

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 52/MP/2017**

**Coram:**

**Shri Gireesh B. Pradhan, Chairperson**

**Shri A.K. Singhal, Member**

**Shri A.S. Bakshi, Member**

**Dr. M.K Iyer, Member**

**Date of Order : 27.07.2017**

**In the matter of**

Petition under of Section 28 (4) of Electricity Act, 2003 read with Regulation 6 and Regulation 29 of Central Electricity Regulatory Commission (Fees and Charges of Regional Load Despatch Centre and other related matters) Regulations, 2015 for approval of Performance Linked Incentive for NRLDC for the Financial year 2015-16 with reference to NRLDC Charges for the control period 1.4.2014 to 31.3.2019.

**And in the matter of**

Northern Regional Load Despatch Centre  
B-9, Qutub Institutional Area, 1st Floor,  
Katwaria Sarai, New Delhi -110016

**.....Petitioner**

**Vs**

1. Uttar Pradesh Power Corporation Ltd.  
Shakti Bhawan, 14-Ashok Marg,  
Lucknow-226 001
2. Government of J&K  
Civil Secretariat,  
Srinagar, J&K
3. Rajasthan Rajya Vidyut Prasaran Nigam Ltd.  
Vidyut Bhawan, Vidyut Marg,  
Jaipur – 302 005
4. Punjab State Electricity Board,  
The Mall, Patiala-147 001



5. Haryana Vidyut Prasaran Nigam Ltd.  
Shakti Bhawan, Sector-6,  
Panchkula-134 109
6. Delhi Transco Ltd.  
Shakti Sadan, Kotla Road,  
New Delhi – 110 002
7. Himachal Pradesh State Electricity Board,  
Kumar House, Vidyut Bhawan,  
Shimla-171 004
8. Power Transmission Corporation of Uttarakhand Ltd.  
7-B, Lane No.-1, Vasant Vihar Enclave,  
Dehradun-248 001
9. Electricity Department,  
UT Chandigarh, Sector 9-D,  
UT Chandigarh-160 019
10. North Central Railway,  
GM Office Building, Allahabad, UP
11. Power Grid Corporation of India Ltd.,  
B-9, Qutab Institutional Area,  
New Delhi-110 016
12. Singrauli Super Thermal Power Station,  
Shakti Nagar, UP-231 222
13. Singrauli Solar PV Power Project,  
Shakti Nagar, UP-231 222
14. Rihand Super Thermal Power Station-I,  
Rihand Nagar, UP-231 223
15. Rihand Super Thermal Power Station-II,  
Rihand Nagar, UP- 231 223
16. Rihand Super Thermal Power Station-III,  
NTPC Rihand, Dist-Sonbhadra,  
UP- 231 223
17. Dadri, National Capital Power Project,  
Dadri Dhaulana Road, Distt. Gautam Buddha Nagar,  
UP-201 008



18. Dadri-Stage-II, National Capital Power Project,  
Dadri Dhaulana Road, Distt. Gautam Buddh Nagar, UP-201 008
19. Firoz Gandhi Unchahar Thermal Power Project-I,  
Unchahar, Distt. Raibareilly, UP
20. Firoz Gandhi Unchahar Thermal Power Project-II,  
Unchahar, Distt. Raibareilly, UP
21. Firoz Gandhi Unchahar Thermal Power Project-III,  
Unchahar, Distt. Raibareilly, UP
22. Firoz Gandhi Unchahar Solar PV Power Project,  
Unchahar, Distt. Raibareilly, UP
23. Dadri Gas Power Project,  
Dhaulana Road, Distt. Gautam Buddh Nagar,  
UP-201 008
24. Dadri Solar PV Power Project,  
Dhaulana Road, Distt. Gautam Buddh Nagar,  
UP-201 008
25. Auraiya Gas Power Project (Gas Fired, RLNG Fired,  
Liquid Fired), Dibiyaapur, Distt Etawah,  
UP-206 244
26. Anta Gas Power Project (Gas Fired, RLNG Fired,  
Liquid Fired), Distt. Baran,  
Rajasthan-325 209
27. Koldam HPP, NTPC, Post-Barman,  
Distt. Bilaspur, Himachal Pradesh-174013
28. Narora Atomic Power Station, Narora,  
Distt. Bulandshahar,  
UP-202 389
29. Rajasthan Atomic Power Station-B,  
Anu Shakti Vihar, Kota,  
Rajasthan-323 303
30. Rajasthan Atomic Power Station-C,  
(RAPS-5&6) PO-Anushakti, Kota,  
Rajasthan-323 304



