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Foreign Direct Investment in the Solar Power Sector and Its Impact on Bangladesh Economic Development

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Abstract
This study finds the prospects of FDI in the solar power sector and the impact of economic development in the case of Bangladesh. As per, we found that FDI in solar energy has huge prospects and has some challenges. This country signed Paris Agreement, so the government has to think about the environmental issue. The government takes several renewable energy projects to attract foreign investors in this sector. If the Bangladesh government looks at it carefully, this will help Bangladesh's economic development.
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1. Introduction

1.1 Research background

Energy is the main power of modern civilization and requirement of sustainable development. Population growth and swift urbanization are the main paces of globally increasing primary energy consumption. In recent years conventional energy sources have supported almost 80% of global energy consumption (Mekhilef, Saidur, & Safari, 2020). Fossil fuels oil, natural gas and coal are the primary energy sources. Oil consumption increased by 28.56 percent from 1991 to 2011, and from 2011 to 2030, energy consumption will increase by 36 percent globally (Tasbirul,2014). According to FDI intelligence (2017). Nuclear energy determining in the 20th century, if compere to fossil fuels, then nuclear stand out ten to twenty times more, but there have some limitations associated with this energy (Mekhilef et al., 2020). the amount of renewable energy sector FDI is the third largest sector[1], attracting one-tenth (77 billion) of the total green-field foreign direct investment. Meet the energy access demand and quick economic sustainable development in developing countries facilitate renewable energy development. Solar and wind energy mainly led the renewable energy sector (AR Keeley, 2018). From 2011-2016 worldwide total 68 percent renewable energy installed (IEA, 2017). For developing countries private financing is most important especially foreign direct investment (McInerney and Johannsdottir, 2016) Bangladesh is one of the world's most energy-scarce countries, with per capita electrical energy generation and consumption of only 270.83 kWh and 232.56 kWh, respectively[2].

Bangladesh is dependent on fossil-based fuels, and this country still suffers a lack of energy security and consumption level. For this type of situation, using solar energy, such as renewable energy, could potentially solve the future energy crisis in Bangladesh and increase the production level to attract foreign direct investment inflows in Bangladesh (Khandker, 2018).

In every part of the world, among other Southeast Asian countries, Bangladesh is considered to be an emerging nation with rapid economic development. Like a developing country, energy plays a vital role in the economy. Over the years, Bangladesh has been a lucrative destination for foreign investors in setting up businesses and industries. The EPZs (Export Processing Zone) in Dhaka, Chittagong and other parts of the country and many foreign-funded infrastructure projects are perfect examples. Besides, various national entrepreneurs contribute to this thriving economy and development. To sustain the pace of this developing economy, power and energy security are very crucial. The government of Bangladesh has adopted some investment-friendly power and energy sector policy to maintain and feed the growing demand for industrialization and smooth economic development

1.2 The rise of renewable energy

Every sixteen-year world energy consumption is double; it's impossible to meet the insatiable energy demand (Somiron,2009). Nowadays, coal is still the provider largest energy, the world's electricity, 40 percent, comes from coal, and global carbon emissions are also the same sharing. Coal is neither effective also not sustainable coal is vastly inefficient (Wu, 2015). For the chip economy, coal and other non-renewable energy are necessary

[1] . FDI refers to investment to build new facilities and/or to obtain lasting management interest in host countries' enterprises.
[2] Bangladesh bureau of statistics. Statistical year book of Bangladesh-2014, Dhaka:
Ministry of Planning, Government of the People's Republic of Bangladesh; 2016

as their primary source. Coal is a simple example of a negative externality; air pollution and physical damage have heavy societal costs (Nijhuis, 2014). coal, gas, crude oil and nuclear energy are non-renewable energy sources (IEA,2016). According to the international energy agency (IEA), the world greenhouse effect and Global warming are the main reasons for clean fuel technologies; 2005-2030, the world annual primary energy rate of 1.8 percent is expected. I total, emerging countries will contribute 74 percent of total increases, and the world's entire 60 percent greenhouse gas emission comes from the energy sector. In the future, it is most important to find a sustainable solution for the increased energy demand (sadorsky, 2010, p. 2528). During the 1980s, Bangladesh, Burma and Korea were estimated imported petroleum (Bambawale, 2008) to biomass, biofuel, hydropower, geothermal, solar, tidal, wave and wind power many of do not cost-competitive in the current market but need long time subsidies and policies for the renewable energy (IEA, p. 276-78).

For the 2030 plan, United National General Assembly adopted, the 2030 Agenda for Sustainable Development aims to "Ensure Access to Affordable, Reliable, Sustainable, and Modern Energy for All," with target number 7 being "Ensure Access to Affordable, Reliable, Sustainable, and Modern Energy for All." Because air pollution has become a major public health concern and the world's fourth-largest hazard to human health, the 2030 plan recognizes the necessity for a rapid growth in renewable energy consumption. Emission levels of key pollutants (e.g., in OECD nations) may decrease as a result of lower energy demand as a result of increased low-carbon alternatives and stricter combustion regulations.

