

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 264/GT/2014

Coram:

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

Date of Hearing: 22.9.2015

Date of Order: 26.5.2016

In the matter of

Approval of tariff of Omkareshwar Hydroelectric Project (520 MW) for the period from 1.4.2014 to 31.3.2019.

AND

In the matter of

NHDC Limited
(A JV of NHPC & GOMP)
NHDC Parisar,
Shyamla Hills
Bhopal - 462013 (M.P)

....Petitioner

Vs

1. Madhya Pradesh Power Management Company Ltd,
Shakti Bhawan, Vidyut Nagar
Jablapur (M.P)

2. Narmada Valley Development Department,
Govt. of Madhya Pradesh,
Mantralaya, Vallabh Bhawan,
Bhopal (M.P)

....Respondents

Parties Present:

Shri S. Sanyal, NHDC
Shri Ashish Jain, NHDC
Shri Y.N. Rao, NHDC
Shri V.K. Singh, NHDC
Shri Prabhakar Rai, NHDC
Shri Sarthak Lazarus, MPPMCL
Shri M.L. Agrawal, NVDD



ORDER

This petition has been filed by the petitioner, NHDC Ltd for approval of generation tariff of Omkareshwar Hydroelectric Project (520 MW) (the generating station) for the period from 1.4.2014 to 31.3.2019 in accordance with the provisions of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 (the 2014 Tariff Regulations).

2. This multipurpose project has been constructed by the petitioner, which is joint venture between NHPC and the State Government of Madhya Pradesh. It comprises of 520 MW (8 x 65 MW) of generating capacity for providing annual energy generation of 1167 MUs in a 90% dependable year. Unit I consists of Dam and appurtenant works, Unit-II consists of irrigation system of canals and distributaries being executed by the Government of Madhya Pradesh, Unit-III includes Power house and water conductor system along with allied works in power generation. Thus, Units I and III are essentially for power generation, named as power component and Unit II for irrigation system named as irrigation component. Since Unit-I contributes for power generation as well as for irrigation purpose, its costs is apportioned for power generation and irrigation system depending upon the proportion of water utilization for two systems. The irrigation component is apportioned @16.75% of cost of Unit-I and the balance cost is accounted towards cost of power generation. The State of Madhya Pradesh is the only beneficiary of the project. The dates of commercial operation of all the machines are as under:

| | Actual date of commissioning |
|-----------|-------------------------------------|
| Machine 1 | 20.8.2007 |
| Machine 2 | 25.8.2007 |
| Machine 3 | 11.9.2007 |
| Machine 4 | 26.9.2007 |
| Machine 5 | 19.10.2007 |
| Machine 6 | 30.10.2007 |
| Machine 7 | 10.11.2007 |
| Machine 8 | 15.11.2007 |



3. The Commission by order dated 9.5.2013 in Petition No. 248/GT/2012 had determined the Annual Fixed Charges of the generating station for the period from 1.4.2009 to 31.3.2014 based on the projected additional capital expenditure during the respective years of the tariff period. Thereafter, by Commission's order dated 10.5.2016 in Petition No. 460/GT/2014, the tariff of the generating station for the period 2009-14 was revised based on the actual capital expenditure incurred during the period 2009-14 after truing-up exercise. Accordingly, the revised annual fixed charges approved by order dated 10.5.2016 is as under:

| | (₹ in lakh) | | | | |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 |
| Return on Equity | 11504.93 | 11995.03 | 12058.88 | 12320.11 | 14017.91 |
| Interest on Loan | 15451.99 | 14342.20 | 12397.62 | 11015.06 | 11100.30 |
| Depreciation | 10152.53 | 10170.97 | 10224.64 | 9489.05 | 10281.76 |
| Interest on Working Capital | 1019.39 | 1020.92 | 997.72 | 974.74 | 1045.04 |
| O & M Expenses | 4916.79 | 5198.03 | 5495.35 | 5809.69 | 6142.00 |
| Total | 43045.62 | 42727.15 | 41174.20 | 39608.65 | 42587.01 |

4. The annual fixed charges claimed by the petitioner for the period 2014-19 are as under:

| | (₹ in lakh) | | | | |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Return on Equity | 11023.07 | 11090.26 | 11140.45 | 11239.91 | 11286.93 |
| Interest on Loan | 10742.02 | 9569.61 | 8498.79 | 7495.90 | 6459.28 |
| Depreciation | 15082.76 | 15198.60 | 15262.04 | 15391.22 | 15497.63 |
| Interest on Working Capital | 1097.60 | 1091.40 | 1087.04 | 1088.07 | 1087.84 |
| O & M Expenses | 4515.31 | 4815.30 | 5135.23 | 5476.42 | 5840.27 |
| Total | 42460.77 | 41765.18 | 41123.55 | 40691.52 | 40171.96 |

5. Reply to the petition has been filed by the respondent Nos.1 & 2. The matter was heard on 22.9.2015 and the Commission after directing the petitioner to file certain additional information, reserved its orders in the petition. In response, the petitioner vide affidavit dated 4.12.2015 has filed the additional information with copy to the respondents. Reply has been filed by the respondents and the petitioner has filed its rejoinder to the said replies.

6. Based on the submissions of the parties and the documents available on record, we proceed to determine the tariff of the generating station for the period 2014-19, on prudence check, as stated in the subsequent paragraphs.



Capital Cost

7. Clause (1) of Regulation 9 of the 2014 Tariff Regulations provides that the capital cost as determined by the Commission after prudence check in accordance with this regulation shall form the basis of determination of tariff for existing and new projects. Clause (3) of Regulation 9 provides as under:

“9(3) The Capital cost of an existing project shall include the following:

(a) the capital cost admitted by the Commission prior to 1.4.2014 duly trued up by excluding liability, if any, as on 1.4.2014;

(b) xxxx

(c) xxxx

8. The petitioner has claimed the opening capital cost of ₹238618 lakh as on 1.4.2014 for the purpose of tariff for Power component. The closing capital cost for the purpose of tariff as on 31.3.2009 is ₹238286.93 lakh as per Commission's order dated 10.5.2016 in Petition No.460/GT/2014. Accordingly, this amount has been considered as the opening capital cost as on 1.4.2014 for the purpose of tariff of the generating station.

Additional Capital Expenditure

9. Clause (3) of Regulation 7 of the 2014 Tariff Regulations provides that the application for determination of tariff shall be based on admitted capital cost including any additional capital expenditure already admitted upto 31.3.2014 (either based on actual or projected additional capital expenditure) and estimated additional capital expenditure for the respective years of the tariff period 2014-15 to 2018-19. Clause 3 of Regulation 14 of the 2014 Tariff Regulations, provides as under:

“14.(3) The capital expenditure, in respect of existing generating station or the transmission system including communication system, incurred or projected to be incurred on the following counts after the cut-off date, may be admitted by the Commission, subject to prudence check:

(i) Liabilities to meet award of arbitration or for compliance of the order or decree of a court of law;

(ii) Change in law or compliance of any existing law;



- (iii) Any expenses to be incurred on account of need for higher security and safety of the plant as advised or directed by appropriate Government Agencies of statutory authorities responsible for national security/internal security;
- (iv) Deferred works relating to ash pond or ash handling system in the original scope of work;
- (v) Any liability for works executed prior to the cut-off date, after prudence check of the details of such un-discharged liability, total estimated cost of package, reasons for such withholding of payment and release of such payments etc.;
- (vi) Any liability for works admitted by the Commission after the cut-off date to the extent of discharge of such liabilities by actual payments;
- (vii) Any additional capital expenditure which has become necessary for efficient operation of generating station other than coal / lignite based stations or transmission system as the case may be. The claim shall be substantiated with the technical justification duly supported by the documentary evidence like test results carried out by an independent agency in case of deterioration of assets, report of an independent agency in case of damage caused by natural calamities, obsolescence of technology, up-gradation of capacity for the technical reason such as increase in fault level;
- (viii) In case of hydro generating stations, any expenditure which has become necessary on account of damage caused by natural calamities (but not due to flooding of power house attributable to the negligence of the generating company) and due to geological reasons after adjusting the proceeds from any insurance scheme, and expenditure incurred due to any additional work which has become necessary for successful and efficient plant operation;
- (ix) In case of transmission system, any additional expenditure on items such as relays, control and instrumentation, computer system, power line carrier communication, DC batteries, replacement due to obsolesce of technology, replacement of switchyard equipment due to increase of fault level, tower strengthening, communication equipment, emergency restoration system, insulators cleaning infrastructure, replacement of porcelain insulator with polymer insulators, replacement of damaged equipment not covered by insurance and any other expenditure which has become necessary for successful and efficient operation of transmission system; and
- (x) Any capital expenditure found justified after prudence check necessitated on account of modifications required or done in fuel receiving system arising due to non-materialization of coal supply corresponding to full coal linkage in respect of thermal generating station as result of circumstances not within the control of the generating station: Provided that any expenditure on acquiring the minor items or the assets including tools and tackles, furniture, air-conditioners, voltage stabilizers, refrigerators, coolers, computers, fans, washing machines, heat convectors, mattresses, carpets etc. brought after the cut-off date shall not be considered for additional capitalization for determination of tariff w.e.f. 1.4.2014:

Provided further that any capital expenditure other than that of the nature specified above in (i) to (iv) in case of coal/lignite based station shall be met out of compensation allowance:



Provided also that if any expenditure has been claimed under Renovation and Modernization (R&M), repairs and maintenance under (O&M) expenses and Compensation Allowance, same expenditure cannot be claimed under this regulation.”

