SUMMARY OF FINDINGS, POLICY RECOMMENDATIONS AND CONCLUSION

7.1 INTRODUCTION:

In the words of Dr. A.P.J. Abdul Kalam, "No nation can aspire to be modern and developed without the availability of quality power for all. No modern machinery can run without uninterrupted and quality power systems. The whole magic wand of Information Technology (IT) will be at naught if there is no electric power. Imagine New York or London or Tokyo having just one day without power or a week of interrupted power supply. It just cannot happen. If it did, it could bring down the government."

With this chapter, the study of 'Restructuring of Power Sector in Assam' comes to a close. In spite of many constraints, sincere attempt has been made to have an introspection into the power sector reform and restructuring process in Assam. At the end some viable and workable suggestions have been offered to remedy and tone up the functioning and performance of power sector in our State.

7.2 SUMMARY OF FINDINGS:

The activities and performance of the power sector in the State of Assam both in pre and post-restructuring period have been analysed on the basis of both
primary and secondary data. Secondary data are being collected from Annual Reports of ASEB and its post-reform entities, Official Publications, Assembly Proceedings, Economic Survey, CAG reports, Statistical Handbook, Assam etc. Apart from these, the opinions and suggestions of the household consumers, concerned government and power sector Officials have also been collected in this respect. After proper analysis all the data and opinions, the aspect-wise findings of the whole research work are being summarised under the following points:

7.2.1 Power Infrastructural Aspect:

i) The power sector is vitally important for the social and economic prosperity of a developing State like Assam. It is one of the key infrastructures for the overall development of the State. Correlation between consumption of power and growth of economy is widely accepted today. The per capita consumption of electricity in Assam is one of the lowest in India.

ii) Despite Assam possessing huge potentiality for power generation ranging from hydel to natural gas including oil and coal resources, the progress in this field in our State is not at all satisfactory. During the year 2007-08, the total generation of power in the State was only 15,411.32 M.U. as against 867.54 M.U. in the year 2006-07.

iii) The overall power supply position in Assam is also not at all satisfactory. The energy requirement in the State has been found to be 5280.00 M.U. during the year 2007-08 and 4585.00 M.U. in 2006-07. However, the availability of energy during the same period was only 4015.00 M.U. and 3826.55 M.U. respectively. The shortage of power in Assam has been increasing every year. The shortage of power in Assam during 2005-06, 2006-07 and 2007-08 was 615.18 M.U, 758.45 M.U. and 1265.00 M.U. respectively. In terms of percentage, during these three years, the shortage of electricity were 14.58%, 16.54% and 23.96% respectively.

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iv) In case of peak demand, the shortage of electricity in the State has been fluctuating every year. During 2001-02, the percentage of shortage of electricity during peak hours was 10.20%. The peak deficit was as high as 24.59% during 2003-04. However, it came down to 14.62% during 2007-08 due to the beginning of hydel power generation in the State during 2006-07.

v) It is observed that NEEPCO is the chief lender of electricity in our State. During the year 2004-05, ASEB received 2463.45 Mkwh power from NEEPCO. In the year 2007-08, ASEB purchased 2,718.64 Mkwh power from NEEPCO thereby registering an increase of 10.36%.

vi) After the formation of the State of Meghalaya carved out of Assam in the year 1971, Assam experienced a big jolt as the vast hydel power stations like Umtru, Umium went to the State of Meghalaya. After the bifurcation, the lower Assam region was only left with thermal based Chandrapur Thermal Power Station (CTPS) and the upper Assam side was left with only the Namrup Thermal Power Station (NTPS).

7.2.2 Consumption Aspect:

i) The statistics of the pattern of consumption of electricity in the State reveals that the domestic sector has been consuming highest amount of electricity followed by the industrial sector. During the year 2007-08, the domestic sector accounted for 38.99% of total consumption of electricity followed by industrial sector (18.57%). After domestic and industrial sectors, commercial sector and tea gardens are the major consumers of electricity in our State. During 2007-08, the consumption of electricity by the commercial sector and tea gardens were found to be 12.98% and 11.71% respectively.

ii) The per capita availability of electricity in Assam has not been satisfactory both in the pre-reform as well as in the initial post-reform periods. During the year
2005-06, the per capita electricity availability status in the State was only 114.64
Kwh as against 380.61 Kwh in West Bengal, 633.93 Kwh in Orissa, and 1283.77
Kwh in Gujarat. It may be mentioned here that during 2005-06, the per capita
availability of electricity in India was 631.41 Kwh. However, the per capita availability
of electricity in our State increased to 137.08 Kwh during 2007-08 from 115.76 Kwh
in 2006-07.

