

Geographical Study of Wind Energy Resources in Ahmednagar District

Shoukat Z Fakir*, Prof. Dr. Balshing R.R.**

* Dept. Of. Geography, A.C.S.College, Soinai, Ahmednagar (M.S)
** Prof. Dr. Balshing R.R., Dept. Of. Geography, M, J.College, Jalgaon (M.S)

I. INTRODUCTION

Ahmednagar is one of the biggest district of the Maharashtra state. As a climatic view, it is tropical district. Its Geographical location is 19 Degree Latitude North and 80 Degree Longitude East. In this district, there is Sahyadri ranges as the Kalsubai, Adulsa, Baleshwar and Harichadragad hills. As Geological view whole district is made by the volcanic lava flow in the Eocene age. This land is known as the Deccan traps. Mostly rock is Basaltic. Most of the soil of this district is a Black and red soil. As hydrological review, there are Godavari, Pravara, Adula, Mula, Dhora and Sina River. There are Fourteen Taluka. As an Agricultural attitude half part is irrigated and half part is semi-arid. Total population of the Ahmednagar District is 45, 43,159. This whole population has need of the lot of electricity for domestic, Agricultural and the Industrial purpose. This whole electricity is supply by the Mahavitaran electrical board of Maharashtra. In this district there are Suzlon, Enercon, Ganesa is generating the wind electricity. Maharashtra Energy Development Agency is taking this energy and supply for the Indian grid Network. Today wind Electricity in Maharashtra is 4500 MW in which Ahmednagar district is produce the 400 MW wind electricity. In this research paper we have study the wind energy of Ahmednagar district by Geographical attitude.

II. CONCEPT OF WIND ELECTRICITY

Wind is a weather element. Wind is product of the different between High pressure and Low pressure location. Wind is kinetic energy. This kinetic energy can be convert in the electrical energy with the help of windmill. Group of the windmill is known as the wind farm. First wind electricity was developed by- Prof. James Blyth (1887) in Scotland. Wind turbine convert the kinetic energy in electricity. These wind turbines are like as the aircraft whose blades turn in the moving air. In this process electric generator supplies the electrical current. There are two type of wind turbine, as Horizontal axis and Vertical axis. According to the location the classification of windfarm as offshore and onshore. This electricity is Renewable Non-pollution clean electricity. Today worldwide production of the wind electricity is 5, 00,000. MW. In our nation India is the production is 40,000 MW. It has fifth rank in the world after the US, China, Spain, and Germany. India have the 11% growth rate in the wind electricity. Utility of electricity in India is 303 GW. In which 28 % is Renewable (like as Wind and Solar energy). 72% is Non- Renewable electricity. India is sixth largest nation in the power generation of the world. In the Maharashtra, there is

Suzlon, Enercon, Vestas, Regan wind energy manufacturing organization. Financial support is made by the SBI, IDBI, ICICI Bank. This wind energy is a clean energy as a Kyoto protocol. India is one of the Asia's largest wind energy producer. As per location of windfarm there are two type of wind energy, onshore wind mill is located on the land body and another is off shore, this energy is collected from the coastal area. Government of India have made the policy of wind energy in the October 2015, in which Tamil Nadu, Gujarat and Maharashtra have the good scope. The development of the wind energy is started from the Ratnagiri coastal area in 1986. In our nation India, there are the 237 Station for the economically good for the electricity. In India wind energy is easy to the formation i.e. five rupees per units. According to its great scope in India there is "National Institute for Wind Energy" established at Chennai in 1889. The potential for the wind Energy in India was first made by the Dr. Jami Hossian using the GIS platform. He explain that there is 2000 GW wind energy capacity in India. Hence there is six times more capacity of total today's electricity in our nation.

III. GENERATION OF WIND ELECTRICITY IN AHMEDNAGAR DISTRICT

Ahmednagar is one of the pioneer district for the wind energy. Out of the total wind electricity of the Maharashtra, 10% of the electricity is occur in this district. geographical condition is more suitable for the wind energy i.e. Western dhat and lava platform foundation, which can be gives the suitable support for the windmill. In this district there is tropical dry Monsoonal climatic region. That's why wind density is suitable for the wind energy. Potential sites for the windfarm in Ahmednagar – Kavda Donger, Khandke, Kolgaon, Panpatta. CLP India's Power Project at the Khandke, there was project start in 2006. This project is 50 MW. This was the first project of CLP. This electricity is taken by the MSEDCL. Turbines of windmill made by Enercon whose rated output is 800KW. SJVNL wind energy project is public sector Hydropower major Satluj Jal Vidyut Nigam. There are 56 Wind Power turbines which are developing 47 MW electricity at Khivire (Akola). This project is run by the Gamesa. Third project is located at Supa in Parner the wind turbine are made by Suzlon. At the Supa Bajaj Auto to set up 20 MW wind power project in which 20 wind generator of 1000 KW is working. Kolgaon, taluka Shrigonda is one of the potential site for the formation of wind energy. Another one of the expected site is Kosegavthan. In this district there are strong wind are blowing in the Monsoonal period. that's why most of the electricity (70%) is generated in the month of the May to September. In this district, there is continuous