31. Bairasiul Hydro Electric Project,  
NHPC Ltd., Surangini, Distt. Chamba,  
HP-176 317
32. Salal Hydro Electric Project,  
NHPC Ltd., Jyotipuram, Distt. Udhampur, J&K-182 312
33. Tanakpur Hydro Electric Project,  
NHPC Ltd., Banbassa, Distt. Champawa,  
Uttarakhand-262 310
34. Chamera-I Hydro Electric Project,  
NHPC Ltd., Khairi, Distt. Chamba,  
HP-176 310
35. Uri Hydro Electric Project,  
NHPC Ltd., Mohra, Distt. Baramulla,  
J&K-193 122
36. Chamera-II Hydro Electric Project,  
NHPC Ltd., Karian, Distt. Chamba,  
HP-176 310
37. Chamera-III Hydro Electric Project,  
NHPC Ltd., Dharwala, Distt. Chamba,  
HP-176 311
38. Dhauliganga Hydro Electric Project,  
NHPC Ltd., Tapovan, Dharchula, Pithoragarh,  
Uttarakhand-262 545
39. Dulhasti Hydro Electric Project,  
NHPC Ltd., Chenab Nagar, Distt. Kishtwar,  
J&K-182 206
40. Uri 2 Hydro Electric Project,  
NHPC Ltd., Nowpura, Distt. Baramulla,  
J&K-193 123
41. Parbati HE Project Stage-III Behali,  
P.O- Larjikullu 175 122, Himachal Pradesh
42. Sewa-II Power Station, NHPC Ltd. Maska,  
Distt Kathua, Jammu and Kashmir



43. Satluj Jal Vidyut Nigam Ltd. Power Project,  
Jhakri, Rampur, Distt. Shimla,  
HP-172 201
44. Rampur HEP, Satluj Jal Vidyut Nigam Ltd. Power Project,  
Jhakri, Rampur, Distt. Shimla,  
HP-172 201
45. Tehri Hydro Development Corporation Ltd.,  
Bhagirathpuram, Tehri,  
Uttarakhand-249 001
46. Koteshwar HEP,  
THDCIL, Koteshwerpuram, Post Office-Pokhri Tehri  
Uttrakhand-249 002
47. ADHPL, Village- Prini, PO-Jagat Sukh  
Tehsil Manali, Distt.-Kullu (H.P.) India
48. Indra Gandhi Super Thermal Power Project  
VPO-Jharli, Tahsil Matanhil,  
Dist. Jhajjar (Haryana)-124125
49. Karcham Wangtoo HEP,  
Jaiprakash Power House Ventures Ltd.  
Basp-II Hydro-Electric Project Sholtu Colony,  
PO-Tapti Dist Kinnaur-172 104 (HP)
50. Malana-II Everest Power Pvt. Ltd.,  
HALL-A/ 1st Floor, Plot No.-143-144,  
Udyog Vihar Phase-4,  
Gurgaon, Haryana-122015  
New Delhi-110 066
51. Shree Cement Thermal Power Project  
Bangurnagar, Beawer, Distt. Ajmer,  
Rajasthan-305 901
52. Greenco Budhil HPS Ltd.,  
Plot No. 1367 Road No.-45, Jubilee Hills,  
Hyderabad-500 033
53. Himachal Sorang Power Limited,  
D-7, Lane-I, Sector-I, New Shimla,  
Shimla, H.P.-171009.



