

IMPORTANCE OF POWER SECTOR FOR SOCIO-ECONOMIC DEVELOPMENT OF ASSAM

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INTRODUCTION

Infrastructure is the basic need for physical and social structure development and for the operation of mechanism of a [society](#) and [enterprise](#). It can be generally defined as the set of interconnected structural elements that provide framework supporting an entire structure of development. It is an important term for judging a country or region's development. The term typically refers to the technical structures that support a society, such as [roads](#), [water supply](#), [electrical grids](#), [telecommunications](#), and so forth, and can be defined as "the physical components of interrelated systems providing commodities and services essential to enable, sustain, or enhance societal living conditions.

Assam is one of the 28 states and seven union territories of India. With a geographical area of 78438 sq. km, i.e. about 2.4% of the country's total geographical area, Assam provides shelter 2.57% population of the country. As on 31 March 2011 there are 27 districts in Assam with 56 subdivisions and 26395 villages. Out of the total population 31169272 (Census 2011 provisional) 84% people lives in the rural areas of Assam and out of 26395 villages only 19729 (As on 31st March 2010) villages have been electrified. Assam is the gate of the other NER states, hence, the communication and transportation facilities of the state plays a very important role.

In pursuance of the Indian Electricity Act 2003 and as a part of the Assam Power Sector Development Programme, the Government of Assam has divided the ASEB in to three Companies like APGCL, AEGCL, APDCL. Transportation and communication is the vital infrastructure of a modern economy. An efficient



transportation and communication system is essential for the socio-economic development of Assam and also generate employment opportunities but the all these activities are directly related with supply of power. The transportation system of Assam includes road, railway, water, and air ways but all the facilities of telecommunication and transportation is fully dependent on power sector.

OBJECTIVE OF THE PAPER

The importance of power sector for the development of a country cannot be over-emphasized. As a matter of fact infrastructure is the lifeline of the economy of a country. It is seen that all the developed countries have adequate power supply so that all the activities are executed efficiently, smoothly in time. On the other hand, all the underdeveloped and developing countries have not sufficient supply of power. The plans of these countries targeting for building of adequate infrastructure to put their economies on a high growth path. North Eastern Region (NER), consisting of Assam, Arunachal Pradesh, Manipur, Mizoram, Meghalaya, Nagaland, Tripura and Sikkim has been bestowed with abundant natural resources. These resources can be profitably utilized for all round socio-economic development of the region only with the help of proper infrastructure facilities specially with adequate supply of power.

The basic objective of the paper is to study the following points,

- i. To investigate the background of power sector in Assam
- ii. To identify the role of power sector in economic development of Assam.
- iii. To find out the present position of power sector in Assam
- iv. To identify the main weaknesses of power sector in Assam and the solution of it.



METHODOLOGY

The present study deals with the “Importance of power sector for Socio-Economic Development of Assam”. The topic has been selected mainly to know the role of Power sector in the overall development of Assam. In preparing the paper only secondary data have been used. The secondary data are collected from different journals, magazines, news papers, books and from internet. The paper will be confined only in the state of Assam and the study will be limited only in the power sector of Assam.

THE POWER SECTOR AS THE WHEEL FOR ALL INFRASTRUCTURES IN ASSAM

The Assam State Electricity Board, constituted in the year 1958, is responsible for Co-ordinate development of generation, transmission and distribution of power in the State. On 25th January 1975, the Board was bifurcated between Assam and Meghalaya as per the provision made in the Northeastern Areas (Re-organisation) Act, 1971.

Power is a critical infrastructure for economic growth. Before its unbundling Assam State Electricity Board (hereafter ASEB) was the sole agency to generate, transmit and distribute electricity to the entire state of Assam. Power sector reforms were initiated in the country in the year 1991 enabling private sector investment in Generation to begin with. State Governments also followed up by reforming State owned utilities. Further thrust was given to the power sector with the enactment of the Electricity Act 2003. In Assam, the State Regulatory Commission of Assam was set up in May 2001

In tune with Power Reforms and Restructuring process Government of Assam and ASEB had undertaken the following steps,

1. MOU signed with GOI on Power reforms in Feb 2001.



2. Tripartite Agreement Singed between GOI, ADB & GOA in Dec 2003.
3. Unbundling of ASEB into five different companies hiving away Generation, Transmission, and Distribution activities into separate companies are.
 - o Assam Power Generation Corporation Ltd (APGCL)
 - o Assam Electricity Grid Corporation Ltd (AEGCL)

