ENERGY & POWER DEPARTMENT
GOVERNMENT OF SIKKIM

Power Sector is the key input to the economic sustenance of any State. Sikkim is no exception in this, largely because here Power Industry, unlike other Industries, is not only the propelling instrument but in itself a revenue generating sector for this tiny state. The land locked hilly terrains marred with long rainy season may be inhibiting factors for the growth of industrial developments, but the same two natural features bestow the state a concentration of hydro potential.

Though the first generating unit was installed in the State as early as in 27th May, 1927, it was only in 1962 that the electricity was made available to the general public in Gangtok. In the meanwhile, the demand started growing at a rather slow pace and the State Government added some meager capacity by installing DG sets and micro-hydel units progressively. In 1979-82, when 12 MW LLHP was commissioned, the state could take up Rural Electrification Schemes, thereby more villages were electrified and the demand started growing. At present the peak load during winter is of the order of 61 MW and it is expected to grow rapidly.

With the launching of liberalized power policy by the Government of India and the opening of the sector for private developers, Sikkim is poised to gain in a big way and is looking forward to earn significant revenue by exploiting its huge potential, which is assessed at 8000 MW seasonal with a firm base of 3000 MW.

EXISTING POWER SYSTEM:

Till very recent past, the Departmental set-up had an orientation towards social outlook. The primary objective of the department has been to make the electricity available to all the sections of people in the state. The cost of doing so was not of primary consideration. This is not to say that the State's Power Department was unique in the country. In fact, till very recently all the States Power Sector had the same features notwithstanding the fact that most of them have an Electricity Board. The National Planners and Economists realized that the country cannot sustain a loss making Power Sector. Therefore a new concept of providing quality power both to urban and rural populace alike at a reasonable rate arose which heralded emerging of the Electricity Act 2003.

Today the installed capacity in Sikkim figures at 100.70 MW, including Rangit HEP being owned and operated by NHPC. The state has a share of 74 MW in the Central Sector Generating Station plus 9 MW from inter state Ramam Hydel Projects. Further keeping in pace

with recent development in Power Sector in the country the state government has launched its ambitious plan of developing the hydro potential giving due diligence towards environmental safeguard. Based on their viability a number of mega, small, mini and micro Hydel projects have been identified and are being developed under state, public, private and joint sector in the state.

Existing generating stations -

Sl. No	Name of the power house	Installed capacity in MW
1	Lowe Lagyap Hydroelectric Project	12.00
2	Jali Power House	2.10
3	Rimbi - I	0.60
4	Rongnichu - II	2.50
5	Chaten	0.10
6	Rimbi - II	1.00
7	Lachung	0.20
8	Meyonchu	4.00
9	Upper Rongnichu	8.00
10	Diesel Power House	5.00
11	Rothak	0.20
12	Kalez Khola	2.00
13	Rabomchu	3.00
	TOTAL UNDER STATE SECTOR	40.70 MW
14	Rangit – III under NHPC	60.00 MW
	TOTAL INSTALLED CAPACITY IN THE STATE	100.70 MW

Of the total capacity of 40.70 MW installed on March 31, 2004, 35.70 MW is hydro and the balance 5 MW is a diesel generating plant. All the projects being run of the river schemes, have no dam or major reservoir for generation of rated capacities during the lean period. In Sikkim, the peak demand occurs during the winter months when the hydro generation drops down to less than 50% of the installed capacity. In addition to the available capacity of 40.70 MW, the state also has a share of 77 MW in central sector generating stations and 10 MW seasonal in Raman HEP belonging to West Bengal State Electricity Board. This makes the total capacity availability of 127.70 MW.

Present share allocation from the Central Sector Generating Stations and Rammam are as follows:

Sl. no	Generating stations	Installed capacity	Share %	Share (MW)	Share (MU) LF – 60%
1	FSTPP	1600 MW	1.63	26	131.4
2	TSTPP	1000 MW	2.40	24	126.1
3	KHSTPP	840 MW	1.55	13	47.3
4	CHUKHA	270 MW	2.20	6	31.5
5	NHPC	60 MW	13.33	8	47.3
6	RAMMAM (WBSEB)	50 MW	20.00	10	52.6
	TOTAL			87	436.2

CONSUMER METERING STATUS OF SIKKIM (As on 31.03.2006) -

Type	**Nos.**	**Meter Installed**	% **Metering**
Domestic	57299	57299	100%
Commercial	8027	8027	100%
L.T. Industrial	205	205	100%
H.T. Industrial	89	89	100%
Others	503	503	100%
T O T A L	66123	66123	100%

DEMAND PROFILE -

The consumption (sale) of electricity by different categories of consumers in the state and their share in the total consumption prevalent in 2005-06 are as under:

Sl. No.	**Category of Consumer**	**Sales (MU)**	**Total (%)**
1	Domestic	113.00	54.15
2	Commercial	45.72	21.91
3	Industrial	48.30	23.15
4	Public Lighting	1.65	0.79
6	TOTAL	208.67	100.00

EXISTING & PROPOSED INFRASTRUCTURES:

A. Generation

a. PROJECTS UNDER THE STATE SECTOR -

There are four on-going small / mini / micro hydel projects in the State Sector currently under development with capital subsidy support from MNES; of which Mangley (2 MW) and Lachung Phase II (3 MW) HEP are expected to be complete by the year 2006-07. Other two on – going hydro-electric projects i.e. Relli Khola (6 MW), Rongli

Khola (5 MW) are in the varying stages of construction. These projects have been transferred to Sikkim Power Development Corporation Ltd. (SPDC) for completing them through market borrowings. Besides, the department has also awarded implementation of the following Mini/micro Hydel Projects during the financial year 2005-06, by arranging fund though market borrowings.

