

**Before**

**UTTARAKHAND ELECTRICITY REGULATORY COMMISSION**

**Petition No. 06, 07, 08 & 09 of 2016**

**In the matter of:**

Petitions filed under section 61 and 86 of the Electricity Act, 2003 read with the relevant regulations and guidelines of the Commission by UJVN Ltd. for approval of Capital investment for:

- (1) Refurbishing of Asan Barrage
- (2) Refurbishing of Dakpathar Barrage
- (3) Refurbishing of Ichari Dam
- (4) Special Repair Works of Civil & Hydro Mechanical Structures for Yamuna Hydel Scheme Stage-I, II Part-I & IV

**And**

**In the matter of:**

UJVN Ltd. Dehradun

.....Petitioner

**&**

Uttarakhand Power Corporation Ltd. (UPCL)

..... Respondent No. 1

Himachal Pradesh State Electricity Board Ltd. (HPSEB Ltd.)

..... Respondent No. 2

Vidyut Bhawan, Kumar House, Shimla (H.P.)

**Coram**

**Shri Subhash Kumar**

**Chairman**

**Date of Order: April 29, 2016**

**ORDER**

This Order relates to the Petitions filed by UJVN Ltd. (hereinafter referred to as "UJVN Ltd." or "the Petitioner") for approval of capital investment of following works:

- (1) Refurbishing of Asan Barrage.
- (2) Refurbishing of Dakpathar Barrage.
- (3) Refurbishing of Ichari Dam.
- (4) Special repair works of Civil & Hydro mechanical structures for Yamuna Hydel scheme stage-I, II Part-I & IV.

## Background

2. UJVN Ltd. filed following four Petitions for approval of Capital Investment vide letter No. 7687/MD/UJVNL/U-6 dated 29.08.2014 for the cost mentioned below:

Sl. No.	Name of work	Estimated cost (₹ in Crore)
1.	Refurbishing of Asan Barrage	5.44
2.	Refurbishing of Dakpathar Barrage	7.35
3.	Refurbishing of Ichari Dam	23.85
4.	Special Repair Works of Civil & Hydro Mechanical Structures for Yamuna Hydel Scheme Stage-I, II Part-I & IV	20.44

3. On receipt of the above proposals, the Commission decided to hear the matter for admissibility and fixed a hearing on 01.10.2014. The hearing was held on the scheduled date and an Order dated 01.10.2014 was issued by the Commission directing the Petitioner to:

“

1. ... submit the proposed funding details namely the loan/grant and equity for the proposed capital works along with the cost of funding.
2. ... allocate cost of the proposed refurbishing and Special Repair Works to the respective generating stations and also submit the justifications for such allocation.
3. ... submit the impact on generation tariffs of the proposed investments. As the proposed investment has tariff implications, Beneficiaries i.e. UPCL and HPSEB Ltd. will have to be made Respondents.

*As agreed by the Petitioner, these activities be completed within 2 months and thereafter, the Petitions be placed before the Commission for admission...”*

4. All the four Petitions were examined and deficiencies observed in each of the proposals were forwarded to the Petitioner for submitting its clarification/information.

Petition wise submission, deficiencies pointed out, subsequent replies and observation of the Commission are as follows:

### **(1) Refurbishing of Asan Barrage**

- (i) Justifying the need of works proposed under the Petition, the Petitioner submitted that Asan Barrage was constructed in 1975 across tail race of Yamuna Hydel Scheme Stage-I and Asan river to divert the flow into 4 Km long lined Power Channel of 7000 cusecs capacity. A Power House of 30 MW installed capacity has been constructed at the end of the Power Channel near Kulhal. From commissioning of the project upto

30.04.2010, the barrage was operated and maintained by Irrigation department. From the mid night of 30.04.2010 it was taken over by the Petitioner. Since taking over of Asan Barrage from Irrigation Department no major repair has been carried out by the Petitioner. The barrage is in the service of 40 years, as a consequence of heavy floods during past years some works are essential for safety of Barrage as well as uninterrupted power generation. No closure has been taken since 2004, therefore, no repair has been carried out for under water part since then.

(ii) The summary of the proposed work is as follows:

Sl. No.	Description of Work	Estimated Cost (₹ in Crore)
1.	Special repair of service road around Asan Barrage at Dhalipur, Dehradun	0.25
2.	Special protection works at upstream of Asan Barrage at Dhalipur, Dehradun	1.19
3.	Special protection works at downstream of Asan Barrage at Dhalipur, Dehradun	0.92
4.	Engineering, design, supply, installation of water distribution and data management system at Asan Barrage in Distt. Dehradun	0.98
5.	Special repair of hydro mechanical & E/M system of Asan Barrage at Dhalipur, Dehradun	2.10
	<b>Total</b>	<b>5.44</b>

(iii) On preliminary examination of the Detailed Project Report (DPR) for Refurbishing of Asan Barrage, following deficiencies were observed and communicated to the Petitioner vide letter No. 1651 dated 03.12.2014:

“

1. *In annexure-I, II & III, only abstract of quantities have been given while the basis for arriving at these quantities has not been provided.*

*UJVN Ltd. is required to submit the item-wise details of quantities mentioned in the abstract alongwith the basis.*

2. *Further, it has also found that in all the Annexures of revised DPR, the schedule of rate of PWD, Uttarakhand for the year 2013 has been adopted. As the schedule of rate has been revised by PWD in 2014, UJVN Ltd. should submit the DPR on the latest schedule of rates.*

3. *The Annexure-IV & V are completely illegible.*

*UJVN Ltd. is required to submit the legible copy of the said annexures along with the latest quoted rates of the respective firm.*

4. It has been observed that the Civil works of Asan Barrage amounting ₹82.03 lacs have been proposed from serial No. 11 to 14 in lot-4 of Special Repair Works of Civil and Hydro-mechanical structures for Yamuna Hydel Scheme Stage-I & IV and not proposed alongwith the works of refurbishing of Asan Barrage, while, the Hydro-mechanical works of Asan Barrage amounting ₹210.05 lacs at serial No. 15 have been proposed in the "Refurbishing of Asan Barrage"

UJVN Ltd. is required to propose the above Civil works of Asan Barrage [from serial No. 11 to 14 of lot-4 of Special Repair Works of Yamuna Hydel Scheme Stage I & IV] with the works proposed in "Refurbishing of Asan Barrage" on the latest rates.

5. It has also been observed that certain items in revised DPR are neither as per PWD rate schedule nor based on quotation.

UJVN Ltd. is required to furnish analysis of rates of these items.

6. It is evident from above that all the annexure pertaining to cost estimation needs to be revised, hence, the Petitioner is required to submit revised cost estimation from page No. 117 to 125."

- (iv) Further, the Petitioner sought time extension for submitting the desired information upto 05.02.2015 which was allowed by the Commission. Thereafter, on the above observations of the Commission and subsequent discussions, the Petitioner revised the cost estimates and submitted the same vide letter No. 55/MD/UJVNL/03/D(P)/U-6 dated 05.02.2015 with the total estimated cost of ₹11.29 crore, which is as follows:

Sl. No.	Name of work	Estimated Cost (₹in Crore)
1.	Construction of temporary diversion bunds, ring bunds in U/S of Asan Barrage at Dhalipur, Dehradun	0.26
2.	Repair of Service Road Around Asan Barrage	1.56
3.	Protection works at Upstream of Asan Barrage	0.50
4.	Protection works at Downstream of Asan Barrage at Dhalipur, Dehradun	0.97
5.	Civil works of Asan Barrage during proposed closure year 2014-15	0.71
6.	Repair of Eroded Surface of Piers and Floor of Asan Barrage at Dhalipur, Dehradun	0.75
7.	Supply and Installation of Computer Controlled Barrage Automation System at Asan Barrage	0.98
8.	Overhauling during closure-period of Asan Barrage in District-Dehradun (Uttarakhand)	2.06
9.	Design, Procurement, Manufacturing, Supply and installation of new Trash Rack Machine at Asan Barrage	3.04
10.	Repair and painting of Trash Rack at Head regulator and Painting of Barrage, Head Regulator and Silt Ejector Gates at Asan Barrage.	0.47
	<b>Total</b>	<b>11.29</b>