The three power distribution companies' ltd is as follows,

- o Lower Assam Electricity Distribution Company Ltd (LAEDCL)
- o Upper Assam Electricity Distribution Company Ltd (UAEDCL)
- o Central Assam Electricity Distribution Company Ltd (CAEDCL)

Although Assam is blessed with rich power potential but these potentialities were not exploited before the introduction of Five Year Plans. The installed capacity thus gradually increased with the start of planning in the State. In the study it is found that the installed capacity for generating power has come down in the state due to de-commissioning of Bongaigaon Thermal Power Station (BTPS) and Mobile GT sets and de-rating of age old units of Namrup (NTPS). The power generation position of Assam is not satisfactory from the point of power requirement. There has been always a shortage of power supply in the state due to generation of less amount of power in comparison to its demand.

FINDINGS

During the last 11 years from 2001 to 2011, the Government of Assam had done a lot of development works in the field of infrastructure especially in the power sector. The State still continues to suffer from inadequate power supply, transport and communication facilities which still continue to act as an impediment to the economic development of the State. In view of the vital importance of this sector, both the State Government and the Central Government has so far made considerable efforts through successive five year plans. The NDA government newly created the Ministry DoNER, and the North-Eastern Council, is doing some



steps for the development of the sector in association with the Central and State Government.

In the mean time, the power supply position in Assam has gained some momentum with the completion of some on-going projects. The availability of power within Assam has been improved considerably during the period from April to December, 1996. The installed generation capacity of ASEB till March 1997 has reached the level of 574.4 MW. The system availability during the period is 1961.04 million units which is higher by 167.56 million units compared to the same period of the previous year. Although the Chandrapur TPS was shut down due to exorbitant cost of fuel since June 1999 [however the revival process of the Chandrapur TPS through PPP is on by using alternative fuel], the functioning of Hydel Power Project since 2006-07 has brought some changes to the power generation scenario in the State.

However, the ASEB has been trying to meet the power shortage by importing from other foreign sources. As a result of functioning the Hydel Power Project since 2006-07 the scenario has slightly been improving and generation of power has increased to 1541.32 MU in 2007-08 from 867.539 MU in 2006-07. In 2009-10 the same increased to 1712.21 MU from 1682.82 MU of 2008-09, below a table has given about the installed capacity and generation of power in the state,

INSTALLED CAPACITY AND POWER GENERATION BY ASEB (in million units)

particular	2008-09	2009-10	2010-11
Installed capacity of Generating plants (MW)			
Thermal (Coal/oil)	60.00	60.00	60.00
Hydel	102.00	102.00	102.00



Gas	239.50	239.50	239.50
Total	401.50	401.50	401.50
Gross Units Generated (MU)			
Thermal (Coal/oil)	00.00	00.00	00.00
Hydel	434.40	401.910	409.492
Gas	1248.20	1310.298	1298.270
Total	1682.820	1712.208	1707.762

In the mean time, the work of Assam Gas-based Power undertaken by NEEPCO at Kathalguri of Dibrugarh district has been almost completed and the project is commissioned on 24th March, 1995. The project will ultimately generate 291 M.W. of power by utilizing one million standard cubic meter of natural gas per day made available from Kathalguri OCS of Oil India Limited. It was expected that the project would be able to generate 291 M.W. of power. But the other on-going power projects are not progressing at a satisfactory rate. The Ranganadi Hydel Project is of late kept starved of funds by the Center. Amguri Adamtilla and Baskadi gas-based projects are yet to get off ground. The infamous Karbi-Longpi Hydel Project is still to make any headway. Although the Bongaigaon thermal Power Station (BTPS) has already been examined by Polish experts and most of its machineries are found in good condition but the state government was not able to provide any fund to meet the expenditures to modernize and to alter some of them as suggested by the experts, but it is good news that the Government of India has taken some steps to revive the BTPS, meanwhile, the present Prime Minister Dr. Manmohan Singh has laid down the foundation stone for reviving it.

In order to meet this huge gap between the growing requirement and supply of power within the state, the State Government has taken steps to purchase power from the M.S.E.B. of Meghalaya and various power projects of NEEPCO located



outside the State and also to bring power from Farakka Project of NTPC to tide over the present difficult situation in the state..

Power Potential and On-going Power Projects of Assam.

Assam along with the other North-Eastern states is having a huge potential for the development of power. Though the entire north-eastern region has large water, gas and crude oil resources and coal deposits which can be utilised for power generation but these resources have not been properly tapped for the benefits of the region as well as of the country in the sector of power generation. Brahmaputra being the major river of Assam as well as the other north-eastern states is having around 43,269 MW of hydro power potential which has remained largely unexploited. At present, the total investigated potential of hydro-electric projects in the region is 30,000 MW approximately whereas only 492 MW has been developed and another 1250 MW being development for which construction work is going on.