1. Overview of the energy and power sector in Bangladesh

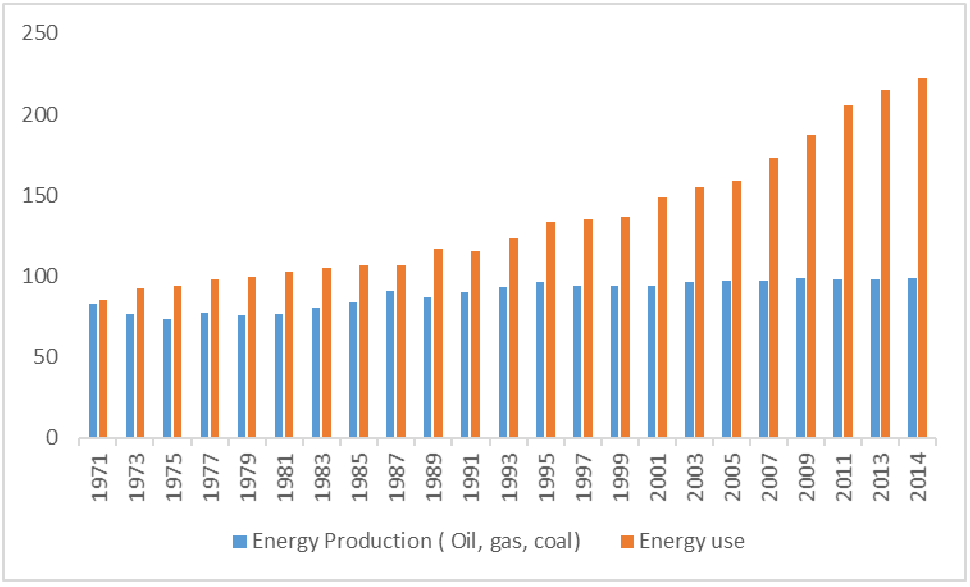
Electricity is a critical component of the country's social and economic growth. Because of the sector's importance in the overall growth of the country, the government has given it top priority. By 2021, the government intends to provide power to all citizens. Electricity supply must be adequate and reliable in order to attract both domestic and foreign investment. Bangladesh's energy consumption has skyrocketed since 2001. Bangladesh's energy consumption doubled between 1994 and 2010, from 14,611.2 kilo-tons of oil equivalent to 29,599.33 kilo-tons of oil equivalent[1]. Increased energy consumption Domestic energy sources were unable to match the demand, forcing the government to import more energy. According to Figure 1, the rate of increase in energy imports from 1971 to 2009 was 17.35%. The total refined petroleum imports in 2008 were 69.97 thousand barrels per day, up to 36.47 thousand barrels per day in 1998. Total coal imports were four times higher in 2008 (881.85 thousand tonnes) than in 1998 (205.03 thousand tonnes). Natural gas is the dominant energy source, with gas meeting 75 percent of commercial energy demand. However, the current level of gas reserves will not be sufficient to fulfill future demand unless additional searches are conducted. Another significant energy source that is still essential is coal. The government's budget is burdened by high energy production costs. To reduce the price risk, the government should have looked at developing coal using domestic resources.

The government of Bangladesh has scaled up the budget provision for the energy and power sector, and it is a strong indication of the commitment to improving the power situation. In 2013-14 National Budget allocation 5% for energy and power sector and 15.6 % of the annual development programmer (ADP), but in 2008-09 was allocation 4.2 % for fuel and electricity in national budget and 11.6 % allocation for the power sector of the revised ADP of 2008-09, so it's clear that government resources as subsidy in this sector[2].

2. Research materials and methods

The study looked at secondary data and information. This study takes a close look at various current publications and studies on Bangladesh's natural resources. Policy papers, declarations, and conventions on natural resources, biodiversity, and ecology are included in the literature review. Data, statistics, and case studies are analyzed and assembled. Information and data are sought from both Bengali and English daily media. The Somokal, The New Age, The Financial Express, The Independent, and The Daily Star are the daily newspapers chosen for this purpose. For this study, data and information about natural resources are gathered, assembled, and examined. The study paper, reports, workshop results, and information published on websites are all examples of internet sources. This study examines the current state of renewable and non-renewable resources in Bangladesh, with a focus on effective management. There are very few studies that focus on both of these issues. As a result, the study is unusual in that it focuses on the current state of natural resources and highlights the current state of natural resources. The majority of studies and research on natural resources (NRs) concentrate on minor issues such as poverty, gender, and scientific measures of resource deterioration. This study focuses on determining the current situation and the actors involved for NRs administration.