10. The petitioner vide affidavit dated 19.8.2014 has claimed the projected additional capital expenditure for the period 2014-19 as under:

a) Gross Projected Additional Capital expenditure on Dam (before adjustment of Irrigation Component@ 16.73 %) & Power Station (100% attributable to Power component) :

| Year | Unit-I (Dam) | Unit-III (Power Station) | Additions | Projected additional capital expenditure under 2014 Tariff Regulations | | |
|---|----------------|--------------------------|----------------|--|----------------|----------------|
| | | | | 14(3) (ii) | 14(3) (iii) | 14(3) (viii) |
| 2014-15 | 2407.05 | 1183.28 | 3590.33 | 1702.00 | 281.00 | 1607.33 |
| 2015-16 | 600.13 | 790.45 | 1390.58 | 0.00 | 68.00 | 1322.57 |
| 2016-17 | 366.39 | 430.61 | 797.00 | 30.00 | 157.00 | 610.00 |
| 2017-18 | 2090.59 | 1649.42 | 3740.01 | 0.00 | 3500.00 | 240.00 |
| 2018-19 | 10.00 | 0.00 | 10.00 | 0.00 | 0.00 | 10.00 |
| Total Projected additional capital expenditure claimed | 5474.16 | 4053.76 | 9527.92 | 1732.00 | 4006.00 | 3789.90 |

b) Net Projected Additional Capital expenditure claimed for Power Component i.e. Dam (after adjustment of Irrigation Component) & Power Station:

| Year | Unit-I | Unit-III | Additions |
|---|----------------|----------------|----------------|
| 2014-15 | 586.95 | 1183.28 | 1770.23 |
| 2015-16 | 499.61 | 790.45 | 1290.06 |
| 2016-17 | 305.02 | 430.61 | 735.63 |
| 2017-18 | 1740.42 | 1649.42 | 3389.84 |
| 2018-19 | 8.33 | 0.00 | 8.33 |
| Total Projected Additional capital expenditure claimed (Power component) | 3140.32 | 4053.76 | 7194.08 |

c) The petitioner has submitted the details of projected un-discharged liabilities in Power component as on 31st March of the financial year of the tariff period 2014-19 as under:



(₹ in lakh)

| | Carried Forward as on 1.4.2014 | Projected as on | | | | |
|---|--------------------------------|-----------------|-----------|-----------|-----------|-----------|
| | | 31.3.2015 | 31.3.2016 | 31.3.2017 | 31.3.2018 | 31.3.2019 |
| Un-discharged liabilities attributable to Power component | 30049.61 | 29410.54 | 29410.54 | 29410.54 | 29410.54 | 29410.54 |

d) Net Projected additional capital expenditure claimed by the petitioner for power component considering liabilities is as under:

(₹ in lakh)

| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|---|---------|---------|---------|---------|---------|
| Projected additional capital expenditure claimed against Unit-I (a) | 586.95 | 499.61 | 305.02 | 1740.42 | 8.33 |
| Projected additional capital expenditure claimed against Unit-III (b) | 1183.28 | 790.45 | 430.61 | 1649.42 | 0.00 |
| Total Projected additional capital expenditure claimed for power component before adjustment of un-discharged /discharged liabilities (c)=(a)+(b) | 1770.23 | 1290.06 | 735.63 | 3389.84 | 8.33 |
| Un-discharged liabilities discharged (d) | 639.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| Net projected additional capital expenditure (Power Component) claimed (e)=(c)+(d) | 2409.30 | 1290.06 | 735.63 | 3389.84 | 8.33 |

11. Some of the assets/works claimed by the petitioner during 2014-19 inter-alia includes; Initial spares to the tune of ₹1043.40 lakh, Extension of DCR (Dam Control Room) building, Installation of Dam & Power House Civil instrumentation system, Construction of Office, Transit camp, Canteen, 33 kV additional bay/spare transformer, CB, CT, PT, Widening of existing approach road to main dam, Purchase of Hydraulic Cylinder of Radial Gates, Air ventilation System, Protection work for stabilization of hill slopes, online monitoring system, Up gradation of Software of automation, safety related works, etc.

12. The respondent MPPMCL has submitted that many of the projected additional capital expenditure claimed under Regulation 14 (3) (iii) and 14 (3) (viii) are of routine nature and are not covered under expenditure allowed under such regulation. It has also submitted that the petitioner



has not furnished proper documents regarding expenses on account of higher safety and security of the plant. The respondent has further submitted that the petitioner has not submitted the calculations on how the efficiency in plant operations would be achieved and how the benefit of tariff would be provided. Accordingly, it has prayed for the disallowance of the expenditure.

13. The respondent NVDD, GOMP has submitted that an amount of ₹339.90 crore has been deposited towards CAMPA fund under protest and the capitalization of the same may be considered subject to the decision of the Hon'ble Supreme Court. In response the reply of MPPMCL, the petitioner in its rejoinder has clarified that it has given proper justification in Form-9 of the original tariff petition and has also enclosed documents for claims under Regulation 14 (3) (iii) of the 2014 Tariff Regulations.

14. We have examined the matter. It is noticed that the petitioner in its original petition and in the additional submissions vide affidavit dated 4.12.2015 has submitted justifications in respect of the additional capital expenditure under Regulation 14(3) (iii) and 14 (3) (viii) of the 2014 Tariff Regulations. The submissions made by the parties have been considered and the additional capital expenditure has been allowed on prudence check in the table below. It is also observed that some of the assets/works claimed by the petitioner on projected basis under this head were earlier disallowed by the Commission. However, considering the fact that these assets which are necessary for efficient operation have been put to use and the benefits of the same have been repeated by the respondents by way of supply of power from the generating station, the same is examined on prudence check, as stated below. Accordingly, the expenditure claimed against individual assets/works is examined on prudence check and their admissibility is discussed as under:



2014-15

15. The additional capital expenditure claimed as against those allowed

(₹ in lakh)

| Sl. No. | Work | Unit-I (Dam) | Unit-III (Power House) | Additions | Reason for admissibility |
|---|---|--------------|------------------------|---------------|--|
| A. Admitted Capital Expenditure Spilled over from previous tariff period 2009-14 | | | | | |
| 1 | Purchase of Hydraulic Cylinder of Intake Gates | 0.00 | 223.00 | 223.00 | <p>These assets/works claimed were allowed on projection basis vide Commission's order dated 9.5.2013 in Petition No. 248/GT/2012. The petitioner has submitted that these assets have been procured as initial spares and even after including these expenditures, the cost of initial spares procured is within the ceiling limit of 1.5%.</p> <p>Considering the fact that these assets/works are considered necessary for successful and efficient operation of the plant, the expenditure on these assets/works is allowed under Regulation 14(3) (viii) of the 2014 Tariff Regulations.</p> |
| 2 | Purchase of Distributor servomotors, TGB coolers, Servo valve for Governor, facing plate for bottom ring and head cover | | | | |
| | i) Distributor Servomotor No. 1 & 2 | 0.00 | 108.67 | 108.67 | |
| | ii) Procurement of Turbine Guide Bearing Cooler | 0.00 | 43.77 | 43.77 | |
| 3 | Purchase of Turbine Guide Bearing pads & labyrinth for head cover. | | | | |
| | i) Purchase of Turbine Guide Bearing pads | 0.00 | 86.49 | 86.49 | |
| | ii) Labyrinth for head cover | 0.00 | 13.90 | 13.90 | |
| 4 | Purchase of Motor & pump for power pack of radial gates and motor for stop log & bulkhead gantry crane | 10.00 | 0.00 | 10.00 | |
| 5 | Purchase of spares Generator, Excitation system and Automation etc (Configuration of Workstations of Power house automation system, Procurement of T400 Card for Excitation system) | 0.00 | 55.00 | 55.00 | |
| 6 | Purchase of constant voltage current generator and accessories-- | 0.00 | 5.00 | 5.00 | |



| | | | | | |
|----|--|-------|-------|--------------|--|
| | Multifunction Calibrator | | | | |
| 7 | Portable vibration meter | 0.00 | 6.00 | 6.00 | The asset claimed is in the nature of tools and tackles. Moreover, such asset was not allowed vide Commission's order dated 9.5.2013 in Petition no. 248/GT/2012. Hence, the expenditure is not allowed . |
| 8 | Fire protection system of admin building and other building at OSP | 11.95 | 8.05 | 20.00 | The asset/work claimed under this head was allowed on projection basis vide Commission's order dated 9.5.2013 in Petition No. 248/GT/2012. Considering the fact that these assets/works are considered necessary for safety and security of the plant, the expenditure on the said asset/work is allowed under Regulation 14(3)(iii) of the 2014 Tariff Regulations |
| 9 | Purchase of SF6 evacuating and filtration machine & dew point meter | 0.00 | 25.00 | 25.00 | These assets/works claimed were allowed on projection basis vide Commission's order dated 9.5.2013 in Petition No. 248/GT/2012. Considering the fact that these assets/works are considered necessary for successful and efficient operation of the plant, the expenditure on these assets/works is allowed under Regulation 14(3) (viii) of the 2014 Tariff Regulations. |
| 10 | Study and assessment for performance and commissioning test on FRL | 0.00 | 32.00 | 32.00 | As the work/asset will facilitate the successful and efficient operation of plant after achieving complete reservoir filling, the same is allowed under Regulation 14 (3) (viii) of the 2014 Tariff Regulations. |
| 11 | Purchase of accessories for installation of CCTV system and erection and commissioning of cameras and interconnection of Power House with Admin Block through OFC based network. | 23.91 | 16.09 | 40.00 | The asset/work claimed under this head was allowed on projected basis vide Commission's order dated 9.5.2013 in Petition No. 248/GT/2012. Considering the fact that these assets/works are considered necessary for safety and security of the plant, the expenditure on these assets/works is allowed under Regulation 14(3) (iii) of the 2014 Tariff Regulations. |



| | | | | | |
|---|--|--------------|---------------|----------------|---|
| | Amount claimed | 45.86 | 622.97 | 668.83 | |
| | Amount allowed | 45.86 | 616.97 | 662.83 | |
| B. Projected additional capital expenditure in 2014-15 | | | | | |
| 12 | Special Package as announced by GoMP | 1702.00 | 0.00 | 1702.00 | The petitioner has submitted that out of total announced special package of ₹224.52 crore, the demand of ₹207.50 crore have already been received up to March 2014 and the balance demand of Respondent NVDD, GOMP for ₹17.02 crore is expected in 2014-15. Further, the Special Package announced by GOMP is a further liberalization of R&R Package and as per the terms of CCEA, such capitalization on account of Special Package will not have any impact on the Power Tariff being recoverable as 100% Subvention from GOMP. Considering the fact that the expenditure is on account of 100% subvention from GOMP, the same has been deducted for the purpose of tariff. |
| 13 | Extension of DCR (Dam Control Room) building of Omkareshwar Power Station including construction of Inspection Hall at EL 200 M opposite of DCR. | 49.00 | 0.00 | 49.00 | The petitioner has submitted that hindrance has been experienced in previous years in smooth operation of Radial Gates of Dam due to space constraints and accordingly, in order to create the adequate space for smooth Gate Operation and also for adequate parking space, the instant work is necessary. Considering the fact that these assets/works are considered necessary for successful and efficient operation of the plant, the expenditure on these assets/works have been allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations |
| 14 | Installation of Dam & Power House Civil instrumentation system. | 11.95 | 8.05 | 20.00 | The petitioner has submitted that, in order to monitor the behavior of Dam and Power House Civil Structure under dynamic loading conditions, the instrumentations have been provided and some of the instruments need to be replaced on account of their erroneous performance. Accordingly, the replacement of various instruments with latest features along-with compatible software is necessary for the successful operation of the |