The North-Eastern Electrical Power Corporation (NEEPCO), constituted in 1976, has come a long way to become instrumental in boosting the entire scene of power generation of the region. The Corporation started with the construction and commissioning of 150 MW Kopili Hydro Electric Project at Umrangshu in Assam. On 24th March, 1995 the NEEPCO commissioned the Assam Gas-based Power Project (291MW) at Kathalguri located at the Dibrugarh district of Assam. Initially the first three gas-turbine units are formally commissioned at Kathalguri which is scheduled to generate 100 MW of power at present. Another 3 gas-turbine units with installed capacity of 100 MW was scheduled commissioned in July, 1995 and the remaining 3 steam turbines with installed capacity of 90 MW was again scheduled to commissioned by March, 1996. After the completion of this project, Assam could able to solve a little bit power problems.

Another on going projects which is nearing completion includes Kopili extension hydel project having an installed capacity of 100 M.W. The Kopili extension hydel



power project on completion would generate 502 million units of power per annum. This project being developed by NEEPCO.

Thus, after the completion and commissioning of these two major projects the recent power policy of the Central Government and the Government of Assam has already signed MOUs with private developers for the completion of Karbi-Longpi Hydro Electric Project, Namrup Thermal Power Extension Project and Combined Cycle Gas-based Projects at Amguri, Adamtilla and Banskandi. The primary power purchase agreements have also been signed with the developers of Amguri, Adamtilla and Banskandi project. The State Government has also extended State guarantee for the Amguri project and urged the Center to provide counter-guarantee of Government of India for the project expeditiously.

The responsibility of completing Karbi-Longpi hydel project was entrusted with Subash Projects and Marketing Limited (SPML). The Amguri Combined Gas Power Station with an installed capacity of 280 M.W. has been entrusted to Assam Power Partners Private Limited for its planning and execution. The scheme envisages installation of multiple units of gas turbine with associated infrastructure and machinery and equipment at an estimated cost of Rs. 990 crores. A memorandum of understanding (MOU) for setting up a 90 M.W. gas-based power station was also signed between ASEB, the State Government and the executor of the Rs. 360 crores project-the Assam Valley Power Corporation Ltd. on February 1995. Again the Baskandi Gas-based Power Projects has also been finalised at an estimated cost of 70 crores. This project is located at cachar district of Assam and the foundation stone laying ceremony of this project has already been completed in April, 1995. The installed capacity of this project is 15.5 M.W. Moreover, the work of the 360 MW Amguri Gas-based Power Project has already commence its production since 1995-96. The Centre is drawing up the final plans for the project which will be set up by the National Thermal Power Corporation (NTPC).



Meanwhile, the State Government after analyzing various options, like Namrup Thermal Power Corporation (NTPC) for execution. The Amguri Power Project which was earlier taken up by an American Consortium-Assam Power Partners Limited did not go ahead as it was denied counter guarantee by the Government . Moreover, the proposed gas based Amguri project, entrusted to NTPC has been downgraded to 290 MW from the proposed 360 MW due to non availability of the required gas.

Moreover, considering the failure of Subash Project and Marketing Ltd to revive Karbi Longpi hydel project, the Government of Assam has taken over possession of the Karbi-Longi hydel project (100MW) and arrangement for execution of the balance work is being made. Construction of Gas-based Power Projects at Adamtilla and Banskandi with combined capacity of 24.5 MW in Barak valley are progressing according to schedule and commissioned its operation. The Assam Government has signed a MOU with US based company. Ogden Energy of New Jersey in June 1997 for taking over the Bongaigaon Thermal Power Station (BTPS) for its renovation and up gradation. Besides, the Assam Government has also decided to collaborate with a US based company to explore possibilities of setting up power projects in the State. Meanwhile, a US based Company, American Power Gen System Association has submitted a proposal to the Assam Government for setting up a 300 MW coal based project at Borgolali.

Moreover measures have been initiated for setting up of 23 Mini Hydel Projects in Assam Locations of all there 23 hydel projects and some of its have been starting power generation from 2011 . These are : Bordikhanu (MW), Lungit (6 MW in two stages), Myntrirang (9 Mwin two stages), Jamma (2 MW), Jenam (4 MW) Dalaima (6 MW), Dhansiri Canal (20 MW in 5 stages), Nazirakhat (15 MW), kalmoni (200 KW), Deopani (250 KW), Amlong (100 KW), Major (15 KW), Champabati (500KW), Sunani (150 KW), Shamangsoo (25 MW), Anjupani (500 KW), Killinbg



(3 MW), Ganapati (500 KW), Borjuri (2 MW), Upper Barjuri (2 MW) and Loongsoong (500 KW). Meanwhile since 2011, Champawati mini thermal power project of Chirang district of BTAD has commenced its power supply.

