CENTRAL ELECTRICITY REGULATORY COMMISSION

NEW DELHI

Petition No. 243/TT/2014

Coram:

Shri Gireesh B. Pradhan, Chairperson
Shri A.K. Singhal, Member
Shri A.S. Bakshi, Member
Dr. M. K. Iyer, Member

Date of Order : 22.09.2016

In the matter of:

Approval of transmission tariff of "Special Protection Scheme (SPS) for Northern Regional Grid Stage-II" from COD to 31.3.2019 under Regulation 86 of Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999 and Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014.

And in the matter of:

Power Grid Corporation of India Limited,
"Saudamani", Plot No.2,
Sector-29, Gurgaon -122 001**…….Petitioner**

Vs

1. Rajasthan Rajya Vidyut Prasan Nigam Limited
   Vidyut Bhawan, Vidyut Marg,
   Jaipur - 302005

2. Ajmer Vidyut Vitran Nigam Limited
   400 kV GSS Building (Ground Floor),
   Ajmer Road, Heerapura, Jaipur

3. Jaipur Vidyut Vitran Nigam Limited
   400 kV GSS Building (Ground Floor),
   Ajmer Road, Heerapura, Jaipur.

4. Jodhpur Vidyut Vitran Nigam Limited
   400 kV GSS Building (Ground Floor),
   Ajmer Road, Heerapura, Jaipur

5. Himachal Pradesh State Electricity Board
Vidyut Bhawan
Kumar House Complex Building II
Shimla-171004

6. Punjab State Power Corporation Limited
Thermal Shed TIA,
Near 22 Phatak, Patiala-147001

7. Haryana Power Purchase Centre
Shakti Bhawan, Sector-6
Panchkula (Haryana) 134 109

8. Power Development Department
Government of Jammu & Kashmir
Mini Secretariat, Jammu

9. Uttar Pradesh Power Corporation Limited
(Formarly Uttar Pradesh State Electricity Board)
Shakti Bhawan, 14, Ashok Marg
Lucknow - 226 001

10. Delhi Transco Limited
Shakti Sadan, Kotla Road,
New Delhi-110002

11. BSES Yamuna Power Ltd.
BSES Bhawan, Nehru Place,
New Delhi.

12. BSES Rajdhani Power Ltd.
BSES Bhawan, Nehru Place,
New Delhi

13. North Delhi Power Ltd.
Power Trading and Load Dispatch Group
Cennet Building, Adjacent to 66/11 kV Pitampura-3
Grid Building, Near PP Jewellers
Pitampura, New Delhi-110 034.

14. Chandigarh Administration
Sector -9, Chandigarh.

15. Uttarakhand Power Corporation Ltd.
UrjaBhawan, Kanwali Road,
Dehradun.

16. North Central Railway,
Allahabad.

17. New Delhi Municipal Council
Palika Kendra, Sansad Marg,
New Delhi-110002 **….Respondents**

For Petitioner : Shri S. K. Venkatesan, PGCIL
Ms. Sangeeta Edwards, PGCIL
Shri Rakesh Prasad, PGCIL

For Respondents : Shri R. B. Sharma, BRPL

ORDER

The instant petition has been filed by Power Grid Corporation of India Ltd. (PGCIL) for approval of the transmission tariff for Special Protection Scheme (SPS) for Northern Regional Grid Stage-II (hereinafter referred to as "transmission asset") for the 2014-19 tariff block in terms of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 (hereinafter "the 2014 Tariff Regulations").

2. The investment approval for the transmission project was accorded by the Board of Directors of the petitioner company, vide letter dated 14.2.2012, at an estimated cost of the project is ₹243 lakh including IDC of ₹4 lakh (based on 2nd quarter, 2011 price level).

3. The scope of work covered under the scheme is as follows:-

"i) Implementation of logical protection system to originate signal at Bhiwadi HVDC in the event of tripping of Ballia- Bhiwadi HVDC Bi-pole. This signal is to be communicated to various sites on wide band communication link installed under ULDC Project to disconnect disconnect identified loads.

ii) Implementation of SPS for tripping of radial loads in case of tripping of ICTs connected in parallel at five sites viz. Mandola, Ballabhgarh, Bhiwadi, Bassi & Maharanibagh.

iii) Implementation of SPS for multiple Transmission Lines at Agra &Dadri (NTPC).

To implement the above mentioned SPS, mainly following equipment shall be required:-

a) 44 nos. Digital Tele Protection Coupler (DTPC)
b) 04 nos. Programmable Logic Controllers (PLC) with Transducers.
c) 17 nos. Interface cards (G703) for Multiplexers etc."

4. No comments or suggestions have been received from the general public in response to the notices published by the petitioner under Section 64 of the Electricity Act, 2003 ("the Act"). The petitioner has served the petition to the respondents. BSES Rajdhani Power Limited (BRPL), Respondent No. 15 has filed its reply vide affidavit dated 15.9.2014. BRPL has raised the issue of efficacy of the instant assets, time over-run, over-estimation of cost, filing fee and publication expenses and service tax. In response, the petitioner has filed rejoinder dated 25.2.2015 to the reply of BRPL. The submissions made by the respondents and their clarifications have been dealt in relevant paragraphs of this order.

5. The hearing in the matter was held on 26.7.2016. Having heard the representatives of the petitioner and perused the material on record, we proceed to dispose of the petition.

6. The petitioner has claimed transmission tariff for the instant asset from COD (1.4.2014) to 31.3.2019 based on the Auditor's Certificates dated 7.5.2014 for

expenditure incurred/projected to be incurred as on COD and from COD to 31.3.2019.

