STUDY OF WIND POWER IN DIFFERENT PARTS OF BANGLADESH

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Abstract- *Due to the reduction of available fossil energy resources and also safety problems and high cost of nuclear energy, conventional sources of energy are depleting and emphasis is now focused on renewable energy. The number of researches related to renewable energies, especially wind energy is increasing. Wind energy is a renewable source of great potential. It's cheaper and requires less maintenance, but there are problems associated with him. The wind turbine (WT) associated with the issue of the unpredictable nature of wind. It also makes it easy to get a constant frequency and constant voltage from wind turbines driven by the variable speed. Bangladesh has to deal with the increasing demand of electricity. With the world' increasing trend of utilization of wind energy and the reduced costs of renewable energy technology and improved efficiency and reliability, wind energy can be good alternative solution to Bangladesh's dependency on natural gas which gets more expensive in the future. Bangladesh has a projected electricity demand of 12,229 MW in year 2016; only 100 MW of that huge demand is projected to come from wind power sources. It is come to be deployed in the coastal area and islands. But there are other places of interest for wind power generation, which could be good means for solving the huge power crisis and problem. This paper exposes Prospect and feasibility of wind power in different parts of Bangladesh. And also discuss Wind speed in different local in Bangladesh, feasibility of different scale of wind power generation. Wind speed average 5 m/s to 3.5 m/s. wind turbines could be installed and tested in locations such as St. Martins Island, Cox's Bazar, Patenga, Bhola, Barguna, Dinajpur, Thakurgaon and Panchagar.*

Key words: Bangladesh, Wind Power, Feasibility, Prospect, renewable energy, wind power Generation.

1. INTRODUCTION

Wind energy is being popular all over the world due to its attractive contribution on almost zero fuel cost and lower environmental effect than conventional sources with ensuring forever energy supply; also the energy capturing capacity of wind generator is higher as compared to photovoltaic generator. A conventional energy source includes oil, gas and coal. These conventional sources are usually fossil fuels. Their useleads to increased greenhouse gas emissions and other environmental damage .After the conventional sources fully depleted the country will face a serious problem's, finishing the conventional sources; our need to turn toward the renewable sources. According to Bangladesh Power Development Board (BPDB), the electricity demand of Bangladesh will be 12,229 MW by the end of the year 2016[1]. Only 100MW of it will come from wind power sources. Total generation of Bangladesh Power Development Board (BPDB) will be 12,229 MW and the public sector comes from 6,440 MW, the private sector 5,789 MW. Quick rental will be 1962 MW [1]. Renewable energy will be 107 MW, it come from wind power 100 MW and 7 MW from solar [1] Wind power can be a very important mean to solving the persisting energy crisis in Bangladesh. Bangladesh is a south Asian country located between 20v300N 26v380N and 88v040E–92v440E, bordered by the Bay of Bengal at the south, Myanmar at the south-east and India at the west, north and north-east. Bangladesh has a 724 km long coast line and many small islands in the Bay of Bengal, There is the summer month's sea-breeze blow and trade winds are strong south-westerly. North-easterly trade winds are gentle and winter months are land breeze [2-3].In wind power system Bangladesh has excellent opportunity geographical position. Many research work on wind power system in Bangladesh. Local Government Engineering Department (LGED) and Bangladesh Power Development Board (BPDB) are working this research.one of the project work Muhuri Dam. It rated capacity of 0.99 MW [1]. Muhuri Dam research works indicate wind power potential capacity 100 MW. During the Monsoons winds are excellent in Bangladesh and also before and after one to two months. Months starting from late October to the middle of February, either wind is too slow to be of any use by a wind turbine. That mentioned four months, a windmill properly designed and located, can wind energy to be marketable. Wind speed in different part of Bangladesh and Choose the best possible options for small, medium and large scale wind power generation in different parts of Bangladesh should be wind power feasibility. The study of this paper wind power in different parts of Bangladesh and feasibility in different scale of different parts in Bangladesh. Also discussed wind data in different location.