Since it is felt that public sector alone cannot meet growing demands of power adequately, the State Government has decided to handover the responsibility of setting up small and medium hydro-electric projects to the private sector. Such efforts would virtually ease the present shortage of power supply in the State and assure speedy growth of new economic avenues. The power requirement in the state has been worked out at 5967 million units during the year 2010-2011 as compared to 5049 MU in the previous year but the availability of power during the period was 5028 MU and 4590 MU respectively. To meet the demand of power in the peak hour the ASEB has been purchasing power from other public and private sources, the requirement and shortage of power position in Assam is given below,

Items	2008- 2009	2009- 2010	2010- 2011
Energy requirement (MU)	5039	5049	5967
Availability (MU)	4270	4590	5028
Shortage (MU)	769	459	939
Shortage in %	18.00	10.00	15.72
Peak demand (MW)	972	974	1066
Peak demand met (MW)	824	885	828
Shortage (MW)	148	89	238
Shortage in %	15.25	9.09	22.32

Source: Statistical Handbook of Assam, 2011.

The Union Power Minister Veerappa Moily reviewed the power situation of Assam and opined that Assam will get the cheapest power in the next coming five



years. He said that the Centre will consider all the possible aspects to meet the need of 600 MW power per day in pick hour.

Rural Electrification

Rural electrification helps in rural economy through the establishment of agro based industries and other small and cottage industries. As on 31st March 2011, total districts of the state are 27 with 26395 villages. According to 2011 census (provisional) 84% of the total population of the state lives in the rural areas. Like most of the states of the country; Assam is also lagging behind in respect of rural household's electrification. In Assam, out of the total 25,124 numbers of inhabited villages (as per 2001 Population Census) 16814 villages [67.0 percent] have been electrified till the end of March, 2010. The rural Electrification of the state got momentum from the 10th five year plan, in 2007 the Rajiv Gandhi Grameen Vaidutikaran Yojana (RGVY) scheme was implemented by the Government of Assam for rural electrification. At the initial stage the RGVY was implemented in three districts. The position of rural electrification of Assam before the RGVY scheme as on 31st March 2007, was like under,

Total number of Village as per Census 2001	25124
Total number of electrified villages	18567
Total % of village electrified	74%
Total un-electrified villages	6557

Source: Statistical Handbook Assam 2011

On 18th September 19, 2012, the Central Power Minister observed that in Assam a large number of additional villages be covered within the RGVY scheme. Power is an essential input for economic development and improving the quality of life of people. Development of conventional forms of energy for meeting the growing needs of people is the responsibility of the government. In the pre- independence



period, the power supply was mainly in the private sector and that too restricted to the urban areas. With the formation of State Electricity Boards during the Five-Year Plans, a significant step was taken in bringing about a systematic growth of power supply for industries all over the country. A number of multi-purpose projects came into being with the setting up of hydro, thermal and nuclear power stations.

For improvement of the power supply position, several projects have been undertaken in the State of Assam. Subansiri Lower HE Project is the biggest hydroelectric project undertaken in India so far and is a run of river scheme on river Subansiri. The Project is located near North Lakhimpur on the border of Assam and Aruncachal Pradesh. The estimated annual energy generation from the Project is 7421 MU in a 90% dependable year. The **Subansiri Lower Dam**, officially named **Lower Subansiri Hydroelectric Power Project (LSHEP)**, is an under construction [gravity dam](#). It is located upstream of Gerukamukh village in [Lower Subansiri District](#) Described as a [run-of-the-river](#) power station by [NHPC Limited](#), the dam is expected to supply a 2,000 MW power station with water when completed. The project has experienced several problems during construction to include landslides, re-design and opposition. It is expected to be complete in 2014. It is notable that, if completed as planned, it will be the largest hydroelectric project in India.

Thermal:

A. Lakwa waste Heat Project (1 X 37.2 MW)

B. Namrup Replacement Power Project (Ph.-I & II, 2X100 MW)

The preliminary project activities are currently in progress. Schedule date of commissioning of the project was Jan'2012 (35 months from Zero date).

