

No. 14-15/27/2017
Government of India
Ministry of Power

Shram Shakti Bhawan, Rafi Marg,
New Delhi, dated 22nd August, 2017

To,

**The Chairperson, CEA,
New Delhi**

**The CEO, POSOCO,
New Delhi**

Sub: Report on Shifting Hydropower Projects from Base Load Operation mode to Peaking mode-reg.

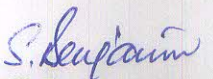
Sir,

I am directed to inform that the Report submitted by the sub-committee under the Chairmanship of Chairman, CEA on the above subject has been approved by the Hon'ble MoSP (I/C).

2. It is requested that the action taken on the following action points may kindly be furnished to this Ministry at the earliest.

SL No.	Action Points	Action to be taken by
i	<i>To issue a specific Advisory to the Gen. Cos./State Power Secretaries concerned w.r.t. the identified power plants for taking necessary action to shifting from base generation to peak generation.</i>	CEA
ii	<i>To constantly follow up the matter with respective Gen. Cos./State Power Secretaries and send a compliance status/action taken report to MoP periodically.</i>	CEA/POSOCO
iii	<i>To study all the plants to examine if further capacities can be identified or even created for having more peaking support.</i>	POSOCO
iv	<i>To study all HEPs to examine how much Spinning Reserves can be available, and ways of augmenting these capacities for better grid management especially for RE integration.</i>	POSOCO

Yours faithfully,


(S. Benjamin)

Under Secretary (H-I)

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**REPORT
ON
SHIFTING HYDROPOWER PROJECTS
FROM
BASE LOAD OPERATION MODE
TO PEAKING MODE**

July, 2017

Chapter –I

INTRODUCTION

1. Formation of Sub-Committee:

1.1 POSOCO submitted a report in June 2017 to MoP on “Operational Analysis for Optimisation of hydro resources and facilitating Renewable Integration in India”. It was brought out in the report that though the country has an installed capacity of 44,595 MW, the maximum hydro generation was only in the range of 25,000 to 32,000 MW. The Report recommended that as per current installed capacity of various categories of hydropower, additional peaking of atleast 3000 to 5000 MW can be achieved with better scheduling.

1.2 A Sub- Committee was formed with the following composition to study the issue of shifting hydro power stations from Base Station to Peak Station vide MOP Office Order no. 14-15/27/2017-HI dated 10.07.2017:

i)	Chairperson, CEA	-	Chairman
ii)	CMD, NHPC	-	Member
iii)	CMD, SJVN	-	Member
iv)	CMD, THDC	-	Member
v)	CEO, POSOCO	-	Member
vi)	Director (Hydro – I)	-	Member Convenor

1.1 The Sub-Committee has been mandated to identify the exact power plants/ locations from which the hydro generation can be maximized.

Chapter – 2

PROCEEDINGS OF THE SUB-COMMITTEE

2.1. Meetings of the Sub-Committee:

Three meetings of the Sub-Committee were held on 12th, 14th and 17th of July, 2017. The lists of officers who attended the meetings are attached as Annexure – I, II & III.

- 2.1.1 Chairperson, CEA highlighted the mandate of the Committee and thereafter suggested that the Committee should draw out an Action Plan to identify the hydropower stations from which the additional peaking can be achieved. POSOCO made a presentation focusing on the highlights of the report submitted by FOLD/ POSOCO in June 2017 on “Operational Analysis for Optimisation of Hydro Resources & Facilitating Renewable Integration in India”.
- 2.1.2 During the presentation, the salient features of the report were highlighted. The committee was informed that the hydro generation data pertaining to 9 years were analysed and a survey of all hydro power stations was conducted. Further, an analysis of peaking power being met by hydropower stations during the year 2016-17 was also carried out. It was brought out that though the country has an installed capacity of 44,595 MW, the maximum hydro generation was only in the range of 25,000 to 32,000 MW and varies a lot depending on the season. It was highlighted that the report was based on data of 149 hydropower stations which participated in the survey adding to a total of 35,247 MW out of the total installed capacity of 44,595 MW.
- 2.1.3 Chairman, NHPC and Chairman, SJVN stated that almost all of the central sector power stations are providing the peaking power requirement and base load operation is being met during monsoon season as per the availability of water. It was opined that due to availability of two part tariff, the generation could be modulated to the peaking needs.