- (v) Further, a letter was issued by the Commission to the Petitioner vide reference No. 629 dated 14.07.2015 pointing out that: (a) the Commission's directions issued vide its Order dated 01.10.2014 were not complied (b) revised cost estimate had not been submitted under affidavit.
- (vi) In response to the same; the Petitioner vide its letter dated 27.07.2015 requested the Commission to allow the time extension for submitting the compliance upto 31.08.2015, which was allowed by the Commission. Thereafter, the Petitioner vide its letter no. 4824/UJVNL/01/MD/U-6 dated 25.08.2015 submitted the information under affidavit as desired by the Commission in its letter dated 14.07.2015.
- (vii) With regard to the query of the Commission pertaining to allocation of cost & justification for allocation of the proposed refurbishing works to the respective generating stations, the Petitioner submitted that since the only beneficiary generating station of the proposed works of Asan Barrage is Kulhal HEP, therefore, the total capital cost would be borne by Kulhal HEP only.
- (viii) In the matter of funding of the project, the Petitioner submitted that the Petitioner has tied-up with World Bank for funding of the above project under Dam Rehabilitation Improvement Project (DRIP) Scheme of Govt. of India through Central Water Commission with 80% loan (interest rate (LIBOR + variable spread)@1.34% as on 11.08.2015, Service Charges @.75% & Commitment fee@.05%) and balance 20% equity arranged by the internal resources of the Petitioner.
- (ix) The impact on generation tariff submitted by the Petitioner is ₹ 0.06/unit on levelled basis for 35 years.
- (x) On receipt of the replies, the Commission decided to hear the matter for admissibility on 22.09.2015 and accordingly notices were issued to the Petitioner as well as to the beneficiaries namely UPCL and HPSEB Ltd. The Commission heard the matter on the scheduled date and issued an Order dated 22.09.2015 directing the Petitioner to:

“... hold consultation with both the Respondents namely UPCL & HPSEB Ltd. and shall file the record of consultation held latest by 20.10.2015.”

- (xi) Further, the Petitioner requested the Commission vide its letter dated 20.10.2015 to allow time extension of 10 days for submission of the compliance report of the above direction and subsequently, the record of consultation from UPCL and HPSEB was submitted to the Commission vide letter dated 30.11.2015 and 29.01.2016 respectively.
- (xii) Meanwhile, the Petitioner made a supplementary submission before the Commission vide its letter dated 11.02.2016 through which DPR for the proposed works has been revised as per the works proposed under Dam Rehabilitation & Improvement Project (DRIP).

Sl. No.	Name of Work	Estimated Cost (₹in Crore)
<b>Civil Works</b>		
1.	De-Silting of Asan Reservoir, tail race channel and D/S of Asan Barrage, Construction of temporary diversion bunds at different locations in U/S of Asan Barrage at Dhalipur, Dehradun.	2.06
2.	Repair of service road around Asan Barrage.	1.89
3.	Protection works at Upstream and Downstream of Asan Barrage at Dhalipur, Dehradun.	1.72
4.	Civil works and repair of Eroded Surface of Piers and Floor of Asan Barrage during proposed closure.	3.24
5.	Special Repair of Damaged Power Channel Stage IV (from Asan Barrage to Intake of Kulhal Power House) And Kulhal Power House Complex during Closure.	2.77
6.	Construction of Office and Residential Building	3.96
7.	Add 2% for Design and other Misc. consultancy	0.31
8.	Add 2% for Quality supervision, project management.	0.31
	<b>Total</b>	<b>16.26</b>
<b>E&amp;M Works</b>		
9.	Work of Engineering , Design, Supply, Erection, Testing and Commissioning barrage control and monitoring System for water distribution and Barrage Management including AMC (05 years ) of Asan Barrage, Dhalipur under DRIP ( Dam Rehabilitation Project ).	1.31
10.	Overhauling of Hydro-mechanical system of Barrage Gates at Asan Barrage, Dhalipur Dehradun.	2.14
11.	Design, Manufacturing, Supply, installation, Testing and commissioning of one no. Hydraulically operated movable trash rack cleaning machine with trash rack panels along with dismantling of Existing TRCM & trash rack panels of at Asan Barrage, Dhalipur Dehradun.	5.84
12.	Painting of Barrage, Head Regulator and Silt Ejector Gates at Asan Barrage, Dhalipur Dehradun.	0.39
	<b>Total</b>	<b>9.68</b>
	<b>Grand Total</b>	<b>25.94</b>

(xiii) On receipt of the desired clarification and compliance of the directions issued in the matter, the Commission allowed to admit the Petition on 24.02.2016 as Petition No.06 of 2016.

**(2) Refurbishing of Dakpathar Barrage**

- (i) Justifying the need of works proposed under the Petition, the Petitioner submitted that Dakpathar Barrage was constructed in 1964-65 on Yamuna river to divert a flow of 7000 cusec into power channel for Dhakrani and Dhalipur power house for generating 3X11.5 MW and 3X17 MW hydroelectric power respectively. From commissioning of the project upto 30.04.2010 the barrage was operated and maintained by Irrigation deptt. From the mid night of 30.04.2010, it was taken over by UJVN Ltd., since taking over of Dakpathar Barrage from Irrigation deptt. no major repair has been carried out by UJVNL. The barrage is in the service of 50 years. As a consequence of heavy floods during past years some works are essential for safety of Barrage as well as uninterrupted power generation. No closure has been taken since 2004, therefore no repair has been carried out for under water part since then.
- (ii) The summary of the proposed work is as follows:

Sl. No.	Description of Work	Estimated Cost (₹ in Crore)
1.	Supply and installation of new Trash Rack Machine at Dakpathar Barrage	0.46
2.	Special Repair of eroded top layer of concrete of head regulator floor dented sill and friction block of Dakpathar barrage at Dakpathar (D.Dun)	0.27
3.	Special Repair over glacis of barrage gates with epoxy at Dakpathar (D.Dun)	0.16
4.	Special Repair of Cracks on pier and abutments of Dakpathar Barrage at Dakpathar (D.Dun)	0.08
5.	Special repair for Strengthening of reservoir pond of Dakpathar Barrage at Dakpathar (D.Dun)	0.65
6.	Procurement and commissioning of Diesel generator set at Dakpathar Barrage	0.08
7.	Providing and fixing of heavy duty Limit Switches at HR and Barrage Gates at Dakpathar Barrage in District Dehradun	0.07
8.	Engineering, design, supply, installation of water distribution and data management system at Dakpathar Barrage in Dist. Dehradun	1.14
9.	Special repair of Hydro Mechanical Equipment	3.96
10.	Protection work of left side down stream bank of Dakpathar barrage at Dakpathar (Dehradun)	0.48
	<b>Total</b>	<b>7.35</b>

(iii) On preliminary examination of the Detailed Project Report (DPR) for Refurbishing of Dakpathar Barrage following deficiencies have been observed, which were communicated to the Petitioner vide letter No. 1475 dated 05.11.2014:

“

1. In Annexure-I, VI & VII, it has been observed that the rate of items have been taken on the basis of rates quoted by some firms in the FY2010-11, which is required to be revised.
2. In Annexure-II, III, IV, V & X only abstract of quantities have been given while the basis for arriving at these quantities has not been provided.

UJVN Ltd. is required to submit the item-wise details of quantities mentioned in the abstract along with the basis.

3. Further, it has also found that in all the Annexures of revised DPR, the schedule of rate of PWD, Uttarakhand for the year 2013 has been adopted. As the schedule of rate has been revised by PWD in 2014, UJVN Ltd. Should submit the DPR on the latest schedule of rates.
4. In Annexure-VIII & IX, the validity of rates of items considered in the estimate has expired. UJVN Ltd. should submit the estimate based on latest quotation.”

(iv) Further, the Petitioner sought time extension for submitting the desired information upto 31.12.2014 which was allowed by the Commission. Thereafter, on the above observations of the Commission and subsequent discussions, the Petitioner revised the cost estimates and submitted the same vide letter No. 10451/MD/UJVNL/U-6 dated 30.12.2014 with total estimated cost of ₹ 11.57 crore, which is as follows:

Sl. No.	Name of work	Estimated Cost (₹in Crore)
1.	Construction of temporary diversion bunds, ring bunds in U/S of Dakpathar Barrage at Dakpathar, Dehradun	0.25
2.	Special repair for strengthening of reservoir pond of Dakpathar (D.Dun) Dakpathar Barrage at Dakpathar (D.Dun)	0.81
3.	Special Repair over glacis of barrage gates of Dakpathar Barrage with epoxy at Dakpathar (Dehradun)	0.29
4.	Special Repair of Cracks on piers and abutments of Dakpathar Barrage at Dakpathar (Dehradun)	0.13
5.	Special repair of eroded top layer of concrete of head regulator floor dented sill and friction block of Dakpathar barrage at Dakpathar (D.Dun)	0.36
6.	Protection works of left side down stream bank of Dakpathar barrage at Dakpathar (Dehradun)	0.46
7.	Temporary water supply arrangements for Dakpathar Colony during the execution of works (Closure)	0.19
8.	Procurement and commissioning of Diesel generator set at Dakpathar Barrage	0.08
9.	Providing and Fixing of Heavy Duty Limit Switches at HR and	0.16