| | | | | | |
|----|--|------|-------|--------------|--|
| | | | | | Power Station. Since the petitioner has not furnished proper details and the replacement value of the old assets, the capital expenditure claimed has not been allowed . However, the petitioner is at liberty to claim the same at the time of truing up which may be considered as per Regulations. |
| 15 | Construction of Watch Tower on Left Bank of Dam and Shed for security check at Right Bank barrier at OSPS. | 8.97 | 6.03 | 15.00 | The petitioner has submitted that the security of the project is at the disposal of CISF and as per their recommendation, construction of Watch Tower on Left Bank of Dam near their security check posts and also a shed in front of security check post on right bank side and these works are necessary from security point of view. Considering the fact that this asset/work is considered necessary for the safety of the plant, the same is allowed under Regulation 14(3) (iii) of the 2014 Tariff Regulations. |
| 16 | Protection and Development of distribution point of Switch-Yard at OSPS. | 4.78 | 3.22 | 8.00 | The petitioner has submitted that the distribution point (Six Pole structure) is situated at right bank near to Switch Yard of OSPS. It is the alternative route of power supply to main dam & power house. This distribution point is installed over a hill edge which has a tendency of sliding due to fractured / loose terrain as such its strengthening by construction of retaining wall with suitable protection by stone pitching is necessary. Considering the fact that the work is of O&M nature, the capitalization is not allowed . |
| 17 | Construction of Parking Shed near Power House at EL 190m at OSPS. | 0.00 | 25.00 | 25.00 | The petitioner has submitted that the temperature of the generating station in summer reaches very high i.e. near about 47 degree celsius. Parking facility for fire tender, water tanker, shift vehicles and vehicles of staff is not available at power house which is essentially required. To overcome such problems and for security and safety of all vehicles suitable parking facility is to be developed near power house of OSPS. Considering the fact that these asset/work will facilitate the |



| | | | | | |
|----|---|-------|-------|--------------|---|
| | | | | | successful and efficient operation of the plant, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. |
| 18 | Construction of Store building at Switch Yard of OSPS. | 17.93 | 12.07 | 30.00 | The petitioner has submitted that at present, store building is not available at switch yard. The equipments, tools/ tackles, spares required for smooth operation and maintenance of various component of Switch Yard are to be stored in Switch Yard area itself. Hence, for proper storage of these items, it is necessary to construct a store building at Switch Yard. Considering the fact that these asset/work will facilitate successful and efficient operation of plant, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. |
| 19 | Providing and laying Epoxy self leveling flooring on generator floor at El.170.296m of PH at OSPS | 0.00 | 55.00 | 55.00 | The petitioner has submitted that Cement Concrete Flooring work on generator floor at EL 170.296 Mtr. has been carried out during construction of project. It is damaged due to movement of heavy equipment and regular use. To strengthen the floor with modern technology and also to have better aesthetic appearance, it is proposed to lay the Epoxy based self leveling flooring at Generator Floor and Erection Bay at EL 170.296 Mtr. in power house. Considering the fact that the work is of O&M nature, capitalization is not allowed . |
| 20 | Construction of Work Shop cum Store Shed at Omkareshwar power station. | 23.91 | 16.09 | 40.00 | The petitioner has submitted that for smooth operation of various component of Power Station viz, turbine, generator, control panel, radial gate, draft tube gates etc., frequent maintenance is being carried out by maintenance division of power station. In this connection various expensive and necessary tools-tackles, equipments/ spares etc. are being utilized, which in absence of proper storage space, kept in open space. For maintenance and storage of important and costly tools/ tackles, equipments, spares, it is necessary to construct workshop-cum-store at Omkareshwar Power |



| | | | | | |
|----|---|-------|-------|--------------|--|
| | | | | | Station. Considering the fact that the asset/work will facilitate successful and efficient operation of the plant, the same has been allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. |
| 21 | Providing & fixing of M.S. pipe railing at top of piers at u/s side. | 10.00 | 0.00 | 10.00 | The petitioner has submitted that these works are essential for the safety of the operational staff. Considering the fact that the assets/works are of O&M nature, capitalization of the same is not allowed . |
| 22 | Providing and fixing of railing at roof of machine hall of Power House. | 0.00 | 9.00 | 9.00 | |
| 23 | Pump for dewatering of Dam Gallery | 25.00 | 0.00 | 25.00 | The petitioner has submitted that Narmada Basin has observed heavy to very heavy rainfall during last three consecutive years and the existing dewatering capabilities have been found insufficient and thus augmentation of dewatering capabilities have been felt necessary so as to have reliable dewatering system in Dam Gallery. Considering the fact that the asset is considered necessary for the successful and efficient performance of the generating station, hence the same has been allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. |
| 24 | Sliding Ring & Sealing Ring insert along with other accessories for Shaft Seal System | 0.00 | 25.00 | 25.00 | The petitioner has submitted that Shaft Seal is the main part of the turbine which prevents water leakage from turbine during static as well as in dynamic state of machine. Failure of Shaft seal can lead to stoppage of machine operation. Thus, the existing Sliding Rings and Sealing Rings of Shaft Sealing System are required to be replaced with new one, so as to ensure the efficient and successful operation of the machines. Considering the fact that the assets/works are considered necessary for successful and efficient operation of the plant, the same is allowed . De-capitalization value of ₹17.77 lakh for old replaced assets/works is considered under ' assumed deletions '. As such, allowed amount is ₹ 7.23 lakh. |



| | | | | | |
|----|---|-------|-------|--------------|--|
| 25 | Purchase of tan delta test kit | 0.00 | 30.00 | 30.00 | The petitioner has submitted that monitoring of insulation health of HV equipment is very essential to predict the fault and thereby avoid the outage of equipment and improve the machine availability for generation. Accordingly, the Tan Delta Test Kit, which is useful for determining healthiness of insulation of generator, transformers and switchyard equipments etc. are required to be purchased so as to predict the fault in advance and thereby to enhance the availability of the machines. Considering the fact that the asset is in the nature of tools & tackles, the same is not allowed |
| 26 | Energy Conservation measures through renewable energy (Solar) | 23.91 | 16.09 | 40.00 | The petitioner has submitted that under Energy Conservation Measures, a 40KW PV Solar plant is proposed to be installed at rooftop of power house, so as to reduce the O&M Expenses of the Generating Station, besides fulfilling the mandate of MNRE, Govt for promoting the Solar Power Generation, wherever possible. The reduced O&M Expenses will ultimately benefit the beneficiary in long term. The asset will reduce the O&M expenses of the generating station. Considering the fact that the O&M expenses for power station has been calculated and allowed on normative basis and this benefit in reduced O&M consumption will not be directly shared with the beneficiary, capitalization of this is not allowed even though it indirectly impacted the efficient operation of the generating station. |
| 27 | Purchase and installation of APFC Panels | 0.00 | 15.00 | 15.00 | The petitioner has submitted that improvement of Power Factor will ultimately result into lesser energy consumption charges and thereby, will reduce the O&M Expenses of the Generating Station. The reduced O&M Expenses will ultimately benefit the Beneficiary in long term. Considering the fact that the O&M expenses for power station has been calculated and allowed on normative basis and this benefit in reduced O&M consumption will not be directly shared with the beneficiary, |



| | | | | | |
|----|--|------|-------|--------------|--|
| | | | | | capitalization of this is not allowed even though it indirectly impacted the efficient operation of the generating station. |
| 28 | Purchase of moisture proof illumination fittings for dam and power house gallery | 5.38 | 3.62 | 9.00 | The petitioner has submitted that as per recommendations of the Dam Safety Committee, moisture proof lights has been proposed to be installed at dam and power house galleries. Considering the fact that the work is of O&M nature, the capitalization of the same is not allowed . |
| 29 | Purchase of search light for dam | 5.00 | 0.00 | 5.00 | The petitioner has submitted that as per recommendations of Dam Safety Committee, the search light to be installed at dam top and claimed this expenditure under Regulation 14(3)(viii) of the Tariff Regulations,2014. Considering the fact that the asset is considered necessary for safety of plant, the same has been allowed under Regulation 14(3) (iii) of the 2014 Tariff Regulations. |
| 30 | Implementation of AMR for ABT Meter | 0.00 | 12.00 | 12.00 | The petitioner has submitted that as per the recommendation of MPOCC/ MPSLDC the implementation of AMR facility is required to be carried out in 10 nos. ABT meters of Elster make installed at five nos. 220 KV transmission lines for metering purposes so that the meter reading may be exported to MPSLD on real time basis through Mobile Network. As such, the Capital Expenditure has been necessitated to comply with the Grid Requirements. Considering the fact that the asset/work is considered necessary for the successful operation of the generating station, hence the same has been allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. |
| 31 | Purchase of electrical drives for EOT Cranes | 0.00 | 10.00 | 10.00 | The petitioner has submitted that as per OEM, the existing Electric Drives of EoT Cranes has become obsolete and on account of their obsolescence, the availability of spare parts may become difficult and |



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| | | | | | thus, in order to keep the EoT Cranes of Power House in healthy conditions, the existing 4 No. faulty Drives need to be replaced so as to ensure the smooth and efficient operation of the generating station. Considering the fact that the assets/works are considered necessary for successful and efficient operation of the plant, the same is allowed . De-capitalization value of ₹7.11 lakh for old replaced assets/works is considered under 'assumed deletions'. As such, allowed amount is ₹2.89 lakh. |
| 32 | Construction of Office, Transit camp & Canteen at Omkareshwar Power Station, Siddhwarkut for CISF | 89.66 | 60.34 | 150.00 | The petitioner has submitted that security of Omkareshwar Power Station is being looked after by CISF. For smooth functioning of their activities, these buildings are required to be constructed. Since the expenditure is for the benefit of employees of CISF working in the power station and the assets/works will facilitate safety of the plant, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. |
| 33 | Connectivity of telephone exchange of Urja Vihar and CISF colony through OFC cables. | 7.17 | 4.83 | 12.00 | The petitioner has submitted that the CISF Camp and the Power House / Office Complex are situated across the Banks of River Narmada and the existing connectivity through Mobile / Landline Networks is not very reliable. As such, on the recommendation of CISF, the connectivity between CISF Camp and the Office Complex situated on two banks of the river is necessary by installation of OFC Cables, so as to have a reliable communication system with the Security Agency to ensure the safety and security of the Project. Since the expenditure necessary for smooth functioning of CISF deputed in the power station and the asset/work will facilitate safety of the plant, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. |