7.2.3 Organisational Aspect:

i) A major change in the organisational and operational set-up of the power
sector in the State was observed. After restructuring, the role, functions and
responsibilities of ASEB has undergone a wholesome change. Now, the functions of
restructured ASEB include purchasing of electricity in bulk from the various power
generating companies like NEEPCO, NTPC, NHPC including APGCL and various
State Electricity Boards and private parties and supply of electricity in bulk to the
three distribution companies in the State, namely, UAEDCL, CAEDCL and LAEDCL.
The existing power purchase contracts including the arrangements, agreements,
allocation and other commitments for purchase of power in the future are also vested
in the Board. ASEB will also control and supervise the common assets and the
management of the common facilities and common services of the power sector in
the State. Moreover, the implementation, coordination and monitoring of projects
and schemes supported by Asian Development Bank (ADB), Accelerated Power
Development and Reform Programme (APDRP) and other schemes concerning the
electricity sector in the State will be undertaken by the Board.

ii) In pursuance of the Indian Electricity Act, 2003 and as a part of the Assam
Power Sector Development Programme, the Government of Assam has unbundled
ASEB into five new entities, namely, Assam Power Generation Corporation Limited
(APGCL), Assam Electricity Grid Corporation Limited (AEGCL), Upper Assam
Electricity Distribution Company Limited (UAEDCL), Central Assam Electricity
iii) Under the new arrangement, APGCL is mainly responsible for generation of electricity in the State. The AEGCL is mainly responsible for transmission of electricity throughout the State of Assam. For ensuring proper distribution of electricity in the State, three distribution companies have come into existence. The UAEDCL, CAEDCL and LAEDCL distribute electricity in the Upper Assam, Central Assam and Lower Assam regions of the State respectively. Thus, all important activities like generation, transmission and distribution have been separated for better performance in the restructured organisational set-up in the power sector in the State.

7.2.4 Operational Aspect:

i) The ASEB and its five post-reform entities have adopted a number of projects to improve the power scenario in Assam. These projects are the Accelerated Power Development and Reform Programme (APDRP), Rural Electrification (RE) Schemes, Assam Power Sector Development Project (APSDP) and the Non-Lapsable Central Pool of Resources (NLCPR). It is observed that a considerable amount of work has been undertaken in Assam under the above mentioned four schemes. However, these projects are not yet fully completed. The impact of these projects would be better realized after the completion of all these schemes.

ii) Under the Accelerated Power Development and Reform Programme (ADDRP), forty five (45) new sub-stations were constructed in different electrical circles in the State upto 30.04.2008. Repairing and maintenance works have been undertaken in 94 sub-stations. Upto 30.04.2008, altogether 407.59 CKM 33KV new line and 782.23 CKM 11 KV new line have been completed. In addition, 367.59
CKM LT new line has been completed during this period. Repairing and maintenance works have also been undertaken in 162.40 CKM 33 KV line and 1520.46 CKM 11 KV line. In case of Low Tension (LT) line conversion, out of a target of 3328.15 CKM, 3212.15 CKM has already been finished. During this period, as many as 1833 new Distribution Transformers (DTRs) have been added and repairing and maintenance works have been carried out in 9666 distribution transformers in our State.

iii) ASEB and its five successor companies in the post reform period have laid special emphasis on the improvement of distribution efficiency in a phased manner in the State. As a result of all these efforts, there is a marginal reduction in the Aggregate Transmission and Commercial (AT and C) losses in the State. As per the information available for the last six years (2002-03 to 2007-08), it is observed that the Aggregate Transmission and Commercial (AT and C) losses have been diminishing and showing a positive tendency of being decreasing since 2004-05.

iv) A significant amount of work has also been undertaken under the Rajib Gandhi Gramin Vidyutikaran Yojana (RGGVY) in Assam in the post-reform period. It may be noted that in most of the cases, the implementing agency for RGGVY is ASEB itself. Only in Dibrugarh, Sibasagar, Cachar, Sonitpur and Karimganj districts, the Power Grid Corporation of India Ltd. (PGCIL) has been given the responsibility for the implementation of the Project. In most of the cases, NITs (Notice Inviting Tenders) are being prepared for floating whereas in Tinsukia, Cachar and Goalpara districts, contracts have already been awarded and works are under progress.