54. Bhakra Power House,  
BBMB, Tehsil Nangal Township,  
Distt. Ropar (Punjab).
55. Indira Gandhi Super Thermal Power Project,  
Aravali Power Company Pvt. Ltd., P.O.: Jharli,  
Dist- Sorang, Jhajjar.
56. NRTS-I, Power Grid Corporation of India Ltd.,  
B-9, Qutab Institutional Area,  
New Delhi-110 016
57. Powerlinks Transmission Ltd.,  
10<sup>th</sup> Floor, DLF Tower-A, District Centre, Jasola,  
New Delhi-110 044
58. Jaypee Powergrid Ltd.,  
JIIT Basement, Sector-128, NOIDA-U.P
59. APL, Business Development, Achalraj,  
Opp. Mayor Bungalow, Law Garden,  
Ahmedabad-380 009
60. NRTS-I, Parbati Koldam Transmission Company Ltd.,  
B-9, Qutab Institutional Area,  
New Delhi-110016
61. Indira Gandhi Super Thermal Power Project  
Aravali Power Company Private Limited.,  
P.O. Jharli, Dist. Jhajjar

.....**Respondents**

**For Petitioner** : Shri Debasis De, NRLDC

**For Respondents** : None

### **ORDER**

The petitioner, Northern Regional Despatch Centre (NRLDC), has filed the present petition under Section 28 (4) of Electricity Act, 2003 read with Regulations 6 and 29 of Central Electricity Regulatory Commission (Fees and Charges of Regional



Load Despatch Centre and other related matters) Regulations, 2015 (hereinafter referred to as “Fees and Charges Regulations”) for approval of Performance Linked Incentive for NRLDC for the Financial year 2015-16 for the control period 1.4.2014 to 31.3.2019.

2. Brief facts of the case leading to the filing of the petition and subsequent developments after the filing of the petition are capitulated as under:-

(a) The petitioner, Northern Regional Load Despatch Centre setup under Section 27 of the Electricity Act, 2003 performs functions specified in Section 28 of the Electricity Act, 2003. NLDC and RLDCs are operated by Power System Operation Corporation Limited (POSOCO) in accordance with Government of India, Ministry of Power`s notification dated 27.9.2010.

(b) As per Regulation 29 (1) to 29 (3) of the Fees and Charges Regulations, the recovery of performance linked incentive by NLDC and RLDCs shall be based on the achievement of Key Performance Indicators (KPI) as specified in Appendix-V of the Fees and Charges Regulations or other such parameters as specified by the Commission.

(c) As per Regulation 29 (6) of the Fees and Charges Regulations, RLDCs or NLDC are required to compute the KPIs on annual basis for the previous year ending 31<sup>st</sup> March and to submit to the Commission for approval as per Appendix-V and VI of the Fees and Charges Regulations.



(d) As per methodology specified in Appendix V of the Fees and Charges Regulations, 2015, KPI score for NRLDC for the year 2015-16 ending 31.3.2016 has been computed as under:

S. No.	Key Performance Indicators	Weightage	(2015-16)
1	Reporting of Interconnection meter error	10	10.00
2	Reporting of Grid Incidents and Grid Disturbance	10	10.00
3	Average processing time of shut down request	10	10.00
4	Availability of SCADA System	10	10.00
5	Voltage Deviation Index (VDI)	10	10.00
6	Frequency Deviation Index (FDI)	10	10.00
7	Reporting of System Reliability	10	7.78
8	Availability of Website	10	9.99
9	Availability of Standby Supply	5	5.00
10	Variance of Capital expenditure	5	5.00
11	Variance of Non Capital expenditure	5	5.00
12	Percentage of Certified Employee	5	5.00
	<b>Total</b>	<b>100</b>	<b>97.77</b>

(e) As per the methodology provided in Regulation 29 (5) of Fees and Charges Regulations, the petitioner is entitled to recover 7% of annual charges for aggregate performance level of 85% for three years commencing from 1.4.2014 and the incentive shall increase by 1% of annual charges for every 5% increase of Performance Level above 90%. Accordingly, recovery of Performance Linked Incentive for the year 2015-16 works out as 8.55% of the annual charges [7% for 85% performance level + 1% for performance level from 90% to 95% + 0.55% for performance level from 95% to 97.77%].