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| 34 | 33 KV additional bay/spare transformer, CB, CT, PT etc at OSP | 38.85 | 26.15 | 65.00 | <p>The petitioner has submitted that in order to have redundancy in Power Supply System of power house, Dam, project offices etc., an additional bay/equipment at 33kV Sub-Station at Urja Vihar is necessary, so as to ensure the smooth and efficient operation of Generating Station.</p> <p>Petitioner has not submitted any kind of recommendation from CTU/CEA or any other competent authority/committee for creation of such additional bay. As such, considering the asset to be "spares" in nature, the same is not allowed. However, petitioner is directed to submit proper justification and recommendations of CTU/CEA or any other competent authority/committee, if any, at the time of truing up.</p> |
| 35 | Electrical Fittings viz. fans, exhaust, geyser, tube lights etc for new F type quarters | 2.99 | 2.01 | 5.00 | <p>The petitioner has submitted that new 'F' type quarters are under construction. All electrical fittings viz. fans, exhaust, geyser, tube lights, street lights etc shall be required in these new quarters. Considering the fact that the assets are of minor in nature, the same is not allowed.</p> |
| 36 | Augmentation of Storage Facility by Heavy duty Store Racks | 0.00 | 10.00 | 10.00 | <p>The petitioner has submitted that the existing storage capacity needs to be augmented so as to ensure safe storage of material with proper staking in racks. Accordingly, instant work is necessitated for the successful operation of generating station.</p> <p>Considering the fact that the work is of O&M nature, capitalization is not allowed.</p> |
| 37 | Construction of 12 nos. F-Type Quarters (Phase - I) at Omkareshwar Power Station, Siddhwarkut | 119.54 | 80.46 | 200.00 | <p>The petitioner has submitted that available nos. of quarter are less than sanctioned strength of E-3 & E-4 level officers, hence additional quarters are required to be constructed for E-3 & E-4 level officers as per norms of the corporation. There was provision for 16 nos. Permanent F-Type quarters and 10 nos. Temporary F type quarters in Revised cost estimate of Omkareshwar Power Station, but could not be constructed. The work</p> |



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| | | | | | <p>has since been awarded and, is in progress, which will ensure the successful operation of the generating station.</p> <p>Considering the fact that the expenditure is for the benefit of the employees working in the power plant which will facilitate efficient and successful operation of the plant, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations.</p> |
| 38 | Construction of One additional room in I-Type Quarters at OSP | 89.66 | 60.34 | 150.00 | <p>The petitioner has submitted that I-Type Quarters are mainly meant for the workers / contract staff and consequent to their growing family, there has been a demand for one additional room in these quarters, as the existing space is found to be insufficient for catering to their family needs.</p> <p>Considering the fact that the expenditure is for the benefit of the employees working in the power plant which will facilitate efficient and successful operation of the plant, the same is allowed under Regulation 14(3) (viii) of the 2014 Tariff Regulations.</p> |
| 39 | Construction of watch tower at central store. | 11.95 | 8.05 | 20.00 | <p>The petitioner has submitted that construction of watch tower at central store is essential for strict vigil, ensuring safety and security of the central store.</p> <p>Considering the fact that the expenditure necessary for smooth functioning CISF deputed in the power station and the asset/work will facilitate safety and security of the plant, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations.</p> |



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| 40 | Widening of existing approach road to main dam on left bank at OSP | 46.02 | 30.98 | 77.00 | <p>The petitioner has submitted that this work is basically a deferred work of original scope which so far could not be completed due to ongoing construction activities by GoMP for the Canal emitting from the left bank of the dam. Now, the work of canal has since been completed by the GoMP, hence this work is being taken-up to ensure smooth approach to Main Dam, Power House and Colony Area. The widening of approach road has also been necessitated so as to ensure smooth movement of CISF personnel from their Camp located at left bank of dam to the main Project Area located on right bank side.</p> <p>Considering the fact that the asset/work will facilitate successful and efficient operation of plant, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations.</p> |
| 41 | Development of children park at Urja Vihar Parisar, Siddhwarkut | 11.95 | 8.05 | 20.00 | <p>The petitioner has submitted that on demand of the residents of Colony, the recreational facilities are being augmented by developing a Children Park at Urja Vihar Parisar, so as to keep the dependents of the Operation Staff residing in the remote area of Project Colony, motivated.</p> <p>Considering the fact that the expenditure is for the benefit of the employees working at remote area which eventually will facilitate efficient and successful operation of the plant, the same expenditure is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations.</p> |
| 42 | Acoustic treatment of multipurpose hall of Vrindavan Manoranjan Parisar at OSP | 4.18 | 2.82 | 7.00 | <p>The petitioner has submitted that Vrindavan Manoranjan Parisar situated at Urja Vihar Colony is being used for various official functions and ceremonies. One hall inside the Vrindavan Manoranjan Parisar is required acoustic treatment, so that echo effect can be minimized and function can be organized smoothly. Though the work has been completed in 2014-15, the same is not allowed as the expenditure is of O&M nature.</p> |



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| 43 | Protection work for approach road to main dam at left bank (Phase-I) | 29.89 | 20.11 | 50.00 | The petitioner has submitted that embankment constructed for approach road to main dam in left bank is required to be protected up to EL 185.00 M because flood water level may reach up to this level and in absence of protection work, the embankment may get eroded. Considering the fact that the protection work is of recurring nature and should be met out of O&M expenses, the same is not allowed . |
| 44 | Purchase of obsolete encoders for Radial Gates of Omkareshwar Power Station | 21.50 | 0.00 | 21.50 | The petitioner has submitted that existing two nos. faulty absolute encoders of Radial Gates are required to be replaced for successful operation of the Gates. Considering the fact that the assets/works are considered necessary for successful and efficient operation of the plant, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations, 2014. De-capitalization value of ₹15.28 lakh of old replaced assets/works is considered under ' assumed deletions '. As such, the amount allowed is ₹6.22 lakh. |
| | Amount claimed | 2361.19 | 560.31 | 2921.50 | |
| | Amount Allowed | 511.98 | 334.36 | 846.34 | |
| | Total Amount claimed in 2014-15 | 2407.05 | 1183.28 | 3590.33 | |
| | Total Amount Allowed in 2014-15 | 557.84 | 951.33 | 1509.17 | |

2015-16

(₹ in lakh)

| Sl. No. | Work | UNIT-I | UNIT-III | Additions | Reason for admissibility |
|---|--|--------|----------|---------------|--|
| A. Admitted Capital Expenditure Spilled over from previous tariff period 2009-14 | | | | | |
| 1 | Purchase of Generator coolers, Servo valve for Governor, facing plate for bottom ring and head cover | | | | The assets/works claimed under this head were allowed on projection basis vide order dated 9.5.2013 in Petition No. 248/GT/2012. Considering the fact that the assets/works are considered necessary to facilitate efficient and successful operation of plant, hence, capitalisation of these assets/works is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. Moreover the assets have been procured as initial spares and even |
| | i) Generator Coolers | 0.00 | 192.00 | 192.00 | |
| 2 | Purchase of labyrinth for bottom ring, Upper wicket gate bearings | | | | |
| | i) labyrinth for bottom ring | 0.00 | 29.00 | 29.00 | |
| | ii) Upper wicket gate | 0.00 | 116.57 | 116.57 | |



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| | bearing carrier | | | | | after including these expenditures, the cost of initial spares procured is within the ceiling limit of 1.5% as observed in the order itself. |
| 3 | Purchase of Servo valve for Governor, facing plate for bottom ring and head cover | | | | | |
| | i) Servo valve for Governor, | 0.00 | 100.00 | | 100.00 | |
| | ii) Facing plate for bottom ring and head cover | 0.00 | 10.00 | | 10.00 | |
| 4 | Purchase of 800 Amp. CT for 220 KV Line | 0.00 | 50.00 | | 50.00 | |
| 5 | FRL testing | 0.00 | 50.00 | | 50.00 | The asset/work claimed under this head was allowed on projection basis vide order dated 9.5.2013 in Petition No. 248/GT/2012. Considering the fact that the work will facilitate successful and efficient operation of the plant, the same is allowed under Regulation 14 (3)(viii) of the 2014 Tariff Regulations. |
| | Amount claimed | 0.00 | 547.57 | | 547.57 | |
| | Amount Allowed | 0.00 | 547.57 | | 547.57 | |
| B. Fresh additional capital expenditure projected during 2015-16 | | | | | | |
| 6 | Providing and fixing filter plant for water treatment for drinking water supply for Dam & Power house. | 5.98 | 4.02 | | 10.00 | The petitioner has submitted that the slow sand filter installed during construction of project for filtered water supply to power house and Dam control Room became obsolete and needs to be replaced with latest filter plant to give hygienic drinking water free from impurities to the staff working in power house and Dam area. Considering the fact that the expenditure is for the benefit of the employees working in power plant which eventually will facilitate efficient and successful operation of the plant, hence the same is allowed under Regulation 14(3) (viii) of the 2014 Tariff Regulations. De-capitalization value of ₹6.77 lakh of old replaced assets/works is considered under ' assumed deletions '. As such, allowed amount is ₹3.23 lakh (₹1.93 lakh for Unit-I and ₹1.30 lakh for Unit-III). |
| 7 | Construction of lunchroom cum canteen for workers near Power house of OSPS. | 0.00 | 40.00 | | 40.00 | The petitioner has submitted that at present, there is no lunch room/ rest room/ sitting space is available for staff of power house and switchyard for taking meals etc. during lunch |



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| | | | | | hours. This is a mandatory requirement from labour welfare angle also. Considering the fact that the expenditure is for the benefit of the employees working in power plant which eventually will facilitate efficient and successful operation of the plant, hence the same is allowed under Regulation 14(3) (viii) of the 2014 Tariff Regulations. |
| 8 | Construction of Shed for security check at left Bank barrier at OSPS. | 4.78 | 3.22 | 8.00 | The petitioner has submitted that, on requirement of CISF for Security of Dam & Power House, construction of shed at Left and Right banks was required. At right bank the work of construction of shed has already been taken up and in left bank it is proposed to be constructed in the year 2015-16. Considering the fact that the asset/work is considered necessary for the safety of the plant, hence the same is allowed under Regulation 14(3)(iii) of the 2014 Tariff Regulations. |
| 9 | Construction of guard wall along D/s apron of Dam of OSPS. | 85.00 | 0.00 | 85.00 | The petitioner has submitted that Energy Dissipation Arrangement is a vital component of the Dam. Omkareshwar Dam has been provided with Stilling Basin type EDA. The Narmada Basin has experienced very heavy rains in last three consecutive years and consequently, floods were also passed through Dam Radial Gates on continuous basis for prolonged periods. On inspection of Apron, it is observed that the filter material below Apron has been damaged and a portion along edge of the Apron has also been washed away endangering the stability of Stilling Basin. Hence, in order to strengthen the affected area, a Guard Wall all along the apron is necessary for the safety and stability of EDA of Dam. Considering the fact that the asset/work is considered necessary for successful and efficient operation of plant, the same is allowed under Regulation 14(3) (viii) of the 2014 Tariff Regulations. |