Sl. No.	Name of work	Estimated Cost (₹in Crore)
	Barrage Gates at Dakpathar Barrage in District Dehradun	
10.	Supply and Erection of 16M High Mast lighting system at Dakpathar Barrage	0.10
11.	Overhauling during closure-period of Dakpathar Barrage in District-Dehradun (Uttarakhand)	4.08
12.	Repair and painting of Trash Rack at Head regulator and painting of Barrage, Head Regulator and Silt Ejector Gates at Dakpathar Barrage, Dakpathar, Dehradun	0.47
13.	Supply and Installation of Computer Controlled Barrage Automation System	1.14
14.	Design, Procurement, Manufacturing, Supply and installation of new Trash Rack Machine at Dakpathar Barrage	3.04
	<b>Total</b>	<b>11.57</b>

- (v) Further, a letter vide reference No. 630 dated 14.07.2015 was sent to the Petitioner pointing out that (a) the Commission's directions issued vide its Order dated 01.10.2014 were not complied (b) revised cost estimate had not been submitted under affidavit.
- (vi) The Petitioner vide its letter No. 409 dated 27.07.2015 requested the Commission to allow the time extension for submitting the compliance upto 31.08.2015, which was allowed by the Commission. Thereafter, the Petitioner vide its letter No. 4825/UJVNL/01/MD/U-6 dated 25.08.2015 submitted the information under affidavit as desired by the Commission in its letter dated 14.07.2015, which is as follows
- a) With regard to the query of allocation of cost & justification for allocation of the proposed refurbishing works to the respective generating stations the Petitioner has submitted that since the beneficiary generating station of the proposed works of Dakpathar Barrage are Dhakrani Power House and Dhalipur Power house., the total capital cost would be borne by Dhakrani Power House and Dhalipur Power House is ₹ 4.63 crore and ₹ 6.94 Crore respectively.
  - b) With regard to funding of the project, the Petitioner has submitted that the Petitioner has tied-up with World Bank for funding of the above project under Dam Rehabilitation Improvement Project (DRIP) Scheme of Govt. of India through Central Water Commission with 80% loan (interest rate (LIBOR+ variable spread)@1.34% as on 11.08.2015, Service Charges @.75% &

Commitment fee@.05%) and balance 20% equity arranged by the internal resources of the Petitioner.

- c) The impact on generation tariff submitted by the Petitioner is ₹ 0.024/unit on levelled basis for 35 years.
- (vii) On receipt of the replies, the Commission decided to hear the matter for admissibility on 22.09.2015 and accordingly notices were issued to the Petitioner as well as to the beneficiaries namely UPCL and HPSEB Ltd. The Commission heard the matter on the scheduled date and issued an Order dated 22.09.2015 directing the Petitioner to:
- “... hold consultation with both the Respondents namely UPCL & HPSEB Ltd. and shall file the record of consultation held latest by 20.10.2015.”*
- (viii) Further, the Petitioner requested the Commission vide its letter dated 20.10.2015 to allow time extension of 10 days for submission of the compliance report of the above direction and subsequently, the record of consultation from UPCL and HPSEB was submitted to the Commission vide letter dated 30.11.2015 and 29.01.2016 respectively.
- (ix) Meanwhile, the Petitioner made a supplementary submission before the Commission vide its letter dated 11.02.2016 through which DPR for the proposed works has been revised as per the works proposed under Dam Rehabilitation & Improvement Project (DRIP).

Sl. No.	Name of Work	Amount (₹ in Crore)
<b>Civil Works</b>		
1.	Special Repair of Glacis, Cracks on piers/abutments, eroded concrete, construction of temporary diversion bunds and other miscellaneous works of Dakpathar Barrage (Dehradun)	3.53
2.	Protection works of left side down stream bank of Dakpathar Barrage at Dakpathar (Dehradun).	0.53
3.	Temporary water supply arrangements for Dakpathar Colony during the execution of works (Closure)	0.19
4.	Special repair of Silt Ejector Channel of Dakpathar Barrage at Dakpathar (D.Dun)	0.31
5.	Construction of 18 Nos. Type-IV Residential Building at Dakpathar Colony, Dakpathar, Dehradun.	3.70
6.	Construction of Officers Club (Club-I) Building at Dakpathar Colony, Dakpathar, Dehradun.	2.43
7.	Construction of Office Building at Dakpathar Colony, Dakpathar, Dehradun.	1.51
	<b>Total</b>	<b>12.19</b>
<b>E&amp;M Works</b>		

Sl. No.	Name of Work	Amount (₹ in Crore)
8.	Supply, Installation, Testing and Commissioning of 100 KVA, 01 No. silent D G Set at Dakpathar Barrage	0.22
9.	Supply & installation of LED luminaries and high mast at Dakpathar Barrage in District- Dehradun.	1.15
10.	Overhauling of Hydro-mechanical system of barrage gates at Dakpathar Barrage in District- Dehradun (Uttarakhand). (Through single quotation basis being proprietary basis)	4.26
11.	Epoxy painting of Head regulator, Barrage and Silt Ejector Gates at Dakpathar Barrage in District-Dehradun.	0.38
12.	Design, Manufacturing, Supply, Installation, Testing & Commissioning of Trash Rack Cleaning Machine at Dakpathar Barrage in District Dehradun, Uttarakhand.	6.88
13.	Major overhauling of barrage way gates no. 24& 25 of Dakpathar barrage in District- Dehradun. (Through single quotation basis being proprietary basis)	0.69
14.	Engineering, Design, Supply, Erection, Testing and Commissioning of the complete automation of barrage control and monitoring systems for water distribution and barrage management of Dakpathar Barrage.	1.42
	<b>Total</b>	<b>15.00</b>
	<b>Grand Total</b>	<b>27.19</b>

- (x) On receipt of the desired clarification and compliance of the directions issued in the matter, the Commission allowed to admit the Petition on 24.02.2016 as Petition No.07 of 2016.

**(3) Refurbishing of Ichari Dam.**

- (i) Justifying the need of works proposed under the Petition, the Petitioner has submitted that Ichari Dam was constructed in 1975 under Yamuna Hydro Electric Scheme Stage-II and is a runoff river scheme over river Tons with pondage for daily peaking for generation. There is a drop of 186 meters between Ichari & Dakpathar. Ichari is a straight Gravity Dam and 59.25 meter high from the deepest foundation level. A live storage capacity of the Dam is 5.11 million m<sup>3</sup>. From commissioning of the project upto 30.04.2010 the barrage was operated and maintained by Irrigation deptt. From the mid night of 30.04.2010 it has taken over by UJVN Ltd., since taking over of Ichari Dam from Irrigation deptt. no major repair has been carried out by UJVNL. The barrage is in the service of 35 years. As a consequence of heavy floods due to record rainfall in August-2010 & September-2010 has damaged treatment works in upstream as well as downstream of the Dam.
- (ii) The summary of the proposed work is as follows:

Sl. No.	Description of Work	Estimated Cost (₹in Crore)
1.	Special repair & maintenance of Rim Road of Ichari Dam	0.18
2.	Special repair of 7 Nos. Spillway and roller buckets of Ichari Dam	16.81
3.	Protection works in upstream of Ichari Dam	0.26
4.	Repair of downstream left bank training wall of Ichari Dam	0.27
5.	Supply and Installation of Trash Cleaning Machine at Ichari Dam	3.60
6.	Slope protection works in upstream left bank pitching of Ichari Dam	0.23
7.	M&U of elevator installed at Ichari Dam	0.21
8.	Special repair of Desilting chamber of Ichari Dam	0.79
9.	Automation of Dam	0.88
10.	Special repair of Hydro Mechanical System	0.48
11.	Rewiring & Lighting of Ichari Dam	0.14
	<b>Total</b>	<b>23.85</b>

(iii) On preliminary examination of the Detailed Project Report (DPR) for Refurbishing of Refurbishing of Ichari Dam following deficiencies have been observed which were communicated to the Petitioner vide letter No. 1445 dated 31.10.2014:

“

1. In Annexure-I, II, III, IV, VI & VIII only abstract of quantities have been given while the basis for arriving at these quantities has not been provided.

*UJVN Ltd. Is required to submit the item-wise details of quantities mentioned in the abstract alongwith the basis.*

2. Further, in Annexure-II, it has been observed that among the proposed works the major part is to maintain the profile of all seven spillways, however, details of profile of spillways have not been given. It has also been observed that the rate of item No. 13 to 15 has been taken on the basis of rates quoted by some firm in the FY 2010-11, which is required to be revised.

*UJVN Ltd. Is required to submit the details of original profile vis-a-vis the present profile of spillways, item-wise details of quantities mentioned in the abstract alongwith the basis and the rates of item No. 13 to 15 should be revised on the basis of latest quotations.*

3. Moreover, in Annexure-V, VII, IX, X & XI, the costs of works have been taken on the basis of quotation collected in the FY 2010-11.