[1] WDI. World Development Indicators. Washington, DC: The World Bank; 2011.
[2] GoB. Power and energy sector road map: second update. Dhaka: Finance Division, Ministry of Finance (MoF), Government of Bangladesh (GoB); 2012.



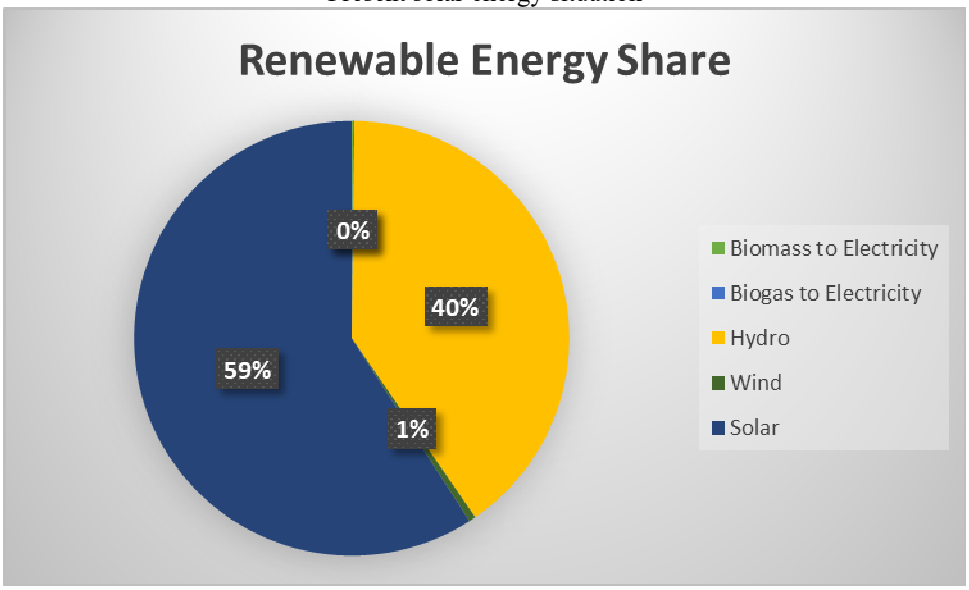
Figer. 1 Energy Production and use in Bangladesh (1971-2014)
Source: [14]

According to the current power sector master plan policy 2010, the present government took the initiative to tackle and mitigate the power shortage and crisis in three steps: short, medium, and long terms.

Before the previous terms of the present government, the power generation of Bangladesh was nearly around 3600MW in 2008. This was surely lagging behind the ever-growing demand. In response to an immediate solution, the present government, in its previous term, has opted for rendering quick rental power projects on an unsolicited basis within a short time or period in parallel with other public sector projects. As a result, many private sector entrepreneurs had submitted formal unsolicited proposals to the government for power generation. At present, the total installed power generation capacity stands nearly at 14000MW, of which the public sector contributes 60% and the private sector contributes ~40% of electricity.

Bangladesh is a country in the process of evolving. Currently, power is available to 64 percent of the population (including renewable energy). The country was unable to fulfill rising electrical demand due to a lack of natural gas, inadequate legislation, inefficient power plants, and high system losses. Natural gas is Bangladesh's most abundant and widely used energy source, with natural gas power plants accounting for the majority of the country's power producing capacity. Natural gas provides 72.42% of energy, diesel 2.19%, and furnace oil 7.83%.

Present solar energy situation



Figer. 2 Renewable energy share
Source (25)

4. Foreign Direct Investment (FDI) Solar energy prospects in Bangladesh

Bangladesh is located in the northeastern portion of Southeast Asia and receives sufficient sunlight throughout the year; the dry season receives roughly 7.6 hours of sunlight each day, while the monsoon season receives about 4.7 hours (Anik Deb, 2013). Solar energy use Bangladesh is a good site because it receives 70% of its sunlight throughout the year (Chowdhury. 2015). In March-April, daily solar radiation is 5.1-5.6 KWh/$m^{3,}$ and this is the max radiation and min in December-January Table 3. Table 4 shows that Bangladesh receives an average of 4.64 kWh/m2 solar radiation per day, which is good for generating electricity. Tables 1 and 2 show that Bangladesh prioritizes the solar industry in the renewable energy sector.

Table 1

Installed renewable energy technologies in Bangladesh.

Source: Ref.[8]

Technology	Off-grid(MW)	On-grid (MW)	Total (MW)
Biogas to electricity	5	-	5
Biomass to electricity	1	-	1
Hydro	-	230	230
Solar PV	**184**	**1**	**185**
wind	1	0.9	1.9
Total	191	232	423

Table 2

Measures of renewable technology in Bangladesh.