7.2.5 Financial Aspect :-

i) Factors responsible for the poor performance and weak financial health of the power sector in the State are inadequate tariff structure, poor revenue collection, increasing costs, weak and inadequate transmission and distribution (T&D) network, old technology, large scale theft of power, inadequate investment in repair and
maintenance head, improper combination of thermal and hydel power, lack of optimum utilization of the existing generation capacity, inadequate inter-regional transmission links, high manpower and manpower costs, operational inefficiency, high commercial losses, political interference in decision-making etc.

ii) Revenue earned by the power sector both in the pre as well as post-reform period was always less than its expenditure. During 2000-01, ASEB earned Rs. 68,399.15 lakhs whereas it spent as high as Rs. 1,29,119.90 lakhs signifying a loss of Rs. 60,720.75 lakhs. During 2004-05, ASEB spent Rs. 2,10,113.39 lakhs against its earning of Rs. 1,01,308.14 lakhs signifying a loss of Rs. 1,08,805.25 lakhs. Similarly, during 2008-09, power sector spent Rs. 2,49,313.71 lakhs against its earnings of Rs. 2,40,992.40 lakhs indicating a loss of Rs. 8,321.31 lakhs. Thus we see that the power sector in Assam could able to reduce its level of losses during the initial post-reform period. Although, the power sector has been still incurring losses, there is a check on its losses as compared to the pre-reform period.

iii) It is seen that State power sector had taken huge loans and advances from LIC, IDBI, REC, NEDFI as well as from the Government of Assam. As a result, every year State power sector pays huge sum against these loans, advances and bonds to outside parties. During 2000-01, ASEB paid Rs. 23,983.87 lakhs against its interest and finance charges. Similarly, ASEB paid Rs. 26,869.17 lakhs and Rs. 26,645.82 lakhs during 2002-03 and 2003-04 respectively. However, it is found that after restructuring, the power sector could also check its interest and finance charges to some extent. The interest and finance charges came down to Rs. 11,531.79 lakhs and Rs. 17,557.37 lakhs respectively during 2007-08 and 2008-09. Thus, interest and finance charges though reduced still continues to be an important item of expenditures in the post-reform period.

iv) It is found that budgetary allocation to the power sector in the post-reform period has declined considerably in the State. During 2004-05, out of a total grant of
Rs. 16,63,895.83 lakhs, Rs. 3,00,385.67 lakhs was sanctioned for the power sector accounting for 18.05% of the total allocation of the Government of Assam. During 2005-06, Rs. 37,429.42 lakhs was allocated to the power sector as compared to the total grant of Rs. 14,90,242.68 lakhs, which is just 2.51% of the total allocation. Similarly, during 2008-09 and 2009-10, only 0.57% and 0.64% of the total grant was allocated for the power sector in the State. Thus, it is seen that in stead of increasing allocation for the power sector, the Government of Assam is reducing its budgetary allocation for the power sector in the State in the post-reform period.

v) It is also observed that the financial performance of the power sector in the State is marginally improving in the initial post-reform period. Current ratios, liquid ratios, current assets to fixed assets ratios, profitability ratios all are exhibiting better performance in post-reform period. The net loss which was 120.08% during 2004-05 improved to 2.37% in 2008-09. The return on net assets was (−) 15.10% during 2004-05 improved to (−) 2.45% in 2008-09. Similarly, administrative expenses which was 1.38% during 2004-05, further reduced to 0.76% in 2008-09. It may thus be noted here that although the power sector in Assam is still incurring losses, it has been successful in lowering its level of losses to some extent in the State in the initial post-reform period.

7.2.6 Quality Aspect:

i) Average availability of electricity per day is considered to be an important aspect of power quality in any State. While examining the average duration of electricity in the selected districts in the State, none of the respondents urban as well as rural reported the availability of 24 hours electricity supply. Majority of urban households (74%) reported that they get electricity on an average for 11 to 15 hours per day. On the other hand, majority of rural households (72%) disclosed that they get electricity on an average for 6 to 10 hours a day. All these show a dismal picture of electricity
availability in the State. Moreover, from the field survey it was observed that there was no clear-cut timings of load shedding in the State. Power authorities generally go for load shedding as per their will without any notice or any pre-determined time schedule.

ii) Almost all the household consumers (96% in both urban and rural households) in the study districts admitted that there was a distinct seasonal variation in the availability of electricity supply during summer and winter prevailing in the State. The shortage of electricity is mainly felt in the summer compared to the winter due to huge demand of electricity from the consumers during summer for their household electrical appliances. Such variation need to be stopped at the earliest for the balanced development of our economy throughout the year.

iii) Regarding voltage quality, about 66% of the urban respondents and almost a half of the rural respondents (48%) disclosed that there is an improvement in the electric voltage in the State in the post-reform period. As high as 84% of urban respondents and 82% of rural respondents are found to be satisfied with the quality of electric voltage they get during day time. However, 34% of urban respondents and 56% of rural respondents are not satisfied with the quality of electric voltage they get during night/evening time.