- 2.1.4 CEO, POSOCO informed that it has been found that there is a scope for optimization, while honouring all constraints like irrigation requirement, lean period, limited pondage, water non-availability, maintenance requirement, operational constraints etc. It was explained that a detailed project-wise study was undertaken in which generation of all the plants during the year 2016 were examined with respect to their installed capacity, FRL, MDDL. During this examination, it was verified whether each generator has touched its peak capacity in all the months. Based on the study, the likely achievement of additional peaking from the plants was worked out.
- 2.1.5 POSOCO mentioned that Central sector projects have been demonstrating maximum peaking as per the prevailing Tariff regulations. On the other hand, the state sector projects have no incentive to provide peaking power as per existing SERC regulations except in one state (Odisha). Therefore, SERCs too shall formulate suitably that will encourage States' hydropower stations for demonstrating the peaking, as per the availability of water for the purpose of electricity generation.
- 2.1.6 Chairperson, CEA commented that to ensure that the sub-committee recommendations are actionable and foolproof, the next meeting should focus on the suggested project-wise recommendations, possible objections and mitigation measures. POSOCO stated that the projects identified for optimisation are based on their study after taking all constraints that came into their notice. However, the list can be finalized only after discussions with the Generating station authorities of the identified projects, their willingness and readiness to optimize their power stations etc.
- 2.1.7 The Sub-committee agreed to the suggestion of the Chairperson that the issue can also be deliberated in the forthcoming TCC meetings called by the Regional Power Committees (RPCs) where all hydro generators in the region may be asked to represent. Chairperson, CEA directed Chief Engineer (GM) to issue necessary advice to the RPCs accordingly. He asked POSOCO to make a short presentation in all the TCC meetings of the RPCs to take the matter forward. Chairperson, CEA also asked Chief Engineer (GM) to advise RPCs that all future monthly OCC meetings by the RPCs should have a standing agenda on status of availability of

hydro stations/units, peaking support provided by them and the constraints, if any, in providing such support.

2.1.8 Decisions taken :

2.1.8.1 The Sub-committee agreed in principle with the recommendations in the report submitted by FOLD/ POSOCO. However, for finalising the list of stations where additional peaking can be achieved , detailed deliberations are required for identifying the projects for optimization wherein the views of the developers and other stakeholders should formally be obtained.

2.1.8.2 The next meeting of the sub-committee shall be held on 14.07.2017 wherein details of projects recommended by POSOCO in the report can be deliberated with the concerned generating stations / SLDCs.

2.2 2nd Meeting of the Sub-Committee:

The second meeting was held on 14.07.2017 at Conference Hall, 2nd Floor, CEA.

2.2.1. The deliberations began with project-wise discussion on scope for additional peaking capacity from the hydropower stations. It was highlighted by the Chairperson that the objective of the Sub-committee was to optimize the use of hydropower as a source of peaking power. It was reiterated that there would be no changes in total energy commitments or water requirement and all that was needed was the ability and willingness of hydropower generators to generate peaking power as per grid demands. Considering that hydropower has unique features like quick ramping, black start facility etc, it is the most efficient and effective source for peaking power. While renewable energy is being added in large scale, the grid needs to be more flexible and the flexibility can be best provided by hydropower stations. He advised the SLDCs to exploit quick ramp up / down feature of the hydro machines for managing their drawal as per the schedule and also for balancing variability of renewable energy sources. This kind of operation will help them participate in the ancillary services market in future and earn extra revenue. POSOCO added that central sector hydropower

stations, regulated by CERC's Tariff regulations, are required to achieve peaking. POSOCO also added that time was ripe to value hydro energy & the flexibility rendered by hydro power stations by bringing in enabling regulatory framework for recognizing these aspects at State level too. The Chairperson highlighted that there should be a shift in mindset of everyone that hydropower should also be used for peaking .

