DESIGN & ENGINEERING OF HYDRO ELECTRIC PROJECTS

Central Electricity Authority (CEA) renders design & engineering services for detailed engineering to Hydro Power Projects under execution in the Central / State Sectors & neighbouring countries. Design & Engineering includes complete design, techno-economic analysis and preparation of specifications; design memos, tender evaluation, selection and sizing of equipment, detailed layout and schematic drawings for hydro turbines, generators, transformers, switchyard equipments and other auxiliaries. CEA is fully equipped to provide state of the art design and engineering services for hydropower projects of any type and capacity.

At present, CEA is providing consultancy services for design and engineering of electrical and mechanical works of eight (8) nos. Hydro Power Projects. Out of these eight (8) projects, six (6) nos. are in India and two (2) nos. are in neighbouring countries with aggregate installed capacity of 4078 MW including large hydro power stations such as Tehri St.I (1000 MW) & Tala (1020 MW) etc. The Hydro Power Projects for which design & engineering services are being provided currently by CEA are as given below:

S. No.	Project	State/Executing Agency	Capacity (MW)
Northern Region			
1	Tehri Stage-I	Uttaranchal/THDC	4x250
2	Koteshwar	Uttaranchal/THDC	4x100
3.	Loharinag Pala	Uttatanchal/NTPC	4x150
4.	Tapovan Vishnugad	Uttaranchal/NTPC	4x130
5.	Rampur	Himachal Pradesh/SJVNL	6x68.66
North Eastern Region			
6	Myntdu	Meghalaya/MeSEB	2x42
Neighbouring Country			
7	Tala	Bhutan/THPA	6x170
8.	Salma	Afghanistan	3x14
		Total	**4078**

The legacy of CEA in rendering the design and engineering of Hydro Electric Projects is for a period of 47 years since 1960. Seventy three (73) Hydro Electric Projects in India and neighbouring countries having aggregate installed capacity of 13737 MW were completely designed and engineered by this organisation during this period are in successful commercial operation. The design consultancy of Hydro Electric Projects provided in the past includes projects with conventional Hydro generating units,

bulb/tubular type units, pumped storage schemes, and underground power stations with unit capacity from few KW to 250 MW.

HYDRO POWER PROJECTS IN OPERATION FOR WHICH CONSULTANCY SERVICES HAVE BEEN RENDERED BY CEA

Sl. No.	Name of the Power Station	Installed capacity (MW)	Year of Commissioning
IN INDIA **NORTHERN REGION**			
1.	Baira Siul	3x60=180	1980-81
2.	Salal-I	3x115=345	1987
3.	W.Y. Canal-A	2x8=16	1986
4.	W.Y. Canal-B	2x8-16	1987
5.	W.Y. Canal-C	2x8=16	1989
6.	Giri Bata	2x30=60	1978
7.	Lower Jhelum	3x35=105	1978-79
8.	Upper Sindh-1	2x11=22	1973-74
9.	Western Yamuna Canal	2x8=16	2004
10.	Chenani	5x4.6=23	1971-75
11.	Stakna	2x2=4	1986-87
12.	Kargil	3x1.25=3.75	1995
13.	R.P. Sagar	4x43=172	1968-69
14.	J.Sagar	3x33=99	1972-73
15.	Mahibajaj I	2x25=50	1989
16.	Mahibajaj II	2x45=90	1986
17.	Anoopgarh I	3x1.5=4.5	1987-88
18.	Anoopgarh II	3x1.5=4.5	1987-88
19.	RMC Mangrol	3x2=6	1992
20.	Surat Garh	2x2=4	1992
21.	Ranjit Sagar	4x150=600	2000
22.	Upper Singh-II	2x35=70	2000-01

23.	Nathpa Jhakri	6x250=1500	2002-03
WESTERN REGION			
24.	Ukai	4x75=300	1974-76
25.	Kadana	4x60=240	1990-96
26.	Ukai LBC	2x2.5=5	1987-88
27.	Gandhi Saar	5x23=115	1960-64
28.	Bargi	2x45=90	1988
29.	Ban Sagar Tons	3x105=315	1991-92
30.	Hasdeo Bango	3x40=120	1994
31.	Paithon	1x12=12	1984
32.	Rajghat	3x15=45	1999
33.	Koyna IV	4x250=1000	1999-2000
34.	Sardar Sarovar CHPH	5x50=250	2003
35.	Indira Sagar	8x125=1000	2003-05
36.	Sardar Sarovar RBPH	6x200=1200	2006-07
SOUTHERN REGION			
37.	Lower Sileru	4x115=460	1976-78
38.	N.J. Sagar PSS	1x110+7x100=810	1978-85
39.	Kadamparai	4x100=400	1987-90
40.	Srisailam LBPH	6x150=900	2001-03
41.	Pykara Ultimate	3x50=150	2005-06
EASTERN REGION			
42.	Kosi	4x5=20	1970-78
43.	Subernrekha I	1x65=65	1977
44.	Subernrekha II	1x65=65	1980
45.	Sone Western Canal	4x1.65=6.6	1993
46.	Eastern Gandak	3x5=15	1994-96
47.	Sone Eastern	2x1.65=3.3	1996
48.	Rengali	5x50=250	1985-92
49.	Upper Kolab	4x80=320	1988-93
50.	Lower Lagyap	2x6=12	1979

51.	Upper Rongnichu	4x2=8	1993-94
52.	Myangchu	2x2=4	1993
53.	Rammam II	4x12.75=51	1995-96
54.	Teesta Canal Falls I, II, III	3x3x7.5=67.5	1997-99
55.	Upper Indravati	4x150=600	2000-01
56.	Chandil	2x4=8	-
NORTH EASTERN REGION			
57.	Kyrdemkulai	2x30=60	1979
58.	Umiam St.I	4x9=36	1965
59.	Umiam St.II	2x9=18	1970
60.	Umiam Umtru St.IV	2x30=60	1992
61.	Gumti	3x5=15	1976-84
62.	Khandong	2x25=50	1984
63.	Kopili	2x50=100	1988
64.	Kopili Extn.	2x50=100	1996-97
65.	Loktak	3x35=105	1983&91
66.	Ranganadi	3x135=405	2002-03
67.	Doyang	3x25=75	2000
IN NEIGHBOURING COUNTRIES			
68.	Gandak	3x5=15	-
69.	Trisuli	3x7=21	-
BHUTAN			
70.	Chukha	4x84=336	1986-88
71.	Gyesta	3x0.5=1.5	-
72.	Khaling	3x0.2=0.6	-
BURMA			
73.	Sedawgyi	2x12.5=25	-