of the constituents of GHG emissions is most suitably utilized as fuel supplement. The process can be applied to small domestic units as well as larger farms and institutions. The size of domestic household type biogas plant will depend upon the cattle available.

Improved Cook Stoves : Improved biomass cook stove is basically a combustion device which burns biomass fuel more efficiently with reduced emissions and offers cleaner cooking energy solutions. Biomass cook stoves are of two types; fixed type and portable type. The portable cook stoves are also of two types, natural draft and forced draft. Advanced cook stoves utilizing fans are more efficient compared to natural draft ones. Each type of cook stove can be used for domestic as well as community cooking applications. The improved cook stoves can be made from any suitable material.

Biomass Project At Gift College

In the light of the focus on the sustainable green energy ,Gandhi Institute for Technology(GIFT) one of the esteemed engineering college in Bhubaneswar, has initiated a biomass project inside the premises of the college and is successfully generating fuel out of the Kitchen wastes effectively. The initiative do not only utilise the Kitchen waste

effectively but also generate good amount of fuel from the waste.(das,amar,2018) .The process is also cost effective and can be undertaken by common people.

Solar Project Initiative At Gift College

Another project under sustainable green energy is also initiated in Gandhi Institute for Technology (GIFT), in the shape of rooftop solar projects. The college has installed rooftop solar panels to utilise the solar power for the power needs of the institution.

Marketing Strategies For Sustainable Green Energy

In order to design the marketing strategies this paper deals basically with two sources of energy, "Solar energy & Biomass energy" that can be used by the common people with much ease through knowledge and awareness.

- Regional political actions and support is required to promote the sustainable green energy
- Niche marketing strategy must be adopted to reach out to specific targeted consumers.
- Focus on academic institutions, individual consumers and industrial consumers at industrial regions.
- Providing enough information about the green energy and its advantages
- Marketing on the basis of the strength i.e cost effectiveness of the green energy
- Providing support system in the form of creating awareness and giving training and demo of the activities
- Government and private players partnership
- Giving concession in taxes and duties and other benefits
- Exemptions from certificates ,fees and charges
- Special incentives to be given to renewable energy manufacturing units.
- A systematic promotional activity is to be done to reach out to the consumers in the form of nukkad plays, TV and print media promotions etc so that the information can be passed on to the consumers.

References

1. Lalwani Mahendra, Singh Mool, Canadian Journal on Electrical and Electronics Engineering. Vol.1 No.6, October 2010.
2. Energy Policy of India available at: http://en.wikipedia.org/wiki/Energy_policy_of_India
3. Major achievement in Energy and Renewable Energy available at: <http://www.mnre.gov.in>
4. <http://www.nhpcindia.com>
5. Details of history of departments for Renewable Energy: <http://www.mnre.gov.in/>
6. India Energy statistics available at: <http://www.eia.doe.gov/cabs/India/Full.html>
7. India Energy profile available at: http://tonto.eia.doe.gov/country/country_energy_data.
8. Information and Public Awareness. Booklet on Renewable energy of Ministry of Non-Conventional Energy Sources, Government of India. <http://www.mnre.gov.in>
9. Das, Amar. (2018), Sustainable conversion of kitchen wastes into fuels and organism fertilizers
10. Ottman, J. (1998). Green marketing: opportunity for innovation. *The Journal of Sustainable Product Design*, 60(7), 16–25. [https://doi.org/10.1002/\(SICI\)1099-0836\(199903/04\)8:2<147::AID-BSE191>3.0.CO;2-U](https://doi.org/10.1002/(SICI)1099-0836(199903/04)8:2<147::AID-BSE191>3.0.CO;2-U)
11. Yasmin Begum R. Nadaf & Shamshuddin M. Nadaf. (2014). GREEN MARKETING: CHALLENGES AND STRATEGIES FOR INDIAN COMPANIES IN 21ST CENTURY. *International Journal of Research in Business Management (IMPACT: IJRBM)*, 2(5), 91–104. Retrieved from <http://www.impactjournals.us/journals.php?id=78&jtype=2&page=6>