2. PRESENT ENERGY SCENARIO OF BANGLADESH

The energy infrastructure of Bangladesh's is quite small, inadequate. Wood fuel, animal waste, and crop residues such as Noncommercial energy sources are consumption approximate half of the country's energy. Bangladesh oil and coal reserves are small. Bangladesh has very large natural gas resources. Commercial energy spending is mostly natural gas around 66%, followed by oil, hydropower and coal. Natural gas, are used mostly power generation.76.74 % of electricity is being produced from Natural gas [4] and electricity generation uses 41% of total gas consumption [4], so demand of natural gas increasing by about 8% per year [4]. But in Bangladesh reserve of gas was 14.16 TCF at the end of 2015 and would be available up to 2031 at the present consumption rate [4].But our demand increasing in natural gas, so our need stop natural gas and high repairing cost are involved .In Fig. 1 that power produced gas filed two-third of total electricity production, but only 3.56% of electricity is producing from renewable sources (hydro, solar and wind). A large portion of generation, 96.44% of total energy, is generating from nonrenewable sources which are polluting air, land, water and organic environment gradually.

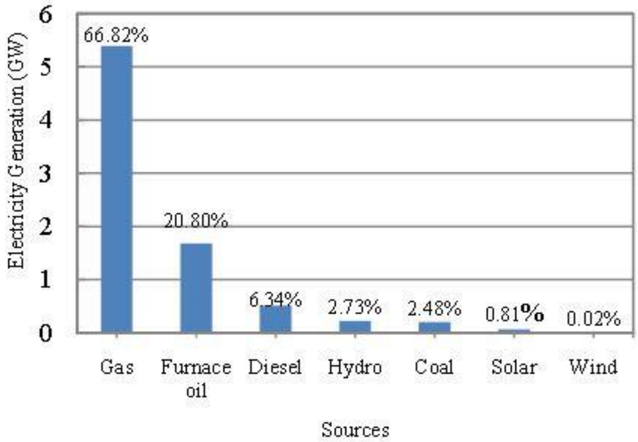

Fig -1: Electricity generation in Bangladesh from different sources [6], [1].

So, our need to stop nonrenewable (conventional energy) sources, because bad effect of our generation and power crisis. Also Effect our environment. In Fig.2 shown projected up to 2030 power demand of Bangladesh.

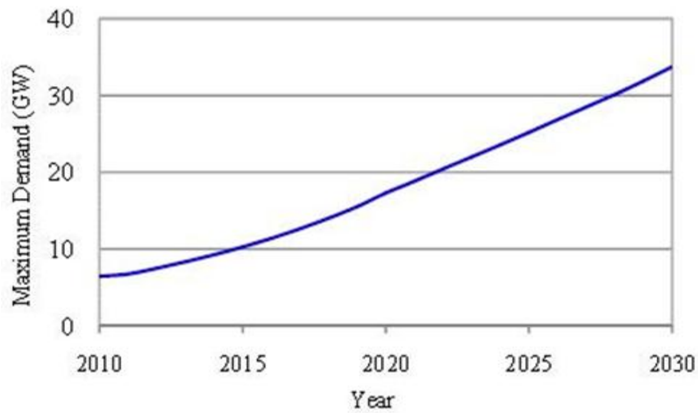

Fig -2: Electricity demand of Banglades Up to 2030[7]

In Fig. 2, power requirement is serially increasing and this growing demand is met by unsustainable energy sources [5]. The next power generation is possible; a road map of Bangladesh Power Development Board from 2030- "Power System Master Plan (2010)," 30% of the coal-based electricity production will be up to the recommended offer. However, in 2012, coal-based power generation is only ~ 2% contribution to the total energy generated, and in 2011 it was 2.46% [11].2, 527 million tons of coal reserves in accordance with the overall BNEP-2004. So, this kind of state, it is expected that the coming years will face a painful lack of energy. So Bangladesh needs durable energy sources. Just shifting from renewable sources would be the best fit for Bangladesh.

3. WIND SPEED IN BANGLADESH

Bangladeshi wind speed average 5 m/s to 3.5 m/s. It is not constant. The following table gives information about the monthly variation of wind speed in some places of Bangladesh. It is clear that the wind speed is not constant for power extraction at promising level. In a particular year, but it is an important leveraging manner. It shows that the country's electricity from wind turbine exhaust for a few months in certain areas is not possible at all.