iv) Pricing (monthly electricity bill) is found to be a common cause of concern for both the urban as well as rural consumers in the State. Majority of the respondents from both urban as well as rural areas (98% in case of urban households and 97% in case of rural households) opined that there is definitely an increase in the monthly electricity bill in the post-reform period. Moreover, 78% of the urban respondents and as high as 88% of the rural respondents also disclosed that the costs of new electricity connections have also been enhanced in the post-reform period in the State. This may seriously affect the financially weak households, particularly from rural areas while taking new electricity connections in the coming days.
v) Over 80% of the respondents both from urban as well as rural areas in the field admitted that today there is a significant improvement in the electricity billing system in the State. It is heartening to find that none of the household consumers urban as well as rural even mentioned regarding the deterioration of the billing system in the post reform period. Moreover, more than 60% of urban households and 75% of rural households feel that there is an improvement in the timings of billing also in the state. Thus, the problem of late despatch of electricity bills seems to be reduced to some extent in the State.

vi) In the post-reform period, ASEB has covered newer areas both in urban as well as rural Assam. Majority of respondents (82% in case of urban households and 72% in case of rural households) admitted that electricity network has been enlarged in their localities. Besides new area coverage, upgradation of existing areas have also been undertaken in the State in the post-reform period. Half of the urban respondents and 70% of rural respondents disclosed such improvement in their areas.

vii) So far as privatization of electricity services in the State is concerned, People of the State seems to be divided over the issue. 54% of the urban respondents are in favour of such move of the Government of Assam. They believe that privatization would lead to better electricity services in the State. On the other hand, as high as 70% of rural respondents and 46% of urban respondents are opposing such move. They fear that privatization would result in high monthly electricity bill and consumer exploitations without any significant improvement in consumer services.

7.3 KEY CONCERNS:

i) In spite of Assam possessing huge potentiality for power generation ranging from hydel to natural gas including oil and coal resources, the power generation in our State is quite discouraging. The total power generation in the State including
thermal, hydel and gas resources during 2007-08 was found to be 1541.32 M.U. As a result, the State is always facing severe energy shortage. Similarly, the power supply position in the State is also very poor for the last several years. In fact, it is found that the shortage of power in Assam has been increasing every year. During 2004-05, the shortage of power supply was 10.87%. In 2006-07, it further increased to 16.54% of the total energy requirement of the State. Similarly, during 2007-08, 4015.00 M.U. power was available in the State against the requirement of 5280.00 M.U. signifying energy shortage to the extent of 23.96%. Insufficient power production is found out to be the main cause for inadequate power supply in the State. During my field survey more than half of the urban respondents (58%) and 46% of the rural respondents disclosed such opinion. Therefore, insufficient power generation is found to be the major cause of inadequacy of power supply in our State.

ii) In order to meet the demand-supply mismatch, state power sector has been purchasing power from various sources available in the neighbourhood. These sources include NEEPCO, NHPC, NTPC etc. State power sector is also purchasing power from parties like D.L.F., N.V.V.N.L. etc. in addition to the various State Electricity Boards at a very high rate. It is also observed that the quantum of power purchased by State power sector from outside sources has been increasing year after year primarily due to growing demand of electricity in the State. During 2004-05, ASEB spent Rs. 55,512.87 lakhs for purchasing power from various sources. During 2006-07, power sector spent Rs. 77,962.06 lakhs for purchase of power from outside sources. Similarly, during 2008-09, power sector spent Rs. 1,27,466.45 lakhs for purchasing power from outside sources against Rs. 1,18,253.53 lakhs during 2007-08. Thus, it is clear that State's own generating system is totally unable to meet the continuously increasing demand of electricity in the State. Sometimes, the state power sector is forced to buy power from outside sources at a very high rate and they sell it to the consumers at a much lower rate pre-determined by A.E.R.C. For example,
during the last October, 2011 (during Durga Puja festival) ASEB procured power from the spot market at the rate of Rs. 12 per unit at the sending end, which turned into around Rs. 15 per unit considering the 30% transmission and distribution losses to meet the shortfall in power supply in the State. In turn, they sold the power to the consumers at the rate of only about Rs. 4 per unit of electricity signifying a loss of Rs. 11 per unit. This type of irrational buying only deteriorating the financial health of the State power sector.