HYDEL:

As per the Govt. of Assam's Policy for development of Small hydro Project in the State APGCL has taken up implementation of the following SHP's:



i) Lungnit SHEP (2 x 2 x 1.5 MW):

The project is scheduled to be commissioned by 2011-12.

ii) Myntriang SHEP (2 x 3 + 2 x 1.5 MW):

The Myntriang Small Hydro Electric Project is located in Karbi-Anglong District of Assam. The project is scheduled to be commissioned by 2011-12.

iii) Dhansiri H.E. Project (5x3x1.33 MW):

BTC has expressed willingness through GOA to execute the Project. APGCL has furnished its comment to the GOA. Decision from GOA is awaited.

The New Schemes undertaken by the Assam Power Generation Corporation Ltd. are as under,

1. Amguri CCGT in Sibsagar District with 100MW
2. Margherita Thermal power Project in Tinsukia District with 500 MW
3. Karbi langphi HE project in Karbi Anglong with 60 MW
4. Lower Kopili HE Project in Karbi Anglong District with 150 MW
5. Lower Subansiri Hydroelectric Power Project (LSHEP), It is located 2.3 km (1.4 mi) upstream of Gerukamukh village in [Lower Subansiri District](#) Described as a [run-of-the-river](#) power station by [NHPC Limited](#), the dam is expected to supply a 2,000 MW

Conclusion

In the 61st Meeting of the NEC (June, 2012) the Minister of DoNER has expressed in deep concern that the infrastructural development activities of the NER is not satisfactory. It is said that the projects of the region are not completing in schedule time. Some of the projects that have suffered delays including national projects like the Chilchar- Lumding gauge conversion project and Bigibeel Rail cum Road Bridge. It is found that there is rail link of 3908 km including 2497 km of BG and the NFRailway has taken the decision to convert all the MG lines in to BG by



2014. Most of the people of the state about 85% of the total population live in the rural area with agriculture as a source of income. The growth rate of industrial sector is very poor in the state. The main reason for poor performance of the industrial sector is inadequate supply of power.

Development of a region solely depends in its infrastructure. Without a sound power supply base, a region cannot develop economically. The development process includes the development of basic infrastructure facilities viz. power, irrigation, transport and communications, education and health etc. From the very beginning Assam lacked basic infrastructure facilities due to geographical isolation and difficult terrain surrounded by hills, rivers and dense forests. Five-year plans had its specific role to develop the infrastructure facilities of the State. The following steps are worth taking for improving the power system in Assam:

- (i) Wastage or leakage in plan expenditure on power projects should be stopped completely and be seriously dealt with for relishing the fullest benefits of each project.
- (ii) To avoid delay in completing the power projects there should have proper evaluation of each power project. There necessitate (a) Investment surveys (b) Concurrent evaluation and (c) Post-project evaluation of every power project.
- (iii) The Assam State Electricity Board should tone up their efficiency level and generate surpluses at the rate of at least 6 per cent of the invested capital.
- (iv) The mindset of the concerned people should be converted to social work instead of corrupt practices followed by a section of customers and officials, resulting huge loss of revenue and wastage of materials must be dealt with seriously and be stopped completely.
- (v) The ASEB and the Government should take steps to reduce the transmission loss in power.



(vi) In view of the need to fully utilize the practically untapped but huge power potential of the State, the centre should forward with its own schemes to develop power potential of the State, with its own schemes to develop power facilities in this State and must offer block grant and specific grants to the State Electricity Board for developing new power projects.

Vii) To control the miss use or stolen of power, the common legal user of electricity should take initiative locally and they should educate the rural people about the importance of power conservation.

It is seen that the ASEB is suffering a huge loss every year due to non-payment of bill by the consumers, it is observed that most of lapse payment is from government departments. Therefore, the government should take initiative for making payment of the bill in time. At the end it can be said that shortage of power supply is root cause for poor performance in the industrial sector of the state both in public and private sector. Moreover, the opportunity for job is also hampered due lack of uninterrupted power supply.

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AEGCL=Assam Electricity Grid Corporation Ltd

APGCL=Assam Power Generation Corporation Ltd

ASEB= Assam State Electricity Board.

BTPS= Bongaigaon Thermal Power Station

BTAD= Bodoland Territorial Autonomous Districts

CAEDCL=Central Assam Electricity Distribution Company Ltd

DoNER= Development of North Eastern Region

LAEDCL=Lower Assam Electricity Distribution Company Ltd

LSHEP= Lower Sobansiri Hydroelectric Power Project

MW= Mega Watt

NEC= North Eastern Council

NEEPCO= North Eastern Electrical Power Corporation

NTPC = National Thermal Power Corporation

UAEDCL=Upper Assam Electricity Distribution Company Ltd

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