Table -1: Average Wind Speed (m/s) at 25 Meters Height at Different Locations in Bangladesh [12]

Locations	Month												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Agu	Sept	Oct	Nov	Dec	Men
Barisal	2.90	2.57	2.57	3.56	3.32	2.90	2.71	2.65	2.57	2.11	2.07	2.05	2.66
Bogra	1.95	2.20	3.05	4.03	4.15	3.66	3.42	3.05	2.56	2.20	1.83	1.71	2.82
Chittagong	3.64	2.88	4.95	5.01	5.51	6.89	7.09	6.83	4.64	2.20	3.39	2.20	4.65
Comilla	2.26	2.70	2.57	5.45	3.83	3.20	2.88	2.95	1.82	2.38	1.63	1.70	2.78
Cox's Bazar	3.76	3.83	4.51	5.58	3.83	4.14	3.83	3.95	3.20	3.26	2.57	3.26	3.81
Dhaka	3.39	3.26	4.39	5.77	6.33	5.71	6.01	5.89	4.39	3.45	2.64	2.95	4.52
Dinajpur	2.68	2.44	4.88	2.44	2.93	2.68	2.56	2.44	2.44	3.54	2.44	2.44	2.83
Hatiya	3.04	2.64	4.16	3.97	4.82	6.47	5.75	2.64	2.96	2.77	3.06	2.57	3.74
Jessore	2.88	2.95	4.95	8.34	8.34	6.27	6.15	4.95	4.33	3.45	3.32	3.20	4.93
Khepupara	4.20	4.39	3.38	7.09	5.83	4.71	4.14	3.95	3.57	3.70	2.95	2.57	4.24
Khulna	2.96	1.65	3.04	3.05	4.16	3.89	3.31	2.44	2.51	1.98	3.31	2.38	2.89
Kutubdia	1.77	1.82	2.32	2.70	2.77	3.65	3.61	3.14	2.11	1.45	1.19	1.29	2.32
Mongla	1.07	1.25	1.72	2.51	2.92	2.63	2.48	2.35	1.83	1.27	1.02	1.01	2.20
Rangamati	1.45	1.65	4.42	3.10	2.11	3.23	1.72	2.24	1.45	1.45	1.39	1.59	2.15
Sandwip	2.32	3.01	3.20	4.83	2.44	3.83	3.39	2.70	2.32	1.63	1.70	1.70	2.75
Sylhet	2.20	2.93	3.29	3.17	2.44	3.68	3.44	2.71	2.71	1.95	1.89	1.83	2.76
Teknaf	3.70	4.01	4.39	4.01	3.32	3.89	3.43	2.88	2.44	2.20	1.57	1.76	3.17
patenga	6.22	6.34	7.37	7.92	8.47	8.69	9.20	8.54	7.48	6.93	6.71	5.91	7.48
Satkhira	4.21	4.40	3.84	7.10	6.11	4.76	4.27	4.03	3.62	3.78	3.54	2.81	4.37
Thakurgaon	4.15	5.06	7.93	8.43	8.66	4.05	7.93	6.59	6.34	5.98	5.25	4.76	6.59

4. METHODOLOG

Climate division of bangladesh meteorological Department from collected wind speed data three hourly in different places of Bangladesh.

For the year is available. These places located at different parts of the country, although, most of the places are located on the coastal area, but there are places on the other parts of the country as well (Fig. 3). The available wind speed data is taken at standard meteorological height of 10m [13]. This data is converted to 50m data by standard conversion process [14]. Monthly, yearly and overall wind speed data is analyzed at 50m height. Power generation is divided in different scales e.g. - micro, small, medium and large scale based one the Differentiated power class's categorization [9]. Samples collected from wind speed, wind power density of the 50m and 120m in height is calculated, and are categorized into different power classes [8].

Depending on the class, the average speed of the wind, the generation of those places that is assigned to different scales [9]. At different places the mean wind speeds are considered as the base speeds for different wind turbines [11]. Wind blow is not available desired place, so power generation is not always available [12]. Availability of wind in different places is not same. Availability of wind in different moths of a year is also different [14]. Wind speed plays a major role in selecting the turbine in a certain place, the size of the turbine is directly related to the mean wind speed [11].