Source: Ref. [8]

Type	Number in million
Solar home system	**3.6**
Solar irrigation pump	**366**
Solar water heater	**-**
Solar drinking water system	**140**
Biogas plant	38,000
Improved cook stove	20,000,000
Improved rice parboiling system	68
Total	5.63 million

Table 3

Solar Energy Resource in Bangladesh

Average monthly solar insolation(kWh/m^2/day) at different cities in Bangladesh

Month	Flow($m^3/_s$)	Head (m)
Jan	5.8	11.4
Feb	4.9	9.9
March	5.4	8.1
April	5.1	5.3
May	2.2	4.3
Jun	2.0	7.8
July	2.0	10.8
August	2.0	13.3
September	2.0	14.0
October	2.1	14.0
November	2.9	13.7
December	3.8	13.0

Source: Ref [9]

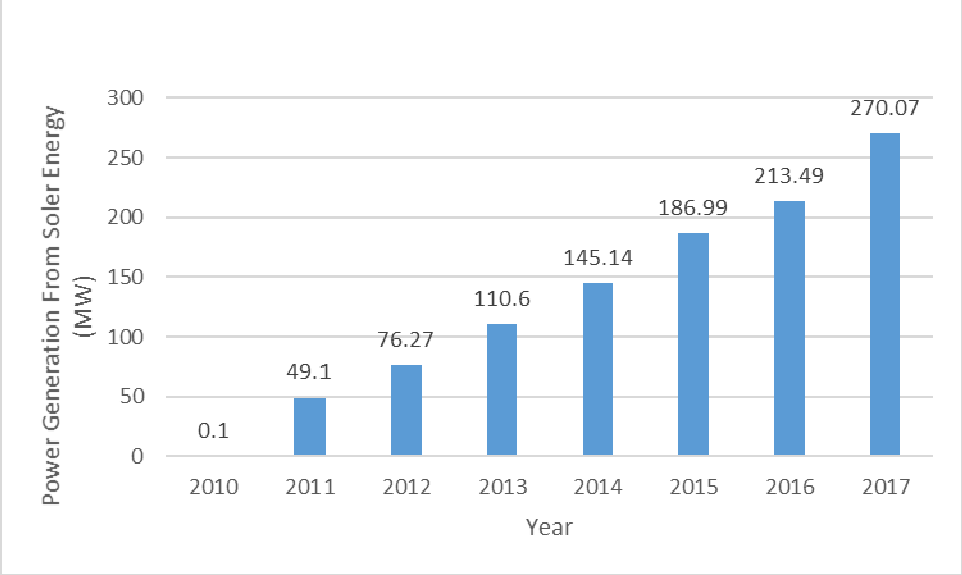
Table 4
Average daily solar radiation at 14 locations in Bangladesh

Station Name	Elevation (m)	Latitude (degrees)	Longitude (degrees)	Radiation (according to NASA) (kWh/m2/day)
Dhaka	50	23.7	90.4	4.65
Rajshahi	56	24.4	88.6	4.87
Sylhet	225	24.9	91.9	4.57
Khulna	11	22.8	89.6	4.55
Rangpur	230	25.7	89.3	4.86
Cox's Bazar	76	21.4	92	4.77
Dinajpur	194	25.6	88.6	4.99
Kaptai	345	22.5	92.2	4.71
Hatia	13	22°16.147'	91°08.377	4.63
Chittagong	118	22.3	91.8	4.55
Bogra	59	24.8	89.4	4.74
Barisal	31	22.7	90.4	4.51
Jessore	23	23.2	89.2	4.67
Mymensingh	114	24.8	90.4	4.64
Sherpur	308	25	90	4.67

Source: (9)

4.1 Solar home system

Nowadays, solar home system (SHS) PV panel is generating electricity access of off-grid for city and rural area people. In SHS, Bangladesh achieved incredible success because the total number of installed SHS is 5.2 million, 218.48 MW capacities[1]. For Bangladesh market SHS, three companies installed 5.2 million SHS (K Marzia, 2018). Fig. 3 shows the last seven years of the SHS increasing installation trend. Fig. 3 also observed that in the previous seven years, SHS increased more than four times and last five years, 150 million people accessed electricity. And still, Bangladesh has an investment opportunity.



Figer. 3 Power generation from solar energy Source (15)

4.2 Solar power plant

Solar power plant electricity access of on-grid power system. In 2017, a 3 MW solar power plant started producing and supplying electricity to the national grid. This is the first solar power plant in Bangladesh. Eight acres of land and located in Jamalpur district. This is a milestone for solar energy in Bangladesh (Marzia, 2018-06).

