Chapter 2

Hydro-Power Sector Organizations in India

“Tamasomam Jyotirgamayah” (O Mother! Lead us from darkness to light)- has always been the essence of Indian spiritual being. Ethereally speaking, it has also been the wish of the modern man to escape from darkness to light- both metaphysically and metaphorically. And the means that man has invented to meet this end is nothing else than the electricity. Today, it would be as much naïve to imagine the modern man without electricity as nihilistic to imagine the fish out of water. Electricity is not a matter of life and death. It’s a lot more important than that. Light is life. No nation can become a developed country without proper and efficient system of electricity. Universal power supply is the primary responsibility of a welfare state. Hence, it is one of the critical infrastructures on which sustainable economic growth of any country depends.

The term “Hydro” is derived from a Greek word, which means Water. The force of gravity causes water to flow downwards. This downward motion of water contains kinetic energy which is converted into mechanical energy and consequently into electrical energy in hydroelectric power station. Electric power generated with the help of falling water – propelled Turbines, is called Hydroelectric Power. In general, falling water is channeled through a turbine, which converts the water’s energy into the mechanical power. Hydropower is one such resource, which is renewable, non-polluting, environmentally friendly and the cheapest source of energy. The ever-increasing demand for power can be met by installing power plants using nuclear energy, thermal energy, fossil fuel, solar energy, wind energy, tidal energy and hydro energy. The wind power, tidal power, solar power and hydro power are environment friendly, whereas all other forms of generation of electricity involve recurring costs and are unfriendly to the environment. The hydro power plants contribute significantly to the development
of the area surrounded within and outside the project area since a network of roads and bridges are laid for the project, which connects the local area to the outside world and opens large number of avenues for the development of the area. India’s first hydro station was commissioned in 1897. Since then many mega projects have come up and many more are in the pipeline. Although hydropower is considered a renewable and economical source of energy, yet its share has decreased in post independent India.

Energy source in India can be classified in two categories: Commercial source and Non-commercial source. Commercial source of energy include primary energy sources like coal, oil and gas, thermal, nuclear and hydro-electricity, etc. and non-commercial sources include wood, cow-dung cakes, agricultural waste, etc. Due to the imminent oil price rise and depleting resources of natural fuel, the priorities of power sector are focused on the development of hydropower for capacity addition in the forthcoming years. At present, the Ministry of Power (MOP) under the Central Government is the nodal agency and is concerned with the perspective planning and policy formulation in the power sector. The CEA (Central Electricity Authority) constituted under the Electricity (Supply) Act, 1948 assists the MoP in all its technical and economic matters and is responsible for developing a sound, adequate, uniform policy for the control and utilization of the national power resources.

1: Ministry of Power

to these Acts, as may be necessary from time to time, in conformity with the Government’s policy objectives. The Ministry is concerned with planning, policy formulation, processing of projects for investment decision, monitoring of the implementation of power projects, training and manpower development and the administration and enactment of legislation with regards to thermal as well as hydro power generation, transmission and distribution. The MoP has set a goal called ‘Mission 2012: Power for All’ with following objectives:

i. Sufficient power to achieve GDP growth rate of 8%.
ii. Reliable power.
iii. Quality power
iv. Optimum power cost.
v. Commercial viability of power industry.
vi. Power for all.

The main functions undertaken by the Ministry of Power in this regard are as under:

i. Issues relating to energy policy including details of short, medium and long-term policies, i.e., their formulation, acceptance, implementation and review.
ii. All matters relating to hydroelectric power (except small/mini/micro hydel projects of and below 25 MW capacity) and thermal power and transmission system network.
iii. Research, development and technical assistance relating to hydroelectric and thermal power and transmission system network.
iv. Administration of the Indian Electricity Act, 1910 (9 of 1910) and Electricity (Supply) Act, 1948 (54 of 1948), Electricity Regulatory Commissions Act, 1998 (14 of 1948), the Energy

v. All matters relating to Central Electricity Authority, Central Electricity Board and Central Electricity Regulatory Commission.

vi. Rural Electrification, power schemes in Union Territories and issues relating to power supply in the States and Union Territories.


viii. Other Public Sector Enterprises concerned with the subject included under the Ministry except such projects as are specifically allotted to any other Ministry or Department.

ix. All matter concerning Energy Conservation and Energy Efficiency pertaining to the Power Sector.