Bangladesh divided alluvial plains and hilly areas by topographically. Basically most of the area low land and alluvial plain formed by the sediments of the several great rivers. It is tributaries and distributaries which traverse the country. In the east of Comilla are found low hills north-eastern extremities of Bangladesh. Khasia-Garo-Jainta and the Tippera Hills of India are part or extension. Chittagong hill districts are concentrated more important hilly areas this are geologically the offshoots of the Arakan Yoma running through Eastern India to Burma. Steep sloped parallel ranges, largely covered with tropical forests are Chittagong Hills.

These Hills rise steeply to narrow ridge lines, generally no wider than 120 feet and no

higher than 2000 to 3000 feet. The highest pick in Bangladesh is Keokradang (4,034 feet) in the south-east end of Bandarban district.

The equation

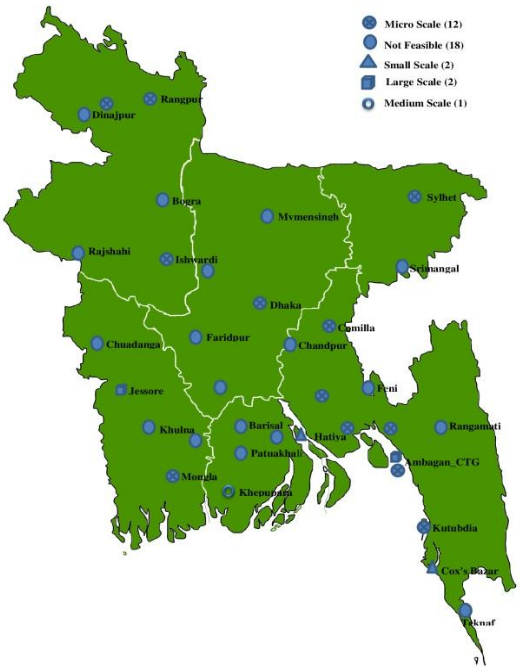

Fig -3: Different Location, Different Places sites of Bangladesh [15].

For determining the wind power density is given by equation [8-9]:

$$\text{WPD}=\frac{1}{2}\rho V^3 \quad \text{……………. 1}$$

Where WPD= Wind Power Density, v= Wind Speed (m/s), ρ= Air Density (kg/m3). And that air density can be determined to varying degrees of accuracy with the following methods ρ = 1.225 - 1.19-4H
Where H= height in m, ρ = 1.225 kg/m3 (constant value based on U.S. Std. Atmosphere, at sea level).
For more than 1 sample the wind power density is calculated by the equation [8-9],

$$\text{WPD}=\frac{1}{2n}\sum_{j=1}^{n}\rho_j\, V_j^3 \quad \text{………….2}$$

where n is the number of wind speed readings and pj and vj are the jth (1st, 2nd, 3rd, etc.) readings of the air density and wind speed. Once WPD is calculated at different places using equation , different wind power class are assigned for them using Table 2

Table -2: Wind Power density, mean speed, Wind Power class [8-9]

Scale	Power rating	Rotor Diameter	Power Class	Mean Wind Speed (m/s)
Large Scale	More than 1 MW	More than 45m	5,6,7	More than 7.5
Medium Scale	40 kW to 1 MW	12m to 45m	3,4	6.4 to 7.5
Small Scale	2 kW to 40 kW	3m to 12m	2	5.6 to 6.4
Micro Scale	50 W to 2 kW	Less than 3m	1	Less than 5.6

Wind Power Class	At 50 m (164 ft)		At 10 m (33 ft)	
	Wind Power Densiy(W/m^2)	Mean Speed Range(b)m/s(mph)	Wind Power Densiy(W/m^2)	Mean Speed Range (b) m/s(mph)
7	>800	>8.8(19.7)	> 400	>7.0(15.7)
6	600-700	8.0(17.9)/8.8 (19)	300-400	6.4(14.3)/7.0 (15.7)
5	500-600	7.5(16.8)/8.0 (17)	250-300	(13.4)/6.4 (14.3)
4	400-500	7.0(15.7)/7.5 (16	200-250	5.6(12.5)/6.0 (13.4)
3	300-400	6.4(14.3)/7.0 (15)	150-200	5.1(11.5)/5.6 (12.5)
2	200-300	5.6(12.5)/6.4 (14)	100-150	4.4(9.8)/ 5.1 (11.5)
1	<200	<5.6(12.5)	<100	<4.4 (9.8)

Table -3: wind power Generation in Different Scale.