*UJVN Ltd. is required to submit the proposal/estimate on the basis of latest rates.*

4. In Annexure-VIII, it has been observed that item no. 2 & 3 are missing from the abstract of the cost and the rates of item no. 4 to 37, 40, 41 & 46 have been taken on the quoted prices of FY 2010-11.

*UJVN Ltd. is required to submit complete information on item no. 2 & 3 and also submit the details of quantities of all items mentioned in the Annexure with latest rates of item no. 4 to 37, 40, 41 & 46.*

5. Further, it has been found that in all the Annexures of revised DPR, the schedule of rate of PWD, Uttarakhand for the year 2013 has been adopted. As the schedule of rate has been revised by PWD in 2014, UJVN Ltd., should submit the DPR on the latest schedule of rates.
6. Besides above, there are some items in the revised DPR whose rates are neither as per PWD schedule nor based on any quotation. UJVN Ltd. is required to furnish the basis of the same.”
- (iv) Further, the Petitioner sought time extension for submitting the desired information upto 31.12.2014 which was allowed by the Commission. Thereafter, on the above observations of the Commission and subsequent discussions, the Petitioner revised the cost estimates and submitted the same vide letter No. 10452/MD/UJVNL/U-6 dated 30.12.2014 with the total estimated cost of ₹ 25.67 crore, which is as follows:

Sl. No.	Name of work	Estimated Cost (₹in Crore)
1.	Special repair & maintenance of Rim Road of Ichari Dam	0.40
2.	Special repair of 7 Nos. Spillway and roller buckets of Ichari Dam	16.39
3.	Protection works in upstream of Ichari Dam	0.25
4.	Repair of downstream left bank training wall of Ichari Dam	0.53
5.	Design, Procurement, Manufacturing, Supply and Installation of new Trash Rack Machine at Ichari Dam	3.47
6.	Slope protection works in upstream left bank pitching of Ichari Dam	0.16
7.	M&U of elevator installed at Ichari Dam	0.60
8.	Inspection and repair of sedimentation chamber of Ichari Dam (Dehradun)	0.95
9.	Automation work of Ichari Dam	0.28
10.	Annual maintenance contract and miscellaneous repair of dam monitoring and control system of Ichari Dam in District Dehradun	0.16
11.	Special repair of Hydro Mechanical System	2.34
12.	Rewiring & Lighting of Ichari Dam	0.14
	<b>Total</b>	<b>25.67</b>

- (v) The Petitioner vide letter No. 169/UJVNL/03/D(P)/D-5 dated 18.04.2015 further submitted the revised DPR of Asan Barrage amounting to ₹ 20.81 crore, is as follows:

Sl. No.	Name of work	Estimated Cost (₹in Crore)
1.	Special repair & maintenance of Rim Road of Ichari Dam	0.36
2.	Special repair of 7 Nos. Spillway and roller buckets of Ichari Dam	7.18
3.	Protection works in upstream of Ichari Dam	0.25
4.	Repair of downstream left bank training wall of Ichari Dam	0.45
5.	Slope protection works in upstream left bank pitching of	0.16

Sl. No.	Name of work	Estimated Cost (₹in Crore)
	Ichari Dam	
6.	Inspection and repair of sedimentation chamber of Ichari Dam (Dehradun)	0.95
7.	Consultancy work for designing of M 60 fibre reinforced silica fume concrete mix and Supervising its placement during the execution of work	0.15
8.	Reaming/Re-drilling of foundation drainage hole of Ichari Dam	0.38
9.	Capacity Survey of reservoir of Ichari Dam	0.22
10.	Instrumentation of Ichari Dam	1.21
11.	Consultancy work for revision of Hydrology	0.10
12.	Construction of Office Building cum transit camp at Koti colony, Koti (Dehradun)	1.00
13.	Purchase of Furniture for office and officer transit camp	0.17
14.	Purchase of Motor Boat for Ichari Dam	0.21
15.	Scanning of drawings of Ichari Dam	0.02
16.	Design, Procurement, Manufacturing, Supply and installation of new Trash Rack Machine at Ichari Dam	3.47
17.	M&U of elevator installed at Ichari Dam	0.60
18.	Automation work of Ichari Dam	0.28
19.	Annual maintenance contract and miscellaneous repair of dam monitoring and control system of Ichari Dam in District Dehradun	0.16
20.	Special repair of Hydro Mechanical System	1.76
21.	Rewiring & Lighting of Ichari Dam	0.25
22.	Establishment Expenditure (During running of DRIP programme)	1.47
	<b>Total</b>	<b>20.81</b>

- (vi) Further, a letter vide reference No. 632 dated 14.07.2015 was sent to the Petitioner pointing out that: (a) the Commission's directions issued vide its Order dated 01.10.2014 were not complied (b) revised cost estimate had not been submitted under affidavit.
- (vii) The Petitioner vide its letter No 408/UJVN/03/D(P)/D-5 dated 27.07.2015 requested the Commission to allow the time extension for submitting the compliance upto 31.08.2015, which was allowed by the Commission. Thereafter, the Petitioner vide its letter No. 4822/UJVNL/01/MD/U-6 dated 25.08.2015 submitted the information under affidavit as desired by the Commission in its letter dated 14.07.2015.
- a) With regard to the allocation of cost & justification for allocation of the proposed refurbishing works to the respective generating stations the Petitioner has submitted that the beneficiary generating station of the proposed works of Ichari Dam are Chibro Power

House and Khodri Power House, the capital cost would be borne Chibro Power House and Khodri Power House are ₹ 13.94 crore and ₹ 68.7 crore.

- b) With regard to funding of the project, the Petitioner has submitted that the Petitioner has tied-up with World Bank for funding of the above project under Dam Rehabilitation Improvement Project (DRIP) Scheme of Govt. of India through Central Water Commission with 80% loan (interest rate (LIBOR + variable spread) @1.34% as on 11.08.2015, Service Charges @.75% & Commitment fee @.05%) and balance 20% equity arranged by the internal resources of the Petitioner.
- c) The impact on generation tariff submitted by the Petitioner is ₹ 0.015/unit on levellised basis for 35 years.
- (viii) On receipt of the replies, the Commission decided to hear the matter for admissibility on 22.09.2015 and accordingly notices were issued to the Petitioner as well as to the beneficiaries namely UPCL and HPSEB Ltd. The Commission heard the matter on the scheduled date and issued an Order dated 22.09.2015 directing the Petitioner to:
- “... hold consultation with both the Respondents namely UPCL & HPSEB Ltd. and shall file the record of consultation held latest by 20.10.2015.”*
- (ix) Further, the Petitioner requested the Commission vide its letter dated 20.10.2015 to allow time extension of 10 days for submission of the compliance report of the above direction and subsequently, the record of consultation from UPCL and HPSEB was submitted to the Commission vide letter dated 30.11.2015 and 29.01.2016 respectively.
- (x) Meanwhile, the Petitioner made a supplementary submission before the Commission vide its letter dated 11.02.2016 through which DPR for the proposed works has been revised as per the works proposed under Dam Rehabilitation & Improvement Project (DRIP).

Sl. No.	Name of Work	Estimated Cost (₹ in Crore)
<b>Civil Works</b>		
1.	Special repair & maintenance of Rim road and other protection works in upstream of Ichari Dam	0.87
2.	Special repair of 7 nos. spillway and roller buckets & Repair of downstream left bank training wall of Ichari Dam.	5.58
3.	Inspection and repair of sedimentation chamber of Ichari Dam (Dehradun).	1.03
4.	Consultancy work for designing of M 60 fibre reinforced silica fume concrete mix and Supervising its placement During the Execution of Work	0.15
5.	Reaming/ Re drilling of foundation drainage hole of Ichari dam	0.40
6.	Capacity Survey of reservoir of Ichari Dam	0.07
7.	Supply , installation & commissioning of instrumentation at Ichari Dam (Dehradun)	0.90
8.	Consultancy work for revision of Hydrology of Ichari Dam	0.10
9.	Construction of Office Building cum transit camp at Koti colony, Koti (Dehradun)	1.51
10.	Purchase of Furniture for office and officer transit camp	0.17
11.	Scanning of Drawings of Ichari Dam.	0.02
	<b>Total</b>	<b>10.80</b>
<b>E&amp;M Works</b>		
12.	Purchase of Motor Boat for Ichari Dam	0.105
13.	Design, Manufacturing, Supply, Installation, Testing & Commissioning of one movable rope driven Trash Rack Cleaning Machine with Trash Rack Panels along with dismantling of existing TRCM & Trash Rack Panels at Ichari Dam in District Dehradun, Uttarakhand.	6.516
14.	Supply, Installation, Testing & Commissioning of 1 number new (15 Passengers) Lift after dismantling of existing 1 number old lift (OTIS Make) & (1+5) years AMC for Lift at Ichari Dam in District Dehradun.	0.660
15.	Automation work and AMC (3Years) of existing Dam Monitoring & Control System of Ichari Dam in District Dehradun	0.423
16.	Special repair of Hydro Mechanical System of Ichari Dam	1.908
17.	Supply, Installation, Testing and Commissioning of 02 Nos. 16M high Mast & AMC (1+4) Year at Ichari Dam in District Dehradun.	0.299
18.	Establishment Expenditure (During running of DRIP programme)	1.473
	<b>Total</b>	<b>11.383</b>
	<b>Grand Total</b>	<b>22.19</b>

(xi) On receipt of the desired clarification and compliance of the directions issued in the matter, the Commission allowed to admit the Petition on 24.02.2016 as Petition No.08 of 2016.