1.	Hee Khola HEP	3 MW	23.59 crore
2.	Kalez Khola II	6 MW	47.79 crore
3.	Upper Rimbi HEP	7.5 MW	58.91 crore
4.	Barmelee Khola HEP	3 MW	21.23 crore
5.	Kissim Khola	2 MW	15.35 crore
6.	Ringyang	1 MW	9.02 crore
7.	Chatten II	2 MW	12.02 crore

b. DEVELOPMENT OF HYDEL PROJECTS BY IPPs -

Considering the huge untapped Hydel potential of the Teesta, Rangit and their tributaries and in keeping in view of the urgent need to harness the water resource of the state efficiently, there is opportunity to mobilize flow of capital investment through public, private or joint sector. Therefore, apart from development of various small, mini and micro hydel projects, the State has also awarded 25 projects to NHPC and other Private Developers. The total capacity of these projects stands at 5188 MW. These projects are being developed under Private, Joint or public Sector Schemes.

The lists of the projects so far awarded are as under;

Sl No	**NAME OF SCHEME**	**AGENCY**	**IC (MW)**	**YEAR OF COMMISSIONING**	**Being developed under**
1	Teesta - I	Himalayan Green Energy Pvt Ltd. N Delhi	280	2011-12	JV
2	Teesta - II	Him Urja Infra Pvt Ltd. N Delhi	330	2011-12	JV
3	Teesta - III	Teesta Urja Limited N. Delhi	1200	2011-12	JV
4	Teesta - IV	NHPC	495	2011-12	JV
5	Teesta - VI	LANCO Energy Pvt Ltd. N Delhi	500	2011-12	JV
6	Lachen	NHPC Ltd. New Delhi	210	2011-12	CPSU
7	Panan	Himagiri Hydro Energy Pvt Ltd. Hyderabad	300	2010-11	JV

8	Rangyong	BSCPL - SCL Joint Venture Hyderabad	117	2011-12	Private
9	Rongnichu	Madhya Bharat Power Corporation Ltd.	96	2010-11	-- do --
10	Sada Mangder	Gati Infrastructures Ltd. Hyderabad	71	2010-11	-- do --
11	Chujache n	Gati Infrastructures Ltd. Hyderabad	99	2009-10	-- do --
12	Bhasmey	Gati Infrastructures Ltd. Hyderabad	32	2010-11	-- do --
13	Rolep	Amalgamated Transpower (I) Ltd. N. Delhi	36	2009-10	-- do --
14	Chakhung chu	Amalgamated Transpower (I) Ltd. N. Delhi	50	2010-11	-- do --
15	Ralong	Amalgamated Transpower (I) Ltd. N. Delhi	40	2010-11	-- do --
16	Rangit II	Sikkim Hydro Ventures Ltd. Hyderabad	60	2010-11	-- do --
17	Rangit IV	Jal Power Corporation Ltd. Hyderabad	120	2010-11	JV
18	Dikchu	Sneha Kinetic Power Projects Ltd. Hyderabad	54	2010-11	Private
19	Jorethang Loop HEP	DANS Energy Pvt. Ltd. N. Delhi	96	2010-11	-- do --
20	Lingza		120	2011-12	MOU not signed
21	Thangchi	Lachung Power Pvt. Ltd. N. Delhi	40	2010-11	Private
22	Bimkyong	Teesta Power Pvt. Limited N. Delhi	99	2011-12	Private
23	Bop	Chungthang Power Pvt. Ltd. N. Delhi	90	2011-12	Private
24	Ting Ting	SMEC (India) Pvt Ltd. N. Delhi	70	2010-11	Private
25	Rateychu-Bakchach u	Coastal Projects Private Limited	40	2010 - 11	Private
		T O T A L	**4678**		
1	Teesta V	NHPC Limited, New Delhi	510	2006-07	CPSU
		T O T A L	**5188**		

The above projects after completion will fetch 12 % free power for the first 15 years and 15 % free power after that for a period of 35 years. After this, these projects shall be reverted back to the State free of cost in good operating condition.

The department is fully going to utilize the potential of one of the major resources of the State i.e. the Teesta River. Six mega projects are being developed in cascade, of which Teesta Stage V (510 MW) is in its advance state of completion. The state is entitled for 12% free power from this project like Rangit Stage III (60 MW), which is owned by NHPC and is in operation giving the State about 30 MU free energy free of cost, annually. Once commissioned, Teesta Stage V will also start giving the State about 300 MU energy free of cost annually.

As regards planning of evacuation system of these projects, the developers have to arrange their own evacuation system. However, for the first six projects awarded in the initial stage to attract developers, the state government has taken up the responsibility to set up transmission infrastructure as an incentive to the developer. The Central government has a policy that all states shall have pooling station to evacuate power through CTU. Sikkim is yet to receive this facility. The Ministry of Power, Government of India has been already appraised of the situation.

