Make sustainable green world by using Renewable energy

By

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Abstract

Renewable energy is key to the solution of a safer, cleaner, and sustainable for green world. It comes from natural resources that are sufficient and continuously recharged. Renewable energy sources which are achievable in sufficient all around us, provided by the sun, wind, water, waste, and heat from the Earth are restored by nature and transmit no pollutants into the air. The study associated with renewable energy sources which includes with Energy Safety, Social and Economic Development, Environment Change, Reduction of Health Impacts of Sustainable for green world. Solar energy have got much cheaper renewable energy. Solar energy convert the sun's light into usable electric energy. But when operating solar energy do not produce air pollution. Solar energy technologies use the sun's energy and light to provide heat, light, hot water, electricity, and even cooling, for homes, businesses, and industry. At last electric vehicles are reduce to carbon footprint in their own way. The study suggested some recommendations which when considered would help achieve the goal of renewable energy thus to achieve and provide a clean environment as well as clean energy for all and future generations.

Keywords: Renewable, Energy, Sustainable, Green World, Future Generation.

Introduction

The present energy demand is increasing day by day because energy is required for every society with a view to meeting the basic needs. Also we are now entering Electric Vehicle (EV) sector which will increase the demand of electricity. We Know the main source of electricity are coal and natural gas which materials are decreases naturally. So it is clear that future growth in the energy sector is primarily in the new regime of renewable. Therefore, shifting to renewable energy can help us meet the dual goals of reducing greenhouse gas emissions.

We know renewable energies are those energy sources which are continually replenished by nature and derived directly from the sun. For our developing countries, this is a golden opportunity, because it is also good for the environment and it replaces the traditional, and in effect harmful, methods of energy production. Renewable energy is energy that is collected from renewable resources that are naturally replenished on a human timescale. It includes sources such as sunlight, wind, rain, tides, waves, and geothermal heat. As a renewable energy source, the only limitation of solar power is our ability to turn it into electricity in an efficient and cost-effective way.

Environment is a now a universal issue and conventional energy gives rise to greenhouse gases with adverse consequences for health and climate. Environmental damage is a feature of our present. The economy uses natural resources, it draws on natural processes but it also affects and constrains the availability and distribution of natural resources and processes.

Sustainable development is not possible without standards. Here we discuss the sustainable development using the case of standardization in the field of energy efficiency. So the uses of renewable energies in city scale the consumptions of non-renewable resources can be reduces which will put the next step towards are zero carbon emission city.

Objectives

1.   Observe demand of renewable vs. non-renewable energy.
2.   Effectiveness of non-renewable energy to make sustainable green world.

Methodology

For the research Survey Design was used, because to do data more effective and accurate this method was measuring current situations. It has also the advantage that was collecting of an amount of data to make this work more informational. To surveys large population it could be developed in less time for data collection. It ensures a more accurate sample to gather targeted results in which to draw conclusions and make important decisions. For Research Design questionnaires (mixed). Data were collected from different area of Dhaka. Both qualitative and quantitative data were used. For advantage of input data questionnaires were into English. Data were collected by face to face. For sampling data two different sample method were used, one is purposive sampling and another is simple random. Data is being processes by Statistical Package for social Sciences (SPSS) and MS Excel graphical application software.

In geographical location prospectus Bangladesh has high potentiality of applying solar irradiation to generate electricity. The values of solar radiation intensity greater observed in the months March to October in almost all regions of Dhaka. To get electricity consumption of Dhaka city data were collected with the help of current status **of** population growth of the Dhaka, Bangladesh metro area from 2020 to 2022 and Bangladesh Energy Regulatory Commission (BERC). Then data were collected from average percentage of user in Dhaka to calculate percentage of electricity per person per month use solar panel for required electricity from non-renewable energy. Then data were comparison with consume of electricity per person per month in Dhaka from renewable vs. non-renewable energy.