According to the (engreen nature,s power , 2017) in mid- October 20, the national grid line added 8,00,000 KWh electricity from the solar power sector and within a few mounts its operation, and it was able to reduce

[1] Initiative & programs. Available at: http://www.sreda.gov.bd/index.php/site/page/b80 1-2127-49bf-12e5-29d6-d4e9-b122-56ac-56cb-5 e93. (Accessed: 25th May 2017)

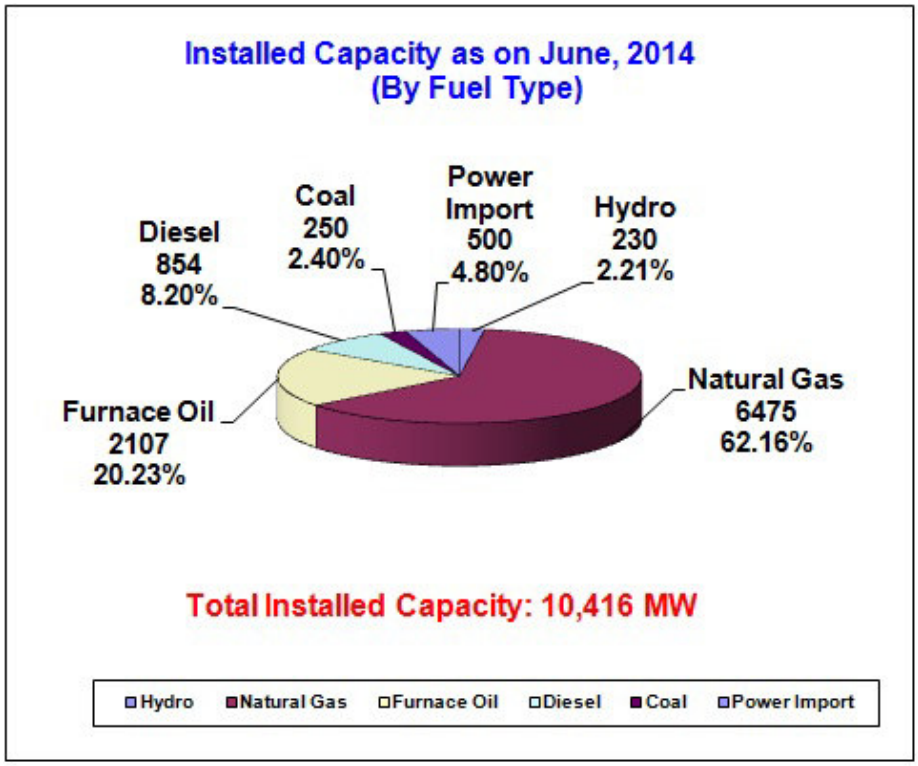
almost 2,00,000 liters of diesel equal amount production of electricity from the diesel power plant. This saves the environment and saves foreign currency to import oil.

4.3 Future target for solar energy development in Bangladesh

According to the current power sector master plan policy 2010, the present government took the initiative to tackle and mitigate the power shortage and crisis in three steps: short, medium, and long terms. Before the previous terms of the present government, the power generation of Bangladesh was nearly around 3600MW in 2008. This was surely lagging behind the ever-growing demand. In response to an immediate solution, the present government, in its previous term, has opted for rendering quick rental power projects on an unsolicited basis within a short term or period in parallel with other public sector projects. As a result, many private sector entrepreneurs had submitted formal unsolicited proposals to the government for power generation. At present, the total installed power generation capacity stands nearly at 14000MW, of which the public sector contributes 60% and the private sector contributes 40% of electricity. Indicating the above figure, it is evident that private sector IPP-based power plants have an upward trending power generation day by day due to the efficient management of generation and quick commissioning and services. The government is still receiving many unsolicited proposals from the private sector for setting IPP-based power plants to enhance and secure the power generation for smooth economic progress with a GDP of 8% per annum. Under the present government's plan, vision 2021, several praise-worthy policies have been adopted to transform the country into a middle-income-based Digital Bangladesh. In the way of making digital Bangladesh, development of IT, power and energy sector is foremost important

Bangladesh is a country in the process of evolving. Currently, power is available to 64 percent of the population (including renewable energy). The country was unable to fulfill rising electrical demand due to a lack of natural gas, inadequate legislation, inefficient power plants, and high system losses. Natural gas is Bangladesh's most abundant and widely used energy source, with natural gas power plants accounting for the majority of the country's power producing capacity. Natural gas provides 72.42 percent of the energy in Figer.4, with diesel 2.19 percent, furnace oil 7.83 percent, and hydro 1.39 percent following. Bangladesh's current renewable energy share, excluding hydro, is only 1%. (From Solar Home Systems and Solar Pumps). In Bangladesh, there is yet no solar power plant.