2.2.2. The project-wise deliberations were done for projects from Himachal Pradesh, Madhya Pradesh, Maharashtra, Gujarat, Kerala and Andhra Pradesh. Out of a total list of 43 projects **(Annexure – IV)** with a total installed capacity of 16,620 MW having potential for additional peaking of about 4,500 - 5,000 MW as identified in the POSOCO's analysis, 21 Projects with a cumulative installed capacity of 10,264 MW pertaining to the above states, were reviewed by the sub-committee. Based on the deliberations, it was found that 10 projects with total installed capacity of 5,252 MW had hardly any margin for additional peaking due to technical constraints. However, 11 projects **(Annexure – V)** with cumulative installed capacity of 5,012 MW were identified that can provide **additional peaking capacity of 1,263 MW.**

2.2.3. It was decided that the remaining Gen. Cos. / states i.e. Chattisgarh, Tamil Nadu, Karnataka, Odisha and West Bengal would be called for a video conferencing meeting on 17.7.2017 for project-wise discussion.

2.3. 3rd Meeting of the Sub-Committee:

The third meeting of the sub-committee was held at conference hall, POSOCO on 17.7.2017.

2.3.1. At the outset, Chairperson, CEA stated that there is clarity on the constraints in the running of hydropower projects like water availability, irrigation requirement, silt issues, inter relationship between projects on same river basin, power evacuation constraints, reservoir and equipment related constraints, O&M and R&M issues etc. The objective of the exercise is to determine the scope for additional peaking power availability even for a short period. As per this concept, it would be preferable to run hydro power stations at the maximum capacity even for a shorter duration instead of running at part load for a longer duration.

- 2.3.2. The Sub-committee observed that a few hydro units in the country were under long outage. The Sub-committee felt that the concerned generating company was not giving a high priority to revival of such units as the remaining units in service at the station were enough to meet the requirement of discharge of prescribed volume of water through the turbines. Chairperson, CEA advised the RPCs to optimise duration of shut down of hydro units so as to maximise peaking availability, monitor such shut downs / outages and follow-up revival of the units in the monthly OCC meetings on a regular basis.
- 2.3.2. A total of 22 projects were reviewed by the sub-committee. After detailed deliberations, almost all the states agreed in principle to provide / demonstrate peaking power.
- 2.3.3. Out of the 22 projects reviewed, 8 projects (installed capacity 1,314 MW) had hardly any margin to provide additional peaking due to technical constraints. However, 14 hydropower stations (**Annexure VI**) with a cumulative installed capacity of 5,042 MW were identified to **provide additional peaking capacity of 1,195 MW.**
- 2.3.4. The meeting concluded with a decision to submit the report to the Ministry of Power at the earliest.