All the power sector industries including Thermal, Hydro, Nuclear, Renewable, Wind and other such organizations/ research institutions are available under one roof of Ministry of Power. These include:-
MAJOR HYDEL POWER PROJECTS AND UTILISATION (STATE-WISE)

1. Siva Samudram
2. Simsa
3. Jog
4. Mettur
5. Moyar
6. Pyakra
7. Sharvati
8. Bhadra
9. Pallivasal
10. Sabrighi
11. Periyar
12. Papanasam
13. Idduki
14. Sr Sailam
15. Rampuriasagar
16. Belamadhi
17. Machikund
18. Hirakud
19. Maiath
20. Penchel Hill
21. Orba
22. Gandik
23. Jaduguda
24. Koyna
25. Bhima
26. Khopoli
27. Bhuvnasi
28. Tawa
29. Kota
30. Pratapgarh
31. Jawahar Sagar
32. Sumeru
33. Palar
34. Bulandshahar
35. Bhakra
36. Chitara
37. Saura
38. Nimgaj
39. Bhakra Nangal
40. Joginder Nagar
41. Morena

• National Thermal Power Corporation Limited (NTPC).
• National Hydroelectric Power Corporation Limited (NHPC).
• Power Grid Corporation of India Limited (PGCIL).
• Power Finance Corporation (PFC).
• Rural Electrification Corporation (REC).
• Bhakra Beas Management Board (BBMB).
• Damodar Valley Corporation (DVC).
• Satluj Jal Vidyut Nigam Limited (SJVN).
• Tehri Hydro Electric Development Corporation Limited (THDC).
• Northern Eastern Electric Power Corporation Limited (NEEPCO).
• Central Electricity Authority (CEA).

2: Central Electricity Authority (CEA)

CEA is a statutory body constituted by the Central Government under the erstwhile Electricity (Supply) Act, 1948 and continued under the Electricity Act, 2003. It was established as a part-time statutory body in 1951 and was made a full time body in 1975. In all technical, financial and economic matters, the Ministry of Power is assisted by CEA. It is responsible for the technical co-ordination and supervision of programmes and is also entrusted with a number of statutory functions. It is headed by a Chairman, who is also the Ex-officio Secretary to the Government of India and has six full-time members in the rank of Ex-officio Additional Secretary to the Government of India. The CEA has the responsibility of formulating the National Electricity Plan in accordance with the National Electricity Policy. It is also required to specify inter-alia the technical standards and safety requirements for construction, operation and maintenance of electrical standards and electrical lines.
NHPC, established in 1975, has taken up the challenge of developing hydropower in the country and today it has spread its wings almost in every part of India. It is the single largest organization for hydropower development in the country. It has all the capabilities to undertake activities from conceptualization to commissioning of hydro projects. NHPC is dedicated to harnessing vast hydropower potential of the country estimated at 1,50,000 MW of which merely 18% has been developed so far leading to sustainable development by optimum utilization of natural resources. It is the largest hydropower utility in India with vast expertise and capabilities to undertake multi-dimensional activities such as planning, survey and investigation, design and engineering, construction, operation and maintenance, renovation, modernization and uprating of hydroelectric projects. The Corporation is relentlessly working for the betterment of power sector by adding new hydropower capacity. It’s main motto is ‘clean power for every home’. NHPC has set up a Consultancy Service Division in July 1993, which undertakes activities like Investigation (Topographical, Geological, Geophysical, Hydrological, Construction material surveys); design and engineering; construction management; and other areas including small hydro, wind and geo-thermal power development, etc.

**Aims and Objectives**

NHPC plays a significant role in the integrated and efficient development of hydroelectric power in the central sector covering all aspects - investigation, planning, design, construction, operation and maintenance. It aims to be a world class organization in hydroelectric, wind, tidal and geo-thermal power with dominant Indian leadership and global presence; to attain organizational excellence by developing true potential of human resources and providing opportunities for growth, well being and enrichment; preservation of environment matrix and bio-diversity in the project areas as well as protecting rights of Project Affected People (PAPs), commitment to health, safety, environment and human resource development; development of vast hydro potential at faster pace and
3: Major Key players in Hydropower

Since independence, India has made giant strides in power generation and capacity addition. At the time of independence, the total installed capacity of hydropower was 508.13 MW. The present ration of hydro thermal in India is 27:73, which needs to be corrected immediately to meet peak load requirements as well as system and frequency stability. The following organizations in India are working in this direction.