For different wind power class different scale of generation can be realized (Table 3). From calculated wind power class, different scale of generation is assigned for every place.

5. FEASIBILITY & DISCUSSION

Chittagong 4.65 MS-1 shows a moderate average wind speed but the rests have a very low average wind speeds. Sylhet shows next highest wind speed is 2.76 ms-1.Average wind speed over 2 ms-1, to 1 ms-1 other places. Residual places have a very low wind speed of less than 1ms-1.Madaripur is the worst all of the Locations and it speed of 0.66 ms-1. In 50m height Wind power density are calculated all site of the Locations It shown in Fig.3 and Fig.5.The highest of all in Locations is at Chittagong and it wind power density with 187 Wm-2. Then near power densities are 180 Wm-2,130 Wm-2 Jessore and Khepupara and Remainder of the places are wind power density below 100 Wm-2. The wind power density of these all sites can be divided into different power classes. Different power classes are 7 e.g.-1-7. Table 2 is exposition Wind Power density, mean speed, Wind Power class. Table 3 is exposition wind power Generation in Different Scale. Calculation of wind power density and also can be seen from Table 2 that all 35 to 50-meter height of the fall of the power class 1. As the wind speed increases with an increase in the height of the turbine, wind power density will increase with the increase in height.

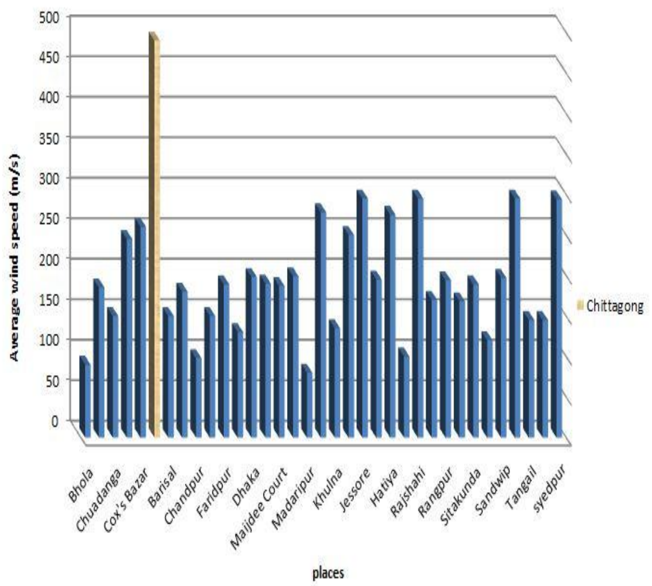

Fig -4: Average wind speed

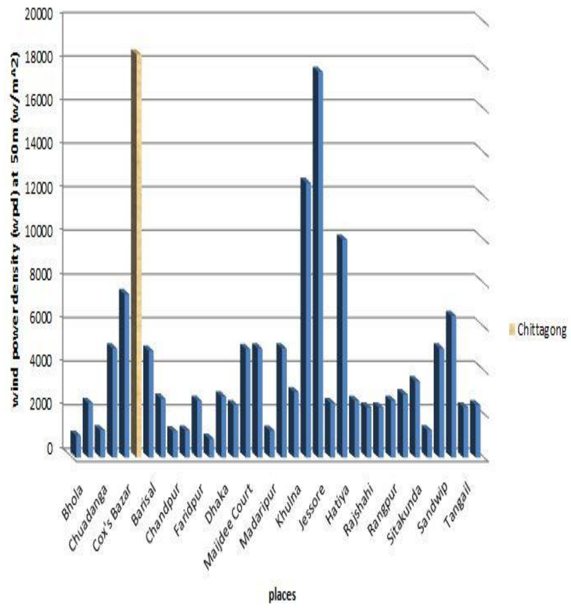

Fig -5: Wind power densities (WPD) at 50m

Basically commercial wind turbines operate 30m to 120m height. At different height wind power density is calculated, in different sites newly calculated wind power density power classes are measured at 120m.In 120m height wind power density and Table 2 that Chittagong and Jessore fall in power class 5, Khepupara in class 3, Cox's Bazar and Hatiya in class 2 and remainder of the places in power class 1 at 120m .Albeit power generation scale cannot directly relate to the power class but low power class sites are not used for high scale power generation because of economic reason. Basically power class 5 or more are used for large scale power generation. Few times class 4 sites used for large scale generation. In that case plant capacity factor will be reduced.