Data Analysis Technique

At first Data have been processes. For processing technique Statistical Package for Social Sciences (SPSS) and MS Excel graphical application software were used. Then output was analyzed and presented in both tabular and graphic design. Data analysis process have being processed as different steps. Those are shown in figure.
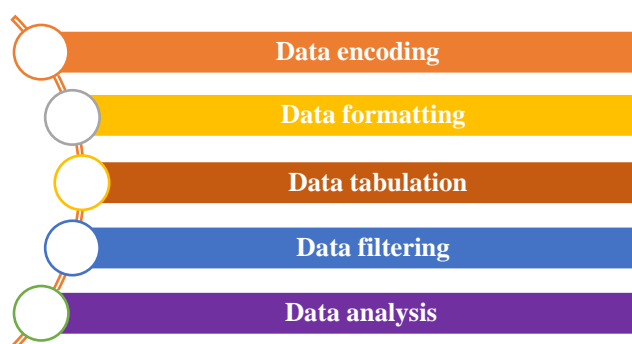

Data encoding

Data formatting

Data tabulation

Data filtering

Data analysis

Figure: *Data analysis process*

Data were collected as a sample of Questionnaire form and Questionnaires can be used to collect both quantitative and qualitative information. All the work have been done by mixed method Survey design. Time to time it was supervised and feed backed by mentor. Here mainly focused the present energy demand which is increasing day by day because energy is required for every society with a view to meeting the basic needs. We are now entering Electric Vehicle (EV) sector which will increase the demand of electricity. We Know the main source of electricity are coal and natural gas which materials are decreases naturally. So it is clear that future growth in the energy sector is primarily in the new regime of renewable. Therefore, shifting to renewable energy can help us meet the dual goals of reducing greenhouse gas emissions. To get the primary data of different graduates of different institutes, current status of uses consumption light of daily life where graduates were used to. Thus units of electricity uses consumption light of daily life of every graduates were collected, which facilities meeting the basic needs of electric energy. Thus we find the challenges the needs of electric energy which have faced every graduates that focused for daily life for green world.

Data Table

Technology	Sources of Data	Data Instrument	Data Size	Nature of Data
Architecture	Teachers	Questionnaire	09	Qualitative & Quantitative
	Staffs		09	
	Students		22	
Computer	Teachers	Questionnaire	04	Qualitative & Quantitative
	Staffs		03	
	Students		17	
Electro medical	Teachers	Questionnaire	04	Qualitative & Quantitative
	Staffs		08	
	Students		14	
Electronics	Teachers	Questionnaire	04	Qualitative & Quantitative
	Staffs		05	
	Students		21	

Statement of the problem

Electricity generation purposes the most uses sources are coal, oil and natural gas, where all are in non-renewable energy sources. All sources are mainly related to the reason of pollute the environment. Bangladesh is developing country. In Bangladesh we are facing ongoing energy crisis, because of non-renewable energy sources are going towards limited in a near future. This crisis is not possible to overcome only using non renewable energy sources due to inadequacy. . So the next steps will be needed an alternative energy sources which is focusing effective sources where countries especially in Bangladesh will meet the demand of electricity in Industry, Agriculture and service sector etc. Here it's better to say that renewable energy such as solar is environment friendly and cost effectiveness in out perspectives. Nonrenewable resources has induced various environmental problems and it's imposed negative impact on the human health and greenhouse gasses in the air. In future, a large volume of fresh air will be insufficient from getting global energy. Which is not green generates, so nature will be affected.