3(a): National Hydroelectric Power Corporation Limited (NHPC)

(Source: www.nhpcindia.com)

Table 2.1: Profile of NHPC

<table>
<thead>
<tr>
<th>Year of establishment</th>
<th>1975</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Stations in operation</td>
<td>14 (5175 MW)</td>
</tr>
<tr>
<td>Projects commissioned on deposit/turnkey basis</td>
<td>3 (79.35 MW)</td>
</tr>
<tr>
<td>Projects under construction on deposit/turnkey basis</td>
<td>2 (10MW)</td>
</tr>
<tr>
<td>Projects under construction</td>
<td>11 (4622 MW)</td>
</tr>
<tr>
<td>Other projects</td>
<td>5 (1855 MW)</td>
</tr>
<tr>
<td>Joint Venture projects</td>
<td>3 (1586 MW)</td>
</tr>
<tr>
<td>Projects under survey &amp; investigation</td>
<td>11 (7585 MW)</td>
</tr>
<tr>
<td>Manpower</td>
<td>12,988</td>
</tr>
<tr>
<td>Number of units in operation</td>
<td>52</td>
</tr>
<tr>
<td>Total installed generating capacity</td>
<td>5175 MW</td>
</tr>
<tr>
<td>Number of beneficiary States/UT/Corporations</td>
<td>23</td>
</tr>
</tbody>
</table>
optimum cost eliminating time and cost over-run; completion of all on going projects within the stipulated time frame; generation of sufficient internal resources for expansion and setting up of new projects; corporate development along with simultaneous human resource development and setting up of new projects.

**Organizational Structure of NHPC**

The following figure indicates the organizational structure of NHPC.

**Figure 2.2**
Projects

At present, there are eleven generating/operating power stations of NHPC which include:

i. Baira Siul in Himachal Pradesh having 180 MW capacity.
ii. Loktak in Manipur having 105 MW capacity.
iii. Salal I in J & K having 345 MW capacity.
iv. Tanakpur in Uttrakhand having 120 MW capacity.
v. Chamera stage-I in Himachal Pradesh having 540 MW capacity.
vi. Uri in J & K having 480 MW capacity.
vii. Rangit in Sikkim having 60 MW capacity.
viii. Chamera Stage-II in Himachal Pradesh having 300 MW capacity.
ix. Salal II in J & K having 345 MW capacity.
x. Dhauliganga-I in Uttarakhand having 280 MW capacity.
xii. Dulhasti in J&K having 390 MW capacity.
xii. Indira Sagar in Madhya Pradesh having 1000 MW capacity.
ixii. Omkareshwar in Madhya Pradesh having 520 MW capacity.
ixiv. Teesta-V in Sikkim having 510 MW capacity.

3(b) : Bhakra Beas Management Board (BBMB)

(Source: www.bhakra.nic.in)
Table 2.2: Profile of BBMB

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year of establishment</td>
<td>1966</td>
</tr>
<tr>
<td>Power Stations in operation</td>
<td>6 (2866.30 MW)</td>
</tr>
<tr>
<td>Projects under survey and investigation</td>
<td>3 (19 MW)</td>
</tr>
<tr>
<td>Manpower</td>
<td>15,000</td>
</tr>
<tr>
<td>Number of units in operation</td>
<td>28</td>
</tr>
<tr>
<td>Total installed generating capacity</td>
<td>2866.30 MW</td>
</tr>
<tr>
<td>Number of beneficiary States/UT/Corporations</td>
<td>7</td>
</tr>
</tbody>
</table>

The partition of the country in 1947 brought a meager 20% of the irrigated area against 50% population liability to the State of Punjab in India. According to the Indus-Water Treaty signed between India and Pakistan in 1960, the water of three eastern rivers namely the Sutlej, the Beas and the Ravi were allotted to India for exclusive use. Thereupon, master Plan was drawn to harness the potential of these rivers for providing assured irrigation, power generation and flood control. Bhakra Management Board (BMB) was constituted on 1st October 1967 under section 79 of the Punjab Reorganization Act, 1966 for the administration, maintenance and operation of Bhakra Nangal Project. The Beas Project Works were later transferred by Government of India to the Bhakra Management Board. It was renamed as Bhakra Beas Management Board (BBMB), w.e.f., 15th May 1976.