B. Transmission

With the commissioning of a number of upcoming projects in the North-Eastern Region and Sikkim, the Ministry of Power, Government of India is working and an integrated transmission network for large-scale evacuation of power to the prospective buyers in the power deficit regions so as to facilitate Independent Power Producers (IPPs) for marketing their energy.

Transmission Lines under State Sector:

The department has successfully commissioned a new 132 kV transmission line from Rangit HEP to Melli along with the associated 2x50 MVA, 132/66 kV Substation at Melli. Side by side, a regional project integrating Sikkim in the transmission network of the Eastern Region has also been completed and commissioned by the Power Grid Corporation of India Ltd. (PGCIL) by constructing one 100 MVA sub-station at LLHP, which will further stabilize the power supply in the state. Also, a new 132 kV line and sub-station is under construction to meet the growing demands of Ravangla, Gyalshing and Pelling areas. Commissioning of these lines and sub stations will make the state ready to meet the power demand of growing domestic as well as the tourism and industrial sectors. The State has put up 66 KV transmission systems, which connects all the major generating

stations with the major load centers. There are all together 12 (twelve) 66/11 KV existing Substations and 10 (ten) more are being added under APDRP and NLCPR schemes shortly. The details are given as under:

Existing substations:-

Sl. No.	Name of the Substations	Installed Capacity
1.	Phodong	2 x 2.5 = 5.0 MVA
2.	Sichey	2 x 5 = 10.0 MVA
3.	Tadong	3 x 5 = 15.0 MVA
4.	Rongli	2 x 2.5 = 5.0 MVA
5.	Melli	2 x 5 = 10.0 MVA
6.	Namchi	2 x 2.5 = 5.0 MVA
7.	Rohtak	2 x 2.5 = 5.0 MVA
8.	Soreng	2 x 2.5 = 5.0 MVA
9.	Gayzing	2 x 2.5 = 5.0 MVA
10.	Mamring	1 x 7.5 = 7.5 MVA
11.	LLHP	1 x 7.5 = 7.5 MVA
12.	Topa	1 x 5 = 5.0 MVA

New substations (under construction):-

Sl. No.	Name of the Substations	Installed Capacity	Funding
1.	Sombaria, 66 / 11 KV	2 x 5 MVA	APDRP
2.	Khamdong, 66 / 11 KV	2 x 5 MVA	APDRP
3.	Pakyong, 66 / 11 KV	2 x 10 MVA	APDRP
4.	Mangan, 66 / 11 KV	2 x 5 MVA	APDRP
5.	Chungthang, 66 / 11 KV	2 x 5 MVA	NLCPR
6.	Bulbuley, 66 / 11 KV	2 x 10 MVA	NLCPR
7.	Rhenock, 66 / 11 KV	2 x 5 MVA	APDRP
8.	Pelling, 132 / 11 KV	1 x 5 MVA	NLCPR
9.	Ravong, 66/11	1 x 5 MVA	NLCPR
10	Gayzing, 132 / 11 KV	1 x 20 MVA	NLCPR
11.	Mamring 66/11 KV	1 x 7.5 MVA	APDRP
12.	66/11 KV	2 x 5 MVA	APDRP

C. Distribution

Keeping in pace with the national drive for accelerated programme of reformation and improvement of Sub-transmission and Distribution system in the country, the State Government has taken up works in massive scale so as to reduce the losses and improve reliability of power supply system in the state. The works include drawing of 66 kV and 11 KV lines and construction of 66/11 KV and 11 / 0.430 KV sub-stations at new load centres, re-conductoring of overloaded sub-

transmission and distribution lines and augmentation of sub-stations with new and improved equipments. Along with these works, the department has taken-up project for System-Improvement and Re-modelling of Gangtok and adjoining areas. The state of art technology adopted will enhance the quality and reliability of power in the state capital along with the improvement of aesthetic beauty.

The total number of consumers in the state is about 64,000. To cater to these consumers, there are number of 66 / 11 KV substations as mentioned above, from where 11 KV lines are drawn to about 1400 substations (11 / .40 KV), mostly in Radial System.

D. Rural Electrification

During the implementation of R.E schemes in the early years, 11 kV lines were extended on a minimum need basis. Such extensive 11 KV and LT distribution network contributed to the considerable transmission and distribution losses. The single-phase transformers installed have been frequently failing due to overloading as the rural load has increased over the years. Thus to improve the rural power scenario, various localized schemes are being taken-up progressively so as to augment the overloaded stations and lines together with the extension and addition of new lines and stations to uncovered areas and households. Sikkim has 450 Revenue Blocks, of which 70% have been electrified as per the latest definition of REC. Of late the Rajiv Gandhi Grameen Vidyutikaran Yojna (RGGVY) Schemes have been launched by Government of India with the ambitious target of electrifying every village and improve the rural energy scenario. The State government has formulated a number of schemes under this programme to cover 100% household within the next three years. The government of India through REC will provide the fund, which is 90% grant and 10% loan.