Chapter – 3

RECOMMENDATIONS

3.1. Based on the deliberations, the sub-committee recommends the following:

- 3.1.1. Out of the list of 43 power stations in the POSOCO Report, the power stations which showed additional peaking capacity less than 50 MW were not considered by the sub-committee. Accordingly, 7 power stations were omitted from review. Out of the balance 36 power stations, 11 power stations had no margin to provide additional peaking due to technical constraints. Balance 25 power stations (Annexure – VII) have been found capable and willing to achieve additional **average peaking of 2,458 MW**. Though only 25 power stations have been identified, this does not mean that the remaining power stations cannot provide additional peaking capacity. When the existing constraints like machine non-availability, O&M issues etc. are addressed, even these power stations can achieve additional peaking capacity.
- 3.1.2. A number of sensitization measures should be taken to promote the value of hydropower as peaking power which may include the following:
- (i) An advisory would be issued by CEA to all the States owning hydro stations advising them to utilise their pondage / reservoir based hydro stations in peaking mode. *(The advisory dated 18th July 2017 was issued by CEA. Sample enclosed at Annexure-VIII).*
 - (ii) The matter may be taken up for discussion by the RPCs at the forthcoming Technical Co-ordination Committee (TCC) meetings for sensitization on the issues. POSOCO shall make a detailed presentation at the meetings highlighting the issues. *(The letter dated 18th July 2017 in the matter was issued by CEA. Sample enclosed at Annexure-IX).*
 - (iii) The status of peaking support provided by the hydropower stations, constraints if any for inability to provide support for peaking may be included as a standing agenda item in all future monthly Operation Co-ordination Committee (OCC) Meetings. Objective

of this agenda item would be to maximise peaking availability by optimising period of shut down of hydro units, monitoring of shut downs / outage of the units and follow-up to expedite revival thereof. CEA shall send a written instruction in this regard to the RPCs. *(The letter dated 18th July 2017 in the matter was issued by CEA. Sample enclosed at **Annexure-IX**).*

- 3.1.3 SERCs too shall formulate suitably that will encourage States' hydropower stations for demonstrating the peaking, as per the availability of water for the purpose of electricity generation.
- 3.1.4 CERC and SERCs may formulate suitable regulations to incentivise utilisation of pondage / reservoir based hydro stations for balancing the variability of renewable energy sources / ancillary services. CERC has already incentivised the Central Sector thermal power stations for such operation through Ancillary Services regulations.

Annexure – I

LIST OF PARTICIPANTS**MEETING HELD ON 12/7/2017 REGARDING HYDROPOWER**

Sl. No.	Name S/SH.	Designation	Organisation
1	R K VERMA	CHAIRPERSON	CEA
2	K M SINGH	CMD	NHPC
3	R N MISHRA	CMD	SJVNL
4	K V S BABA	CEO	POSOCO
5	H L ARORA	ED	THDC
6	DINESH CHANDRA	CE(GM)	CEA
7	J S BAWA	CE(HP&I)	CEA
8	J BANDOPADHYAY	CE(IRP)	CEA
9	BIJOY R NAIR	SM(C)-NHPC	MoP
10	S R NARASIMHAN	AGM, SYSTEM OPERATION	POSOCO
11	S K SOONEE	ADVISOR	POSOCO
12	VIKRAM SINGH	DIRECTOR(GM)	CEA
13	AMMI R TOPPO	DIRECTOR(IRP)	CEA

Annexure – II

LIST OF PARTICIPANTS
MEETING ON SHIFTING HYDROPOWER PROJECTS FROM PEAK STATION
HELD ON 14TH JULY, 2017 AT CEA, SEWA BHAWAN

Sl. No.	Name S/SH.	Designation	Organisation
1	R K VERMA	CHAIRPERSON	CEA
2	ABHIJIT PHUKON	DIRECTOR(HYDRO)	MoP
3	K V S BABA	CEO	POSOCO
4	Er. ABHA SAINI	CHIEF ENGINEER S.O. BBMB	BBMB
5	ANIL GAUTAM	DIRECTOR	BBMB
6	BREDO ERICHSEN	MD	STATKRAFT
7	ANURAG AGARWAL	SR. MANAGER	HBPCL
8	SHANTANU DUBEY	DY. MGR	JSW ENERGY
9	N N SHAJI	CHIEF ENGINEER SYSTEM OPERATION	KSEB
10	PRADIP DAHAKE	MD	GSECL
11	J S BAWA	CHIEF ENGINEER	CEA
12	H L ARORA	ED	THDCIL
13	BIJOY R NAIR	SM(C)-NHPC	MoP
14	BALWAN KUMAR	DY. DIRECTOR	CEA
15	ASHOK SIDHWANI	S.E. (R.E.)	MPPGCL
16	ANNEPU SURESH	DY. DIRECTOR	CEA
17	M D GODWE	CE(RE)	MSPGCL
18	VIKRAM SINGH	DIRECTOR	CEA
19	DINESH CHANDRA	CE(GM)	CEA
20	S R NARASIMHAN	AGM, SYSTEM OPERATION	POSOCO
21	S K SOONEE	ADVISOR	POSOCO