iii) Huge manpower is another key factor, which is further deteriorating the financial health of the state power sector. Like the pre-reform period, in the post-reform period also state power sector has been spending huge sum of money for managing its human resources. In fact, it is the head in which power sector spent huge amount every year after purchasing of power from various sources. During 2004-05, ASEB spent Rs. 28,953.37 lakhs for its human resources. During 2008-09, state power sector spent Rs. 54,098.81 lakhs against Rs. 41,252.52 lakhs during 2007-08 for its manpower indicating an increase of Rs. 12,846.29 lakhs in just one year. Such a huge increase in just one year in employee costs seems to be too high for our financially weak power sector. As per norm, (as reported) only 3 persons required per megawatt generation. But in case of the State power sector, they are having 9 persons per megawatt generation which only signifies the unproductive manpower in the power sector in the State, which should be checked immediately.

iv) Power theft is another key factor deteriorating the financial health of the state power sector. Although, power theft is a criminal offence throughout the world, power utilities are losing crores of rupees in this account every year. It was reported that even some ASEB Officials are in touch with some big factory owners, industrialists and tea gardens. They are consuming more power whereas they are paying less amount to the Power Department. Moreover, power theft is reported to be common in rural areas particularly at night. As a result, State power sector is losing a huge
amount, which is a matter of serious concern.

v) The key developmental objective of the power sector is supplying electricity to all areas including rural areas as mandated in Section 6 of the Electricity Act, 2003. In Assam out of 25,124 inhabited villages as many as 14,516 number of villages have been electrified till 31st March, 2007 (57.78%). Sivasagar district with 87.88% village electrification tops all the districts while Karbi Anglong with only 16.52% village electrification is far behind in rural electrification in Assam. From the field survey, it is also found that out of 2,948 number of rural households in the three selected districts only 59.70% (1760 households), at present having electricity facility leaving a big portion (40.30%) of village households outside electricity network. Moreover, the rural electrification scenario in Assam is marked by some serious limitation that statistics alone cannot reveal. Eventhough, a considerable number of villages have been shown and described by ASEB as electrified are not electrified in true sense. Field survey reveals that many of these so-called electrified villages go without power for long hours particularly during summer that undermines the claim of electrification by ASEB. Rural Consumers particularly those, who are ready to pay electricity tariff have the right to get uninterrupted 24 hours supply of quality power. Therefore, neglect of rural electrification is a matter of serious concern which needs to be rectified at the earliest.

vi) Awareness as well as involvement of common people is a necessary precondition for the success of any plan. For proper implementation of any scheme, we must get cooperation as well as suggestion from people. Unfortunately, the awareness and involvement level so far as power sector reform and restructuring in the State is concerned seems to be very limited particularly among the rural people. From field survey it was found that only 22% of rural households could know regarding power sector reform and restructuring, which is going on in the State since December, 2003. However, the situation is better in case of urban areas where 84% of local households are at least aware of such activities in the State. As a result power schemes are
never implemented as per schedule particularly in rural areas. Due to the absence of public consciousness as well as awareness, Power Officials also get a chance for manipulations of facts and figures.

vii) Lighting of homes for few hours should not be the sole objective of rural electrification schemes in Assam. It should be oriented towards increasing the agricultural output in the State. Rural electrification schemes should ensure irrigation facilities through energisation of agricultural pump sets and tubewells. While analysing the consumption pattern of electricity of different consumer groups in the State, it was found that only a very insignificant amount of electricity being used for irrigation purposes. It may be mentioned here that from 2003-04 to 2007-08, the percentage of consumption of electricity for irrigation purposes is always less than even 1%. In Assam majority of our people in rural areas are mainly dependant on agricultural production. Today agricultural sector is equally important as that of industrial sector. The State cannot develop by neglecting the agricultural sector. For the overall development of the State the modernization of agricultural sector is very vital. Again for modernisation of our agricultural sector, supply of uninterrupted quality power is very important.

### 7.4 POLICY RECOMMENDATIONS:

In the light of the study of the Assam State Electricity Board (ASEB) and its successor companies in the post-reform period, the following policy recommendations are extended for improvement of the overall performance of the power sector in the State as well as improve the electricity services to all consumers:

i) The widening mismatch between demand and supply year after year has caused a severe setback to the economy of the State. Therefore, it is suggested to narrow down the deficit by expanding power generation base more rigorously in the
State. It would require long term planning and efforts to reach the desired objectives. Today, only three power plants are operating in the state, namely, gas based Lakwa Thermal Power Station (LTPS) and Namrup Thermal Power Station (NTPS) and hydel based Karbi Langpi Hydro Electric Project (KLHEP). The other two thermal based plants, namely, Chandrapur Thermal Power Station (CTPS) and Bongaigaon Thermal Power Station (BTPS) are out of operation since January, 1999 and March, 2002 respectively.