**(4) Special repair works of Civil & Hydro mechanical structures for Yamuna Hydel scheme stage-I, II Part-I & IV.**

(i) Justifying the need of works proposed under the Petition, the Petitioner has submitted that Yamuna Hydro Electric Scheme Stage-I for



construction of Barrage at Dakpathar, 7000 cusec capacity Power Channel and 2 Nos. Power House at Dhakrani (3 X 11.25 MW) and Dhalipur (3 X 17 MW) completed in 1965. Under Yamuna Hydel Scheme Stage-IV, Part-I the construction of Asan Barrage, Power Channel to Kulhal and Kulhal Power House was completed in 1975. From commissioning of the project upto 30<sup>th</sup> April 2010, the barrage was operated and maintained by Irrigation deptt. From the mid night of 30<sup>th</sup> April 2010 it has taken over by UJVNL. Since taking over of Dakpathar Barrage, Asan Barrage and Power Channel from Irrigation deptt. no major repair has been carried out by UJVNL. The barrages and the Channel is in the service of 40 to 50 years. As a consequence of heavy floods during past years some works are essential for safety of Barrages as well as uninterrupted power generation. No closure has been taken since 2004, therefore no repair has been carried out for under water part since then.

(ii) The summary of the proposed work is as follows:

Sl. No.	Description of Work	Estimated Cost (₹ in Crore)
1.	Lot 1: Special Repair of Submerged parts of Dakpathar Barrage, Silt ejector channel and power channel up to silt ejector of Dakpathar Barrage during proposed closure	5.84
2.	Lot 2: Repair of damaged panels of power channel from Silt ejector Dakpathar to skew bridge Dhalipur and Dhakrani power house during proposed closure	7.90
3.	Lot 3: Repair of damaged panels of power channel from skew bridge Dhalipur to intake of Dhalipur power house and Dhalipur power house complex during proposed closure	2.34
4.	Lot 4: Closure works of Yamuna Hydel Scheme Stage IV (from Asan Barrage to Kulhal Power House)	4.36
	<b>Total</b>	<b>20.44</b>

(iii) On preliminary examination of the revised DPR for Special Repair Works of Civil and Hydro-mechanical Structures for Yamuna Hydel Stage-I, II Part-I & IV following deficiencies have been observed, which were communicated to the Petitioner vide letter No. 1653 dated 03.12.2014:

“

**1. Lot-1 [Summary of Cost (Page 187 to 227)]**

*The Special Repair Works of Dakpatthar Barrage amounting ₹584.15 Lac, proposed from Sl. No. 1 to Sl. No. 6 should also be included alongwith the*

*proposed works of 'Refurbishing of Dakpathar Barrage' like in the matter of Hydro Mechanical Works (Sl. No. 7).*

*UJVN Ltd. is required to propose the above Special Repair Works of Dakpathar Barrage with the works proposed in the 'Refurbishing of Dakpathar Barrage' on the latest rates.*

*The rates taken for the estimated amount from Sl No. 1 to 6 are based on the PWD schedule of rates for the year 2013. The rates of few items have also been taken on the basis of PWD schedule of rate for the year 2011. The above estimated amount should be revised as per latest PWD schedule of rates and wherever the rates are not as per PWD schedule of rates, the same should also be updated. Similarly, the rates of Hydro Mechanical Works (Sl. No. 7) should be revised on the latest quotations.*

## **2. Lot-2 & Lot-3 [Summary of Cost (Page 228 to 242)]**

*It was informed that the quantities of repair works are based on survey done in the year 2010. UJVN Ltd. is required to submit the quantity on the basis of latest site condition alongwith the approved drawing of the panels & bed to be repaired.*

*The rates taken for the estimated amount are based on the PWD schedule of rates for the year 2013. The above estimated amount should be revised as per latest PWD schedule of rates and wherever the rates are not as per PWD schedule of rates, the same should also be updated.*

## **3. Lot-4 [Summary of Cost (Page 258 to 292)]**

*The Special Repair Works of Asan Barrage amounting ₹435.77 Lac, proposed from Sl. No. 2 to Sl. No. 5 should also be included alongwith the proposed works of 'Refurbishing of Asan Barrage' like in the matter of Hydro Mechanical Works (Sl. No. 6).*

*UJVN Ltd. is required to propose the above Special Repair Works of Asan Barrage with the works proposed in the 'Refurbishing of Asan Barrage' on the latest rates.*

*The rates taken for the estimated amount from Sl No. 2 to 5 are based on the PWD schedule of rates for the year 2013. The rates of few items have also been taken on the basis of PWD schedule of rate for the year 2011. The above estimated amount should be revised as per latest PWD schedule of rates and wherever the rates are not as per PWD schedule of rates, the same should also be updated. Similarly, the rates of Hydro Mechanical Works (Sl. No. 6) should be revised on the latest quotations.*

*It is evident from the above that the cost of all four lots of revised DPR needs further revision, therefore, the Petitioner is required to submit the estimate based on the revised cost (from page No. 187 to 292)."*

- (iv) Further, the Petitioner sought time extension for submitting the desired information upto 05.02.2015 which was allowed by the Commission. Thereafter, on the above observations of the Commission and subsequent discussions, the Petitioner revised the cost estimates and submitted the same vide letter No. 56/MD/UJVNL/03/D(P)/U-6

dated 05.02.2015 with the total estimated cost of ₹ 28.73 crore, which is as follows:

Sl. No.	Description of Work	Estimated Cost (₹ in Crore)
1.	Lot 1: Dakpathar Barrage & Power Channel up to silt ejector & Escape Channel	7.03
2.	Lot 2: Power Channel from Silt ejector Dakpathar to skew bridge Dhalipur including Dhakrani Power House	13.72
3.	Lot 3: Power Channel from skew bridge Dhalipur to intake of Dhalipur power house including Dhalipur Power House Complex	1.47
4.	Lot 4: Closure works of Yamuna Hydel Sheme Stage IV (from Asan Barrage to Kulhal Power House)	6.52
	<b>Total</b>	<b>28.73</b>

- (v) Further, a letter vide reference No. 631 dated 14.07.2015 was sent to the Petitioner pointing out that: (a) the Commission's directions issued vide its Order dated 01.10.2014 were not complied (b) revised cost estimate had not been submitted under affidavit.
- (vi) The Petitioner vide its letter No. 411/UJVN/03/D(P)/D-5 dated 27.07.2015 requested the Commission to allow the time extension for submitting the compliance upto 31.08.2015, which was allowed by the Commission. Thereafter, the Petitioner vide its letter No. 4823/UJVNL/01/MD/U-6 dated 25.08.2015 submitted the information under affidavit as desired by the Commission in its letter dated 14.07.2015.
- a) With regard to the allocation of cost & justification for allocation of the proposed refurbishing works to the respective generating stations the Petitioner has submitted that since the beneficiary generating station of the proposed works of Special Repair Works of Civil and Hydro-mechanical Structures for Yamuna Hydel Stage-I, II Par-I & IV, the total capital cost would be borne by Dhakrani Power House and Dhalipur power House ₹ 1.49 crore and ₹ 17.24 crore respectively.
- b) With regard to funding of the project, the Petitioner has submitted that the Petitioner has tied-up with World Bank for funding of the above project under Dam Rehabilitation Improvement Project (DRIP) Scheme of Govt. of India through Central Water Commission with

80% loan (interest rate (LIBOR+ variable spread) @1.34% as on 11.08.2015, Service Charges @.75% & Commitment fee@.05%) and balance 20% equity arranged by the internal resources of the Petitioner.