7. The petitioner has claimed transmission charges for the instant asset as under:-

(₹ in lakh)

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	12.33	13.58	13.58	13.58	13.58
Interest on Loan	13.35	13.43	12.04	10.65	9.26
Return on equity	11.46	12.62	12.62	12.62	12.62
Interest on Working Capital	1.66	1.80	1.80	1.80	1.80
O & M Expenses	14.61	16.57	17.13	17.69	18.28
Total	**53.41**	**58.00**	**57.17**	**56.34**	**55.54**

8. The details submitted by the petitioner in support of its claim for interest on working capital are given hereunder:-

(₹ in lakh)

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	2.19	2.41	2.49	2.58	2.66
O & M expenses	1.22	1.34	1.39	1.43	1.48
Receivables	8.90	9.59	9.44	9.31	9.17
Total	**12.31**	**13.34**	**13.32**	**13.32**	**13.31**
Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
Interest	1.66	1.80	1.80	1.80	1.80

9. BRPL has submitted, in its reply, that the petitioner while justifying the proposal for "Special Protection Scheme (SPS) for Northern Region Grid Stage-II" has stated that the proposal was discussed in various NRPC meetings and claimed that it would increase the loadability of network to its full limit besides ensuring safe and secure operation of grid. BRPL has also submitted that the petitioner had also submitted that the multiple tripping of transmission lines especially during the winter is one of the main considerations for such protection system. BRPL has submitted

that the proposal on the face of it looks to be extremely attractive proposition but the same lacks objectivity as the claim is not backed by any details to show that it would increase the loadability of network. No assurance has been given by the petitioner that the grid incidents encountered during winter would be avoided after implementation of the proposed scheme. BRPL has further submitted that implementation of logical protection system is to originate signal at Bhiwadi HVDC in the event of tripping of Ballia-Bhiwadi HVDC Bipole. This signal is to be communicated to various sites on wide band communication link installed under ULDC project to disconnect identified loads. It is quite natural that the logical protection system of SPS must be in tune with the planning criterion of Inter State Transmission System (ISTS) as the intended object is to achieve the secure and stable operation of the Regional Grid. BRPL also submitted that the concept adopted in SPSs is contrary to the regulations of Grid Code.

10. The petitioner, in its rejoinder dated 25.2.2015, has submitted that SPS is nothing but a Special Protection Scheme used as defense mechanism to protect the grid from any unwarranted incident and maintain the stability and security of the grid. It has not claimed increase in the loadability of the instant assets on implementation of SPS. In this SPS, some state utility lines and generating stations have been identified for load-shedding and backing down of generation respectively in case of tripping of HVDC pole(s) thus maintaining the grid stability and security without any major disturbances. BRPL has expressed its views quoting only planning criteria of IEGC. It is important to note that IEGC Regulations includes clause on System

Security Aspects at 5.2 under Operating Philosophy (Part-5, Operating Code of IEGC), wherein at SL. No. 5.2.(o) the following has been mentioned:-

> "All users, STU/SLDC, CTU/RLDC and NLDC, shall also facilitate identification, installation and commissioning of System Protection Scheme (SPS) (including inter-tripping and run-back) in the power system to operate the transmission system closer to their limits and to protect against situations such as voltage collapse and cascade tripping, tripping of important corridors/ flow-gates etc. Such schemes would be finalized by the concerned RPC forum and shall always be kept in service. If any SPS is to be taken out of service, permission of RLDC shall be obtained indicating reason and duration of anticipated outage from service."

11. The petitioner has submitted that the above provision highlights the importance of SPS in Power System and it is to protect the power System against the situations such as voltage collapse and cascade tripping, tripping of important corridors/ flow-gates etc. HVDC Balia-Bhiwadi is an important corridor transmitting bulk power. In this SPS, some state utility lines and generating stations have been identified for load-shedding and backing down of generation respectively in case of tripping of HVDC pole(s) thus maintaining the grid stability and security without any major disturbances and to operate the transmission system closer to their limits. In view of above the issue raised by BRPL has no relevance.

12. We have considered submissions made by the petitioner and respondent. We are of the view that Implementation of SPS is necessary as it will help in protecting the power system against situations such as voltage collapse and cascade tripping, tripping of important corridors/flow-gates etc. and thus maintain the grid stability and security without any major disturbances and to operate the transmission system closer to their limits. POSOCO and the petitioner have identified specific SPS in various parts of the country for implementation. We have perused the report of the

sub-committee on congestion in transmission system, June, 2015 available in the Commission's website link (http://www.cercind.gov.in/2015/Reports/congestion.pdf). In the report, POSOCO has suggested that congestion may be mitigated in short term i.e. within 3 months time frame by installing various system protection schemes. The sub-committee was of the view that SPS planned needs to be installed within 3 months so that the same could be considered by POSOCO for calculation of ATC. We agree with the contention of the petitioner that "SPS is a defense mechanism" but do not agree that it has nothing to do with the increase in line loadability. We are of the view that the implementation of SPS will help to operate the transmission system closer to their limits while maintaining the grid stability and security. Further, SPS helps in increasing the TTC/ATC of the transmission system. The petitioner is directed to submit a report, in consultation with POSCO, on the benefits accrued on implementation of the SPS in terms of increase in short term TTC/ATC within 3 months of the issue of this order.