ii) In order to increase generation of power in the State, in stead of going for large hydropower projects, we should go for small hydropower projects. Out of various energy options, small hydro seems to be more fruitful in the State. Small hydropower is sustainable, renewable and emission free source of energy. It has minimum gestation period and technology involved is comparatively simpler. It requires less initial investments. Assam as well as other North-Eastern States have huge hydropower potentionality. Small hyrdo projects may be started at local levels involving self help groups (SHGs). If they fulfil the power needs of their localities only it will be enough to develop the economy of the State. Moreover, in this case no investment is required for transmission lines as the power will be consumed locally.

iii) In our State power generation at present is mostly gas based. The other potential options of power generation in the state are oil and coal resources. Oil based power generation may be difficult right now in view of its country wide shortage and high cost. Thus, each and every available source should be carefully considered for further power generation in the State. Solar and wind energy which are available in abundance in the state may be exploited to the maximum. For this purpose, both Central and State Governments should offer a package of incentives to encourage the potential entrepreneurs. By taking to these non-conventional sources of energy, the hazards of environmental pollution caused by thermal power may also be avoided.

iv) In Assam, power generation is always inadequate to meet the power demand...
particularly during peak hours. The ASEB purchase huge power from outside sources like NEEPCO, NTPC, NHPC as well as from various State Electricity Boards like WBSEB, MeSEB etc. at a very high rate. In fact, it is causing an enormous drain on the financial health of ASEB. Therefore, it may be suggested that independent power producers (IPPs) in the private sector should be encouraged to start power units under licence from the Government in the State. The ASEB should purchase power from such private parties during peak hours and in hot summer and may enter into a separate package of power purchase agreement with them. Such type of agreements with private parties would facilitate the continuous flow of power to the consumers in our State.

v) Not only in the field of generation for accelerating power production in the State but the role of private participation in transmission and distribution sectors have become increasingly important in view of the rapidly growing investment needs of the power sector in our State. The Ministry of Power, Government of India and the Government the Assam need to develop workable models for public private partnership (PPP) in these sectors. This would also enable leveraging private sector investments with the public sector finances. Mechanism for continuous dialogue with corporate bodies for streamlining procedures for encouraging private participation in the power sector in Assam need to be accelerated at the earliest.

vi) Plant Load Factor (PLF) is an important efficiency measuring parameter of the power plants. The plant load factor of the existing power generating stations in the State should be improved with modern technology and equipments. For this purpose, the existing power plants and those which are under progress should be monitored properly and their completion should be ensured within the stipulated time. New investments should be made to establish latest transmission structures to prevent the heavy transmission and distribution (T&D) losses in the State. Adopting latest and efficient technologies and equipments can only reduce such losses. Power
distribution efficiency of the three distribution companies in Assam has to be improved
with appropriate new technology. Outdated and worn out equipments and methods
have to be discarded and modern systems should be adopted. Leakage and
wastages should be prevented at all costs. Totally concealed power lines and sub-
stations should be erected to transmit power without any undue loss in power
distribution. The UAEDCL, CAEDCL and LAEDCL should plan for long term
development of the distribution system in order to give satisfactory services to
consumers of all categories in the state. It is very essential for the distribution
companies to have a foolproof transmission system free from leakage, wastage,
and pilferage. All the sub-stations should be strengthened and restructured to transmit
power without any loss. Similarly, faulty lines should be replaced by new transmission
lines.

vii) Finance has always been a major constraint of the power sector in our
State. The ASEB has been incurring heavy losses for long. Therefore, it is unable to
undertake new power projects in the State. All the financial institutions in the State
are also not in a position to finance the new power projects, which require heavy
investments. Thus, it is suggested to arrange soft loans from national and international
agencies to finance our new power projects. But it is not enough to borrow funds
from national and international agencies. These funds have to be managed with
greater care and caution. Otherwise, State's power sector would find itself in an
inextricable debt-trap.

viii) Today power sector in Assam is excessively dependant upon the
Government of Assam for fund accumulation. The Government of Assam is, in fact,
regulating the State power sector and very often impose restrictions on it by its populist
policies, which are detrimental to the stability and smooth functioning of the power
sector. Such dependence on the Government is neither desirable nor advisable.
The power sector in the state should grow on its own and autonomy of the sector
should be respected in theory as well as in practice. This would bring down the unhealthy and undesirable interference by the political parties in power in the State and political interference in the everyday functioning of the Board and its successor companies.

ix) The Government of Assam provides various grants to the power sector to carry out its various social obligations. But it is reported that the grants are released usually at the end of the financial year. The Government grants as provided under the present rules should be released timely and without delaying it by unnecessary bureaucratic formalities.