Data Analysis and Findings

Primarily sample are collected as Questionnaires (mixed). All of work did by mixes method Survey design. To know the 'hours of load-shedding' collected data were represented highest percentage of them have to face load shedding 1 to 2 hours in a day. To know an 'alternative steps of electricity' collected data were represented highest percentage of them are used to Generator. To know 'steps to reduce electricity bill' collected data were represented highest percentage of them are used to don't waste electricity. Data were collected from different area of Dhaka.
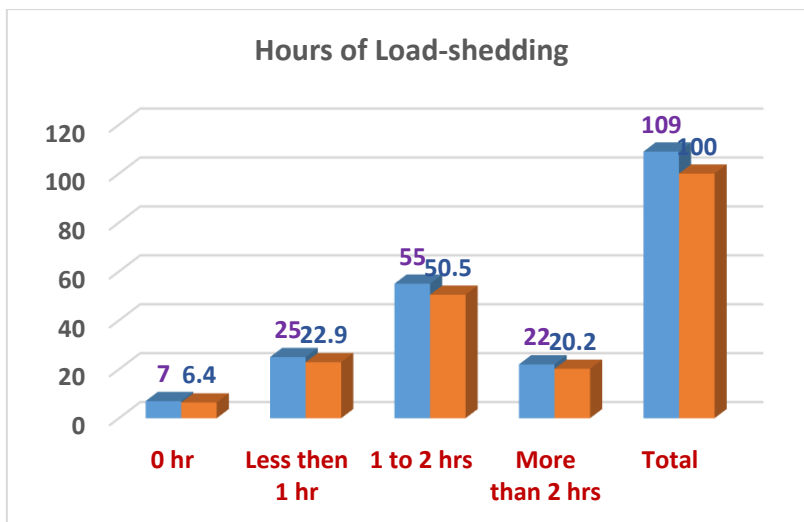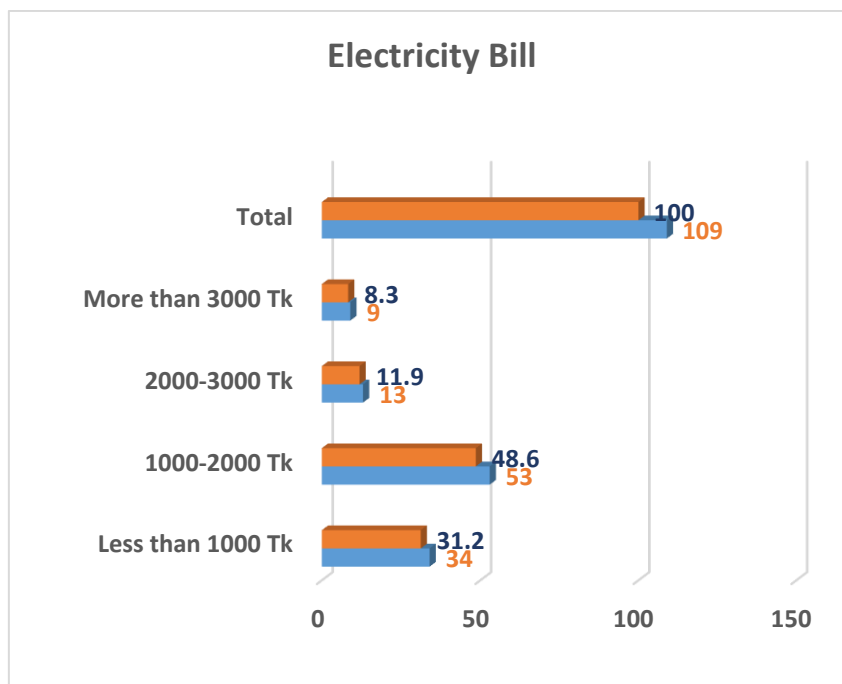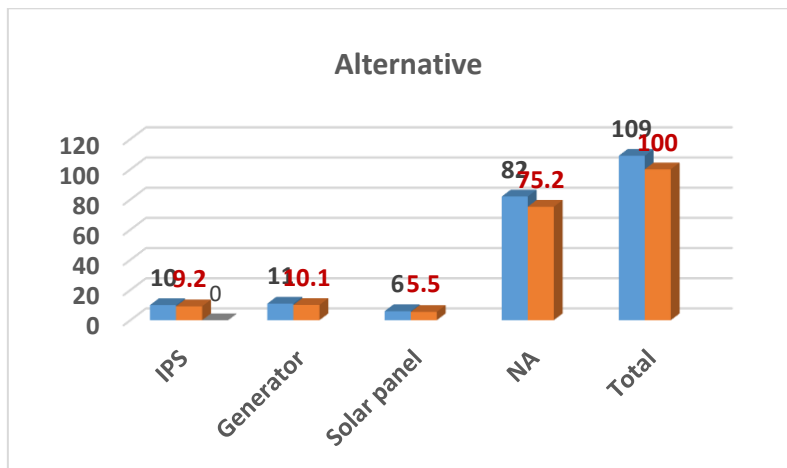
Hours of Load-shedding

Chart represents highest 51% of people of Dhaka cities have to face load shading 1 to 2 hours in a day.

Electricity Bill

Statistics says that 59% peoples monthly bill are 1000-2000 taka, 31% peoples monthly bill are less than1000 taka, 12% peoples monthly bill are 2000-3000 taka and 8% peoples monthly bill are more than 3000 taka in Dhaka cities.