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| 10 | Interior & furnishing work of DCR building and power house control room of OSPS. | 23.92 | 16.08 | 40.00 | The petitioner has submitted that the work of extension for DCR building is already awarded. After completion of this work, its internal development/interior work will be taken up. Likewise, similar work is also required in power house control room for smooth functioning of operation of power house and for safety of various computers and online monitoring systems installed in power house control room. Considering the fact that the petitioner has not submitted the details of Interior and furnishing works, the same is not allowed . However, the petitioner is directed to submit the details of such expenditure with proper justification at the time of true-up. |
| 11 | Purchase of Hydraulic Cylinder of Radial Gates. | 250.00 | 0.00 | 250.00 | The petitioner has submitted that the Radial Gates of Dam have been provided with Hydraulic Hoisting System. Being a vital component for the operation of Dam Radial Gates, one No. Hydraulic Cylinder as spare has been felt necessary, so as to meet any eventuality, especially at the time of high floods. Considering the fact that the asset is in nature of spare, the capitalization of the same is not allowed . |
| 12 | Back flushing Filter | 0.00 | 25.00 | 25.00 | The petitioner has submitted that it has been found that during Monsoon period, unit No.8 gets tripped very frequently due to chocking of automatic back flush filter. Dismantling and cleaning of filter takes longer time and causes generation losses. Therefore, additional filter will reduce downtime of machine and avoid generation loss. Considering the fact that the asset is in nature of spare, the capitalization of the same is not allowed . |
| 13 | Air ventilation System for Dam & Power Dam Gallery | 20.00 | 0.00 | 20.00 | The petitioner has submitted that as per the recommendation of Dam Safety Committee, these works have been necessitated. Since the assets are considered necessary for the safety of the plant, the same is allowed under Regulation 14(3) (iii) of the 2014 Tariff Regulations. |
| 14 | Fire Fighting Equipments in Dam & Power Dam Gallery | 40.00 | 0.00 | 40.00 | |



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| 15 | Centrifuging machine - 2 nos | 11.96 | 8.04 | 20.00 | The petitioner has submitted that centrifuging machine are essentially required for moisture removal from hydraulic oil being used in power packs of 23 nos. radial gate, 8 nos. Intake gates and 8 nos. machine (turbine). At present, only 2 nos. centrifuging machines are available in Power House and Dam which is insufficient for 23 nos. radial gates, 8 nos. Intake gates, 8 nos. machine (turbine) and 01 no. TRCM. Considering the need based expenditure which eventually would facilitate the successful and efficient plant operation, the same is allowed under Regulation 14(3) (viii) of the 2014 Tariff Regulations. |
| 16 | Up gradation of Air gap and vibration monitoring system | 0.00 | 10.00 | 10.00 | The petitioner has submitted that work is necessary for reliable monitoring of system which is meant for prediction of any problem in air-gap / vibration of running machine. The Air Gap and Vibration Monitoring System of Make-MC-monitoring SA, Switzerland has been commissioned by M/s Voith Siemens in the year 2007. The latest version of software equipped with various newer features and moreover, due to obsolescence of existing software, its replacement is necessitated, so as to avoid the system hang problem being encountered in the recent past. The fact that the air gap and vibration monitoring system is a very important system for maintaining the machines in healthy state. Though the petitioner has not specifically submitted the de-capitalisation value of the old assets, ₹6.77 lakh, has been considered as the de-capitalisation value for the old asset, under ' assumed deletions ' and accordingly an amount of ₹3.23 lakh is allowed. |
| 17 | Configuration of memory card for excitation system | 0.00 | 10.00 | 10.00 | The petitioner has submitted that 08 Nos. excitation panels have been installed. In excitation panel, memory card has been used for data storage/system software. No spare programmed memory card is available. Hence, memory card is required for excitation system as a |



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| | | | | | <p>spare to keep the excitation system healthy and maximizing the machine availability.</p> <p>Considering the fact that the asset is spare in nature, capitalization is not allowed.</p> |
| 18 | Purchase of wave trap for switchyard | 0.00 | 10.00 | 10.00 | <p>The petitioner has submitted that wave trap is required for healthy PLCC communication to other end of line and to SLDC. A total of 10 nos. wave trap has been installed at 220KV switchyard for two way communication. The spare of the same is not available at power station and is proposed to be procured. Item is necessary to keep spare for healthy communication through PLCC at other end of line and SLDC. Considering the fact that the asset is in nature of spare, capitalization of the same is not allowed.</p> |
| 19 | Purchase of cable fault locator | 17.94 | 12.06 | 30.00 | <p>The petitioner has submitted that various types of underground and surface cables are situated at Colony and power house premises. The cable fault locator is necessary to check the fault in minimum time to reduce the outage of cable system and equipment engaged as in case of any earth fault, it becomes extremely difficult to know the exact location of fault.</p> <p>Considering the fact that the assets are of tools & tackles in nature, the same is not allowed.</p> |
| 20 | New server for ORACLE at OSP along with Anti Virus software | 8.97 | 6.03 | 15.00 | <p>The petitioner has submitted that the existing server is around 4 years old and require to be upgraded and augmented with new configuration server because with passage of time the loads on existing server has increased a lot. Simultaneously, the configurations of existing server is old and do not support most of the new software and application. Further, new server will increase the reliability also, so that the work of project based on ORACLE viz. Finance division, stores division and other divisions does not get hampered. However, the same is not allowed as the expenditure is of minor nature.</p> |



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| 21 | Energy Saving lights (solar based LED lights) for Urja Vihar colony | 14.95 | 10.05 | 25.00 | <p>The petitioner has submitted that under Energy Conservation Measures, Solar Based LED Lights for Urja Vihar Colony is proposed, so as to reduce the O&M Expenses of the Generating Station, besides fulfilling the mandate of MNRE, Govt for promoting the Solar Power, wherever possible. The reduced O&M Expenses will ultimately benefit the Beneficiary in long term.</p> <p>The asset will reduce the O&M expenses of the generating station. As O&M expenses have been allowed to the generating station on normative basis, the capitalization of this asset is not allowed even though it indirectly has an impact on the efficient operation of the generating station.</p> |
| 22 | Purchase of 03 MT Fork Lift for Store. | 0.00 | 10.00 | 10.00 | <p>The petitioner has submitted that presently no equipment is available in store for material Handling. For safe and convenient material handling it is very much essential. Considering the fact that it is a need based expenditure required for successful and efficient plant operation, the same is allowed under Regulation 14(3) (viii) of the 2014 Tariff Regulations.</p> |
| 23 | Construction of 06 nos. F-Type Quarters (II-Phase) at Omkareshwar Power Station, Siddhwarkut | 47.85 | 32.15 | 80.00 | <p>The petitioner has submitted that available nos. of quarters are less than sanctioned strength of E-3 & E-4 level officers, hence additional quarters are required to be constructed for E-3 & E-4 level officers as per norms of the corporation. There was provision for 16 nos. Permanent F-Type quarters and 10 nos. temporary F type quarters in Revised cost estimate of Omkareshwar Power Station but could not be constructed. Considering the fact that the expenditure is for the benefit of the employees working in the power plant which will facilitate efficient and successful operation of the plant, hence, the same is allowed under Regulation 14(3)(viii), of the 2014 Tariff Regulations.</p> |



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| 24 | Protection work for approach road to main dam at left bank (Phase-II) | 29.91 | 20.10 | 50.01 | The petitioner has submitted that embankment constructed for approach road to main dam in left bank is required to be protected up to EL 185.00 M because flood water level may reach up to this level and in absence of protection work, embankment may be eroded. Considering the fact that the work is O&M in nature, capitalization of the same is not allowed . |
| 25 | Area Development near F-Type quarters at Urja Vihar Colony. | 23.92 | 16.08 | 40.00 | The petitioner has submitted that the surroundings near F-type quarter are required to be developed. It is essential to construct road, garages and street lights etc. for the residence of F-Type quarters. Since the expenditure is for the benefit of the employees working in the power plant which will facilitate efficient and successful operation of the plant, hence the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. |
| 26 | Construction of additional rooms/transit office at Guest House at Indore. | 14.95 | 10.05 | 25.00 | The petitioner has submitted that Indore is one of main business centers of Madhya Pradesh and transit through this place is very rapid. Due to this, the transit camp of Omkareshwar Power Station at Indore is mostly fully occupied. Due to less number of rooms in transit camp, construction of more rooms are required. Considering the fact that the asset/work is for the benefit of the employees working in the station which will eventually facilitate successful and efficient operation of the plant, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. |
| | Amount claimed | 600.13 | 242.88 | 843.01 | |
| | Amount Allowed | 250.39 | 124.07 | 374.46 | |
| | Total Amount claimed in 2015-16 | 600.13 | 790.45 | 1390.58 | |
| | Total Amount Allowed in 2015-16 | 250.39 | 671.64 | 922.03 | |



| Sl. No. | Work | UNIT-I | UNIT-III | Additions | Reason for admissibility |
|---|--|-------------|--------------|---------------|---|
| A. Admitted Capital Expenditure Spilled over from previous tariff period 2009-14 | | | | | |
| 1 | Hardware and software for making necessary arrangement for Blackstart of Generating units | 0.00 | 30.00 | 30.00 | The asset/work claimed under this head was allowed on projection basis vide order dated 9.5.2013 In Petition No. 248/GT/2012. Considering the fact that the asset/work is considered necessary for reliable Grid, the same is allowed under Regulation 14(3)(ii) of the 2014 Tariff Regulations. |
| | Amount claimed | 0.00 | 30.00 | 30.00 | |
| | Amount Allowed | 0.00 | 30.00 | 30.00 | |
| B. Fresh additional capital expenditure projected during 2016-17 | | | | | |
| 2 | Providing and fixing access/ platform to Trunion Girder across the piers at Dam of OSPS. | 150.00 | 0.00 | 150.00 | The petitioner has submitted that as per the recommendation of Dam Safety Committee, this work is proposed especially for the safety of operation and Maintenance Staff. Considering the fact that the asset/work is considered necessary for the safety of the plant, the same is allowed under Regulation 14(3)(iii) of the 2014 Tariff Regulations. |
| 3 | Protection work for stabilization of hill slopes in right & left bank and river banks in the d/s of Dam. | 179.33 | 120.67 | 300.00 | The right bank side just adjacent to TRC is exposed having fractured rock. It is noticed that landslide is continued in this zone which is just on edge of switchyard. Similarly, the landslide from exposed inclined portion of hill during monsoon near gate of switch yard is also causing damages. Presently, these hills/ edges are unprotected. Hence, for safety of equipments/ TRC, it is necessary to establishment hard rock of hill with shotcrete protection. Considering the fact that the work is of O&M nature, capitalization of the same is not allowed . |
| 4 | Providing online monitoring system for assessing safety of dam structure. | 29.89 | 20.11 | 50.00 | The petitioner has submitted that in present instrumentation system, data is being collected through data acquisition system and these data are required to be analyzed for assessing safety of dam structure. Now a days online monitoring system is available in the market, which shows deflection, settlement etc. of dam structure immediately and thus, it is essential to install such system |