Date of Commercial operation (COD)

13. Regulation 4(3) of the 2014 Tariff Regulations provides as follows:-

> "4. Date of Commercial Operation: The date of commercial operation of a generating station or unit or block thereof or a transmission system or element thereof shall be determined as under:
>
> xxx]
>
> (3) Date of commercial operation in relation to a transmission system shall mean the date declared by the transmission licensee from 0000 hour of which an element of the transmission system is in regular service after successful trial operation for transmitting electricity and communication signal from sending end to receiving end: (i) where the transmission line or substation is dedicated for evacuation of power from a particular generating station, the generating company and transmission licensee shall endeavour to commission the generating station and the transmission system simultaneously as far as practicable and shall ensure the same through appropriate Implementation Agreement in accordance with Regulation 12(2) of these

Regulations : (ii) in case a transmission system or an element thereof is prevented from regular service for reasons not attributable to the transmission licensee or its supplier or its contractors but is on account of the delay in commissioning of the concerned generating station or in commissioning of the upstream or downstream transmission system, the transmission licensee shall approach the Commission through an appropriate application for approval of the date of commercial operation of such transmission system or an element thereof."

14. The petitioner has claimed date of commercial operation w.e.f. 1.4.2014. The petitioner has submitted RLDC Charging Certificate dated 22.7.2016 in support of commissioning of SPS for Northern grid Stage-II. Taking into consideration the submissions of the petitioner and the RLDC Charging Certificate, the date of commercial operation of the instant asset is approved as 1.4.2014.

Capital cost

15. Clause (2) of Regulation 9 of the 2014 Tariff Regulations provides as follows:-

"The Capital Cost of a new project shall include the following:

(a) The expenditure incurred or projected to be incurred up to the date of commercial operation of the project;
(b) Interest during construction and financing charges, on the loans (i) being equal to 70% of the funds deployed, in the event of the actual equity in excess of 30% of the funds deployed, by treating the excess equity as normative loan, or (ii) being equal to the actual amount of loan in the event of the actual equity less than 30% of the funds deployed;

(c) Increase in cost in contract packages as approved by the Commission;

(d) Interest during construction and incidental expenditure during construction as computed in accordance with Regulation 11 of these regulations;

(e) capitalised Initial spares subject to the ceiling rates specified in Regulation of these regulations;

(f) expenditure on account of additional capitalization and de-capitalisation determined in accordance with Regulation 14 of these regulations;

(g) adjustment of revenue due to sale of infirm power in excess of fuel cost prior to the COD as specified under Regulation 18 of these regulations; and

(h) adjustment of any revenue earned by the transmission licensee by using the assets before COD."

16. The details of apportioned approved cost, expenditure incurred as on COD and details of additional capitalization projected to be incurred for the period from COD to 31.3.2019 for the assets covered in the petition are summarized below:-

(₹ in lakh)

Approved apportioned cost	Expenditure up to COD	2014-15	2015-16	2016-17	Total estimated completion cost
242.72	175.12	39.41	0.00	0.00	214.53

Capital cost of ₹175.12 lakh as on the date of commercial operation of the instant has been considered, as provided under Regulation 9(2) of the 2014 Tariff Regulations, for the purpose of Tariff:

Cost

17. The total estimated completion cost of the instant asset is ₹214.53 lakh and it is within the apportioned approved cost of ₹242.72 lakh and hence there is no cost over-run. BRPL has submitted that the completion cost of ₹214.53 lakh is less than the approved cost of ₹242.72 lakh even after time over-run of 19 months, resulting into a savings of 13% in the execution of the asset indicating that there is over-estimation in the cost.

18. In response, the petitioner has submitted that the cost variation is due to competitive bidding. For procurement, open competitive bidding route is followed by providing equal opportunity to all eligible firms. Through this process, lowest possible market price for required product/services/as detailed designing is obtained and

contracts are awarded on the basis of lowest evaluated eligible bidder. The best competitive bid prices against tenders may vary as compared to the cost estimate depending upon prevailing market conditions, design and site requirements. Whereas, the cost estimates are prepared by the petitioner as per well-defined procedures. The FR cost estimate is broad indicative cost worked out generally on the basis of average unit rates of recently awarded contracts/general practice.

19. We have considered the submissions of the petitioner and the respondent. As pointed out by BRPL, the completion cost of the instant asset is lower than the estimated cost inspite of time over-run of 19 months. The cost estimates of the petitioner are not realistic not only in this petition but also in other similar petitions. In our view the petitioner should adopt a prudent procedure to make cost estimates of different elements of the transmission projects more realistic.

Time over-run

20. As per the Investment Approval dated 14.2.2012, the instant assets were scheduled to be commissioned within 6 months from the date of Investment Approval. Accordingly, the scheduled date of commercial operation works out to 14.8.2012, i.e. 1.9.2012, against which subject asset was put under commercial operation on 1.4.2014. Thus, there is a time over-run of 19 months in commissioning of the instant assets. The petitioner has submitted that the time over-run is due to delay in getting the final report for the feeders and generation nodes for load shedding and backing down at micro level from the concerned constituents and generating stations to implements SPS.

21. BRPL has submitted that there is time over-run of 19 months in commissioning of the instant assets. The delay of this magnitude clearly points out that even the petitioner may not have much confidence in the efficacy of this SPS. The petitioner has attributed the delay in execution of the asset was due to co-ordination problems, which is the responsibility of the petitioner under Section 38 of the Electricity Act, 2003 as the Central Transmission Utility (CTU). The reasons given by the petitioner for time over-run are only an excuse and it is entirely attributable to the slackness in project management by the petitioner.