BBMB has an installed capacity of 2866.30 MW - the largest base of Hydro Power in India. It maintains the largest reservoirs in the country such as Bhakra and Pong Dams and also operates long Hydro tunnels and Hydel channels. Bhakra, Nangal and Beas Dams have controlled the floods and have also brought prosperity to the partner states of Northern India. BBMB has been promoting the cause of renovation, modernization and up-rating of old Hydro Power Houses in the country. BBMB is generating power at the lowest cost and is supplying...
perennial irrigation water to the Northern States, which have brought Green Revolution in the country.

**Aims and Objectives**

The aims of BBMB include administration, operation and maintenance of Bhakra-Nangal Project, Beas Project Unit-I (Beas Satluj Link Project) and Beas Project Unit- II (Pong Dam) in Northern India; the regulation of supply of water from Satluj, Ravi and Beas to the States of Punjab, Haryana and Rajasthan; the regulation and supply of power generated from Bhakra-Nangal and Beas Projects; provide and perform engineering and related technical and consultancy services in various fields of the hydroelectric power projects and irrigation projects.

**Organizational Structure of BBMB**

The following figure indicates the organizational structure of BBMB.

![Figure 2.3](image-url)
Projects

At present, there are six generating/operating power stations of BBMB which include:

i. Bhakra Left Bank Power House having 540 MW capacity.
ii. Bhakra Right Bank Power House having 785 MW capacity.
iii. Ganguwal Power House having 77.65 MW capacity.
iv. Kotla Power House having 77.65 MW capacity.
v. Dehar Power House having 990 MW capacity.
vi. Pong Power House having 396 MW capacity.

3(c): North Eastern Electric Power Corporation Limited (NEEPCO)

(Source: www.neepco.gov.in)
Table 2.3: Profile of NEEPCO

<table>
<thead>
<tr>
<th>Year of establishment</th>
<th>1976</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Stations in operation</td>
<td>5 (1130 MW)</td>
</tr>
<tr>
<td>Projects under construction</td>
<td>2 (660 MW)</td>
</tr>
<tr>
<td>Future Projects Development</td>
<td>13 (4954 MW)</td>
</tr>
<tr>
<td>Manpower</td>
<td>3224</td>
</tr>
<tr>
<td>Number of units in operation</td>
<td>8</td>
</tr>
<tr>
<td>Total installed generating capacity</td>
<td>1130 MW</td>
</tr>
<tr>
<td>Number of beneficiary States/UT/Corporations</td>
<td>11</td>
</tr>
</tbody>
</table>

NEEPCO was incorporated on 2 April, 1976 as a wholly owned Government of India enterprise to exploit, utilize and develop power generation capability of the North East for the benefit of the region and the country at large. It is governed by the Electricity (Supply) Act, 1948. NEEPCO started its operations with a modest authorized share capital of Rs. 75 crores in 1976, which has now grown to Rs. 3500 crores. From a modest beginning, NEEPCO today has an installed capacity of 1130 MW and prides itself in its experience and expertise in the execution of both hydel and thermal projects. It has successfully completed tasks in the most difficult and complicated topographical and geological situations that demand the highest level of knowledge, capability and commitment.

NEEPCO is committed to the development of the North East Region although it is also exploring the possibility of exporting power out of the region through viable transmission alternatives while keeping its options open for the establishment of joint ventures with domestic and foreign agencies for executing the power projects. It is managed by a board of Directors comprising both full time as well as ex - officio members. The Corporation has adopted the scientific tools of professional management in the conduct of its business and has embarked upon an ambitious computerization programme to further enhance its productivity.
Projects

At present, there are five generating/operating power stations under NEEPCO which include:

i. Kopili Hydro Electric Project having 275 MW capacity.
ii. Assam Gas Based Power Project having 291 MW capacity.
iii. Agartala Gas Turbine Project having 84 MW capacity.
iv. Doyang Hydro Electric Project having 75 MW capacity.
v. Ranganadi Hydro Electric Project having 405 MW capacity.