(The table alongside gives you the brief insight of RGGVY in the State)

E. Accelerated Power Development and Reform Programme (APDRP) Schemes in Sikkim

Utilities/State Electricity Boards all over India have been found to be losing crores of rupees in transmission and distribution losses annually because of old and deteriorated lines, overloading of the 11 KV systems, distribution transformers and low tension lines. Besides this, theft of power, technical and commercial losses made all the SEBS and Electricity Departments run in tremendous losses and it could not be checked unless some new method is conceived to prevent the losses. Hence the Ministry of Power, Government of India, launched APDRP under the supervision of Ministry of Power, Government of India.

AT & C Loss Reduction in the State of Sikkim:

Year	AT & C Loss (%)	% age Reduction
2001.02	57.18	
2002-03	53.46	3.72
2003.04	53.07	0.39
2004.05	43.63	9.44
2005.06	39.75	3.88
2006.07	36.50	3.25
2007-08	33.00	3.50
2008-09	29.00	4.00

Sub-circle wise AT & C Loss Reduction (%):

Year	North	Gtk-I	Gtk-II	East	LLHP	South	West	Total
2001-02	82.64	42.41	45.68	46.16	53.14	61.58	68.64	57.18
2002-03	80.11	41.54	43.57	40.01	49.01	59.14	60.81	53.46
2003-04	79.64	40.67	44.78	38.87	48.78	58.20	60.57	53.07
2004-05	70.99	28.94	38.15	28.05	40.18	47.08	52.04	43.63
2005-06	63.18	27.72	34.17	27.05	33.10	41.00	52.01	39.75
2006-07	59.00	25.00	32.00	25.00	29.00	37.50	48.00	36.50
2007-07	56,50	21.00	28.00	21.00	26.00	34.50	44.00	33.00
2008-09	53.00	16.00	24.00	16.00	22.00	31.00	41.00	29.00

Status of APDRP Schemes:

Sikkim has committed itself towards the reformation and improvement of the existing sub transmission and distribution system (ST & D) by modernising the infrastructure developed since its inception. In this regard, the state has already entered into a Memorandum of Agreement with the Ministry of Power, Government of India, for time bound programme of improving its ST & D network through APDRP. The basic objective of the programme is to reduce the techno-commercial losses and increase revenue realisation along with improvement in voltage profile and reduction in outages so as to provide quality and reliable power to the consumers at affordable rates.

A number of schemes have been formulated in order to achieve operational efficiency and effective load management. The state has also launched the ambitious programme of 100% metering right from the 66 KV sub station level up to the consumers premises. This time bound programme aims at rigorous energy auditing thereby reducing pilferage of energy at each voltage level and making the utility self-sustainable and economically viable so as to create an environment for private sector participation in sub transmission and distribution area.

SYSTEM METERING STATUS OF SIKKIM

Type	Nos.	Meter Installed	% Metering

66 KV Feeders	13	13	100
11 KV Feeders	115	115	100
3.3 KV Feeders	4	4	100
D.T.s	1370	531	38.76
TOTAL	2988	663	84.69

With an objective to strengthen and modernize the sub transmission and distribution schemes in the state in terms of revenue realisation and reduction in losses, a number of schemes have been incorporated under APDRP.

TRANSMISSION AND DISTRIBUTION LOSSES (T & D LOSSES):

In the past The Energy & Power Department in Sikkim had been reporting Transmission and Distribution losses in the order of about 20-22% at par with other states. The losses are not based on any measurement of technical losses on metering of the feeders which are assumed and estimated for purpose of reporting. However in the year 2001-2002, the Aggregate Technical and Commercial Losses (AT & C) projected was 56.4% which was arrived at by deducting energy sold and accounted for to different categories of consumers from the total energy supplied by generating stations and purchases made from central sector generating stations.

These losses are partly technical inherent in the system and the remaining are non-technical ones. The reductions of AT & C losses have been given the highest priority in the country in order to achieve speedy commercialisation of power sector. The non-technical losses can be attributed to faulty metering, defective billing and pilferage of energy.

Effective steps are being taken to:

- Provide energy meters on all feeders (66-11 KV) and at the distribution transformers (LV) side for energy audit to arrive at technical losses and identify high loss zones. Funds are available under APDRP for providing metering for energy audit.
- Replace all defective meters and substitute old ones with new electronic meters in the high value services and high quality meters in all other categories.
- Make the Electricity Act 2003 more stringent to curb pilferage of energy.
- To carry out sub transmission and distribution reformations.

F. Prime Minister's Gram Yojna (PMGY)

The most important area that contributes considerably to T & D losses is the extensive use of 11 KV transmission and distribution network while implementing the rural electrification schemes. Besides, the use of 10 KVA single phase distribution transformers by extending single phase lines based on the REC norms has led to complaints from the rural consumers because of random failure of single phase transformers mainly due to overloading of the transformers. Accordingly, these transformers are being replaced with three phase transformers of the required capacities and 11 KV lines are being strengthened as well. An outlay of Rs.400.00 lakhs is available for the AP 2003-04.An outlay of Rs. 1000.00 lakhs has been proposed for AP in order to cover left out villages/households in the rural areas.