22. In response, the petitioner has submitted that for the implementation of Special Protection Scheme, NRLDC carried out system studies to identify the feeders and generation nodes for load shedding and backing down at micro level and the report was provided to the concerned constituents and generating stations to identify the feeders and generation nodes at micro level and various steps to get the desired information from the concerned entities in the various NRPC/OCC meetings. The petitioner has submitted that it took the following steps to get the desired information from the concerned entities in the various NRPC/OCC meetings:-

a. In every OCC meeting, the issue of identifying the feeders at micro level by the constituents was discussed. In the 74th OCC meeting held on 17.4.2012, the petitioner intimated that the material has reached the sites but in respect of SPSs for ICTs in parallel at Maharanibagh, Dadri, Mandola, Ballabhgarh and Bassi Sub-stations, the name of lines to be tripped upon SPS operation were to be identified by DTL/UPPTCL/RRVPNL, HVPNL and BBMB. These utilities were required to identify the line and convey it to the petitioner.

In respect of SPS for interruption of import by NR from WR at 400 kV Agra, the petitioner, desired to know the generation backing down details in WR. It was decided that all utilities would identify specific feeders to be disconnected for approved SPSs to be implemented by the petitioner and intimate the same to NRPC Secretariat, NRLDC and the petitioner. Further, in the 75th OCC meeting held on 11.5.2012, the petitioner again informed that location, quantum of load shedding and generation back down have not been identified by the concerned constituents and generating station.

(b) During the 81st OCC meeting held on 20.11.2012, the petitioner raised the issue of identification of feeders. UPPTCL submitted the list of feeders however HVPNL did not submit the feeders.

(c) RRVPNL submitted the list of sites for load shedding vide letter dated. 24.7.12. However, in the 82nd meeting held on 18.12.2012, RRVPNL intimated that they do not have radial feeders which could be connected to SPS at Bhiwadi except at 33 kV level. The petitioner stated that loads identified should be at locations where wide band nodes are available. It was decided that RRVPNL would identify the feeders by 31.12.2012. Further, during the 88th OCC meeting on 21.6.2013, after getting the revised feeder names, the petitioner intimated that there was no wide band connectivity for the loads identified by RRVPNL and these identified loads were of far-flung areas which may not provide relief to ICTs at Bassi. OCC felt that SPS may not be required at Bassi, if one more ICT is installed at Bassi and accordingly decided that

NRLDC would examine the possibility of dropping the installation of SPS at Bassi.

(d) Stations for generation back down were agreed by NTPC **in** the meeting held with NRPC on 27th June, 2013. The connectivity from Agra to these stations on wide band was to be established. As per minutes of the meeting, the petitioner had to extend wideband connectivity to these stations in three months. Accordingly, connectivity was established within time. Subsequently, CGPL Mundra and NTPC Vindhyachal requested for shifting of equipment to extend signal to their generators which involved additional cable laying. Cable was made available to NTPC from Ballabhgarh and all the sites were commissioned by December, 2013. Subsequently, comprehensive testing was carried out by March, 2014. Therefore, it is submitted that after the repeated follow up and discussions at various forums for implementation of SPS, the same was commissioned and declared under COD on 1.4.2014 after a time over-run of 19 months.

23. The petitioner has also submitted the reasons for time over-run alongwith the justifications and supporting documents. The petitioner has attributed the time over-run to the delay in getting the final report on the feeders and generation nodes for load shedding and backing down at micro level from the concerned constituents and generating stations to implements the SPS. The issue was deliberated in various meetings and the details of the various OCC meetings are summarized hereunder:-

Sr. No.	Date	Remarks
1	4.5.2010	16th meeting of NRPC
2	16.12.2010	18th meeting of NRPC

3	23.9.2011	23rd meeting of NRPC
4	14.2.2012	Investment Approval
5	17.4.2012	In the 74th OCC meeting held on 17.4.2012, the petitioner intimated that the material has reached the sites but in respect of SPSs for ICTs in parallel at Maharanibagh, Dadri, Mandola, Ballabhgarh and Bassi Sub-stations, the name of lines to be tripped upon SPS operation were to be identified by DTL/UPPTCL/ RRVPNL, HVPNL and BBMB. These utilities were required to identify the line and convey it to the petitioner. In respect of SPS for interruption of import by NR from WR at 400 kV Agra, the petitioner, desired to know the generation backing down details in WR. It was decided that all utilities would identify specific feeders to be disconnected for approved SPSs to be implemented by the petitioner and intimate the same to NRPC Secretariat, NRLDC and the petitioner.
6	11.5.2012	In the 75th OCC meeting held on 11th May, 2012, the petitioner again informed that location, quantum of load shedding and generation back down have not been identified by the concerned constituents and generating station.
7	1.9.2012	SCOD
8	20.11.2012	During the 81st OCC meeting held on 20.11.2012, the petitioner raised the issue of identification of feeders. UPPTCL submitted the list of feeders however the same was still awaited from HVPNL.
9	18.12.2012	In 82nd meeting dated 18.12.2012 RRVPNL intimated that they do not have radial feeders which could be connected to SPS at Bhiwadi except at 33 kV level. The petitioner stated that loads identified should be at locations where wide band nodes are available. It was decided that RRVPNL would identify the feeders by 31.12.2012
10	31.12.2012	Last date for RRVPNL to identify feeders
11	21.6.2013	During 88th OCC meeting dated 21.6.2013 after getting the revised feeder names the petitioner intimated that there was no wide band connectivity for the loads identified by RRVPNL and these identified loads were of far-flung areas which may not provide relief to ICTs at Bassi. Keeping, addition of one more ICT at Bassi, OCC felt that SPS may not be required thereafter and accordingly decided that NRLDC would examine the possibility of dropping the installation of SPS at Bassi.
12	27.6.2013	Stations for generation back down was agreed by NTPC in the meeting held with NRPC on 27.6.2013.The connectivity from Agra to these stations on wide band was to be established.As per minutes of the meeting, the petitioner had to extend wideband connectivity to these stations in next three months.
13	27.9.2013	Connectivity was established within time and a meeting was held to discuss the issue backing down in WR related to SPS meant of 765 KV Agra-Gwalior line.
14	23.10.2013	Communication link for Mundra and Vindhyachal tested
15	14.11.2013	CGPL Mundra and NTPC Vindhyachal requested for shifting of equipment to extend signal to their generators which involved additional cable laying
16	25.11.2013	Letter from General Manager, O&M, regarding SPS implementation status of Bina-Gwalior-Agra line pertaining to WR
17	31.12.2013	All sites were completed
18	1.3.2014	Comprehensive testing was carried out
19	1.4.2014	Actual COD