Bangladesh aims to develop indigenous energy resources, which play a vital role in the country's socio-economic development. The Government of Bangladesh has its vision and Policy to bring the entire country under electricity service by 2020. Taking this into cognizance, the government has prepared "Power System Master Plan 2010" to develop an energy-balanced, sustainable power system in the country. The development of renewable energy is one of the important strategies adopted as part of the Fuel Diversification Program. According to the plan, 15% of total electricity generation will come from renewable and new energy sources. Renewable Energy Policy was approved in 2008. Through this Policy, the government is committed to facilitating public and private sector investment in renewable energy projects to substitute indigenous non-renewable energy supplies and scale up contributions of existing renewable energy-based electricity generation. The Policy envisions 5% of total generation from renewable sources by 2015 and 10% by 2020. Among renewable energies, solar, biomass and wind are the most abundant resources that can play an important role in meeting these targets.



Figer.4 Total installed capacity by the fuel energy
Source (15)

Besides vast development in the non-renewable energy sector, Bangladesh's high demand for power will also be met with clean energy methods. Wind, solar photovoltaic and hydro-based PP are prioritized to meet 2000MW of energy from renewable resources by 2020. The government has already launched the "500 MW Solar Power Mission" to promote the use of Renewable Energy to meet the increasing demand for electricity by 2015, but the target is not achieved[1]. Initially, the target was 500MW, revised to 800 MW later to be fulfilled within 2015. Now the target is fixed at 2000 MW of RE energy by 2021.

In our recent budget announcement, our Honorable Prime Minister Sheikh Hasina has mentioned implementing medium and long-term plans of electricity generation that will reach every household within the next five years. A target of 18162 MW by 2017 and 24000 MW electricity will be generated by 2021, which is currently standing at 10,341 MW this year. She has welcomed foreign investors to join the road to reach Bangladesh's target of reaching 24000MW electricity by the year 2021[2].

Bangladesh government is still to be taken under electrification facility and the increasing progressively energy need, considering 30% of the whole people who are still not enjoying the electric facility and gradually increasing the demand. The government has set a goal of 38,700 megawatts by 2030[3]. This approach has the effect of reducing the need for natural gas and increasing the use of renewable energy and coal. Renewable energy now accounts for 3.5 percent of overall electricity generation. Table 4 demonstrates that solar is the top priority in the plan for electricity production from renewable sources until 2021. The target government is working on a number of renewable energy projects to meet the requirements. In the national grid, the government has started a 500 MW solar power development program[4]. In the case of isolated settlements, this scheme will comprise solar mini-grids for commercial (industrial, educational institutions, village E-centers, railway stations, residential structures, health centers, and others) usage of roof top power solutions and the replacement of diesel irrigation pumps with solar-powered irrigation pumps. 340 MW will be used for commercial purposes, while 160 MW will be used for social services, out of the total 500 MW. The distribution of 500 MW of solar power per sector is depicted in the diagram.

[1] (http://www.bpdb.gov.bd/bpdb/index.php?option=com_content&view=article&id=26&Itemid=24)
[2] (see attachment named www.mof.gov.bd_en_budget_14_15_budget_speech_speech_en - available in www.mof.gov.bd)
[3] Bangladesh Power Development Board. Available from: ⟨http://www.bpdb.gov.bd/ bpdb/⟩. [cited2016 March 08].
[4] Power Division. Government of The People's Republic of Bangladesh. Available from: ⟨http://powerdivision.gov.bd/⟩. [cited 2016 March 10].

Table 4.
Solar energy technology

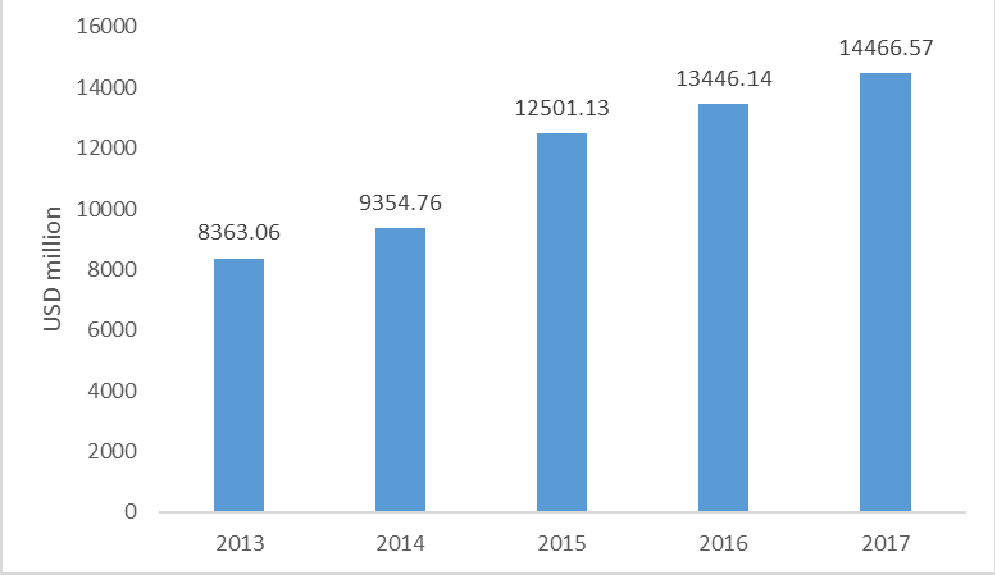
Technology	2015	2016	2017	2018	2019	2020	2021	Total
Solar	**222**	**253**	**421.75**	**237**	**195**	**203**	**208**	**1739.8**
Wind	0	20	250	350	350	200	200	**1370**
Biomass	1	16	6	6	6	6	6	**47**
Biogas	1	1	1	1	1	1	1	**7**
Hydro	-	2	2	-	-	-	-	**4**
Year	**224**	**292**	**292**	**594**	**410**	**415**	**415**	**3167.8**