- c) The impact on generation tariff submitted by the Petitioner is ₹ 0.059/unit on levellised basis for 35 years.
- (vii) On receipt of the replies, the Commission decided to hear the matter for admissibility on 22.09.2015 and accordingly notices were issued to the Petitioner as well as to the beneficiaries namely UPCL and HPSEB Ltd. The Commission heard the matter on the scheduled date and issued an Order dated 22.09.2015 directing the Petitioner to:
- “... hold consultation with both the Respondents namely UPCL & HPSEB Ltd. and shall file the record of consultation held latest by 20.10.2015.”*
- (viii) Further, the Petitioner requested the Commission vide its letter dated 20.10.2015 to allow time extension of 10 days for submission of the compliance report of the above direction and subsequently, the record of consultation from UPCL and HPSEB was submitted to the Commission vide letter dated 30.11.2015 and 29.01.2016 respectively.
- (ix) Meanwhile, the Petitioner made a supplementary submission before the Commission vide its letter dated 11.02.2016 through which DPR for the proposed works was revised as per the works proposed under Dam Rehabilitation & Improvement Project (DRIP).

Sl. No.	Name of Work	Estimated Cost (₹ in Crore)
<b>Civil Works</b>		
1.	Repair of Damaged Panels of Power Channel from Silt Ejector at Dakpathar upto intake of Dhakrani Power House during closure in the year 2015-16.	2.88
2.	Repair of Damaged Panels of Power Channel from Dhakrani Power House upto 0.60 km Downstream of Dhakrani Power House.	4.98
3.	Repair of Damaged Panels of Power Channel from 0.60 km downstream of Dhakrani Power House upto 2.2 km downstream of Dhakrani Power House during closure.	4.39
4.	Repair of Damaged Panels of Power Channel from 2.2 km downstream of Dhakrani Power House upto Skew Bridge at Dhalipur during closure.	2.97
5.	Repair of Damaged Panels of Power Channel from Skew Bridge Dhalipur to Intake of Dhalipur Power House during closure.	1.70
<b>Total</b>		<b>16.92</b>

(x) On receipt of the desired clarification and compliance of the directions issued in the matter, the Commission allowed to admit the Petition on 24.02.2016 as Petition No.09 of 2016.

5. Taking cognizance of the abnormal variation in the estimated cost proposed by the Petitioner in its submission dated 05.02.2015 and dated 11.02.2016, the Commission enquired for such variation and during the discussions, the Petitioner was asked to submit justification for the same.
6. To which the Petitioner submitted its reply vide letter dated 19.03.2016 the project-wise justification submitted by the Petitioner is as follows:

**a) E&M Works of Asan Barrage proposed under DRIP (Dam Rehabilitation and Improvement Project)**

S. No.	Name of Work	Reason of escalation in price
1	Complete Automation including engineering, design, supply, erection, testing & commissioning of Barrage control and monitoring system for water distribution and barrage management at Asan Barrage, Dhalipur (Dehradun) along with AMC for 5 years	Estimated cost In May 2014- ₹ 0.98 Cr. Estimated cost In Jan 2016- ₹ 1.31Cr. Scope of work has been increased in the proposal of Jan-2016. Earlier AMC of automation system was not included in the proposed estimate. Now cost of AMC of automation system for 5 years worth ₹ 0.30 crore has been added in the scope of work. This is the main reason of escalation in price.
2	Repair and Overhauling of Hydro Mechanical System of Barrage gates (14 Nos.) and Head Regulator gates (5 Nos.) at Asan Barrage, Dhalipur, Dehradun	Estimated cost In May 2014- ₹ 2.06 Cr. Estimated cost In Jan 2016- ₹ 2.14 Cr. Escalation in price is about 2% of initially proposed cost. This increase in cost is justified considering the inflation and other factors.
3	Design, manufacturing, supply, installation, testing & commissioning of one no. hydraulically operated movable Trash Rack Cleaning Machine (TRCM) along with new trash rack panels including dismantling of existing TRCM & trash rack panels at Asan Barrage	Estimated cost In May 2014- ₹ 3.04 Cr. Estimated cost In Jan 2016- ₹ 5.84 Cr. The scope of work has been increased in the proposal of Jan-2016. In new proposal, the existing trash rack of Asan Barrage is also to be replaced with the new trash rack. The reason of replacement is that the trash rack is about 40 years old and is continuously submerged in water and is in very poor condition. Besides, new trash rack cleaning machine (TRCM) is proposed to be installed at Asan Barrage. Cleaning with new TRCM will not be effective until the old trash rack will be replaced with new trash rack. In the design of old trash rack, horizontal member will create hindrance in movement of jaw of the TRCM. Therefore, replacement of trash rack according to new TRCM is also included in the new proposal. The cost of supply & installation of new trash rack including dismantling of old trash rack is about ₹ 1.39 crore. On the other hand, cost of taxes and duties about ₹ 0.96 Crore has also been included in the new proposal. Thus, cost of ₹ 2.35 crore has been increased only on this account. Rest

**a) E&M Works of Asan Barrage proposed under DRIP (Dam Rehabilitation and Improvement Project)**

S.	Name of Work	Reason of escalation in price
		difference of ₹ 0.45 crore is due to inflation and other factors.
4	Painting of barrage gates , head regulator gates and silt ejector gates at Asan Barrage, Dhalipur, Dehradun	Estimated cost In May 2014- ₹ 0.47 Cr. Estimated cost In Jan 2016- ₹ 0.39 Cr. The scope of work in the new proposal of Jan 2016 has been decreased. The work of repair and painting of trash rack has been removed from the proposal as old trash rack is proposed to be replaced with the new trash rack. Kindly refer point no. 3 for detail. Thus cost of the work has been decreased.

**b) E&M Works of Dakpathar Barrage proposed under DRIP (Dam Rehabilitation and Improvement Project)**

S. No.	Name of Work	Reason for escalation/reduction in price
1.	Supply, Installation, Testing and Commissioning of 100 kVA, 01 No. silent DG Set & AMC (1+3) years at Dakpathar Barrage in District Dehradun	Estimated cost In May 2014- ₹ 0.08 Cr. Estimated cost In Jan 2016- ₹ 0.22 Cr The scope of work increased in the proposal of Jan-2016. Earlier AMC of DG set was not included in the estimate. Now, as per direction of CWC, AMC of DG set for a period of 03 years is added in the scope of work.
2.	Supply & Installation of LED luminaries and high mast at Dakpathar Barrage in District- Dehradun, Uttarakhand	Estimated cost In May 2014- ₹ 0.10 Cr. Estimated cost In Jan 2016- ₹ 1.15 Cr. Earlier only 01 No. high mast was proposed in estimate but in 2015-16 as per guidelines of Uttarakhand Government/ Central Govt. and instruction of CWC, replacement of all conventional luminaries of Dakpathar barrage with energy saving LED luminaries and one more high mast have been added in the scope of work.
3.	Overhauling of Hydro-Mechanical system of Barrage gates at Dakpathar barrage in District Dehradun (Uttarakhand) on single quotation basis, items being proprietary in nature.	Estimated cost In May 2014- ₹ 4.08 Cr. Estimated cost In Jan 2016- ₹ 4.26 Cr. Replacement of stem (hoist component) was not included in earlier estimate. But on instruction of DSRP (Dam Safety Review Panel), replacement of hoist component as stem of Barrage Gates is included in the scope of work.
4.	Epoxy painting of head regulator, barrage & Silt Ejector gates of Dakpathar barrage in District- Dehradun	Estimated cost In May 2014- ₹ 0.47 Cr. Estimated cost In Jan 2016- ₹ 0.38 Cr. The work of repair and painting of trash rack has been removed from the proposal as existing trash rack is proposed to be replaced with new trash rack. Replacement of new trash rack panels is included in the scope of work of supply and erection of Trash rack cleaning machine. So the estimate for epoxy painting has been reduced.
5.	Design, Manufacturing, Supply, Installation, Testing & Commissioning of Trash Rack Cleaning Machine at Dakpathar barrage.	Estimated cost In May 2014- ₹ 3.04 Cr. Estimated cost In Jan 2016- ₹ 6.88 Cr. In the new proposal, the existing trash rack panels of Dakpathar Barrage are also to be replaced with new

**b) E&M Works of Dakpathar Barrage proposed under DRIP (Dam Rehabilitation and Improvement Project)**

S. No.	Name of Work	Reason for escalation/reduction in price
		trash rack panels including dismantling of old trash rack panels. The reason of replacement is that the trash rack is about 40 years old and is continuously submerged in water. So, it needs to be replaced for the safety of Barrage. The provision of log grappler in TRCM is also added for taking out the logs from trash rack especially during monsoon period. So due to the addition of new trash rack panels and log grappler in TRCM, the cost of work is increased.
6.	Major Overhauling of Barrage gate no. 24 & 25 of Dakpathar barrage in District-Dehradun	Estimated cost In May 2014- not proposed Estimated cost In Jan 2016- ₹ 0.69 Cr. The scope of work in the new proposal of Jan 2016 has been added as per report/ guidelines of DSRP and CWC. Gate No.24 & 25 have not been operated since long. The bays are badly silted on both upstream and downstream sides. Besides, the counter weights for the operation of the gates have also been welded with structure. The electro-mechanical equipments i.e. motors, electrical panels, Redicones, couplings, stems & other equipments are either missing or got heavily rusted and irreparable. Proper functioning of these gates is necessary so that unexpected flood can be passed from barrage and barrage structure remains safe.
7.	Engineering, Design, Supply, Erection, Testing and Commissioning of the complete automation of barrage control and monitoring systems for water distribution and barrage management of Dakpathar Barrage.	Estimated cost In May 2014- ₹ 1.14Cr. Estimated cost In Jan 2016- ₹ 1.42 Cr. The work for providing & fixing of heavy duty limit switches (as mentioned in the scope of work at Sl. No. 07 of May 2013 and also mention in Sl. No. 09 of May 2014) has been Clubbed with Automation of Barrage Control.