From Table 3 it is seen that difference among different scale of generation is rotor diameter and mean wind speed. Larger the scale of generation larger the rotor diameter and mean wind speed. In all the places 50m height maximum scale of generation is micro scale. Whereas density of wind power less than 200 Wm-2 for all sites and class of power 1 all the sites. Large scale generation 120m height Chittagong and Jessore, Khepupara at medium scale. Small scale generation at120m height Cox's Bazar and Hatiya. Remainder of the places only compatible for micro scale generation. Maximum micro scale generation is considered all site at 50m and 120m separately from Chittagong, Jessore, Khepupara, Cox's Bazar and Hatiya all other site are not comprised in the exploration as at that height all those site still comfortable for only a micro scale generation. 120m micro-scale generation will not be profitable.

For power class 1 small, medium and large scale generation is not possible as mean wind speed is very low. But there are specially designed micro scale wind turbines which work in a very small wind of 0.25 ms-1. The base wind speed for these turbines is 5 ms-1 and cut out wind speed is 20 ms-1. It means, these turbines will produce output power in the wind speed range of 0.25 ms-1 to 20 ms-1.The base speed of 5 ms-1 means it will produce rated output power if wind speed is 5 ms-1 or better. If wind speed below 5 ms-1 it will produce a little output power.

Table - 4: Wind Power Density and Plant Capacity Fact

Place Name	Wind Power Density (W/m^2)		Power Class		Feasibility		Plant Capacity Factor (PCF) (%)		Feasibility
	At 120m	At 50m	At 50m	At 120m	At 50m	At 120m	At 120m	At 50m	Overall
Chittagong	532	187	1	5	Micro Scale	Large Scale	53%	61%	Large Scale
Cox's Bazar	204	72	1	2	Micro Scale	Small Scale	34%	29%	Small Scale
Rangamati	72	25	1	1	Micro Scale	Micro Scale	N/A	10%	Not Feasible
Teknaf	69	24	1	1	Micro Scale	Micro Scale	N/A	15%	Not Feasible
Jessore	511	180	1	5	Micro Scale	Large Scale	28%	32%	Large Scale
Barisal	141	49	1	1	Micro Scale	Micro Scale	N/A	17%	Not Feasible
Chuadanga	37	13	1	1	Micro Scale	Micro Scale	N/A	12%	Not Feasible
Comilla	132	47	1	1	Micro Scale	Micro Scale	N/A	24%	Micro Scale
Bhola	18	7	1	1	Micro Scale	Micro Scale	N/A	9%	Not Feasible
Dhaka	89	31	1	1	Micro Scale	Micro Scale	N/A	22%	Micro Scale
Dinajpur	15	5	1	1	Micro Scale	Micro Scale	N/A	9%	Not Feasible
Faridpur	70	24	1	1	Micro Scale	Micro Scale	N/A	18%	Not Feasible
Feni	42	15	1	1	Micro Scale	Micro Scale	N/A	15%	Not Feasible
Hatiya	268	94	1	2	Micro Scale	Small Scale	30%	28%	Small Scale
Ishwardi	68	24	1	1	Micro Scale	Micro Scale	N/A	21%	Micro Scale
Chandpur	30	10	1	1	Micro Scale	Micro Scale	N/A	10	Not Feasible
Khepupara	368	130	1	3	Micro Scale	Medium Scale	26%	26%	Medium Scale
Khulna	72	26	1	1	Micro Scale	Micro Scale	N/A	13%	Not Feasible
Kutubdia	106	37	1	1	Micro Scale	Micro Scale	N/A	26%	Micro Scale
Madaripur	35	12	1	1	Micro Scale	Micro Scale	N/A	6%	Not Feasible
Maijdee Court	98	35	1	1	Micro Scale	Micro Scale	N/A	20%	Micro Scale
Mongla	106	37	1	1	Micro Scale	Micro Scale	N/A	21%	Micro Scale
Mymensingh	59	21	1	1	Micro Scale	Micro Scale	N/A	18%	Not Feasible
Patuakhali	50	18	1	1	Micro Scale	Micro Scale	N/A	14%	Not Feasible
Rajshahi	52	18	1	1	Micro Scale	Micro Scale	N/A	17%	Not Feasible
Ambagan_CTG	90	32	1	1	Micro Scale	Micro Scale	N/A	21%	Micro Scale
Rangpur	73	26	1	1	Micro Scale	Micro Scale	N/A	21%	Micro Scale
Sandwip	116	41	1	1	Micro Scale	Micro Scale	N/A	20%	Micro Scale