24. We have considered the submissions made by the petitioner and respondent and perused the documents available on record. We are of the view that the delay in

getting the final report of the feeders and generation nodes for load shedding and backing down at micro level from the concerned constituents and generating stations to implement was beyond the control of the petitioner. All the sites were completed on 31.12.2013 and thereafter the petitioner took two months for comprehensive testing and one more month to commission the asset. The petitioner has not given any justification for taking three months to commission after completion of the sites. As such, we are not inclined to condone three months of time over-run. 16 months time over-run is condoned.

Interest During Construction (IDC) and Incidental Expenditure During Construction (IEDC)

25. As stated above, the petitioner has not claimed any IDC and IEDC for the instant asset as on COD.

Initial Spares

26. The petitioner has also not claimed any initial spares for the instant assets.

27. Therefore, capital cost of ₹175.12 lakh of the instant asset as on the date of commercial operation has been considered for the computation of tariff.

Projected additional capital expenditure

28. Clause (1) of Regulation 14 of the 2014 Tariff Regulations provides as under:-

> "(1) The capital expenditure in respect of the new project or an existing project incurred or projected to be incurred, on the following counts within the original scope of work, after the date of commercial operation and up to the cut-off date may be admitted by the Commission, subject to prudence check:

(i) Undischarged liabilities recognised to be payable at a future date;
(ii) Works deferred for execution;
(iii) Procurement of initial capital spares within the original scope of work, in accordance with the provisions of Regulation 13;
(iv) Liabilities to meet award of arbitration or for compliance of the order or decree of a court; and
(v) Change in Law or compliance of any existing law:"

Provided that the details of works asset wise/work wise included in the original scope of work along with estimates of expenditure, liabilities recognized to be payable at a future date and the works deferred for execution shall be submitted along with the application for determination of tariff."

29. Clause (13) of Regulation 3 of the 2014 Tariff Regulations defines "cut-off" date as under:-

"cut-off date" means 31st March of the year closing after two years of the year of commercial operation of whole or part of the project, and in case the whole or part of the project is declared under commercial operation in the last quarter of the year, the cut-off date shall be 31st March of the year closing after three years of the year of commercial operation.

Provided that the cut-off date may be extended by the Commission if it is proved on the basis of documentary evidence that the capitalisation could not be made within the cut-off date for reasons beyond the control of the project developer"

Accordingly, the cut-off date for the above mentioned asset is 31.3.2018.

30. The petitioner has claimed additional capital expenditure of ₹39.41 during the period 2014-15 as per Regulation 14(1) of the 2014 Regulations. The additional capital expenditure claimed during 2014-15 is towards balance and retention payment and it is within cut-off and accordingly it is allowed.

Debt- equityratio

31. Clause 1 and 5 of Regulation 19 of the 2014 Tariff Regulations specifies as follows:-

"(1) For a project declared under commercial operation on or after 1.4.2014, the debt-equity ratio would be considered as 70:30 as on COD. If the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan:

Provided that:

(i) where equity actually deployed is less than 30% of the capital cost, actual equity shall be considered for determination of tariff:

(ii) the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment:

(iii) any grant obtained for the execution of the project shall not be considered as a part of capital structure for the purpose of debt : equity ratio.

Explanation.-The premium, if any, raised by the generating company or the transmission licensee, as the case may be, while issuing share capital and investment of internal resources created out of its free reserve, for the funding of the project, shall be reckoned as paid up capital for the purpose of computing return on equity, only if such premium amount and internal resources are actually utilised for meeting the capital expenditure of the generating station or the transmission system."

"(5) Any expenditure incurred or projected to be incurred on or after 1.4.2014 as may be admitted by the Commission as additional capital expenditure for determination of tariff, and renovation and modernisation expenditure for life extension shall be serviced in the manner specified in clause (1) of this regulation"

32. Debt-equity in respect of the asset as on COD and as on 31.3.2019 are as follows:-

(₹ in lakh)

Particulars	**%**	**As on COD**	**As on 31.3.2019**
Debt	70.00	122.58	150.17
Equity	30.00	52.54	64.36
Total	**100.00**	**175.12**	**214.53**

33. Additional capital expenditure has been considered in the debt-equity ratio of 70:30.

Return on equity

34. Clause (1) and (2) of Regulation 24 and Clause (1) and (2) of Regulation 25 of the 2014 Tariff Regulations specify as under:-

" 24. Return on Equity:

(1) Return on equity shall be computed in rupee terms, on the equity base determined in accordance with regulation 19.