**c) E&M Works of Ichari Dam proposed under DRIP (Dam Rehabilitation and Improvement Project)**

S. No.	Name of Work	Reason for escalation/reduction in price
1.	Purchase of motor boat for Ichari Dam.	Estimated cost In December 2014- not proposed Estimated cost In March 2015- ₹ 0.21Cr. Estimated cost In January 16 ₹ 0.105 Cr.  This work was added in DPR of year 2014. At that time supply of two Nos. motor boat was proposed but in revised DPR of January-2016 supply of only one number motor boat is proposed. So due to decrease in quantity the cost of the work is reduced from ₹ 0.21 Crore to ₹ 0.105 Crore.
2.	Design, Manufacturing, supply, installation, testing & commissioning of one movable rope driven trash rack cleaning machine with trash rack panels along with dismantling of existing TRCM & trash	Estimated cost In December 2014- ₹ 3.47 Cr. Estimated cost In March 2015- ₹ 3.47 Cr. Estimated cost In January 16 ₹ 6.516 Cr.  As per DPR submitted on May 2013, the cost of work was 3.60 crore (Offer received from M/s Prince Ind., Punjab). Due to

**c) E&M Works of Ichari Dam proposed under DRIP (Dam Rehabilitation and Improvement Project)**

S. No.	Name of Work	Reason for escalation/reduction in price
	panels at Ichari Dam in District Dehradun, Uttarakhand.	expiry of rate validity period, a fresh proposal amounting to ₹ 3.47crore (Offer received from M/s Ossbege, Germany) was received from the firm which is incorporated in revised DPR submitted in the year 2014(December) & year 2015(march). Finally, DPR is revised in January 2016. In this revision additional work of supply & fixing of new 32 nos. trash rack panels is also added to increase the working efficiency of newly supplied TRCM. Due to expiry of rate validity period, a new proposal amounting to ₹ 6.516 Crore was received incorporating additional work of supply & fixing of Trash rack panels along with SITC of TRCM. So due to rate revision & extra scope of work the cost of above work is increased from ₹ 3.6 Crore to ₹ 6.516 Crore.
3.	Supply, installation, testing commissioning of 1 number new (15 passengers) lift after dismantling of existing 1 number old lift (Otis Make) & (1+5) years AMC for Lift at Ichari Dam in District Dehradun.	<p>Estimated cost In December 2014- ₹ 0.60 Cr.                      Estimated cost In March 2015- ₹ 0.60 Cr.                      Estimated cost In January 16 ₹ 0.660 Cr.</p> <p>As per DPR submitted on May 2013, the cost of the work was ₹ 0.21 Crore. Only repair of existing elevator was in the scope of work at that time. As per advice of CWC &amp; to achieve latest working &amp; safety features in elevator, it is decided to install a new elevator inspite of repair of old existing elevator. So new proposal for the same amounting to ₹ 0.60 Crore was received which is incorporated in revised DPR submitted in the year 2014. Once again DPR is revised in January 2016. Due to expiry of rate validity period, a new proposal amounting to ₹ 0.66 Crore was received for the same work including AMC for (1+5) years. So due to rate revision &amp; extra scope of work the cost of the work is increased from ₹ 0.21 Crore to ₹ 0.66 Crore.</p>
4.	Automation work & AMC (3 years) of existing Dam Monitoring & Control System of Ichari Dam in District Dehradun.	<p>Estimated cost In December 2014- ₹ 0.28 Cr.                      Estimated cost In March 2015- ₹ 0.28 Cr.                      Estimated cost In January 16 ₹ 0.423 Cr.</p> <p>As per submitted DPR on May 2013, the cost of the work was ₹ 88 Lacs. As per revised DPR submitted in the year 2014, the cost of the work was reduced from ₹ 88 Lacs to ₹ 28 Lacs because some of the urgent work related to automation work was executed after submission of DPR in May 2013. Once again DPR is revised in January 2016. As per direction of CWC, 3 years AMC was included with automation work. Due to expiry of rate validity period, a new proposal amounting to ₹ 42.3 Lacs was received which is incorporated in revised DPR submitted in January 2016. So due to rate revision and variation in scope of work, The cost of work reduced from ₹ 0.88 Crore to ₹ 0.423 Crore.</p>
5.	Special repair of Hydro Mechanical System of Ichari Dam.	<p>Estimated cost In December 2014- ₹ 2.34 Cr.                      Estimated cost In March 2015- ₹ 1.76 Cr.                      Estimated cost In January 16 ₹ 1.91 Cr.</p> <p>As per submitted DPR on May 2013, the cost of special repair of Hydro mechanical system was ₹ 0.48 Crore. Before submission of</p>



c) E&M Works of Ichari Dam proposed under DRIP (Dam Rehabilitation and Improvement Project)

S. No.	Name of Work	Reason for escalation/reduction in price
		revised DPR in year 2014, some other necessary hydro mechanical works were identified. These works were included in the revised DPR of year 2014. Due to expiry of rate validity period, a fresh proposal from Executive Engineer, Erection Division Roorkee amounting ₹ 2.34 Crore was received. Further DPR is revised in January 2016. During the year 2014 to 2016, some important hydro-mechanical works were executed. So these works are taken out from revised DPR, submitted in January 2016. Due to expiry of rate validity period, a new proposal amounting to ₹ 1.908 Crore is received from E.E Erection Division Roorkee, which is incorporated in revised DPR submitted in January 2016. Due to rate revision and variation in scope of work, the cost of special repair of Hydro Mechanical system is increased from ₹ 0.48 Crore to ₹ 1.908 Crore.
6.	Supply, installation, testing and commissioning of 02 Nos. 16 M high mast & AMC (1+4) years at Ichari Dam in District Dehradun.	Estimated cost In December 2014- ₹ 0.14 Cr. Estimated cost In March 2015- ₹ 0.25 Cr. Estimated cost In January 16 ₹ 0.30 Cr.  Rewiring & Lighting of Ichari dam was proposed in DPR which was submitted in May 2013. Due to urgency of work, rewiring of Dam area was already executed but the work of lightning of Dam premises still remainder. As per guidelines of Uttarakhand Government/ Central Govt. and instruction of CWC, replacement of all conventional luminaries of Dam/ barrage with energy saving LED luminaries is proposed. So two Nos. high mast have been added in the scope of work.
7.	Establishment Expenditure (During running of DRIP programme)	No variation in cost.

7. With regard to funding of the project, this has been observed that funding of the Project has been arranged as 80% of the loan from the World Bank under DRIP scheme and balance 20% of the amount would be infused by the Petitioner as equity:

Loan	80%	Interest Rate (LIBOR+Variable Spread)@1.34% as on 11.08.2015, Service Charges@0.75% & Commitment fee@.5%
Equity	20%	Proposed to be arranged by the internal resources of UJVN Ltd.
Grant	0%	
<b>Total</b>	<b>100%</b>	

However, financing of the amount against the E&M works proposed in the Petitions included after issuance of NOC of the DRIP, has not been given in the proposals.