Satkhira	30	10	1	1	Micro Scale	Micro Scale	N/A	9%	Not Feasible
Sitakunda	117	41	1	1	Micro Scale	Micro Scale	N/A	20%	Micro Scale
Srimangal	102	36	1	1	Micro Scale	Micro Scale	N/A	16%	Not Feasible
Syedpur	180	64	1	1	Micro Scale	Micro Scale	N/A	38%	Micro Scale
Sylhet	145	51	1	1	Micro Scale	Micro Scale	N/A	31%	Micro Scale
Tangail	27	9	1	1	Micro Scale	Micro Scale	N/A	13%	Not Feasible
Bogra	68	24	1	1	Micro Scale	Micro Scale	N/A	18%	Not Feasible

At 50m height all places power class 1 and Chittagong, Jessore, Khepupara, Cox's Bazar and Hatiya this five places belong to power class 2 or above at 120m height. Small, medium and large scale power generation at least 2 or greater power class is required. There are design specially type of wind turbines for power class 1 sites, as work at a very small wind speed and generate a micro scale of power Feasibility for micro scale power generation is called plant capacity factor (PCF) in at 50m height for all places. Economically feasible PCF of 35% or more per standard practice, but EU level capacity factor of 21%. 20% considered PCF require the site as feasible. For this condition 17 are found feasible for micro scale power generation. Chittagong, Jessore, Khepupara, Cox's Bazar and Hatiya are studied for feasibility in terms of PCF at only 120 heights. Reminder of site is not comfortable because power classes still remain on 1.Large scale generation are studied Chittagong and Jessore, Cox's Bazar and Hatiya for small scale generation. The Studied of medium scale are Khepupara. Found more than 26%, PCF for all five sites e.g- hatiya 28%,Chittagong 53%, Khepupara 26%, Cox's Bazar 34% and Jessore 28%. As per realized capacity factor in EU level all these sites are commercially viable at 120m height. In Table 4 are discuses Wind Power Density, Power Class, and Plant Capacity Fact and Feasibility all of the sites.

6. POWER GENERATION AND COST ANALYSIS

Interspace into surrounding turbines needs to be at least several times the length of the turbine blades to prevent lowering the efficiency of the turbines due to one stealing wind from or causing turbulence for another. A rule of thumb is that 3 to 7 diameters between adjacent turbines in a direction perpendicular to the wind should be placement turbines. It should be 10 diameters spacing in a direction of the wind. It is difficult to accurately measure the costs of wind plants. The costs for a commercial scale wind turbine ranged from $1.2 million to $2.6 million, per MW of nameplate capacity installed. Most of the commercial-scale turbines installed today are 2 MW in size and cost roughly $3.5 Million installed. In wind power generation Wind turbines have significant economies of scale. Low cost are scale turbines Smaller farm or residential and but are more expensive per kilowatt of energy producing capacity. Under the 100-kilowatt wind turbine costs roughly $ 5,000 to $ 3,000 per kilowatt of receptivity. We can produce 25.1 kW from per turbine if we use the rotor of diameter 8m. Bangladesh's coastal areas suitable for wind power generation.

Fig -6: Placement of Turbines

Bangladesh has a 724 km long coastline.

So the scope of installation = $\frac{724000}{(5*8)}$ = 18100
Turbines per row. Diameter of poles space five times.
If the sea shore has a width of two hundred meters on an average,
The number of rows is = $\frac{200}{(10*5)}$ = 4

All number of turbine = 18100*4 =72400.
So total power generation = 72400*25.1 = 1817240kW or 1817.24MW
We can easily use our offshore wind turbine can generate about 1820MW.
The total cost will be (1820000*4000) = 7280000000.or 7280 million US dollars (5100 crore Tk.) approximately.