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| | | | | | from safety point of view. Considering the fact that the asset/work will facilitate successful and efficient operation of the plant, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. |
| 5 | Brake tracks and Brake cylinders for brake jack system. | 0.00 | 25.00 | 25.00 | The petitioner has submitted that Brake Track is very much essential to meet any emergency situation where the track fails due to malfunctioning of brakes. These critical parts are essential to minimize the outage of machine and to avoid the generation loss. As the capitalization sought involves additional spares to reduce downtime, hence the same is not allowed . |
| 6 | Up gradation of Maintenance Seal. | 0.00 | 50.00 | 50.00 | The petitioner has submitted that maintenance seal is very much essential for shaft seal maintenance work which may be carried out without dewatering and hence reducing the downtime of machine and increasing the generation. This system was commissioned along with the machine in year 2007. During maintenance activities some malfunctioning is observed in the maintenance seal system and required to be upgraded/modified. Considering the fact that the work is of O&M nature, capitalization of the same is not allowed . |
| 7 | Supply, installation and commissioning of Online Dissolved Gas Analyzer for balance of 04 nos. Generator transformers. | 0.00 | 110.00 | 110.00 | The petitioner has submitted that out of total 08 Nos. generator transformers, online DGA has been installed in 04 nos. Generator transformers in 2012-13. Online DGA transformer monitoring provides the important and timely information needed to maintain the reliability and safety of transformers. The installed instruments are also capable of detecting moisture in oil. The sampling of oil can be done on hourly basis on a remote computer screen at Control Room at Power House. The performance of installed DGA is very satisfactory. Thus, its installation is proposed for remaining 4 No. GTs. Tools and tackles (including measuring instruments) procured |



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| | | | | | after cut-off date help increase in availability and reduce O&M expenditure. As such, availability and O&M expense being normative numbers, the benefit of such assets accrues solely to the generator. As such, expenditure is not allowed . |
| 8 | CT,PT and Transducer for excitation system and other accessories | 0.00 | 20.00 | 20.00 | <p>The petitioner has submitted that power station having 08 Nos. Excitation panels for 08 generating units. In excitation system CT, PT and voltage and current transducer are used for current & voltage measurement and the values are used for further regulating the system. The performance of excitation system depends upon the voltage & current transducer. Since only one no. spare is available, therefore keeping in view the importance of voltage & current transducer for 08 units, additional one more is required for power station. Critical spares are essential to keep the min. outage of excitation system and reduce the possibility of outage of machine and increase machine availability.</p> <p>Considering the fact that the assets are in the nature of spares, the same is not allowed.</p> |
| 9 | Up gradation of protection system including replacement of numerical/ Electromagnetic relay for power house | 0.00 | 50.00 | 50.00 | <p>The petitioner has submitted that work is essential to replace obsolete relay to keep minimum outage in case of fault in protection system. Since the asset/work is considered necessary for successful and efficient operation of the plant, the same has been allowed. De-capitalization value of ₹32.23 lakh of old replaced asset/work is considered under 'assumed deletions'. As such, allowed amount is ₹17.77 lakh.</p> |
| 10 | Mobile lighting mast | 4.18 | 2.82 | 7.00 | <p>The petitioner has submitted that in order to deal with emergency condition and to work even at height under dark condition, it will be useful to have one such mobile mast. Considering the fact that the asset would facilitate successful and efficient plant operation, the same has been allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations.</p> |



| | | | | | |
|----|--|---------------|---------------|---------------|---|
| 11 | On line UPS for Power House office computers | 2.99 | 2.01 | 5.00 | The petitioner has submitted that since standalone UPS system does not prove to be such reliable and caused problems in past and their maintenance is also frequent to ensure the reliable power supply to computers, purchase one online UPS for power house office computers has been proposed, so that computers can be protected from abrupt OFF and thus fault in computers can also be controlled. The same is not allowed as the expenditure is of minor nature. |
| | Amount claimed | 366.39 | 400.61 | 767.00 | |
| | Amount Allowed | 184.07 | 40.70 | 224.77 | |
| | Total Amount claimed in 2016-17 | 366.39 | 430.61 | 797.00 | |
| | Total Amount Allowed in 2016-17 | 184.07 | 70.70 | 254.77 | |

2017-18

| Sl. No. | Work | UNIT-I | UNIT-III | Additions | Reason for admissibility |
|---|---|----------------|----------------|----------------|---|
| A. Admitted Capital Expenditure Spilled over from previous tariff period 2009-14 | | | | | |
| 1 | Design, Engineering and Construction of bridge and approach road on D/s of Omkareshwar Dam, Shiddhwarkut. | 2090.59 | 1409.42 | 3500.01 | The asset/work claimed under this head was allowed on projection basis vide order dated 9.5.2013 in Petition No. 248/GT/2012. Considering the fact that the asset/work is considered necessary for the safety of the plant, the same is allowed under Regulation 14(3)(iii) of the 2014 Tariff Regulations. |
| | Amount claimed | 2090.59 | 1409.42 | 3500.01 | |
| | Amount Allowed | 2090.59 | 1409.42 | 3500.01 | |
| B. Fresh additional capital expenditure projected during 2017-18 | | | | | |
| 2 | Up-gradation of Software of automation i.e. CS-7 system. | 0.00 | 240.00 | 240.00 | The petitioner has submitted that the Control System of the generating station is based on distributed Control Modules in hierarchical control levels through the CS-7 System of M/s Voith Siemens. This existing CS-7 System has become obsolete and there is no support available from M/s Siemens and no updates available for windows from Microsoft. Accordingly, in order to avoid any crash of system in future, the existing CS-7 System is to be upgraded with PCS-7 (Ver. 8.0). |



| | | | | | |
|--|--|----------------|----------------|----------------|--|
| | | | | | Considering the fact that the asset/work is considered necessary for successful and efficient operation of plant, the same is allowed under Regulation 14(3)(viii) of 2014 Tariff Regulations. However, de-capitalization value has been considered as ₹147.34 lakh under " assumed deletions ". As such, allowed amount is ₹92.66 lakh. The petitioner is directed to furnish certificate for obsolescence of the existing system at the time of truing up. |
| | Amount claimed | 0.00 | 240.00 | 240.00 | |
| | Amount Allowed | 0.00 | 92.66 | 92.66 | |
| | Total Amount claimed in 2017-18 | 2090.59 | 1649.42 | 3740.01 | |
| | Total Amount Allowed in 2017-18 | 2090.59 | 1502.08 | 3592.67 | |

2018-19

(₹ in lakh)

| Sl. No. | Work | UNIT-I | UNIT-III | Additions | Reason for admissibility |
|---|------------------------------|-------------|-------------|--------------|---|
| A. Admitted Capital Expenditure Spilled over from previous tariff period 2009-14 | | | | | |
| | Amount claimed | 0.00 | 0.00 | 0.00 | |
| B. Fresh additional capital expenditure projected during 2018-19 | | | | | |
| 1 | Up gradation of ARMAC System | 10.00 | 0.00 | 10.00 | The petitioner has submitted that the generating station has been commissioned in the year 2007. ARMAC System controls and monitors the operation of all the Radial Gates from DAM Control Room to control the flood. The system consists of various hardware and software for its functioning. Normally electronic system gets obsolete after a specific life cycle and up-gradation in electronic devices is a continuous process. In view of this, it is anticipated that up-gradation work for the ARMAC System shall be required for future needs. Work is necessary to keep update of obsolete technology and to keep system healthy and operative for effective and reliable control of flood. Considering the fact that the asset/work is considered necessary for successful and efficient operation |



| | | | | | |
|--|-----------------------|--------------|-------------|--------------|--|
| | | | | | of plant, the same has been allowed under Regulation 14(3)(viii) of Tariff Regulations, 2014. However, de-capitalization value has been considered as Rs. 5.85 lakh under ' assumed deletions '. As such, allowed amount is ₹4.15 lakhs. |
| | Amount claimed | 10.00 | 0.00 | 10.00 | |
| | Amount Allowed | 4.15 | 0.00 | 4.15 | |

Initial Spares

16. The Commission in its order dated 16.1.2012 in Petition No. 265/2010, had admitted the cost of initial spares amounting to ₹1827.15 lakh up to 31.3.2009. By Commission's order dated 9.5.2013 in Petition No. 248/GT/2012, the capitalization of initial spares amounting for ₹942.51 lakh in 2009-14 was allowed on projected basis. However, the petitioner had not actually procured any initial spares during 2009-14. Therefore, the petitioner has claimed ₹1827.15 lakh and ₹1043.40 lakh during the years 2014-15 and 2015-16 respectively. The total amount of ₹2870.55 lakh (1827.15 + 1043.40) towards procurement of initial spares falls within the ceiling limit of 1.5% of the admitted original project cost of ₹204732.85 lakh as on the cut-off date of the generating station in terms of the 2004 Tariff Regulations, as the COD of the station is 15.11.2007.

17. Considering the fact that building the stock of adequate initial spares ensures higher availability of the plant and is in the overall interest of beneficiaries and the generator, the procurement of initial spares which was within the ceiling limit was allowed in order dated 9.5.2013 in Petition No. 248/GT/2012 after the cut-off date of the generating station. Considering the fact that the petitioner had not procured any initial spares during the period 2009-14, the capitalization of the expenditure towards procurement of initial spares for ₹1043.40 lakh in 2014-15 and 2015-16, as claimed by the petitioner, is allowed as the same is within the ceiling limit as specified under the 2004 Tariff Regulations.