G. Non-Lapsable Central Pool of Resources (NLCPR)

Development of North Eastern Region (DONER) under NLCPR has sanctioned a number of schemes. Some of which are already completed while some are under the advance stage of completion. The schemes are mentioned below:

i) 132 KV line from Rangit Melli with 2 x 50 MVA Substation at Melli in Sikkim; Cost – Rs. 3979.00. (already commissioned)
ii) Remodeling of transmission and distribution network of Gangtok town; Cost – Rs. 2988.46 (work in progress)
iii) Construction of 66 KV Substation at Chungthang and 2 x 5 MVA Transformer bay at Chungthang and one feeder bay at Mayong, North Sikkim; Cost – Rs. 941.00 (work in progress)
iv) Establishment of Centralized Load Dispatch Center in Sikkim; Cost - Rs. 1057.45 (advance stage of completion)
v) 66 KV double circuit transmission line from LLHP to Bulbuley including 2 x 10 MVA Substation at Bulbuley; Cost - Rs. 11741.82 (work in progress)
vi) Extension of 132 KV transmission line in South and West Districts of Sikkim covering Gyalzing, Pelling and Ravongla; Cost - Rs.3063.00 (work in progress)

Besides the above mentioned schemes, the Energy & Power department has proposed to take up some more schemes under NLCPR during the remaining tenth five year plan. It may be mentioned that the Energy & Power department has so far allotted six hydro projects to private developers for developing these projects under private sector for which infrastructures required for evacuation of power and construction of access roads are the responsibility of the State Government.

H. State Load Dispatch Centre (SLDC)

The State has a number of distribution substations located at diverse locations, most of which are in far flung and remote areas. In the absence of effective communication network, the state power utility is facing big hurdles in scheduling the energy distribution, thus effective monitoring of power generation and load management cannot be achieved. Since the state is heavily dependent on the Central Sector Generating Stations for its power requirement, the need has arisen for optimizing the import and proper management of the power generated from the states own generating stations, thereby reducing the energy wastage. The main rational behind the scheme is to monitor the available power and directing it to the area on need basis. This will not only achieve the better load management but also effective control over the entire State Grid with overall improvement in the Plant Load Factor. The State has already started trading of surplus power for which daily load scheduling is required. With this scheme, the quantum of power available for trading will be available on a real time basis. The project sanctioned under NLCPR is under progress and is in advanced stage of completion.

ELECTRICITY ACT, 2003:

The Electricity Act, 2003 came into force on 10th June 2003. An Act to consolidate the laws relating to generation, transmission, distribution, trading and use of electricity and generally for taking measures conducive to development of electricity industry, promoting competition therein, protecting interest of consumers and supply of electricity to all areas, rationalization of electricity tariff, ensuring transparent policies regarding subsidies, promotion of efficient and environmentally benign policies constitution of Central Electricity Authority, Regulatory Commissions and establishment of Appellate Tribunal and for matters connected therewith or incidental thereto.

The Act has generated enormous potential for improvement of the power sector. But, there are various hurdles that are to be successfully crossed to achieve these. In terms of the State Power Sector, the Energy & Power department has to be restructured; for which the Government has already taken initiatives towards this. Setting up of Sikkim Power Development Corporation is one such initiative. The other important initiative that is formation of Sikkim Electricity Regulatory Commission is in advance stage.

A. Sikkim Power Development Corporation Limited:

Sikkim Power Development Corporation Ltd. (SPDC) was established with an objective of developing new hydel projects. In view of mandatory requirement to commercialize the power sector, entire activities under the State Energy & Power

Department will be transferred to SPDC alongwith the assets and man power.

It is proposed that SPDC will function as three independent Strategic Business Units (SBU) – (i). Generation, (ii). Transmission and (iii). Distribution.

While, transmission and distribution can be made self sustaining units, distribution shall never be commercially viable because of the nature of business it has to handle.

B. Electricity Regulatory Commissions (ERC):

The Indian Electricity Act 2003 provides for the constitution of Electricity Regulatory Commissions both at the Central level and at the State level.

1. Central Electricity Regulatory Commission (CERC) - Section 76 provides for the constitution of CERC while section 79 of the Act defines the functions of the commission.

2. State Electricity Regulatory Commission (SERC) - is set up in a state to regulate the various aspects of energy generation, transmission and distribution. Its power and functions are defined under section 86 of the IEA 2003. The jurisdiction of the SERC is confined to the matters relating to the subjects, which are exclusively within the state.

In accordance with the provision of the Electricity Act 2003, steps have already been initiated towards setting up of SERC. Considering the size and population of the state, one man commission has been proposed.

TRADING OF POWER:

Not very long ago, the Grid frequency would fluctuate anywhere between 47 and 53 Hz. This was due to the peak demand coming on the distribution utility almost simultaneously therefore during the peak hours, the frequency would slide down while during the off peak hours since the generating utilities had no incentive to back out, the frequency would tend to go up. With the implementation of ABT, it became important that various utilities try to maintain Grid Discipline because the utilities contributing towards Grid Discipline were provided financial incentives while the utilities contributing negatively were penalized. Many utilities who had share allocation from the CPSUs had to think of trading the power elsewhere because not utilizing the allocated power would also result in the unnecessary attraction of fixed charges of the generating units. In the meanwhile,

Open Access system was also introduced, this helped locating buyer or selling partner independently where distance and the geographical locations mattered little. Now, because of this provision in the Act, utilities in the power surplus regions are tying up through traders to trade their power to the utilities located in the deficient region. Power Grid Corporation of India Limited is the sole Central Transmission Utility. Power is generally wheeled through the infrastructure of PGCIL. However, the volume of Power to be wheeled in the intra regional grids is higher than the capacity available in the grid. Therefore, Regional Load Dispatch Centres have to regulate the power flow through various regulatory mechanism. Generally it is the first cum first serve system.