5. Micro Economic Factor Analysis and the comparative advantage of investing in Bangladesh

(Xavier Lemaire, 2018) for developing countries, large-scale electricity generation solar energy is a serious challenge. Solar energy has become part of long-term energy planning, both off-grid and on-grid. (M.F.Hossiain, 2017; Md. Rabiul Islam, 2017; Anik Deb, 2013) Their studies discuss the prospects of renewable energy in Bangladesh. According to (Anik Deb, 2013), Bangladesh cab takes advantage of solar base energy used in electric vehicle recharging stations. It can reduce national fuel consumption, and solar cooking can save our wood stock. Bangladesh's foreign investment mostly depends on cheap currency and low labor costs (Khandaker Rasel Hasan, 2017). the technology aspect is covered by the foreign investor, so who will be interested in investing considering skills they can do batter business in Bangladesh. Because Bangladesh has natural resources, low-cost labor, and a regulatory regime. The production of solar energy as sunlight is the important element (Anik Deb,2013) analyzed the payback period of solar energy. Bangladesh is an agricultural country, and fifty percent of people who live in this nation are off-grid. The government finds a sustainable solution, so here has a big opportunity to invest in this sector.

5.1 Scenario of the Foreign Direct Investment (FDI) in Bangladesh

Solar power opportunity for foreign contribution and investment. Bangladesh has managed to attract foreign investment in the industrial sector, mainly textile and garment, banking, telecommunication, oil and gas, and in the power sector (Khandaker, 2017). Solar power sector investment counts in the power sector. Now Bangladesh's economy is growing, FDI stock has reached USD 14466 million in 2017, which was increased by 7.59 percent[1]. It shows that Bangladesh is a low-cost production center in South Asia. Bangladesh flows a liberal investment policy and incentive rule. That's why this country attracts a stable inflow of Foreign Direct Investment[2]. Figer 5 shows Bangladesh attracting FDI reason is the annual FDI stock is increasing.



Figer-5 Bangladesh FDI stock
Source (Report, 2017) Source: Bangladesh Bank Foreign Direct Investment (FDI) Survey Report

Like other developing countries, Bangladesh also can have managed to attract FDI in the solar energy sector (Lamia, 2018).

[1] Bangladesh Bank (2017). Foreign Direct Investment (FDI) in Bangladesh. Survey Report. Statistical Department: Bangladesh Bank. Retrieved on jan to jun 2017 URL: https://www.bb.org.bd/pub/halfyearly/fdisurvey/fdisurveyjanjun2017.pdf
[2] United Nations Economic and Social Commission for Asia and the Pacific, (2015). Asia-Pacific Trade and Investment Report. Thiland: United Nations Publication. .

5.2 Solar power sector Foreign Direct Investment

As the power sector is a capital-intensive industry, big investments are required to generate the capacity. Competing demands on the government resources and declining levels of external assistance from multilateral and bilateral donor agencies constrained the potential, For public investment in the power sector. Recognizing these trends, the

Table 5.

Number of solar projects in the national power sector

Year	Project Name	MW	Owner
2016	Sunamganl 32 MW Solar Power Plant EDISUNPowerpoint & Haor Bangla-Korea Green Energy Ltd.	32	Non-Government sector
2016	Mymensingh 50 MW solar power plant, HDFC SinPower Ltd.	50	Non-Government sector
	Kaptai solar Power plant-EPC: ZTE	7	Government sector
2017			
2018	Dorla 30 mw soalr power plant	30	IPP
2018	Patgram, Lalmonirhat 5 MW solar power plant, GHEL, BD & CETC,China	5	IPP
2019	Tetulia, Panchagarh, 50MW solar power plant (Singapore Holdings)	50	IPP

Source (15)

Bangladesh's government changed its industrial policy to allow for private participation in the power sector.

The Power Cell, which is part of the Ministry of Power, Energy, and Mineral Resources' Power Division, was given the task of leading private power development. The government is dedicated to encouraging private investment in the form of build-own-operate contracts for additional power generation capacity. Bangladesh has already attracted foreign direct investment in the renewable and non-renewable energy sectors. From 2016 Renewable sector Bangladesh accreted foreign investment, especially in the solar industry. Six solar power projects are running on the grid Table 5 in Bangladesh.