3(d) : Satluj Jal Vidyut Nigam Limited (SJVN)

(Source: www.sjvn.nic.in)
and efficiency. The Ministry of Power, GOI, has already declared Assam Gas Based Power Station under it as a ‘Center of Excellence’.

**Aims and Objectives**

NEEPCO aims to generate employment opportunities from the North Eastern Region and also the export of power outside this region. Despite remoteness of project areas which is coupled with infrastructural bottlenecks and security problems, NEEPCO has been successful in achieving the desired performance due to the sheer dedication and commitment of its employees. It is dedicated to provide low-cost quality power and superior customer service in the States of North Eastern Region in particular and the nation in general.

**Organizational Structure of NEEPCO**

The following figure indicates the organizational structure of NEEPCO.

*Figure 2.4*
Table 2.4: Profile of SJVN

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year of establishment</td>
<td>1988</td>
</tr>
<tr>
<td>Power Station in operation</td>
<td>1 (1500 MW)</td>
</tr>
<tr>
<td>Projects under construction</td>
<td>1</td>
</tr>
<tr>
<td>Projects under survey and investigation</td>
<td>5 (2165.5 MW)</td>
</tr>
<tr>
<td>Joint Venture projects</td>
<td>3 (2420 MW)</td>
</tr>
<tr>
<td>Manpower</td>
<td>2000</td>
</tr>
<tr>
<td>Number of units in operation</td>
<td>6</td>
</tr>
<tr>
<td>Total installed generating capacity</td>
<td>1500 MW</td>
</tr>
<tr>
<td>Number of beneficiary States/UT/Corporations</td>
<td>9</td>
</tr>
</tbody>
</table>

The Satluj Jal Vidyut Nigam Limited (Formerly called Nathpa Jhakri Power Corporation Limited) was incorporated on May 24, 1988 as a joint venture of the Government of India and the Government of Himachal Pradesh. The 1500 MW Nathpa Jhakri Hydro-electric Power Project (NJHPP) was the first project commissioned by it. NJHPP has several unique features and is totally underground except for its Dam and the Pot Head Yard. It provides 1500 MW of valuable peaking power to the Northern Grid. Central Electricity Authority and Central Water Commission are the Principal Consultants for the Nathpa Jhakri Project. The Nippon Koei in Japan, Electrowatt in Switzerland, and Water & Power Consultancy Services Limited in India are its Retainer Consultants, which provide support for the execution of its projects.

Aims and Objectives

The objectives of SJVN include commissioning of Nathpa Jhakri Power Project; operating and maintaining power stations with maximum performance efficiency; establishing sound business, financial and regulatory policies; exploring possibilities of taking up other projects; dissemination of available in-house technical and managerial expertise to other utilities/projects; fulfilling social commitments to the society; achieving constructive cooperation and building
personal relations with the stakeholders, peers and other related organizations and striving clean and green project environment with minimal ecological and social disturbance.

**Organizational Structure of SJVN**

The following figure indicates the organizational structure of SJVN.

**Figure 2.5**

![Organizational Structure Diagram]

**Projects**

At present, there is only one generating/operating power station of SJVN i.e., Nathpa Jhakri Hydro-electric Power Project (NJHPP) having 1500 MW capacity. However, some future projects under consideration include:
The DVC came into existence by an Act of Parliament in 1948 as a multipurpose integrated river valley project to look after flood management, irrigation, power generation, transmission and distribution as well as eco-conservation and afforestation in the Damadar valley spread between West Bengal and Jharkhand. Though the corporation was setup with initial seed capital from both the Union Government and the Governments of West Bengal and Bihar, it now comes directly under the purview of the Union Government for all administrative purposes. It started with its headquarters in Ranchi but later on the headquarters were shifted to Kolkata. The Corporation has nine-generation projects with a total capacity of 2761.5 MW. In the field of export of power to other states, DVC has registered a significant rise and has exported 1273.473 MU of surplus power to Gujarat, Madhya Pradesh, Maharashtra, Andhra Pradesh, Chattisgarh, Kerala and other states through the Power Trading Corporation. The Corporation has so far constructed four multipurpose dams at Tilaiya, Konar, Maithon and Panchet and an irrigation system comprising a barrage on river Damodar at Durgapur and a canal system of 2459 kms.