Trading is done in long term basis or short term basis depending upon the nature of availability of the power.

Long term: before the generating station is set up, it is important to identify the buyers and it is not necessary that the buyer utility is located in the same region. It is more so in the case of hydel schemes where the generating utility will be located in the remote hills whereas the buying utility would be in the distant regions spotted with Metropolitian cities. In such a case, the developer of the project while approaching the financial institutions for borrowing fund for the implementation of the schemes have to have a long term agreement for trading. A Long term Trading Agreement is defined as an agreement with a duration of more than 25 years. For such a trading arrangement obviously transmission corridor will also have to be booked accordingly. The tariff for wheeling charges for such arrangement will be four times higher than the short term booking of the corridor.

CONSTRAINTS:

The Electricity Act 2003 calls upon the State Government's to restructure the Power Sector so as to make it competitive so that the electricity is made available to consumers at a reasonable rate on one hand while making all the power utilities sustainable propositions on the other hand. This is possible only if the power sector in the State is restructured where the working conditions of the utility is competitive. Responsibility and accountability is given importance. Results are given predominance to the bureaucratic procedure.

Therefore, the immediate objective should be to corporatize the Power Sector. However, doing so is easier said than done. For new hydel projects, Government has already taken initiative to award them to the Private Developers under Joint Sector or Private Sector.

The challenge faced by the State Government is to corporatize the existing Energy & Power Department. The majority of the existing manpower are being trained for different works in the Power Sector

so that they can be re-deployed with more productivity. This may be a difficult task but not insurmountable.

CONCLUSION:

An exceptionally rich state in its hydro potential, the state should have embarked upon harnessing its potential long time back. But Electricity and Power were not open to private investments and neither concept of Open Access was in place. These factors had resulted in loss of Revenue through Energy in the "pre 2003 Electricity Act era". Now that the sector is open and environment is conducive for harnessing hydro potential for the generation of state revenue, the whole power sector is looked as a commodity from an altogether different perspective. It is natural that the radical change in the management of the sector may throw up some teething problems. There may be many but surely not insurmountable. Once we are over these problems, the sector is full of promises for the whole state.

MAJOR ACHIEVEMENTS IN POWER SECTOR:

- **The power surplus in the state is being sold outside the state through a trading company which facilitates additional revenue.**
- **Integration of Sikkim in the Transmission Network of the Eastern Region has been achieved with the commissioning of 132 KV lines from Rangit to Melli and construction of 132/66 KV 100 MVA Sub-station at Melli.**
- **Effective measures are being taken to reduce both the technical and the non-technical losses, especially the non-technical losses by introducing Energy Audit by proper monitoring on all feeders and at distribution transformer level to identify high loss areas. The augmentation and strengthening of sub-transmission and distribution system will reduce technical losses.**

IMPORTANT TELEPHONE NUMBERS:

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SL. NO.	NAME:	DESIGNATION:	CONTACT NO.
1.	Shri K.N. Bhutia (IAS)	Secretary	211, 202244
2.	Shri P. Wangchen	Pr. Chief Engineer	215, 202284 B0 12071
3.	Shri A. K. Giri	Chief Engineer -I	263, 202510 B0 80244
4.	Shri G. Targain	Chief Engineer (II)	235 B4 46811

5.	Shri P.B. Subba	Chief Engineer (III).	341, 201148 B0 84228
6.	Shri P.B. Gurung	Chief Engineer (Mech.)	344 B1 64431
7.	Shri IP Kharel	Additional Chief Engineer (Civil)	243 B0 63775
8.	Shri D.B. Basnet	Additional Chief Engineer (East).	259, 254396 A0 32027
9.	Shri B.K. Baraily	Additional Chief Engineer (North).	231 B1 17500
10.	Shri N.T.Bhutia	Additional Chief Engineer (HQ).	221, 220417 B0 31185
11.	Shri N.R. Bhattarai	Additional Chief Engineer (S/W).	343, 225756 B0 70811
12.	Shri N.D. Rai	Additional Chief Engineer (Mech.).	244, 202840 B4 07095
13.	Shri K.B. Kunwar	Additional Chief Engineer (L/R)	230 B0 32924
14.	Shri D.P. Deokota	Additional Chief Engineer	251869 B0 43137
15.	Shri P Pradhan	Joint Secretary	248 R0 44824
16.	Shri P. Wangdi	Under Secretary.	255 A2 96413
17.	Shri. S.T. Wangdi	Assistant Director / IT	295 B1 07073
18.	Shri A.B. Rai	Superintending Engineer (Store).	337
19.	Shri P.T. Bhutia	Superintending Engineer- West	250438 H0 44780
20.	Shri K.K. Pradhan	Superintending Engineer (SLDC/EHV/APDRP)	336 B3 18288
21.	Shri Roden Thapa	Superintending Engineer (South).	257411 B1 37141
22.	Shri S.P. Kazi	Superintending Engineer (North)	234280 B1 69660
23.	Shri Dilip Pradhan	Superintending Engineer-HQ-I	250 B0 31013
24.	Shri C.P. Rai	Superintending Engineer (Namchi)	264940 B0 64066
25.	Shri G. Lachungpa	Superintending Engineer (Mech)	213 B0 22244
26.	Shri Thinlay Sangderpa	Superintending Engineer (Civil-I).	247 B1 37143
27.	Shri Harka Raj Subba	Superintending Engineer (Civil-II).	251869B2 35737
28.	Shri P.N. Sherpa	Superintending Engineer (Mech) SPDC	228 B1 17436
29.	Shri Ganesh Chettri	Superintending Engineer (Store)	340 B1 17738