## **Commission's observations & views**

8. On detailed scrutiny/examination of the Petitions/DPRs/revised submissions with regard to the respective proposals, it has been observed that the initial Proposals submitted by the Petitioner were full of anomalies due to which the Petitioner was advised to revise the cost estimates based on the current Schedule of Rate (SOR) of Public Work Department prevailing in the State.
9. It has also been observed that some of the Hydro-mechanical and Electro-mechanical works had been proposed by the Petitioner through separate Petitions viz. Works related to Asan Barrage, Dakpathar Barrage & Ichari Dam were proposed in their respective Petitions as well as in the Petition of Special Repair Works of Civil and Hydro Structures for Yamuna Hydel Scheme Petition. The Commission pointed out this anomaly and advised the Petitioner to come with the concrete proposal segregating the works in the respective proposals, so that there would be no overlapping of works among the Petition.
10. Meanwhile, the Petitioner submitted revised proposals re-arranging the works as per specifications of the Funding Agency i.e. World Bank through its DRIP programme, due to which some of the material proposed earlier was changed in accordance with the suggestions/advise of the Funding Agency. Some of the works which were not included in the original proposal were further added/included in the subsequent proposals submitted to the Commission since World Bank had accorded the approval under DRIP scheme.
11. It has been observed that all the proposed works (Civil and E&M) except construction of Officer's Club (Club-I) Building at Dakpathar Colony are covered under DRIP Scheme and considered by the Funding Agency. Further, it has also been observed that there has been substantial difference in the estimated cost proposed in the revised submissions dated 05.02.2015 and final proposals dated 11.02.2016 to which the Commission enquired the reasons/justifications. The Petitioner submitted Petition-wise justification for the proposed works mentioned at para 6 above.
12. With regard to the need of the civil and E&M works exclusively pertaining to safety, renovation & modernization of Dam and barrages, their associated structures/works including power channel proposed under the Petitions seems to

be justified as the major repair and maintenance works have not been carried out for last more than a decade. Moreover, during the visit to the sites, it was apparent that various repair works were needed to be carried out on urgent basis. Besides this, a Committee/Panel namely Dam Safety Review Panel (DSRP) constituted by the Petitioner for studying the condition of Dams, Barrages and Power Channels, has also recommended the works proposed under the Petitions. The summary of the recommendations of DSRP are as under:

Eroded mortar gaps in between the granite stones on the floor and glacis to be filled with epoxy mortar and the damaged surface to be filled with suitable strength concrete; prominent and minor cracks in the piers & abutments to be treated with epoxy grouting; damaged protection works in the u/s left and right banks to be strengthened and restored; existing damaged protection works in the d/s left bank to be repaired new concrete blocks & wire crate walls to be provided in place of damaged ones; a new trash rack cleaning machine of adequate capacity to be procured & installed for cleaning of trash; present system of operating the gates to be graded to a modern system enabling remote operation of gates from a central control room; special repairs to the whole range of hydro-mechanical system to be undertaken to address heavy leakages from the gates and to address other associated problems; a new diesel generating set to be installed for operation of gates during the power outage; movement of heavily loaded trucks/dumpers on the barrage to be restricted to avoid damage to the structure caused by heavy vibrations.

13. Besides above, the Commission also took cognizance of the observations and recommendations of CWC-DRIP team. The summary of the observations and recommendations of the team made during the site as follows:

Lot of siltation d/s of barrage; mortar in between the granite stones on the barrage floor having come out at some locations; hoists of the head regulator needed oiling/greasing and provision of covers; paint of water level recorders in the barrage having come out; manual removal of trash load; some concrete blocks in the protection works u/s & d/s of barrage having been washed away; no stand by DG set provided for gates operation; substantial leakage observed from barrage gates; and there being no provision of stop logs in the barrage for the inspection & repairs of the barrage gates.

Summarized recommendations of the CWC-DROP team are: closure of the system to be take and thorough inspection carried out, hollow joints between granite stones laid over the barrage floor to be re-painted with epoxy mortar; dislodged concrete slabs on the top of divide walls to be re-laid with rich mortar; cracks in the piers/walls to be epoxy grouted ; water level recorders to be re-painted; damages observed in the head regulator floor and other appurtenances to be repaired in a manner similar to that adopted in Ichari dam, a trash cleaning machine to be procured strengthening of bank protection works to be carried out; a stand by DG set to be procured for the operation of gates; efficient LED lighting system to be provided over the barrage, computer controlled barrage automation system to be carried out after inspection of and recommendation by an expert agency; and design flood review studies to be got carried to check the adequacy of available free board.

14. Considering the recommendations of DSRP and CWC-DRIP team, the Commission is of the view that Dam/Barrages, their associated structures including power channel are in dilapidated condition causing reduction in efficiency of water conducting system, thus, adversely affecting the generation. Further, the commission also agrees that such poor condition of Dam/Barrages, power channel may lead to safety hazards. However, with regard to proposed civil works related to construction of office building, residential building, club etc, the Commission feels that the need of the said works in light of the existing infrastructure w.r.t. residential/office buildings in Yamuna-Valley could not be established. Therefore, the Commission in this order does not consider it appropriate to allow these works, however, the Petitioner may seek approval of these building works through a separate petition giving sufficient justifications.
15. Further, the Commission observed that in all the three Dam/Barrages namely Ichari, Dakpathar and Asan, the Petitioner has proposed to dismantle the existing Trash Rack Cleaning System (TRCS) and replace it by installing new mechanized/automated Trash Rack Cleaning System. The Commission also observed that since the cost of the TRC System is significant and the Petitioner is proposing installation of such Systems in all the three said locations without having assessed the performance of these highly automated/mechanized TRC System, therefore, the Commission is of the view that this System, in the first

stage, should be installed only at Asan barrage and thereafter, based on its performance, the Petitioner may plan to replicate the same in remaining two locations namely Ichari Dam and Dakpathar barrage. For which, the Petitioner may seek Commission's approval through a separate petition, later on.

16. Thus, the Petition-wise details of the works which have not been considered by the Commission in this Order are presented in Table given below:

Petition No.	Particulars	Amount (₹Crore)	Total Amount (₹Crore)
06 of 2016	<b>Refurbishing of Asan Barrage</b>		
	<b>Civil Works</b> Construction of office and Residential building	3.96	3.96
07 of 2016	<b>Refurbishing of Dakpathar</b>		
	<b>Civil Works</b> Construction of 18 nos. Type-IV Residential building at Dakpathar colony.	3.70	14.52
	Construction of Officers' Club (Club-I) building at Dakpathar colony.	2.43	
	Construction of office building at Dakpathar colony.	1.51	
<b>E&amp;M Works</b> Design, Manufacturing, Supply, Installation, Testing & Commissioning of Trash Rack Cleaning Machine at Dakpathar Barrage	6.88		
08 of 2016	<b>Refurbishing of Ichari Dam</b>		
	<b>Civil Works</b> Construction of Office Building cum transit camp at Koti colony, Koti (Dehradun)	1.51	8.20
	Purchase of Furniture for office and officer transit camp	0.17	
	<b>E&amp;M Works</b> Design, Manufacturing, Supply, Installation, Testing & Commissioning of one movable rope driven Trash Rack Cleaning Machine with Trash Rack Panels along with dismantling of existing TRCM & Trash Rack Panels at Ichari Dam	6.52	
<b>Grand Total</b>			<b>26.68</b>

17. The Commission observed that the estimates proposed by the Petitioner had been prepared on the basis of Schedule of Rates of State PWD and some of the items were taken on the prevailing market rates/budgetary offers. However, the Commission is of the view that the Petitioner should explore all the possibilities for optimising the estimated cost proposed in the Petitions.
18. In line with the recommendations of DSRP, CWC-DRIP and views of the Commission expressed in para 14, 15 & 16 above, the Commission decides to grant

approval for the works amounting to ₹63.12 Crore proposed in the Petitions (Petition No. 06 of 2016, 07 of 2016, 08 of 2016 & 09 of 2016) and presented in Table given below:

Petition No.	In the matter of	Nature of Works	Amount (₹Crore)	Total Amount (₹Crore)
06 of 2016	Refurbishing of Asan Barrage	Civil Works	12.30	21.98
		E&M Works	9.68	
07 of 2016	Refurbishing of Dakpathar Barrage	Civil Works	2.12	10.24
		E&M Works	8.12	
08 of 2016	Refurbishing of Ichari Dam	Civil Works	9.12	13.98
		E&M Works	4.86	
09 of 2016	Special Repair Works of Civil & Hydro Mechanical Structures for Yamuna Hydel Scheme Stage-I, II Part-I & IV	Civil Works	16.92	16.92
		E&M Works	-	
<b>Grand Total</b>				<b>63.12</b>
<b>₹ Sixty Three Crore Twelve Lac only</b>				

19. The above approval for Rehabilitation of the Dams & Barrages and associated works necessary for smooth operation & maintenance of the Plants is being given under the terms and condition mentioned below:

- (1) All the loan conditions as may be laid down by the funding agency in their detailed sanction letter are strictly to be complied with. However, in-case the Petitioner fails to comply with terms of the Funding Agency, any impact in this regard, shall not be pass through consumers.
- (2) The Petitioner shall, within one month of the Order, submit the details of equity and its financing thereof.
- (3) After completion of the aforesaid schemes, the Petitioner shall submit the completed cost alongwith the financing of the schemes.
- (4) The project cost shall be allowed in the Annual Revenue Requirement of the Petitioner after the assets get capitalized and subject to prudence check of cost incurred.

The Petitions are disposed off accordingly.

**(Subhash Kumar)**  
**Chairman**