It is also exploring the potential of hydel generation in its designated catchment area that is spread across West Bengal and Jharkhand. The Corporation has appointed the Central Water Commission to undertake a comprehensive study of the Damodar River. It is the only Government of India organization generating power utilizing of three resources - Coal, Water and Liquid fuel. India’s first underground hydel station was set up at Maithon under it.

**Aims and Objectives**

The objectives of DVC’s include: Flood control-irrigation; supply of water for domestic and industrial use; generation and distribution of electricity; eco-conservation and afforestation. It has undertaken a number of projects for expansion, renovation and modernization of old units along with augmentation
i. Rampur HEP having 439MW capacity.
ii. Shonglong Karcham having 400MW capacity.
iii. Topan Powari having 400MW capacity.
iv. Jhangi Thopan having 480MW capacity.
v. Khab having 450MW capacity.

3(e) : Damodar Valley Corporation (DVC)

Table 2.5: Profile of DVC

<table>
<thead>
<tr>
<th>Year of establishment</th>
<th>1948</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Stations in operation</td>
<td>9 (2796.5 MW)</td>
</tr>
<tr>
<td>Projects commissioned</td>
<td>4 (3610 MW)</td>
</tr>
<tr>
<td>Manpower</td>
<td>10560</td>
</tr>
<tr>
<td>Number of units in operation</td>
<td>33</td>
</tr>
<tr>
<td>Total installed generating capacity</td>
<td>2796.5 MW</td>
</tr>
<tr>
<td>Number of beneficiary States/UT/Corporations</td>
<td>9</td>
</tr>
</tbody>
</table>
and renovation of transmission system. The Corporation along with a joint-sector power company at Maithon exports power to deficient regions outside its command area.

**Organizational Structure of DVC**

The following figure indicates the organizational structure of DVC.

**Figure 2.6**

**Projects**

**Hydel Projects undertaken by DVC include:**

i. Tilaiya Hydel Project having 4 MW capacity.
ii. Maithon Hydel Project having 60 MW capacity.
iii. Panchet Hydel Project having 80 MW capacity.

**Thermal Projects undertaken by DVC include:**

i. Bokaro-A Thermal Project having 247.5 MW capacity.
ii. Bokaro-B Thermal Project having 630 MW capacity.
iii. Chandrapura Thermal Project having 750 MW capacity.
iv. Durgapur Thermal Project having 350 MW capacity.
v. Mejia Thermal Project having 840 MW capacity.

**Gas Turbine Station under DVC include:-**

i. Maithon Gas Turbine having 82.5 MW capacity.

3(f): Tehri Hydro Development Corporation (THDC)

(Source: www.thdc.gov.in)
Table 2.6: Profile of THDC

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year of establishment</td>
<td>1988</td>
</tr>
<tr>
<td>Power Stations in operation</td>
<td>1 (1000 MW)</td>
</tr>
<tr>
<td>Projects under construction</td>
<td>3 (2400 MW)</td>
</tr>
<tr>
<td>Manpower</td>
<td>2300</td>
</tr>
<tr>
<td>Number of units in operation</td>
<td>4</td>
</tr>
<tr>
<td>Total installed generating capacity</td>
<td>250</td>
</tr>
<tr>
<td>Number of beneficiary States/UT/Corporations</td>
<td>6</td>
</tr>
</tbody>
</table>

As a joint venture of the Government of India and Government of the Uttar Pradesh, Tehri Hydro Development Corporation (THDC) was incorporated on July 12th, 1988 to plan, promote, organize, execute, operate and maintain Hydro Power Projects in Bhagirathi-Bhilangna Valley in Uttar Pradesh. Tehri Hydro Complex comprise the 1000 MW Tehri Dam and HPT (Stage-I) the 1000 MW pump storage plant and the 400 MW Koteshwar Dam and hydro power plant. Tehri Hydro Complex (2400 MW) was transferred to THDC by the Government of Uttar Pradesh in June 1989. Tehri Hydro power complex involves construction of 260.5 m high earth and rock filled dam across the river Bhagirathi. Tehri dam and spillways involve many special features in their design and construction in order to cater to the challenges occurring due to excessively high velocities. The first unit of Tehri of 250 MW (1000 MW) is generating power since July 2006.