Table -5: Fuel, Transmission and Distribution Costs

Energy Technology	Share of Fuel Cost in kWh	Initial Investment, O& M Costs kWh	Transmission and Distribution Costs kWh	Total cost kWh
Gas	Tk. 1.11	Tk. 1.10	Tk. 0.85	Tk. 3.06
Oil	Tk. 17.89	Tk.1.50	Tk. 1.25	Tk. 20.64
Coal (at mine mouth)	Tk. 0.75	Tk. 1.25	Tk. 1.25	Tk. 3.25
Coal (imported)	Tk.7.00	Tk. 1.25	Tk. 1.25	Tk. 8.50
Wind Energy (11KV, AC)	Tk. 0.00	Tk. 5.91	Tk. 1.75	Tk. 7.66
Solar PV (11KV, AC)	Tk. 0.00	Tk.79.18	Tk. 1.50	Tk.80.68

We have seen from the above table that in case of wind energy we need not any fuel cost whereas it would require about 18 Tk. when using oil as fuel. Though total cost for each kWh is 7.66 Tk. in wind energy plant due to high investment but actual running cost is about 1.18 Tk. (2 US cent) only [16].

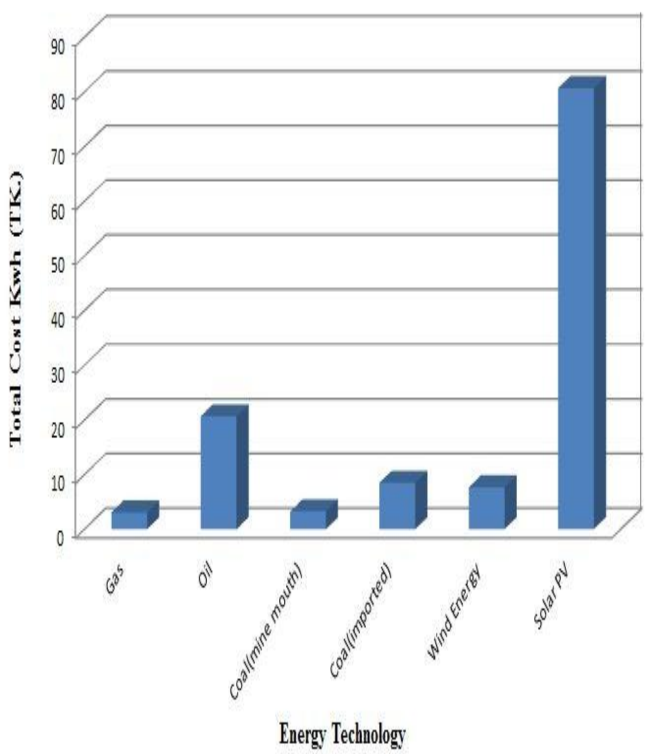

Fig -7: Comparison of costs

7. CONCLUSIONS

Obedience on conventional energy source is not benediction for Bangladesh. If conventional energy sources fully reduced the country will face a serious problem.so our need alternative energy source. Bangladesh at various locations have the opportunity to increase its wind power generation. Wind energy will be the most cost effective source of electrical power in the near future. In fact, a good case that it already has achieved this status. Wind power commercialization has already been made the major technology developments. Of course, there will be improvements and infinite refinements.
So the government body should come forward to set up the project of setting this type of power plant and remedy the crisis of power. The government can distribute the total work among different private companies so that the total project could be run within short periods. At the same time they must be sincere to proper maintenance of the ground equipments (especially from flood water) as from the past stories it has been found that due to lack of maintenance the wind turbine cannot give its maximum output.
The paper discusses at different location Wind speed data in Bangladesh. Plant Capacity Factor (PCF) and Wind Power Density (WPD) are Feasibility of wind

power. Paper also discusses different wind power class and different scale. In this paper discusses power generation and cost analyses of wind turbine. This study materially Study of wind power in different parts of Bangladesh. This study will help us; it will provide a platform for further technical and economic feasibility wind power. This study also helps us hybridizing wind power for standalone or grid connected power system. The paper discusses wind power in different location in different site so it will be help Bangladesh Rural Electrification Board (REB) for used domestic or irrigation system wind power.

There are remote locations in Bangladesh where extending grid power is not economically and technically viable, also geographically not possible. For those places wind power could be a more than adequate solution

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