Assumed Deletions

18. As per the methodology adopted by the Commission for determination of tariff, the expenditure on replacement of assets, if found justified is allowed for the purpose of tariff provided that the capitalization of the said asset is followed by the de-capitalization of the original value of the old asset. However, in certain cases where de-capitalization is effected in books in the subsequent years, the de-capitalization of the old asset for the purpose of tariff is shifted to that particular year in which the capitalization of the new asset is allowed. Such de-capitalization which is not a book entry in the year of capitalization is termed as "Assumed deletion".

19. It is observed that the petitioner has claimed ₹396.50 lakh against the capitalization for Installation of instrumentation system for Dam & Power house, Sliding Ring & Sealing Ring insert along with other accessories for Shaft Seal System, electrical drives for EOT Cranes and encoders for Radial Gates, Up gradation of Air gap and vibration monitoring system, Up gradation of protection system including replacement of numerical/ Electromagnetic relay for power house, Up-gradation of Software of automation i.e. CS-7 system and Up gradation of ARMAC System on replacement basis, during the period 2014-19. The petitioner has not indicated the gross value of the old assets replaced. Therefore, the methodology of arriving at the fair value of the de-capitalized asset, i.e. escalation rate of 5 % per annum from the COD has been considered in order to arrive at the gross value of old assets in comparison to the cost of new assets. Gross value of the old assets considered for the purpose of tariff in respect of the admitted assets/works has been indicated against individual assets, as in para 15 above. However, the petitioner is granted liberty to furnish the actual gross value of replaced assets at the time of truing up exercise and the same will be considered in accordance with law.

20. Based on the above discussions, the projected additional capital expenditure claimed *vis-à-vis* allowed prior to adjustment of Irrigation component, is summarized as under:



(₹ in lakh)

| Year | Amount Claimed | | | Amount Allowed | | |
|--------------|----------------|------------------------|----------------|----------------|------------------------|----------------|
| | Unit-I (Dam) | Unit-III (Power House) | Total | Unit-I (Dam) | Unit-III (Power House) | Total |
| 2014-15 | 2407.05 | 1183.28 | 3590.33 | 557.84 | 951.33 | 1509.17 |
| 2015-16 | 600.13 | 790.45 | 1390.58 | 250.39 | 671.64 | 922.03 |
| 2016-17 | 366.39 | 430.61 | 797.00 | 184.07 | 70.70 | 254.77 |
| 2017-18 | 2090.59 | 1649.42 | 3740.01 | 2090.59 | 1502.08 | 3592.67 |
| 2018-19 | 10.00 | 0.00 | 10.00 | 4.15 | 0.00 | 4.15 |
| Total | 5474.16 | 4053.76 | 9527.92 | 3087.04 | 3195.75 | 6282.79 |

21. In arriving at the allowable projected additional capital expenditure for power component, the additional capital expenditure allowed as above for Unit-I i.e Dam is reduced by Irrigation component @ 16.75%. Accordingly, the projected additional capital expenditure allowed for Power component, as against the expenditure allowed on Unit-I is as under:

(₹ in lakh)

| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | Total |
|--|---------------|---------------|---------------|----------------|-------------|----------------|
| Additional capital expenditure allowed on projection basis to Unit-I i.e Dam (a) | 557.84 | 250.39 | 184.07 | 2090.59 | 4.15 | 3087.04 |
| Irrigation component @ 16.75% (b) | 93.44 | 41.94 | 30.83 | 350.17 | 0.70 | 517.08 |
| Additional capital expenditure of Dam towards power component (c)=(a)-(b) | 464.40 | 208.45 | 153.24 | 1740.42 | 3.45 | 2569.96 |

22. The expenditure on Unit-III (Power house) considered for the purpose of tariff of Power Component, is as under:

(₹ in lakh)

| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | Total |
|--|---------------|---------------|--------------|----------------|-------------|----------------|
| Unit-III share to power component | 951.33 | 671.64 | 70.70 | 1502.08 | 0.00 | 3195.75 |

23. Based on above, the total projected additional capital expenditure allowed for the purpose of tariff for Power component is as under:

(₹ in lakh)

| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | Total |
|--|----------------|---------------|---------------|----------------|-------------|-------|
| Projected additional capital expenditure against Unit-I allowed (a) | 464.40 | 208.45 | 153.24 | 1740.42 | 3.45 | |
| Projected additional capital expenditure against Unit-III allowed (b) | 951.33 | 671.64 | 70.70 | 1502.08 | 0.00 | |
| Total Projected additional capital expenditure allowed for power component before adjustment of un-discharged /discharged liabilities (c)=(a)+(b) | 1415.73 | 880.09 | 223.94 | 3242.50 | 3.45 | |



Un-discharged liabilities

24. Considering actual un-discharged liabilities in Power component as on 31.3.2014 as allowed vide order dated 10.5.2016 in Petition No. 460/GT/2014, the position of un-discharged liability as on 31st March of the financial year of the period 2014-19 as under:

| (₹ in lakh) | | | | | |
|-------------|-----------|-----------|-----------|-----------|-----------|
| 31.3.2014 | 31.3.2015 | 31.3.2016 | 31.3.2017 | 31.3.2018 | 31.3.2019 |
| 10643.48 | 10004.41 | 10004.41 | 10004.41 | 10004.41 | 10004.41 |

25. The additional capital expenditure for allowed for Power component, after adjustment of un-discharged liabilities/discharge of liabilities is as under:

| (₹ in lakh) | | | | | |
|--|----------------|---------------|---------------|----------------|-------------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Additional Capital Expenditure (Power Component) (a) | 1415.73 | 880.09 | 223.94 | 3242.50 | 3.45 |
| Un-discharged liabilities at the beginning of the year (b) | 10643.48 | 10004.41 | 10004.41 | 10004.41 | 10004.41 |
| Un-discharged liabilities at the ending of the year (c) | 10004.41 | 10004.41 | 10004.41 | 10004.41 | 10004.41 |
| Un-discharged liabilities discharged (d)=(b)+(c) | 639.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| Additional Capital Expenditure (Power Component) allowed for tariff (e)=(a)+(d) | 2054.80 | 880.09 | 223.94 | 3242.50 | 3.45 |

26. The liabilities pertain to power component only. In the absence of asset-wise details of liabilities, the position of overall liabilities has been considered.

Capital Cost for 2014-19

27. As stated, the closing capital cost as on 31.03.2014 approved vide order dated 10.5.2016 in Petition No. 460/GT/2014 is ₹238286.93 lakh. This has been considered as the opening capital cost as on 1.4.2014. Accordingly, the capital cost allowed for the purpose of tariff for the period 2014-19 is as under:

| (₹ in lakh) | | | | | |
|--------------------------------|------------------|------------------|------------------|------------------|------------------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Opening Capital Cost | 238286.93 | 240341.73 | 241221.82 | 241445.76 | 244688.26 |
| Additional Capital Expenditure | 2054.80 | 880.09 | 223.94 | 3242.50 | 3.45 |
| Closing Capital Cost | 240341.73 | 241221.82 | 241445.76 | 244688.26 | 244691.71 |



Debt- Equity Ratio

28. Regulation 19 of the 2014 Tariff Regulations provides as under:

19. Debt-Equity Ratio: (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.

29. The petitioner has stated that the funding of the additional capital expenditure has been made through internal resources and others. In terms of the above regulations, the debt equity ratio of 70:30 has been considered on the additional capital expenditure, after adjustment of the un-discharged liability.

Return on Equity

30. Regulation 24 of the 2014 Tariff Regulations provides 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.

31. Regulation 25 of the 2014 Tariff Regulations provides as under:

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.

(3) The generating company or the transmission licensee, as the case may be, shall true up the grossed up rate of return on equity at the end of every financial year based on actual tax paid together with any additional tax demand including interest thereon, duly adjusted for any refund of tax including interest received from the income tax authorities pertaining to the tariff period 2014-15 to 2018-19 on actual gross income of any financial year. However, penalty, if any, arising on account of delay in deposit or short deposit of tax amount shall not be claimed by the generating company or the transmission licensee as the case may be. Any under-recovery or over-recovery of grossed up rate on return on equity after truing up, shall be recovered or refunded to beneficiaries or the long term transmission customers/DICs as the case may be on year to year basis.

32. The base rate of ROE has been grossed up with the MAT rate for the year 2013-14.

Accordingly, in terms of the above regulations, Return on Equity has been computed as under:



(₹ in lakh)

| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|--|------------------|------------------|------------------|------------------|------------------|
| Gross Notional Equity | 71486.08 | 72102.52 | 72366.55 | 72433.73 | 73406.48 |
| Addition due to additional capital expenditure | 616.44 | 264.03 | 67.18 | 972.75 | 1.04 |
| Closing Equity | 72102.52 | 72366.55 | 72433.73 | 73406.48 | 73407.51 |
| Average Equity | 71794.30 | 72234.53 | 72400.14 | 72920.10 | 73407.00 |
| Rate of ROE (pre-tax) | 20.876% | 20.876% | 20.876% | 20.876% | 20.876% |
| Return on Equity | 14,987.78 | 15,079.68 | 15,114.25 | 15,222.80 | 15,324.44 |

33. The petitioner is directed to furnish on affidavit, the effective tax rates along with the Tax Audit Report for the period 2015-19 at the time of truing-up exercise in respect of the generating station in terms of the 2014 Tariff Regulations.

Interest on loan

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

26. Interest on loan capital: (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 Decapitalization 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 up to the date of de-capitalization 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.

(7) The generating company or the transmission licensee, as the case may be, shall make every effort to re-finance the loan as long as it results in net savings on interest and in that event the costs associated with such re-financing shall be borne by the beneficiaries and the net savings shall be shared between the beneficiaries and the generating company or the transmission licensee, as the case may be, in the ratio of 2:1.

(8) The changes to the terms and conditions of the loans shall be reflected from the date of such re-financing.

(9) In case of dispute, any of the parties may make an application in accordance with the Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999, as amended from time to time, including statutory re-enactment thereof for settlement of the dispute:

Provided that the beneficiaries or the long term transmission customers /DICs shall not withhold any payment on account of the interest claimed by the generating company or the transmission licensee during the pendency of any dispute arising out of re-financing of loan.

35. Interest on loan has been worked out as mentioned below:

- i. The opening gross normative loan as on 01-04-2014 has been arrived at in accordance with Regulation 26 of the 2014 Tariff Regulations.
- ii. The weighted average rate of interest has been worked out on the basis of the actual loan portfolio of respective year applicable to the project.
- iii. The repayment for the year of the tariff period 2014-19 has been considered equal to the depreciation allowed for that year.
- iv. The interest on loan has been calculated on the normative average loan of the year by applying the weighted average rate of interest considering the time factor.