**Aims and Objectives**

Tehri Hydro Power Complex aims at catering to the needs of power generation, irrigation and drinking water; to plan, promote and organize an integrated and efficient development of hydro resources of Bhagirathi river and its tributaries at Tehri and complementary downstream development; to undertake the development and harnessing of such hydroelectric sites/projects in Bhagirathi/Bhilangana valleys as may be entrusted to the company by the State Government; integrated development of Garhwal Region with provision
of all possible facilities like improved communication, education, health, tourist traffic, setting up of non-pollution industries, development of horticulture, fisheries, afforestation of the region, etc.

Organizational Structure of THDC

The following figure indicates the organizational structure of THDC.

**Figure 2.7**

Projects

At present, there are three-generating/operating power stations of THDC which include:

i. Tehri Dam and Hydro Power Plant having 1000 MW capacity.
National Thermal Power Corporation Limited (NTPC) is the 6th largest thermal power generating company of India. It was incorporated in 1975 with the objective of planning, promoting and organizing an integrated development of thermal power in the country. It is the second most efficient organization in terms of capacity utilization amongst the thermal utilities in the world. Recognizing its excellent performance and vast potential, the Government of India has identified it as one of the jewels of Public Sector 'Navratnas'. It is in fact, on its way to become the world's largest and best power utilities, powering India's growth. Since 1975, it has been the power behind India's sustainable power development and aims to become a 40000MW power company by 2012. It is one of the largest power utilities of India with a total installed capacity of 21749 MW. It also manages the Badarpur Thermal Power Station in Delhi (705 MW) and Balco captive power station (270 MW) near Korba in Chattisgarh.

NTPC has set new benchmarks for the power industry both in the area of power plant construction and operations. It provides power at the cheapest average tariff in the country. It also provides consultancy services to various organizations related to the power sector and has entered into a joint venture with Alstom in Germany for the renovation and modernization of power plants in India. Centre for Power Efficiency and Environment Protection (CENPEEP) has been established in NTPC with the assistance of United States Agency for International Development (USAID). CENPEEP is efficiency oriented, eco-friendly and eco-nurturing initiative with its core values including customer focus, organizational pride, mutual respect and trust, initiative and speed and total quality.

Aims and Objectives

NTPC aims to be one of the world's largest and best power utilities; make available reliable and quality power in increasingly large quantities at competitive prices and adopt a broad based capacity portfolio including hydro power, LNG,
ii. Kotehswar Dam and Hydro Power Plant having 400 MW capacity.

iii. Tehri Pump Storage Plant (PSP) having 1000 MW capacity.

3(g): National Thermal Power Corporation (NTPC)

NTPC was incorporated in 1975. In the last 33 years, it has grown into the largest power utility of India. NTPC is the Sixth largest thermal power generator in the World and the Second most efficient utility in terms of capacity utilisation based on data of 1998. [Click here to read more.]

Shri R. S. Sharma takes over as the Chairman & Managing Director of NTPC from 1st May, 2008.

NTPC will hold a conference call on May 30th, 2008 to discuss the company’s results for Financial year 2007-08 and 4th quarter 2007-08. For details [click here]

Financial Results

The Company has declared its Unaudited Financial Results for the quarter ended 31st December 2007 and nine month period ended 31st December 2007. [Click here to see the results]

(Source: www.ntpc.co.in)

Table 2.7: Profile of NTPC

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year of establishment</td>
<td>1975</td>
</tr>
<tr>
<td>Power Stations in operation</td>
<td>26 (29394 MW)</td>
</tr>
<tr>
<td>Projects under construction</td>
<td>3 (1920 MW)</td>
</tr>
<tr>
<td>Joint Venture projects</td>
<td>4 (2044 MW)</td>
</tr>
<tr>
<td>Manpower</td>
<td>23,500</td>
</tr>
<tr>
<td>Total installed generating capacity</td>
<td>29394 MW</td>
</tr>
<tr>
<td>Number of beneficiary States/UT/Corporations</td>
<td>All over India</td>
</tr>
</tbody>
</table>
nuclear power, non-conventional and eco-friendly fuels; plan and speedily implement power projects; implement strategic diversification in areas such as power trading, distribution, transmission, coal mining, coal beneficiation, etc; develop a profitable business in overseas market including technical services, generation assets, etc; continuously attract and develop competent and committed human resources to match the world’s standards; and to be a socially responsible corporate entity with a thrust on environment protection, ash utilization, community development and energy conservation.