(2) Return on equity shall be computed at the base rate of 15.50% for thermal generating stations, transmission system including communication system and run of the river hydro generating station, and at the base rate of 16.50% for the storage type hydro generating stations including pumped storage hydro generating stations and run of river generating station with pondage:

Provided that:

(i) in case of projects commissioned on or after 1st April, 2014, an additional return of 0.50 % shall be allowed, if such projects are completed within the timeline specified in Appendix-I:

(ii) the additional return of 0.5% shall not be admissible if the project is not completed within the timeline specified above for reasons whatsoever:

(iii) additional RoE of 0.50% may be allowed if any element of the transmission project is completed within the specified timeline and it is certified by the Regional Power Committee/National Power Committee that commissioning of the particular element will benefit the system operation in the regional/national grid:

(iv) the rate of return of a new project shall be reduced by 1% for such period as may be decided by the Commission, if the generating station or transmission system is found to be declared under commercial operation without commissioning of any of the Restricted Governor Mode Operation (RGMO)/ Free Governor Mode Operation (FGMO), data telemetry, communication system up to load dispatch centre or protection system:

(v) as and when any of the above requirements are found lacking in a generating station based on the report submitted by the respective RLDC, RoE shall be reduced by 1% for the period for which the deficiency continues:

(vi) additional RoE shall not be admissible for transmission line having length of less than 50 kilometers."

"25. Tax on Return on Equity: (1) The base rate of return on equity as allowed by the Commission under Regulation 24 shall be grossed up with the effective tax rate of the respective financial year. For this purpose, the effective tax rate shall be

considered on the basis of actual tax paid in the respect of the financial year in line with the provisions of the relevant Finance Acts by the concerned generating company or the transmission licensee, as the case may be. The actual tax income on other income stream (i.e., income of non generation or non transmission business, as the case may be) shall not be considered for the calculation of "effective tax rate".

"(2) Rate of return on equity shall be rounded off to three decimal places and shall be computed as per the formula given below:

Rate of pre-tax return on equity = Base rate / (1-t)

Where "t" is the effective tax rate in accordance with Clause (1) of this regulation and shall be calculated at the beginning of every financial year based on the estimated profit and tax to be paid estimated in line with the provisions of the relevant Finance Act applicable for that financial year to the company on pro-rata basis by excluding the income of non-generation or non-transmission business, as the case may be, and the corresponding tax thereon. In case of generating company or transmission licensee paying Minimum Alternate Tax (MAT), "t" shall be considered as MAT rate including surcharge and cess."

35. The petitioner has submitted that RoE has been calculated at the rate of 19.610% after grossing up the RoE with MAT rate of 20.961% as per the above Regulations. The petitioner has further submitted that the grossed up RoE is subject to truing up based on the actual tax paid along with any additional tax or interest, duly adjusted for any refund of tax including the interest received from IT authorities, pertaining to the tariff period 2014-19 on actual gross income of any financial year. Any under-recovery or over-recovery of grossed up RoE after truing up shall be recovered or refunded to the beneficiaries on year to year basis.

36. The petitioner has further submitted that adjustment due to any additional tax demand including interest duly adjusted for any refund of the tax including interest received from IT authorities shall be recoverable/adjustable after completion of income tax assessment of the financial year.

37. We have considered the submissions made by the petitioner. Regulation 24 read with Regulation 25 of the 2014 Tariff Regulations provides for grossing up of return on equity with the effective tax rate for the purpose of return on equity. It further provides that in case the generating company or transmission licensee is paying Minimum Alternative Tax (MAT), the MAT rate including surcharge and cess will be considered for the grossing up of return on equity. The MAT rate is applicable to the petitioner's company. Accordingly, the MAT rate applicable during 2013-14 has been considered for the purpose of return on equity, which shall be trued up with actual tax rate in accordance with Regulation 25 (3) of the 2014 Tariff Regulations.

38. The details of return on equity calculated are as follows:-

(₹ in lakh)

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Equity	52.54	64.36	64.36	64.36	64.36
Addition due to Additional Capitalization	11.82	0.00	0.00	0.00	0.00
Closing Equity	64.36	64.36	64.36	64.36	64.36
Average Equity	58.45	64.36	64.36	64.36	64.36
Return on Equity (Base Rate)	15.50%	15.50%	15.50%	15.50%	15.50%
Tax rate for the year 2013-14 (MAT)	20.961%	20.961%	20.961%	20.961%	20.961%
Rate of Return on Equity (Pre Tax)	19.610%	19.610%	19.610%	19.610%	19.610%
Return on Equity (Pre Tax)	11.46	12.62	12.62	12.62	12.62

Interest on loan

39. Regulation 26 of the 2014 Tariff Regulations provides as under:-

> "(1) The loans arrived at in the manner indicated in regulation 19 shall be considered as gross normative loan for calculation of interest on loan.
>
> (2) The normative loan outstanding as on 1.4.2014 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2014 from the gross normative loan.
>
> (3) The repayment for each of the year of the tariff period 2014-19 shall be deemed to be equal to the depreciation allowed for the corresponding year/period. In case of

decapitalisation of assets, the repayment shall be adjusted by taking into account cumulative repayment on a pro rata basis and the adjustment should not exceed cumulative depreciation recovered upto the date of decapitalisation of such asset.

(4) Notwithstanding any moratorium period availed by the generating company or the transmission licensee, as the case may be, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the depreciation allowed for the year or part of the year.

(5) The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio after providing appropriate accounting adjustment for interest capitalized:

Provided that if there is no actual loan for a particular year but normative loan is still outstanding, the last available weighted average rate of interest shall be considered:

Provided further that if the generating station or the transmission system, as the case may be, does not have actual loan, then the weighted average rate of interest of the generating company or the transmission licensee as a whole shall be considered.

(6) The interest on loan shall be calculated on the normative average loan of the year by applying the weighted average rate of interest."