mountain region of the western dhat, whoes heihgt is avaragely 600 to 700 meter from the ground surface thats why transportation activity is more suitable. Due to the less rainfall these land are barral and less vegetation area. Today there is 500 MW generation of the wind electricity in this district, but the potential capacity is more the 20 times.

IV. WINDENERGYANDREGINALDEVELOPMENTIN AHMEDNAGAR DISTRICT

Energy is one of the most important element for the human development. It is one of the component for the regional development. Electricity is one of the from of energy. It have the more effective power than the other element. wind is one of the kinetic energy which is developed by the heating effect of the sun. If we study the Ahmednagar district, there are so many variation in Geological, Agriculture, Forest, climatic etc, its effect is happen on the economic development. some part of this district is more progressive than the remaing area. for example Kopergaon taluka is more progressive than the Jamkhed and another example as a Shrirampurs is developed than the taluka Pathardi. most of the wind farm is located on the plateau of the high land which are economically backward. That is Akola, Parner, Pathardi, Jamkhed, Karjat, Shrigonda. can be take the benifit from this wind electricity. Electricity in this area is started just last dacade, but it has take the fast growth in the electrical field. in the coming days there will be more progress for this wind energy. most of the electricity is conected with the Indian Grid system. But some of the electricity is apply for the local need as the domestic purpoe, Agricultral activity, Industrial purpose. india is developing country its lot of population is illiterate if these population will see this windmill in there village the technical knowldge will be improve in comeing new youth generation. In our nation per capita electricity is 600 Kw. But the world level is 1000 Kw. with the help of this wind electricity per capita electricity will be improve. Small wind Energy and the hybrid system is also useful for the dry and remote rural area. For example 30 KW. Wind hybrid system is located at the Bhagwangad, Tal. Pathardi. In this district Hydro-electricity is also available in the Northern hilly region located near the Bhandrdara and Ghatghar Dam of the 300 MW. This electricity is also playing role in the regional development. Lighting for the Dark this is one the aim for the wind energy which is useful for the village of the Ahmednagar. with the help of new technology as “ Wind – Solar Hybrid System “ is working together it is one of the useful technology for the tropical Ahmednagar district. Norhten and the Western side of the Ahmednagar district is hilly and economically backward, this wind energy will supply new energy for this region. It will be give new employ for the local region. This energy will be boost for the local agro-based Industries. Wind electricity will be slove the Histrorcal energy crisis. Government of the Maharashtra make the plantation of

vegetation. Area of the windfram is more suitable for the more plantation. Hence the this windfarm is planted by Govt. agencies and NGO. Ahmednagar is central district of Mumbai, Pune, Nashik. This electricity will be supply for the industrial area and Railway and tephone network. The district place Ahmednagar is located near this windfram. So lighting of windfarm is more applied for this city region.

V. CONCLUSION

Wind energy is renewable energy. It is cyclic energy which is clean energy soruces. It more pollution free energy source. Day by day the important of wind energy is increging. There are lot variation in Ahmednagar district as natural and economic. with the help of wind energy we could make the regional development. Half dry region can be made the energetic i.e Parner, Pathardi, Jamked, Karjat, Shrigonda and neburing region as the Pathoda, Asti and the Beed. The high hilly region of the Maharashtra – Kalsubai, Rajur, Ratangad can be made lighting with the help of this electricity. Surplus electricity will be supply for the agro industry. Now a day lot of Industrial area are going to developing this electricity will be more applied. In this Maharashtra there is 50 Nodal agency for the wind energy. For the purpose of more elctrical development, there is “ Maharashtra Energy Development Agency (MEDA). This wind energy is supply for the MSEB. Hence this wind energy will rotate the wheel of development in Ahmednagar district.

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AUTHORS

First Author – Shoukat Z Fakir, Dept.Of. Geography, A.C.S.College, Soinai, Ahmednagar (M.S)

Second Author – Prof.Dr. Balshing R.R, Prof.Dr. Balshing R.R., Dept.Of. Geography, M, J.College, Jalgaon (M.S)