x) Concerted action should be taken for augmenting training infrastructure in the State so that adequate well-trained employees are available to the power sector as per the need. Special attention should be paid by the industry for establishing training infrastructure in the State in the field of electricity distribution, regulation, trading and power markets. Development plans should be designed to ensure a continuous supply of trained people in the power sector. Efforts should be made so that personnels of electricity supply industry both in the private and public sectors become more cost-conscious and consumer-friendly. VRS may be given to the willing aged power employees. Moreover, power authorities should be very careful in respect of appointment of fresh personnels in the future. Special efforts should be made by the Government of Assam as well as power authorities to keep up the morale of its employees by ensuring them full job security and above all due recognition for their hard work.

xi) Theft of power, illegal and unauthorized use of power must be stopped at all costs. A great part of the financial problems of the erstwhile ASEB and the present Corporations are due to unscrupulous thieving of power. A mechanism for vigilance and control of malpractices should be established and made functioning properly. A separate and stringent Act may be enacted to control and punish the culprits in the
misuse of power. As electricity is very vital, culprits and trespassers should be dealt with promptly and without compromise. The Vigilance Cell of the ASEB should be made more active and careful in this respect. A separate scheme may also be adopted by the ASEB or the Department of Power, Government of Assam for rewarding the employees or citizens; who take special care to detect or prevent the power theft in the State. Moreover, in order to stop power theft, committees may also be formed involving Gaon Panchayat Members, Village Defence Personnels, School Teachers and Police Officials at the local level. They will monitor power theft at their localities. Such measures may prove to be more effective in our State. Moreover, the restructured power sector may also go for underground cable system to stop power theft in the State.

xii) According to the old definition of village electrification, if there is just only one eletrical pole then the village may be said to be electrified. But in accordance with new approved definition of village electrification, a village will be deemed to be electrified if a minimum of 10% of the households are provided with lighting facility and electricity is also made available for community facilities and for dalit bastis of the village, if there is any. Rural electrification scenario in Assam is in fact very poor. Although, a considerable number of villages have been described by ASEB as electrified, they are not electrified in accordance with the new norms. In fact, rural people are not at all satisfied by the quality of power they are getting in the State. Concerted efforts must be made to raise rural electrification scenario in the State. In Assam, majority of people live in rural areas and economy of the State cannot develop socially and economically without quality rural electrification. Moreover, rural consumers are not well conversant with the use of electricity and electrical devices. They should be educated in conservation of energy measures such as use of CFL bulbs, bio gas plants etc. The problem of low voltage conditions due to long and over-loaded line is also common in rural areas. Rural Electrification Department of
the power sector in the State should be serious in this respect. They must provide
equal importance to the rural electrification as that of urban areas.

xiii) Awareness and involvement of the People of Assam is very essential for
the success of power sector reforms and restructuring in the State. In Assam due to
lack of education, rural people are completely at dark regarding power sector reforms
and restructuring and implementation of various power projects in their areas. The
situation is not much different even in urban areas. The acid test of the success of
power sector schemes lies in the public participation in the power sector programmes.
Public participation brings transparency in the system and works as a watchdog,
which indirectly reduces corruption and malpractices in the system. Today, a lot of
funds are entering in our State under various Central schemes like Accelerated Power
Development and Reform Programme (APDRP), Non-lapsable Central Pool of
Resources (NLCPR), various rural electrification (RE) schemes particularly under
Prime Minister Gramin Yojana (PMGY), Rajib Gandhi Graman Vidyutikaran Yojana
(RGGVY) etc. Moreover, State power sector has already received a huge loan to the
tune of US $ 250 million from ADB. These huge funds need to be used very carefully
and effectively. Unless there are adequate, effective and mandatory provisions for
ensuring transparency, direct accountability to people and meaningful public
participation, the regulatory mechanisms and institutions may be sabotaged by vested
interests to further their personal aims. Therefore, it is imperative on the part of State
power authorities to formulate power schemes and programmes after active
consultation and due participation of the local people. The involvement of the local
people has to be so intense and intimate that people develop emotional and
psychological attachment with the proposed power schemes, treating the schemes
as their own and for their own benefit and not for the ones that are imposed on them
by the power authorities. After its acceptance by the people, the implementation of
power schemes becomes easier and chances of its failure are become remote. The

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Power Officials should be trained so that they are able to go to the people and identify the real issues as per the need of the people. People are the best judge of their needs. If the people are involved then the power projects will work better. Therefore, State Power Officials should encourage transparency, self accountability and public participation while planning and implementing various power programmes in the State.