Statistics says that only 5.5% are used to Solar Panel, 9% are used to IPS, and 10% are used to Generator as an alternative of electricity in Dhaka cities. The bigger portion of people that's are 75% are taken no alternatives.
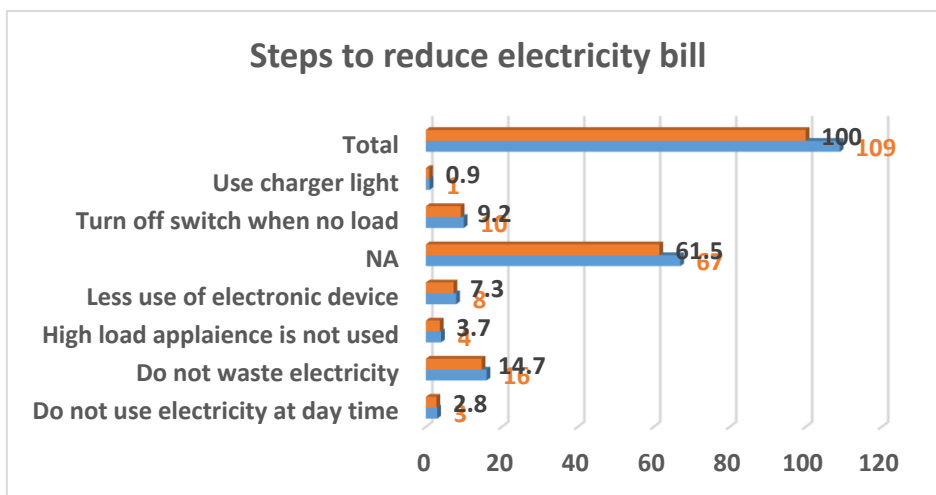

Chart illustrate that highest 15% people take steps to reduce electricity bill by don't waste electricity, 9% by turn off switch when no load, 7% by less use of electric device, 4% by high appliance device, 3% by don't use electricity at day time, 1% by use charger light. The bigger portion of people that's are 62% are taken no steps.

Due to urbanization the population growth of Dhaka is increasing. If we observe the growth of population of last three years we show,

Table of population growth of the Dhaka, Bangladesh metro area from 2020 to 2022.

City Name	Year	Population
Dhaka	2022	22,478,000
	2021	21,741,000
	2020	21,006,000

(**Data Source:** *United Nations - World Population Prospects*)

Recently Bangladesh Energy Regulatory Commission (BERC) reformed Taka 6.34 per unit for 301-400 units

So consumption of electricity per month of person $= \dfrac{Monthly\ Bill}{Per\ unit\ price}$

So consumption of electricity per month of person $= \dfrac{2000}{6.34} = 315.45$ Units

Electricity consumption of Dhaka city in 2022 = 22,478,000x315.45

=7,090,685,100Units

= 7,090.685 Mega Units

Electricity consumption of Dhaka city in 2021= $21,741,000\ x\ 315.45$

$= 6,858,198,450\ Units$

$= 6,858.198$ Mega Units

Electricity consumption of Dhaka city in 2020 = 21,006,000 x 315.45

= 6,626,342,700 Units

= 6,626.342 Mega Units

So we see that the increases of population is related to increases of electricity consumption.

Population of Dhaka in 2022 = 22,478,000 Person

Average Percentage of Solar Panel user in Dhaka = 5.5%

Approximate user of Solar panel in Dhaka city = (22,478,000 x $\dfrac{5.5}{100}$) person

= 1,236, 290 person

➤ A Solar panel can produce 40 units of electricity on average per month
➤ From our calculation, a person consume = 315.45 units of electricity per month in Dhaka
➤ If they use Solar panel, they can save = $\dfrac{5.5}{100}$ x 100% =12.68% of electricity per month in Dhaka
➤ From the calculation we can say that, if a person use one solar panel, they can expect 12.68% of he's required electricity from renewable energy.
➤ If we triggers our target to maximize the number of user of solar panels, it can save up to = (7,090,685,100 x $\dfrac{5.5}{100}$) units

= 899,098,870.7 units

= 899.098 Mega Units

=Approximate 900 Mega Units of electricity of month

➤ If we consider this amount from renewable energy, we can reduce the production of electricity from non-renewable energy and put another steps to the green world.

Conclusion and Recommendation

➤ Since our world is heading to a crisis in case of non-renewable energy, so one day the reverse of non-renewable energy's like fuel, gasoline etc. will extinct.
➤ In some contexts, we should store those source of energies for longer.
➤ It is high time we should create the public awareness of using solar panel, so that we can make some contribution to create a green world by using renewable energy.

> ➢ One thing is mentionable that we cannot change the world by a click, but we can start the process by enriching our intentions and awareness, which would lead us to the ultimate 'green world'.

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