40. In keeping with the provisions of Regulation 26 of the 2014 Tariff Regulations, the petitioner's entitlement to interest on loan has been calculated on the following basis:-

(i) Gross amount of loan, repayment of instalments and rate of interest and weighted average rate of interest on actual average loan have been considered as per Form 9C;

(ii) The normative repayment for the tariff period 2014-19 has been considered to be equal to the depreciation allowed for that period;

(iii) Weighted average rate of interest on actual average loan worked out as per (i) above is applied on the notional average loan during the year to arrive at the interest on loan.

41. The petitioner has submitted that the interest on loan has been considered

on the basis of rate prevailing as on COD and the change in interest due to floating rate of interest applicable, if any, for the project needs to be claimed/ adjusted over the tariff block. The interest on loan has been calculated on the basis of rate prevailing as on the date of commercial operation. Any change in rate of interest subsequent to the date of commercial operation will be considered at the time of truing up.

42. Detailed calculations in support of the weighted average rates of interest have been given in Annexure to this order.

43. Based on the above, interest on loan has been calculated are given as follows:-

(₹ in lakh)

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Normative Loan	122.58	150.17	150.17	150.17	150.17
Cumulative Repayment upto Previous Year	0.00	12.33	25.91	39.49	53.07
Net Loan-Opening	122.58	137.83	124.25	110.68	97.10
Addition due to Additional Capitalization	27.59	0.00	0.00	0.00	0.00
Repayment during the year	12.33	13.58	13.58	13.58	13.58
Net Loan-Closing	137.83	124.25	110.68	97.10	83.52
Average Loan	130.21	131.04	117.46	103.89	90.31
Weighted Average Rate of Interest on Loan	10.2500%	10.2500%	10.2500%	10.2500%	10.2500%
Interest	13.35	13.43	12.04	10.65	9.26

Depreciation

44. Regulation 27 of the 2014 Tariff Regulations provide as follows:-

"27. Depreciation:

(1) Depreciation shall be computed from the date of commercial operation of a generating station or unit thereof or a transmission system including communication system or element thereof. In case of the tariff of all the units of a generating station or all elements of a transmission system including

communication system for which a single tariff needs to be determined, the depreciation shall be computed from the effective date of commercial operation of the generating station or the transmission system taking into consideration the depreciation of individual units or elements thereof.

Provided that effective date of commercial operation shall be worked out by considering the actual date of commercial operation and installed capacity of all the units of the generating station or capital cost of all elements of the transmission system, for which single tariff needs to be determined.

(2) The value base for the purpose of depreciation shall be the capital cost of the asset admitted by the Commission. In case of multiple units of a generating station or multiple elements of transmission system, weighted average life for the generating station of the transmission system shall be applied. Depreciation shall be chargeable from the first year of commercial operation. In case of commercial operation of the asset for part of the year, depreciation shall be charged on pro rata basis.

(3) The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the asset:

Provided that in case of hydro generating station, the salvage value shall be as provided in the agreement signed by the developers with the State Government for development of the Plant:

Provided further that the capital cost of the assets of the hydro generating station for the purpose of computation of depreciated value shall correspond to the percentage of sale of electricity under long-term power purchase agreement at regulated tariff:

Provided also that any depreciation disallowed on account of lower availability of the generating station or generating unit or transmission system as the case may be, shall not be allowed to be recovered at a later stage during the useful life and the extended life.

(4) Land other than the land held under lease and the land for reservoir in case of hydro generating station shall not be a depreciable asset and its cost shall be excluded from the capital cost while computing depreciable value of the asset.

(5) Depreciation shall be calculated annually based on Straight Line Method and at rates specified in **Appendix-II** to these regulations for the assets of the generating station and transmission system:

Provided that the remaining depreciable value as on 31st March of the year closing after a period of 12 years from the effective date of commercial operation of the station shall be spread over the balance useful life of the assets.

(6) In case of the existing projects, the balance depreciable value as on 1.4.2014 shall be worked out by deducting the cumulative depreciation as admitted by the Commission upto 31.3.2014 from the gross depreciable value of the assets."

45. The instant transmission asset was put under commercial operation on 1.4.2014, accordingly will complete 12 years beyond 2018-19 and thus depreciation has been calculated annually based on Straight Line Method and at rates specified in Appendix-II of the 2014 Tariff Regulations. Accordingly, depreciation has been worked out on the basis of capital expenditure as on COD and additional capitalization incurred during 2014-15. Based on the above, the depreciation has been considered are as follows:-

(₹ in lakh)

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Gross Block	175.12	214.53	214.53	214.53	214.53
Additional Capital Expenditure	39.41	0.00	0.00	0.00	0.00
Closing Gross Block	214.53	214.53	214.53	214.53	214.53
Average Gross Block	194.83	214.53	214.53	214.53	214.53
Rate of Depreciation	6.3300%	6.3300%	6.3300%	6.3300%	6.3300%
Depreciable Value	175.34	193.08	193.08	193.08	193.08
Remaining Depreciable Value	175.34	180.74	167.16	153.59	140.01
Depreciation	12.33	13.58	13.58	13.58	13.58

Operation & Maintenance Expenses (O&M Expenses)

46. The O&M Expenses claimed by the petitioner for the instant asset for the 2014-19 period is as follows:-

(₹ in lakh)

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
O&M Expenses	14.61	16.57	17.13	17.69	18.23

47. The petitioner has submitted that the O&M Expenses claimed are calculated as 7.5% of the capital cost in line with order in Petition No.139/2005 for NRULDC (Communication portion) and at the rate of 3.32% per annum for escalation from 2014-15 onwards. The O&M Expenses for 2014-15 to 2018-19 are not allowed in the absence of actual O&M Expenses. The petitioner's claim will be considered at the time of truing up and accordingly the petitioner is directed to submit actual O&M Expenses for the said period at the time of truing up.