Annexure – III

LIST OF PARTICIPANTS
MEETING HELD ON 17/7/2017 REGARDING HYDROPOWER

SL. NO.	NAME	DESIGNATION	ORGANISATION
1	R K VERMA	CHAIRPERSON	CEA
2	K V S BABA	CEO	POSOCO
3	HEMANT SHAKLYA	CHIEF MANAGER (BD)	SJVNL
4	KAJAL GAUR	ENGINEER	NLDC
5	BIJOY R NAIR	SENIOR MANAGER(C), NHPC	MOP
6	S K SOONEE	ADVISOR	POSOCO
7	A SURESH	DEPUTY DIRECTOR	CEA
8	S R NARASIMHAN	AGM, SYSTEM OPERATION	NLDC, POSOCO
9	U K VERMA	GM(I/C)	NLDC, POSOCO
10	VIKRAM SINGH	DIRECTOR	CEA
11	DINESH CHANDRA	CHIEF ENGINEER(GM)	CEA

LIST OF 43 PROJECTS AS PER REPORT SUBMITTED BY POSOCO

S. No	Station Name	Capacity (in MW)	Developer	State	Average additional peaking as per report submitted by POSOCO
1	2	3	4	5	6
Northern Region					
Private					
1	AD Hydro	192	ADHBP/ Statkraft	HP	36.50
2	Karcham	1000	JSW Energy	HP	133.64
3	Budhil	70	Greenco	HP	18.08
		1192			188.22
Central Sector					
4	Bhakra Complex	1345	BBMB	HP	115.36
5	Dehar	990		HP	320.81
6	Pong	396		HP	64.88
7	Parbati-3	520	NHPC	HP	183.38
8	Indirasagar	1000	NHDC/ NHPC	MP	125.58
9	Omkareshwar	520	NHDC/ NHPC	MP	128.39
North Eastern Region					
10	Doyang	75	NEEPCO	Nagaland	26.42
		4846			964.81
Western Region					
State Sector					
11	Tons	315	MPPGCL	MP	235.90
12	Gandhisagar	115	MPPGCL	MP	17.99
13	Pench	160	MPPGCL	MP	5.83
14	Koyna-IV	1000	MAHAGENCO	MAHARASHTRA	261.06
15	Koyna-III	320	MAHAGENCO	MAHARASHTRA	222.50
16	Koyna DPH	36	MAHAGENCO	MAHARASHTRA	18.00
17	Koyna-I & II	280	MAHAGENCO	MAHARASHTRA	217.50
18	Ukai	300	GSECL	GUJARAT	108.57
19	Hasdeo Bango	120	CSPGCL	CHATTISGARH	37.08
Southern Region					
20	Kunda - I	60	TANGEDCO	TN	23.17
21	Kundah - II	175	TANGEDCO	TN	75.85
22	Kundah - III	180	TANGEDCO	TN	94.86
23	Kundah - IV	100	TANGEDCO	TN	42.69
24	Kundah V	40	TANGEDCO	TN	17.08
25	Aliyar	60	TANGEDCO	TN	19.73
26	Kadamparai	400	TANGEDCO	TN	144.93
27	Jog	139.2	KPCL	KARNATAKA	73.17
28	Kadra	150	KPCL	KARNATAKA	38.14
29	Kodasalli	120	KPCL	KARNATAKA	24.00
30	Nagjheri	885	KPCL	KARNATAKA	294.13