**Organizational Structure of NTPC**

The following figure indicates the organizational structure of NTPC.

**Figure 2.8**

![Organizational Structure of NTPC](image)
Projects

With a total installed capacity of 27,904 MW, NTPC has 14 coal based, 7 gas based and 3 Joint Venture Projects. These include:

Thermal

i. Singrauli in Northern Region having 2000 MW capacity.
ii. Rihand in Northern Region having 1000 MW capacity.
iii. Unchahar in Northern Region having 840 MW capacity.
iv. Tanda in Northern Region having 440 MW capacity.
v. Badarpur in Northern Region having 705 MW capacity.
vi. Dadri coal in National Capital Region having 840 MW capacity.

vii. Anta in National Capital Region having 413 MW capacity.
viii. Auriaya in National Capital Region having 652 MW capacity.
ix. Dadri-gas in National Capital Region having 817 MW capacity.
x. Faridabad in National Capital Region having 430 MW capacity.
xi. Korba in Western Region having 2100 MW capacity.
xii. Vindhyachal in Western Region having 2260 MW capacity.

xiii. Kawas in Western Region having 645 MW capacity.
xiv. Jhanor-Gandhar in Western Region having 648 MW capacity.
xv. Farakka in Eastern Region having 1600 MW capacity.
xvi. Kahalgaon in Eastern Region having 840 MW capacity.
xvii. Talcher Kaniha in Eastern Region having 1500 MW capacity.
xviii. Talcher Thermal in Eastern Region having 460 MW capacity.
xix. Durgapur in Eastern Region having 120 MW capacity.
xx. Rourkela in Eastern Region having 120 MW capacity.
xxi. Ramagudam in Southern Region having 2100 MW capacity.
xxii. Simhadri in Southern Region having 1000 MW capacity.
Hydro Projects under construction include

i. Tapovan-Vishnugad in Gopeshwar Chamoli District, Uttanchal) having 520 MW capacity.

ii. Lata-Tapovan in Uttanchal having 108MW capacity.

iii. Koldam in Himachal Pradesh having (800 MW) capacity.

iv. Lohari Nag Pala in Uttarkashi (Uttaranchal) having 600 MW capacity.

4: Conclusion

Power is a very important infrastructure for the overall development of any country in the world. It is an essential ingredient for improving the standard of living and is measured by the power consumption. Hydropower has become a technical necessity of the hour to meet peaking power as well as for system stability. In the context of imminent oil price rise and depleting resources of the natural fuel, the priorities of power sector are focused on the development of hydropower for capacity addition in the forthcoming years. Hydropower is a renewable economic, non polluting and environmentally benign source of energy and has emerged to be the cheapest amongst the sources of power supply in the long run. Hydro projects have therefore been taken up mostly by Central and State agencies. Hydropower has a major role to play in helping countries to reach sustainability targets and in poverty alleviation, which is the most important development goal for this century.

Hydropower stations have inherent ability for instantaneous starting, stopping, load variations, etc. and help in improving reliability of the power system. Hydro stations are the best choice for meeting the peak demand. The generation cost is not only inflation free but reduces with time. Hydropower is currently the major renewable source contributing to electricity supply and its future contribution is anticipated to increase significantly. The future of
hydropower will depend upon future demands for electricity, as well as how the societies value the environmental impact of hydropower compared to the impact of other source of electricity. At present, the importance of power can be understood by the fact that the per capita consumption of electricity is one of the scales to measure the development of a country. Keeping the importance of power sector and its utilities in the overall development of the country in mind, the Government of India has laid major emphasis on the power sector industry by way of a number of projects in which about 70,000 persons are working. They are constantly undertaking research so as to achieve the target set up by the Ministry of Power. To meet their information requirements for various kinds of data required for the success of the projects they are working on, the libraries have been setup in the institutions under the hydropower sector. Most of the libraries of this category are attached with corporate offices of the power sector. Plant libraries are also attached with organizations like NTPC, NHPC, etc. wherein the stress is laid on information processing and quick retrieval of significant and indispensable information rather than on the collection development.