Interest on working capital

48. Clause 1 (c) of Regulation 28 and Clause 5 of Regulation 3 of the 2014 Tariff Regulations specify as follows:-

> "**28. Interest on Working Capital**
>
> (c)(i) Receivables equivalent to two months of fixed cost;
>
> (ii) Maintenance spares @ 15% of operation and maintenance expenses specified in regulation 29; and
>
> (iii) Operation and maintenance expenses for one month"
>
> "(5) 'Bank Rate' means the base rate of interest as specified by the State Bank of India from time to time or any replacement thereof for the time being in effect plus 350 basis points;"

49. The petitioner is entitled to claim interest on working capital as per the 2014 Tariff Regulations. The components of the working capital and the petitioner's entitlement to interest thereon are as follows:-

(i) Receivables: Receivables as a component of working capital will be equivalent to two months fixed cost as provided under Regulation 28(c)(i). The petitioner has claimed the receivables on the basis of 2 months annual

transmission charges. In the tariff being allowed, receivables have been worked out on the basis of 2 months' transmission charges.

(ii) Rate of interest on working capital: The interest on working capital is worked out in accordance with Regulation 28(4) of the 2014 Tariff Regulations. The rate of interest on working capital considered is 13.50% (SBI Base Rate of 10% plus 350 basis points).

No maintenance spares and O & M Expenses are allowed.

50. The interest on working capital allowed is shown in the table given below:-

(₹ in lakh)

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	0.00	0.00	0.00	0.00	0.00
O & M expenses	0.00	0.00	0.00	0.00	0.00
Receivables	6.33	6.76	6.52	6.28	6.05
Total	6.33	6.76	6.52	6.28	6.05
Interest	0.85	0.91	0.88	0.85	0.82

Transmission charges

51. The transmission charges being allowed for the transmission asset are as follows:-

(₹ in lakh)

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	12.33	13.58	13.58	13.58	13.58
Interest on Loan	13.35	13.43	12.04	10.65	9.26
Return on equity	11.46	12.62	12.62	12.62	12.62
Interest on Working Capital	0.85	0.91	0.88	0.85	0.82
O & M Expenses	0.00	0.00	0.00	0.00	0.00
Total	**38.00**	**40.55**	**39.12**	**37.70**	**36.27**

Filing fee and the publication expenses

52. The petitioner has sought reimbursement of fee paid by it for filing the petition and publication expenses, in terms of Regulation 52 of the 2014 Tariff Regulations. BRPL has submitted that the petitioner's prayer for reimbursement of filing fee and publication expenses may be rejected. The petitioner shall be entitled for reimbursement of the filing fees and publication expenses in connection with the present petition, directly from the beneficiaries on pro-rata basis in accordance with clause (1) of Regulation 52 of the 2014 Tariff Regulations.

Licence fee and RLDC Fees and Charges

53. The petitioner has requested to allow the petitioner to bill and recover License fee and RLDC fees and charges, separately from the respondents. We are of the view that the petitioner shall be entitled for reimbursement of licence fee and RLDC fees and charges in accordance with Clause (2)(b) and (2)(a), respectively, of Regulation 52 of the 2014 Tariff Regulations.

Service tax

54. The petitioner has made a prayer to be allowed to bill and recover the service tax on transmission charges separately from the respondents, if at any time service tax on transmission is withdrawn from negative list at any time in future. We consider petitioner's prayer pre-mature and accordingly this prayer is rejected.

Deferred tax liability

55. The petitioner has sought recovery of deferred tax liability before 1.4.2009 from the beneficiaries or long term consumers/DICs as and when the same gets

materialized. However, the COD of the asset is 1.4.2014 hence the claim of the petitioner is not admissible.

Sharing of Transmission Charges

56. The billing, collection and disbursement of the transmission charges approved shall be governed by the provisions of Central Electricity Regulatory Commission (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2010, as amended from time to time, as provided in Regulation 43 of the 2014 Tariff Regulations.

57. This order disposes of Petition No. 243/TT/2014.

sd/-	sd/-	sd/-	sd/-
(Dr. M. K. Iyer)	**(A.S. Bakshi)**	**(A.K. Singhal)**	**(Gireesh B. Pradhan)**
Member	**Member**	**Member**	**Chairperson**

Annexure

(₹ in lakh)

CALCULATION OF WEIGHTED AVERAGE RATE OF INTEREST ON LOAN						
	Details of Loan	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**
1	**SBI (21.03.2012)**					
	Gross loan opening	122.58	122.58	122.58	122.58	122.58
	Cumulative Repayment upto COD/previous year	0.00	0.00	0.00	11.14	22.29
	Net Loan-Opening	122.58	122.58	122.58	111.44	100.29
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	11.14	11.14	11.14
	Net Loan-Closing	122.58	122.58	111.44	100.29	89.15
	Average Loan	122.58	122.58	117.01	105.86	94.72
	Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%
	Interest	12.56	12.56	11.99	10.85	9.71
	Rep Schedule	22 half year equal installment from 31.08.2016				
	Total Loan					
	Gross loan opening	122.58	122.58	122.58	122.58	122.58
	Cumulative Repayment uptoCOD/previous year	0.00	0.00	0.00	11.14	22.29
	Net Loan-Opening	122.58	122.58	122.58	111.44	100.29
	Additions during the year	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	11.14	11.14	11.14
	Net Loan-Closing	122.58	122.58	111.44	100.29	89.15
	Average Loan	122.58	122.58	117.01	105.86	94.72
	Rate of Interest	10.2500%	10.2500%	10.2500%	10.2500%	10.2500%
	Interest	12.56	12.56	11.99	10.85	9.71