31	Sharavathi	1035	KPCL	KARNATAKA	517.33
32	Supa	100	KPCL	KARNATAKA	15.08
33	Varahi	460	KPCL	KARNATAKA	138.29
34	Idukki	780	KSEB	KERALA	280.47
35	Kuttiyadi	225	KSEB	KERALA	63.12
36	Lower Sileru	460	APGENCO	AP	174.41
37	Upper Sileru	240	APGENCO	AP	90.04
Eastern Region					
38	Burla	275	OHPC	ORISSA	146.47
39	Rengali	250	OHPC	ORISSA	36.54
40	Chiplima	72	OHPC	ORISSA	37.94
41	Upper kolab	320	OHPC	ORISSA	59.34
42	Balimela	510	OHPC	ORISSA	158.69
43	Purulia PSP	900	WBSEB	WB	229.75
Total (State Sector)		10582			3919.66
Grand Total		16620			5072.70

LIST OF 11 PROJECTS IDENTIFIED THE SUB-COMMITTEE FOR ADDITIONAL PEAKING ON 14.07.2017

S. No	Station Name	Capacity (in MW)	Developer	State	Average additional peaking as per report submitted by POSOCO	Average additional peaking identified after Sub-committee meeting on 14.07.2017
1	2	3	4	5	6	7
Northern Region						
1	Bhakra Complex	1345	BBMB	HP	115.36	48
2	Pong	396		HP	64.88	120
3	Parbati-3	520	NHPC	HP	183.38	200
Western Region						
4	Gandhisagar	115	MPPGCL	MP	17.99	45
5	Koyna-IV	1000	MAHAGENCO	MAHARASHTRA	261.06	400
6	Koyna-III	320	MAHAGENCO	MAHARASHTRA	222.50	
7	Koyna DPH	36	MAHAGENCO	MAHARASHTRA	18.00	
8	Koyna-I & II	280	MAHAGENCO	MAHARASHTRA	217.50	
9	Ukai	300	GSECL	GUJARAT	108.57	300
Southern Region						
10	Lower Sileru	460	APGENCO	AP	174.41	150
11	Upper Sileru	240	APGENCO	AP	90.04	
Total		5012			1474	1263

LIST OF 14 PROJECTS IDENTIFIED THE SUB-COMMITTEE FOR ADDITIONAL PEAKING ON 17.07.2017

S. No	Station Name	Capacity (in MW)	Developer	State	Average additional peaking as per report submitted by POSOCO	Average additional peaking identified after Sub-committee meeting on 17.07.2017
1	2	3	4	5	6	8
Western Region						
1	Hasdeo Bango	120	CSPGCL	CHATTISGARH	37.08	40
2						
2	Kunda - I	60	TANGEDCO	TN	23.17	20
3	Kundah - II	175	TANGEDCO	TN	75.85	35
4	Kundah - III	180	TANGEDCO	TN	94.86	60
5	Kundah - IV	100	TANGEDCO	TN	42.69	35
6	Nagjheri	885	KPCL	KARNATAKA	294.13	200
7	Sharavathi	1035	KPCL	KARNATAKA	517.33	200
8	Varahi	460	KPCL	KARNATAKA	138.29	110
Eastern Region						
9	Burla	275	OHPC	ORISSA	146.47	100
10	Rengali	250	OHPC	ORISSA	36.54	20
11	Chiplima	72	OHPC	ORISSA	37.94	20
12	Upper kolab	320	OHPC	ORISSA	59.34	160
13	Balimela	510	OHPC	ORISSA	158.69	60
14	Indravati (added later)	600	OHPC	ORISSA		135
Total		5042			1662.38	1195