xiv) The agricultural sector which is the dominant economic activity in rural Assam as in rest of India is still characterised by poor irrigation facilities and low mechanization leading to poor crop productivity. The agricultural productivity is low compared to the national average because of absence of irrigation system in the State. In Assam, use of electricity for irrigation purposes is even less than 1%. For overall development of the rural Assam, modernisation of our agricultural sector is very vital. The generation base of electricity must be increased in the State so that sufficient amount of power is available in rural Assam for utilising in the agricultural sector. The rural electrification programme in Bangladesh is considered as one of the most successful electrification programme in the World. Apart from providing quality power with excellent collection rate, the rural cooperatives formed under the rural electrification (RE) programme in Bangladesh have energized more than one lakh irrigation pumpsets, which enabled the Bangladeshi farmers to go for three crops in a year. Rural electrification through co-operatives in Bangladesh also enhanced both direct and indirect employment in agriculture and rural industrial sector. An estimated 1.1 million persons are directly involved in agricultural sector and another 9.83 lakh persons in the rural industrial sector. Similar co-operatives may also be formed in Assam to improve rural power scenario. They may use local resources and generate power at a low volume. The Department of Power, Government of Assam may send a delegation to study the rural electrification programmes in Bangladesh to examine the possibilities of implementations of such
models in Assam. We may go for such models in our State after carefully considering all pros and cons.

xv) Restructured power sector in the State should undertake some customer awareness programme to educate the people regarding the judicious use of power. A multi pronged publicity campaign using media may be taken up to create a high degree of public awareness with special reference to energy conservation measures. Efforts should be made for enhancing the general awareness level among the public through corporate advertisements. Right to Information Act should be implemented in all earnestness to encourage transparency in the power sector in the State. DISCOMs should print and distribute pamphlets in local languages and English regarding the current activities of the power sector in the post-reform period. The pamphlets should also be made available at all Bill Collection Centres in the State. DISCOMs should also participate in various exhibitions with a 'Central Stall' explaining people about their new focus on customers, performance standards and quality of service in the post-reform period. Strict monitoring and implementation of Citizens' Charter should be done seriously, systematically and regularly to ensure public compliance. All these measures will help in creating a good public image for the restructured power sector in the State.

xvi) A grievance redressal cell of the ASEB should be created at different branches to entertain the various logical grievances of the consumers in the State. Power sector employees in the State should try to be more polite, time-conscious and co-operative in their behaviour. This will motivate the people to change their attitude towards ASEB and its successor companies and increase the satisfaction level of the consumers.

xvii) Last but not the least, efforts should also be made to improve the law and order situation of the State in order to ensure a congenial environment for outside investment in the power sector. The intellectuals, academicians, politicians, students,
businessmen, workers and all concerned people must be involved at various levels to come up with solutions of the problems in this regard.

Above all, people should get rid of the idea of getting power free of cost. Since generation of power involves considerable cost, the consumers should be mentally and morally prepared to pay for the cost of power promptly. The regular and timely payments help the recycling of funds, which can be further used for power generation and distribution to the consumers in the State. In a democratic set-up, responsibilities and duties are as important as rights and privileges. The consumers as well as the employees of the electricity departments must realize that power should be rightly and logically utilized for the benefit of the People as well as the State. Discipline is important in consumers as well as those in the power sector. Administrative supervision, legal measures, punitive actions against the offenders are perhaps very essential. But such steps can not impose and sustain discipline and upright conduct for long unless the employees and consumers make a sincere endeavour on their own.

7.5 **CONCLUSION:**

Adequate power with a high degree of reliability and quality is very essential. It is needed to ensure quality power and services at an affordable price. In view of the plight of the power sector in Assam, it is very important to take up with all seriousness, the measures to improve capacity addition in order to maximize power generation in the State. Unless power is sufficiently available to the industrial sector, Assam cannot progress industrially. In fact, industrial backwardness is an indication of unemployment and economic backwardness. Similarly, uninterrupted quality power supply to the consumers is very important. Consumers expect power to be supplied to them at a reasonable price, a price that they can afford. Regular supply of electricity

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would infact increase the consumers' satisfaction level.

The suggestions offered above are all viable and workable. Despite some progress, our performance in removing power shortage and ensuring quality power is far below expectations. The speed of power sector reforms and restructuring has to be accelerated in the State in order to achieve the objectives and agenda of the reform process. The era of the State Electricity Boards (SEBs) should end now, because, they failed on all fronts like power generation, power transmission, power distribution etc. They could not manage efficiently and prudently their finances, which is the crux of the entire problem. Under the restructured organisational set-up, it would definitely take some more time to find tangible results. The efforts are going on with positive node. There is every reason to believe that the successor companies of the Assam State Electricity Board (ASEB), namely, APGCL, AEGCL, UAEDCL, CAEDCL and LAEDCL would succeed in improving the power situation in the State and set the house in order before it is too late. But it calls for coordinated efforts by all concerned.

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