36. Accordingly, Interest on loan is computed as under:

| | (₹ in lakh) | | | | |
|---|-------------|-----------|-----------|-----------|-----------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Gross Normative Loan | 166800.85 | 168239.21 | 168855.27 | 169012.03 | 171281.78 |
| Cumulative Repayment | 59039.97 | 69993.61 | 80997.17 | 92029.74 | 103146.61 |
| Net Loan-Opening | 107760.88 | 98245.60 | 87858.10 | 76982.29 | 68135.17 |
| Repayment during the year | 10953.64 | 11003.56 | 11032.57 | 11116.87 | 11160.91 |
| Addition due to Additional Capitalization | 1438.36 | 616.06 | 156.76 | 2269.75 | 2.42 |
| Net Loan-Closing | 98245.60 | 87858.10 | 76982.29 | 68135.17 | 56976.68 |



| | | | | | |
|-----------------------------------|-----------------|----------------|----------------|----------------|----------------|
| Average Loan | 103003.24 | 93051.85 | 82420.20 | 72558.73 | 62555.92 |
| Weighted Average Rate of Interest | 10.453% | 10.290% | 10.290% | 10.290% | 10.290% |
| Interest on Loan | 10767.37 | 9575.04 | 8481.04 | 7466.29 | 6437.00 |

Depreciation

37. Regulation 27 of the 2014 Tariff Regulations provides as under:

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.

(7) The generating company or the transmission licensee, as the case may be, shall submit the details of proposed capital expenditure during the fag end of the project (five years before the useful life) along with justification and proposed life extension. The Commission based on prudence check of such submissions shall approve the depreciation on capital expenditure during the fag end of the project.

(8) In case of de-capitalization of assets in respect of generating station or unit thereof or transmission system or element thereof, the cumulative depreciation shall be adjusted by taking into account the depreciation recovered in tariff by the de-capitalized asset during its useful services.

38. The weighted average rate of depreciation has been calculated by the petitioner in accordance with the above regulations. Accordingly, depreciation has been worked out as under:

| | (₹ in lakh) | | | | |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Opening Gross block | 238286.93 | 240341.73 | 241221.82 | 241445.76 | 244688.26 |
| Additional capital expenditure during 2014-19 | 2054.80 | 880.09 | 223.94 | 3242.50 | 3.45 |
| Closing gross block | 240341.73 | 241221.82 | 241445.76 | 244688.26 | 244691.71 |
| Average gross block | 239314.33 | 240781.78 | 241333.79 | 243067.01 | 244689.99 |
| Rate of Depreciation | 4.577% | 4.570% | 4.571% | 4.574% | 4.561% |
| Depreciable Value | 215382.90 | 216703.60 | 217200.41 | 218760.31 | 220220.99 |
| Remaining Depreciable Value | 156342.93 | 146709.99 | 136203.24 | 126730.57 | 117074.37 |
| Depreciation | 10953.64 | 11003.56 | 11032.57 | 11116.87 | 11160.91 |

Operation & Maintenance Expenses

39. Regulation 29 clause (3) sub-clause (a) provides as under:

“(a) Following operations and maintenance expense norms shall be applicable for hydro generating stations which have been operational for three or more years as on 1.4.2014:

| (₹ in lakh) | | | | |
|-------------|---------|---------|---------|---------|
| NHDC | | | | |
| Omkareshwar | | | | |
| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 4515.31 | 4815.30 | 5135.23 | 5476.42 | 5840.27 |



40. The generating station is in operation for more than three or more years as on 1.4.2014. Accordingly, in terms of the above regulation, the year-wise O&M expense norms considered for the generating station for 2014-19 is as under:

| (₹ in lakh) | | | | |
|-------------|---------|---------|---------|---------|
| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 4515.31 | 4815.30 | 5135.23 | 5476.42 | 5840.27 |

Interest on Working Capital

41. Sub-section (c) of Clause (1) of Regulation 28 of the 2014 Tariff Regulations provides as under:

“28 (1) (c) Hydro generating station including pumped storage hydro electric generating station and transmission system including communication system:

(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.”

42. Clause (3) of Regulation 28 of the 2014 Tariff Regulations provides as under:

“(3) Rate of interest on working capital shall be on normative basis and shall be considered as the bank rate as on 1.4.2014 or as on 1st April of the year during the tariff period 2014-15 to 2018-19 in which the generating station or a unit thereof or the transmission system including communication system or element thereof, as the case may be, is declared under commercial operation, whichever is later.”

43. Working capital has been calculated considering the following elements:

Maintenance Spares

44. Maintenance spares @ 15% of O & M Expenses considered for the purpose of tariff is as under:

| (₹ in lakh) | | | | |
|-------------|---------|---------|---------|---------|
| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 677.30 | 722.30 | 770.28 | 821.46 | 876.04 |



Receivables

45. Receivable component of the working capital has been worked out on the basis of two months of fixed cost as under:

| (₹ in lakh) | | | | |
|-------------|---------|---------|---------|---------|
| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 7053.08 | 6926.73 | 6807.31 | 6727.18 | 6640.51 |

O&M Expenses

46. O & M expenses for one month for the purpose of working capital is as under:

| (₹ in lakh) | | | | |
|-------------|---------|---------|---------|---------|
| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 376.28 | 401.28 | 427.94 | 456.37 | 486.69 |

47. In terms of the above regulations, the Bank Rate of 13.50% (Base Rate + 350 Basis Points) as on 1.4.2014 has been considered by the petitioner. This has been considered in the calculations for the purpose of tariff.

48. Necessary computations in support of interest on working capital are appended below:

| (₹ in lakh) | | | | | |
|-----------------------------|----------------|----------------|----------------|----------------|----------------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Maintenance Spares | 677.30 | 722.30 | 770.28 | 821.46 | 876.04 |
| O & M expenses | 376.28 | 401.28 | 427.94 | 456.37 | 486.69 |
| Receivables | 7053.08 | 6926.73 | 6807.31 | 6727.18 | 6640.51 |
| Total | 8106.65 | 8,050.30 | 8,005.53 | 8,005.01 | 8,003.24 |
| Rate of Interest | 13.50% | 13.50% | 13.50% | 13.50% | 13.50% |
| Interest on Working Capital | 1094.40 | 1086.79 | 1080.75 | 1080.68 | 1080.44 |

Annual Fixed charges for 2014-19

49. The annual fixed charges allowed for the period 2014-19 in respect of the generating station is summarized as under:

| (₹ in lakh) | | | | | |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Return on Equity | 14987.78 | 15079.68 | 15114.25 | 15222.80 | 15324.44 |
| Interest on Loan | 10767.37 | 9575.04 | 8481.04 | 7466.29 | 6437.00 |
| Depreciation | 10953.64 | 11003.56 | 11032.57 | 11116.87 | 11160.91 |
| Interest on Working Capital | 1094.40 | 1086.79 | 1080.75 | 1080.68 | 1080.44 |
| O & M Expenses | 4515.31 | 4815.30 | 5135.23 | 5476.42 | 5840.27 |
| Total | 42318.49 | 41560.37 | 40843.84 | 40363.06 | 39843.06 |



Design Energy

50. The petitioner has submitted that the NCA has notified the Water Accounting for the years 2011-12 and 2012-13 and has provided the Water Utilization quantity by GOMP. The Commission in order dated 13.6.2012 has worked out the following formula corresponding to Restricted Reservoir Level at EL 189.0 M and Design Energy for the year 2011-12 and 2012-13:

$$FP_{(stage-II)} = 226 - (226 - 125) \times \frac{(Q - 6.00)}{(13 - 6.00)}$$

Where,

$FP_{(stage-II)}$ = Reducing power benefit i.e. Firm Power (in MW) on pro-rata basis during Stage-II period of Indira Sagar Multi-purpose Project.

Q^* = Actual water utilization (in BM^3) for Irrigation by MP in the Narmada Basin to be notified by NCA for respective years.

*Note: * The value of Q shall be irreversible and shall not be reduced once attained.*

| Particulars | Filling of Reservoir upto EL 189.0 M | |
|--|--------------------------------------|-------------------|
| | FY 2011-12 | FY 2012-13 |
| Utilization of Water by GoMP as Notified by NCA (BM^3) | 7.0567 | 8.09841 |
| Firm Power (MW) | 96.196 | 90.042 |
| Monthly Trued-up Design Energy (MUs) | | |
| Month | FY 2011-12 | FY 2012-13 |
| April | 69.26 | 64.83 |
| May | 71.57 | 66.99 |
| June | 69.26 | 64.83 |
| July | 71.57 | 66.99 |
| August | 71.57 | 66.99 |
| September | 69.26 | 64.83 |
| October | 71.57 | 66.99 |
| November | 69.26 | 64.83 |
| December | 71.57 | 66.99 |
| January | 71.57 | 66.99 |
| February | 64.64 | 60.51 |
| March | 71.57 | 66.99 |
| Annual D.E. | 842.67 | 788.76 |



51. Accordingly, the modified design energy for the year 2012-13 i.e. 788.76 MU has been provisionally allowed for the period 2014-19, subject to submission of actual consumptive water utilization by GOMP for the said period duly certified by Narmada Control Authority. However, the Design Energy shall be calculated based on water utilization certification by NCA and shall be trued up at the end of each year based on the actual water utilization certified.

Application Fee and Publication Expenses

52. The petitioner has deposited the filing fees of ₹2288000/- for the period 2014-15 in terms of the provisions of the Central Electricity Regulatory Commission (Payment of Fees) Regulations, 2012. The petitioner has published the notice of the tariff petition for 2014-19 in the newspapers in terms of the Central Electricity Regulatory Commission (Procedure for making of application for determination of tariff, publication of the application and other related matters) Regulation, 2004. Accordingly, in terms of Regulation 52 of the 2014 Tariff Regulations and in line with the decision in order dated 6.1.2016 in Petition No.232/GT/2014, the petitioner shall be entitled to recover the filing fees for the year 2014-15 and the expenses incurred on publication of notices for the period 2014-19 directly from the respondents. The filing fees for the remaining years of the tariff period 2015-19 shall be reimbursed after deposit of the same and subject to production of documentary proof.

53. The annual fixed charges approved for the generating station for the period 2014-19 as above are subject to truing-up in terms of Regulation 8 of the 2014 Tariff Regulations.

54. Petition No. 264/GT/2014 is disposed of in terms of the above.

-Sd/-
(Dr. M.K.Iyer)
Member

-Sd/-
(A.S Bakshi)
Member

-Sd/-
(A.K.Singhal)
Member

-Sd/-
(Gireesh B Pradhan)
Chairperson