5.3 Incentives for Independent Power Producer (IPP) power plant

As a developing country, Bangladesh is always promoting a Foreign Direct Investment friendly country. Solar energy also receives Foreign Direct Investment. To attract Foreign Direct Investment Bangladesh government take various policy incentives, such as (1) Tax exemption on royalties, technical assistance and repatriation facilities fees; (2) For foreign loans, enjoy tax exemption on interest; (3) investing company can transfer their capital with tax exemption; (4) Protect foreign investors from double taxation foreign company can make the multiple bilateral agreements with a local company; (5) Approved industry exemption from income tax up to three years; (6) Foreign employers up to 50 percent remittance of the salary and enjoy the repatriation of their savings and also enjoy retirement at the time of their retreat; (7) For issuance no restriction for project-related foreign employees; (8) Facility for transfer of profit, dividend also invested capital.[1] (8) For a period of 15 years, private electricity businesses will be exempt from corporate income tax. (9) Except for endogenously produced equipment manufactured to international standards, companies will be allowed to import plant and equipment and spare parts up to ten percent of the original value of total plant and equipment within twelve years of commercial operation without paying customs duties, VAT, or any other surcharges, as well as an import permit fee. (10) The companies shall be exempted from the necessity of getting insurance/reinsurance solely through Sadharan Bima Corporation, the national insurance company (SBC). (11) Private power firms will be able to purchase insurance of their choice in accordance with lender and utility criteria. (12) Stamp duty on instruments and deeds required to be registered under local legislation will be waived. (13) In the current account, the national currency, TAKA, would be convertible for foreign payments.

5.4 Foreign direct investment solar sector effects in economic development

Renewable energy is the most capable sector which can fulfill sustainable economic development. Bangladesh is a developing country, so Bangladesh needs more foreign investment for sustainable development. Without power, manufacturing product is not possible. Bangladesh government take Policy for renewable for future energy, but still, Bangladesh did not have this technology and did not have enough capital, foreign investment can solve this problem.

Financial Services is also crucial for the development of the solar energy sector. The financial sector, particularly Bangladesh banks, supports evaluating the commercial viability of solar energy projects, and it is a

[1] For details: Private Sector Power Generation Policy of Bangladesh 1996, Government of Bangladesh (GoB).

new financial business opportunity in a local business. This kind of financial service involvement in solar energy development is a private company, and renewable energy traders will be interested in investing in the local market.

Renewable solar energy saves the environment from growing GHG emissions and creates direct/indirect decent job opportunities. Generally, mention the manufacturing, agriculture, admiration and services, and research and development (R&D) sector. Including jobs help to protect systems and biodiversity; reduce materials, energy and water consumption through efficiency; the main benefit is decarbonizing the host economy also avoiding generation for all forms of pollution[16]. Sustainable Development Goals (SDGs) by the united nation creating employment, 2015 renewable energy sector create 8.1 million jobs worldwide and 5% increase year by year. China, India, and Japan are USD$ 4.3 million (Abe, 2014). Technology has the power to promise economic development and create employment in any location. In Bangladesh, a project-training woman and youth solar technicians aim to create 1, 00,000 jobs in the local market[1]. The solar energy sector demand to meet the skills person for growing development. For this, purposes Bangladesh opens lots of education and training pregame to meet the demand. Moreover, these skills ensure the success of solar energy and host country development.

Bangladesh since 1996, Grameen Bank has opened a program for the household solar PV system Micro-lending, and it contributed a huge role in other developing countries. Solar systems are helping rural people start new businesses like TV shops, electronic repair shops, handicrafts, solar-charged mobile phones and others. It is helpful for rural development.

6. Challenges and Limitations

- The biggest challenge is to continue a high-level investment and protect the investor in Bangladesh. Bangladesh has the imposition of IP (Intellectual Property) law.
- The initial cost is high for the owner of the fuel filling stations.
- Lack of knowledge about clean, renewable energy technologies.
- Lack of awareness of future development.
- During nighttime and with insufficient solar radiation, the system will not work.

7. Consolation

This paper tries to explain solar power, sector FDI in Bangladesh and its impact on economic development. As we know, for economic growth, energy has limited factors. It is sensible for social-economic development for the host country, but it is important to develop the energy access to sustain. Hence, besides conserving the energy source, renewable energy can make a big role in national development. Like a developing country, Bangladesh creates an environment for FDI to develop the renewable (solar power sector), which can help the economic boost up for the long run and give a sustainable development. Solar energy sector Bangladesh already attracts FDI. In this way, solar energy sources can become a major factor for economic development for Bangladesh.

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