FINAL LIST OF 25 PROJECTS IDENTIFIED THE SUB-COMMITTEE FOR ADDITIONAL PEAKING

S. No	Station Name	Capacity (in MW)	Developer	State	Average additional peaking as per report submitted by POSOCO	Average additional peaking identified after Sub-committee meeting on 14.07.2017	Average additional peaking identified after Sub-committee meeting on 17.07.2017	Total Average additional peaking identified by the Sub-Committee (Col. 7 + Col. 8)	Constraints for not providing additional peaking
1	2	3	4	5	6	7	8	9	10
Northern Region									
Central Sector									
1	Bhakra Complex	1345	BBMB	HP	115.36	48		48	Machine maintenance issues and irrigation requirement
2	Pong	396		HP	64.88	120		120	
3	Parbati-3	520	NHPC	HP	183.38	200		200	
Western Region									
State Sector									
4	Gandhisagar	115	MPPGCL	MP	17.99	45		45	
5	Koyna-IV	1000	MAHAGENCO	MAHARASHTRA	261.06	400		400	High irrigation requirement. Water constraints for power generation
6	Koyna-III	320	MAHAGENCO	MAHARASHTRA	222.50				
7	Koyna DPH	36	MAHAGENCO	MAHARASHTRA	18.00				
8	Koyna-I & II	280	MAHAGENCO	MAHARASHTRA	217.50				
9	Ukai	300	GSECL	GUJARAT	108.57	300		300	
10	Hasdeo Bango	120	CSPGCL	CHATTISGARH	37.08		40	40	
Southern Region									
11	Kunda - I	60	TANGEDCO	TN	23.17		20	20	
12	Kundah - II	175	TANGEDCO	TN	75.85		35	35	
13	Kundah - III	180	TANGEDCO	TN	94.86		60	60	

187906/2017/OFFICE OF US(SB)

S. No	Station Name	Capacity (in MW)	Developer	State	Average additional peaking as per report submitted by POSOCO	Average additional peaking identified after Sub-committee meeting on 14.07.2017	Average additional peaking identified after Sub-committee meeting on 17.07.2017	Total Average additional peaking identified by the Sub-Committee (Col. 7 + Col. 8)	Constraints for not providing additional peaking
1	2	3	4	5	6	7	8	9	10
14	Kundah - IV	100	TANGEDCO	TN	42.69		35	35	
15	Nagjheri	885	KPCL	KARNATAKA	294.13		200	200	
16	Sharavathi	1035	KPCL	KARNATAKA	517.33		200	200	
17	Varahi	460	KPCL	KARNATAKA	138.29		110	110	
18	Lower Sileru	460	APGENCO	AP	174.41	150		150	
19	Upper Sileru	240	APGENCO	AP	90.04				
Eastern Region									
20	Burla	275	OHPC	ORISSA	146.47		100	100	
21	Rengali	250	OHPC	ORISSA	36.54		20	20	
22	Chiplima	72	OHPC	ORISSA	37.94		20	20	
23	Upper kolab	320	OHPC	ORISSA	59.34		160	160	
24	Balimela	510	OHPC	ORISSA	158.69		60	60	
25	Indravati (added later)	600	OHPC	ORISSA			135	135	
Total		10054			2772.45	1263	1195	2458	



P S Mhaske

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सेवा भवन, रामाकृष्णा पुरम्
MEMBER (POWER SYSTEM)
& EX-OFFICIO ADDL. SECRETARY TO THE GOVERNMENT OF INDIA
CENTRAL ELECTRICITY AUTHORITY
SEWA BHAWAN, R.K. PURAM

DO No.1/AI/COR/GM/2017-1356-81 नई दिल्ली - 110066 Date 18.07.2017
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Dear Shri Panwar

Presently, installed capacity of hydroelectric stations in the country is about 44.6 GW. As you know Hydro stations have some special characteristics like quick startup, high ramp up / ramp down rate, black start facility, 10% continuous overload capability. Therefore, Hydro stations can be utilised to handle intermittency / variability of renewable energy generators, meet sharply rising peak demand, regulating state's drawal from the grid, etc.