30.	Shri A.K. Chakravoty	Chief Accounts Officer.	214, 201162 R0 43581
31.	Shri R.P. Sharma	Senior Accounts Officer.	224 B1 37535
32.	Shri H.B. Pradhan	Accounts Officer (N/E).	219 R0 70256
33.	Shri R.B. Rai	Accounts Officer (S/W).	257250 R0 26244
34.	Shri K.J. John	Superintending Engineer (East-I)	233872 B3 18023
35.	Shri Parasmani Sharma	Executive Engineer. (North-II)	239 B3 38564
36.	Shri K.K. Sharma	Executive Engineer HQ-II	218 B0 23646
37.	Shri T.T. Lepcha	Executive Engineer Chungthang	B1 17734
38.	Shri K.K. Gajmer	Executive Engineer HQ-I	242 R0 17229
39.	Shri H.B.Subba	Executive Engineer West	B1 84150
40.	Shri Dinesh Kharel	Executive Engineer HQ-IV	241 R0 80874
41.	Shri D.N. Khatiwara	Executive Engineer Rev-South	246 B1 26817
42.	Shri Bhagirath Sharma	Executive Engineer E&M/LLHP	251869 B1 74686
43.	Shri R.P. Gurung	Executive Engineer South-II	B3 39308
44.	Shri Dilip Sharma	Executive Engineer URHP/East-III	254365 B1 86356
45.	Shri Bikash Deokota	Executive Engineer SLDC	339 B5 25272
46.	Shri Sonam R. Bhutia	Executive Engineer East-II	233830 B0 96325
47.	Shri Jigme Namgyal	Executive Engineer. HQ-III	240 R0 61938
48.	Shri Madan M. Pradhan	Executive Engineer Const. Gtk	294, 202223
49.	Shri Kazi Pradhan	Executive Engineer Rongli	255816 B1 41333
50.	Shri K.S. Chettri	Executive Engineer Comm.-West	B1 74515
51.	Shri Tashi Dadul Bhutia	Executive Engineer EHV/SW	B1 44160
52.	Shri Tshering T.Bhutia	Executive Engineer Mangan	234240
53.	Shri Sunil Rai	Executive Engineer EHV/NE	220 A0 18268
54.	Smt. Shova Thapa	Executive Engineer Comm.-I	234 B0 11271

55.	Shri Manish Pradhan	Executive Engineer (Mech) III	276 B0 84138
56.	Shri A.K.Sareen	Executive Engineer (Namchi)	263622 R0 89041
57.	Shri Devendra Pradhan	Executive Engineer (Mech) South.	229 B1 69240
58.	Shri Chetraj Mishra	Executive Engineer (Civil) Topa.	233 B1 27057
59.	Shri Devi Psd.Gurung	Executive Engineer (Civil) (N/HQ).	254 B1 10039
60.	Shri K.C. Sharma	Executive Engineer South	B0 61727
61.	Shri Rajeev Subba	Executive Engineer (LLHP)	B1 37370
62.	Shri Yadhunath Gautam	Executive Engineer (Civil) / West	236 B0 84115
63.	Shri Bhupendra Kothari	Executive Engineer (Civil - West).	B0 70960
64.	Shri H.B. Pradhan	Executive Engineer EHV-I	349 B0 30676
65.	Shri N.K. Pradhan	Assistant Engineer Maint/Namchi	B0 63716
66.	Shri Devendra Century	Assistant Engineer –I (East II)	233853 B1 03633
67.	Shri B.S. Negi	Assistant Engineer Melli	B1 44081
68.	Shri Amber Gurung	Assistant Engineer HQ-II	249 R0 17076
69.	Shri O.N. Sharma	Assistant Engineer-Maint. Rongpo	B1 64605
70.	Shri T.R. Dhakal	Assistant Engineer Comm. IV	274 B1 74814
71.	Shri K.N.Sharma	Assistant Engineer HQ-V	238 B1 26947
72.	Shri Sonam T. Bhutia	Assistant Engineer (Chungthang)	276870
73.	Shri N.P.Pandey	Assistant Engineer Rongli-I	B1 37224
74.	Shri Chand Kumar Rai	Assistant Engineer Comm./Namchi	R3 10873
75.	Shri Suren Rai	Assistant Engineer Bulbuley	245 B3 49044
76.	Shri Dharni Dhar Koirala	Assistant Engineer, LLHP	246 B1 37176
77.	Shri Sonam W. Bhutia	Assistant Engineer Phodong	
78.	Shri Karma T. Lepcha	Assistant Engineer Dev. Area	301 R0 42231
79.	Shri. Pradeep Chettri	AE (Soreng)	