While a run-of-river hydroelectric station is required to be operated on continuous basis to utilise the available inflows, pondage / reservoir based hydroelectric stations can be operated during peak hours to meet the peak demand. In order to minimise purchase of costly peaking power, such hydro stations should generate to their capability during high demand period so that overall cost of power to the state utilities can be reduced.

As you may be aware, the reservoir based hydro stations are generally multi-purpose projects having the primary objective of release of water for irrigation, drinking water, flood control requirements, etc. The release of water for meeting such requirements over a specific period, say a day, imposes restriction on the quantum of energy that can be generated during that day. However, even with this restriction, it is possible to use the hydro stations to generate power upto their full capacity (if possible using overload capability) or upto the level permitted by the available water head during peak hours by conserving water during off-peak period.

Based on operational analysis of various hydro stations in the country, it has been observed that despite 40.6 GW of pondage / reservoir based hydro stations, only about 33 GW of peak generation is available from these stations on all India basis. This shows that some hydro stations are not being operated in peaking mode. In order to examine the matter, a Sub-committee has been constituted by the MoP under Chairperson, CEA with heads of POSOCO, NHPC, SJVN & THDC as members and Director (H), MoP as the member convenor. The Sub-committee has held three meetings with the hydro generating stations and found that there is scope for about 2000 MW additional power generation from hydro stations during peak hours.

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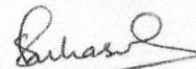
स्वहित एवं राष्ट्रहित में ऊर्जा बचाएं
Save Energy for Benefit of Self and Nation

- 2 -

I would request you to please advise your SLDC to utilise the peaking hydro stations during peak hours while adhering to the prescribed water release schedule during the day. This will go a long way in optimising the power system operation of your state.

With regards,

Yours sincerely,



(P.S. Mhaske)

Shri Umakant Panwar
Secretary – Energy
Govt. of Uttarakhand
Vishwakarma Bhavan ,
Room – 4, Subhash Road, Ut.
Dehradun – 248001



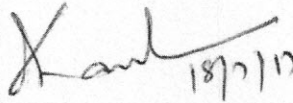
भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
ग्रिड प्रबंधन प्रभाग
Grid Management Division

Subject: Operation of hydro power projects in peaking mode - Reg.

POSOCO has carried out operational analysis of various hydro stations in the country and observed that despite 40.6 GW of peaking hydro capacity, only about 33 GW peak generation is carried out on all India basis. According to POSOCO, this is on account of a number of hydro stations, particularly in state sector, which are not being operated in peaking mode. In order to examine the above observation, a Sub-committee has been constituted by the MoP under Chairperson, CEA with heads of POSOCO, NHPC, SJVN & THDC as members and Director (H), MoP as the member convenor. The Sub-committee has held three meetings with the concerned hydro generating stations and concluded that there is scope for about 2000 MW additional power generation from hydro stations during peak hours.

Based on the deliberations at the meetings of the Committee, Chairperson, CEA has advised to discuss the above operational analysis at the forthcoming TCC/RPC meetings in all the five regions. The Agenda-note in the matter would be submitted by NLDC (POSOCO) to all the RPCs immediately. It has been further desired by the Chairperson that the matter of utilisation of hydro stations in peaking mode be made a regular agenda item for discussion at the monthly OCC meetings while discussing operational planning for the month ahead and analysing the operation in the previous month.

Member Secretaries of all RPCs are requested to take immediate action to comply with the above advice of Chairperson, CEA and confirm the same.


(Dinesh Chandra)
Chief Engineer

Member Secretary, ERPC / NERPC / NRPC / SRPC / WRPC

No: 1/AI/COR/GM/2017/ 1346-1353

Dated 18-07-2017

Copy for information and necessary action to :
CEO, POSOCO, New Delhi

Copy for kind information to:

1. Chairperson, CEA
2. Member (GO&D), CEA