80.	Shri Sonam D. Bhutia	Assistant Engineer Rellichu	250839 B1 84438
81.	Smt.Vijay Laxmi Rai	Assistant Engineer Maint/Melli	248442
82.	Shri Chandra M. Tewari	Assistant Engineer Maint/Temi	261860 B0 33060
83.	Shri Norbu W. Bhutia	Assistant Engineer Comm/Ravangla	260632 H0 83752
84.	Shri Karma Kazi	Assistant Engineer (Mech/DPH)	278 B1 37455
85.	Shri Wangzo Lepcha	Assistant Engineer (Mech., LLHP)	302 B1 17572
86.	Shri Sonam C. Bhutia	Assistant Engineer (Mech.) North	R0 80011
87.	Sgri Manoj K. Basnett	Assistant Engineer (Mech) West	R0 27856
88.	Shri Rakesh K. Sundas	Assistant Engineer (Mech.) Rongli	B1 74490
89.	Ms.Keshav Neroula	Assistant Engineer (HQ/Plg., Gtk)	227 B1 74705
90.	Shri Asim Basnet	Assistant Engineer (North, Mangan)	B1 53085
91.	Shri Sanjay Kumar Singh	Assistant Engineer (LLHP).	B0 51790
92.	Shri Saroj Kharel	Assistant Engineer (Civil, Topa)	B1 17559
93.	S.S. Timsina	Assistant Engineer (Namchi)	
94.	Yeshey D. Bhutia	Assistant Engineer (Planning)	
95.	Shri R.Prasad	Sr. Electrical Inspector (Monitoring)	222 B1 64613
96.	Shri O.P. Pradhan	Assistant Engineer Maint.-II	251 R0 67461
97.	Shri Tashi Yousal	Assistant Engineer Maint/Geyzing	250622, 250863 B1 03406
98.	Ms.Mingma Sherpa	Assistant Engineer Comm.-I	273 R0 28525
99.	Shri S.T. Bhutia	Assistant Engineer HQ-I	299 B3 57787
100.	Shri Ajit Pradhan	Assistant Engineer Maint/Rongli-II	B1 36906
101.	Shri Karma Z. Dadul	Assistant Engineer Mangan	B7 30300
102.	Ms.Purnima Chettri	Assistant Engineer Comm.-II	275 B1 17539
103.	Shri Jeewan Thapa	Assistant Engineer Comm./Soreng	253220
104.	Shri Bhanu B. Sharma	Assistant Engineer Maint/Pakyong	299, B3 -57787

105.	Shri Karchung Bhutia	Assistant Engineer Maint/Soreng	B1 36939
106.	Shri Suraj C. Pradhan	Assistant Engineer Maint/Ravangla	B1 88392
107.	Shri Bhim Bdr.Thapa	Assistant Engineer HQ-IV	331 B1 41209
108.	Shri Prakash C. Subba	Assistant Engineer Comm.-III	BO - 81539
109.	Shri Arvind Rai	Assistant Engineer SLDC-I	347 B1 03782
110.	Shri Krishna Kr. Pradhan	Assistant Engineer Lachung	
111.	Miss K.S.C.T. Lepcha	Assistant Engineer SLDC-II	225, 350 99330 79345
112.	Shri Pemba Lepcha	Assistant Engineer EHV-II	346 A2 81004
113.	Shri Jagat Thapa	Assistant Engineer EHV/Namchi	B1 26991
114.	Shri Kamal Kharel	Assistant Engineer Comm./Rongli	B1 27423
115.	Shri Bimal Khafley	Assistant Engineer EHV/Melli	256, B4-86867
116.	Shri Karma G. Bhutia	Assistant Engineer Const-II	329 B1 09878
117.	Shri Ramesh K. Pradhan	Assistant Engineer Rimbi/Yuksam	B1 91717
118.	Shri Ruplal Subba	Assistant Engineer Deorali	R0 36802
119.	Shri Ganja Bdr. Rai	Assistant Engineer Dentam	255629 B2 35611
120.	Shri Gyampo Bhutia	Assistant Engineer Maint/Pakyong	B1 64707
121.	Shri Rajendra Pradhan	Assistant Engineer Maint/Jorethang	B1 84093
122.	Shri Phurba T. Bhutia	Assistant Engineer / Dzongu	234240
123.	Shri . Thakur Thapa	S. Vigilance Officer	340 B1-79441

LEGENDS:

B0	**BSNL - 94340**
B1	**BSNL - 94341**
B2	**BSNL - 94342**
B3	**BSNL - 94343**
B4	**BSNL - 94344**
B5	**BSNL - 94745**
R0	**RELIANCE - 98320**
R1	**RELIANCE - 98321**
R3	**RELIANCE - 98323**
A2	**AIRTEL - 99322**
H0	**HUTCH - 97330**
A0	**AIRTEL - 99330**