3. Against the above background, the petitioner has filed the present petition with the following prayers:





- (a) Approve the proposed performance linked incentive based on the KPIs computed by NRLDC for year ending 31.3.2016 given at para 5, the KPI score given at para 6 and PRP percentage of Annual Charges for the year 2015-16 as per para 7 above.
- (b) Allow the applicant to recover incentive from the users for the year 2015-16 as approved by the Commission.
- (c) Pass such other order as the Commission deems fit and appropriate in this case and in the interest of justice.”

4. The matter was heard on 25.5.2017 and notices were issued to the respondents to file their replies. No reply has been filed by the respondent despite notice.

5. The present petition has been filed under Regulations 6 and 29 of the Fees and Charges Regulations for approval of Performance Linked Incentive for the financial year 2015-16. Regulations 6 and 29 are extracted as under:

“6. Application for determination of fees and charges:

(1) The RLDCs and NLDC shall make application in the formats annexed as Appendix I to these regulations within 180 days from the date of notification of these Regulations, for determination of fees and charges for the control period, based on capital expenditure incurred and duly certified by the auditor as on 1.4.2014 and projected to be incurred during the control period based on the CAPEX and the REPEX.

(2) The application shall contain particulars such as source of funds, equipments proposed to be replaced, details of assets written off, and details of assets to be capitalized etc.

(3) Before making the application, the concerned RLDC or NLDC, as the case may be, shall serve a copy of the application on the users and submit proof of service along



with the application. The concerned RLDC or NLDC shall also keep the complete application posted on its website till the disposal of its petition.

(4) The concerned RLDC or NLDC, as the case may be, shall within 7 days after making the application, publish a notice of the application in at least two daily newspapers, one in English language and one in Indian modern language, having circulation in each of the States or Union Territories where the users are situated, in the same language as of the daily newspaper in which the notice of the application is published, in the formats given in Appendix II to these regulations.

(5) The concerned RLDC or NLDC, as the case may be, shall be allowed the fees and charges by the Commission based on the capital expenditure incurred as on 1.4.2014 and projected to be incurred during control period on the basis of CAPEX and REPEX duly certified by the auditor in accordance with these Regulations:

Provided that the application shall contain details of underlying assumptions and justification for the capital expenditure incurred and the expenditure proposed to be incurred in accordance with the CAPEX and REPEX.

(6) If the application is inadequate in any respect as required under Appendix-I of these regulations, the application shall be returned to the concerned RLDC or NLDC for resubmission of the petition within one month after rectifying the deficiencies as may be pointed out by the staff of the Commission.

(7) If the information furnished in the petition is in accordance with the regulations and is adequate for carrying out prudence check of the claims made the Commission shall consider the suggestions and objections, if any, received from the respondents and any other person including the consumers or consumer associations. The Commission shall issue order determining the fees and charges order after hearing the petitioner, the respondents and any other person permitted by the Commission.

(8) During pendency of the application, the applicant shall continue to bill the users on the basis of fees and charges approved by the Commission during previous control period and applicable as on 31.3.2014, for the period starting from 1.4.2014 till approval of the Fees and Charges by the Commission, in accordance with these Regulations.

(9) After expiry of the control period, the applicant shall continue to bill the users on the basis of fees and charges approved by the Commission and applicable as on 31.3.2019 for the period starting from 1.4.2019 till approval of fees and charges under the applicable regulations.”

#### 29. Performance linked incentive to RLDCs and NLDC:

(1) Recovery of incentive by the Regional Load Despatch Centre shall be based on the achievement of the Key Performance Indicators as specified in Appendix V or such other parameters as may be prescribed by the Commission.

(2) Each Regional Load Despatch Centre shall submit its actual performance against each of the key performance indicators to the Commission on annual basis as per the format specified in Appendix V.



(3) NLDC shall submit the details in regards to each Key Performance Indicator in the format specified in Appendix V along with the methodology for approval of the Commission.

(4) The Commission shall evaluate the overall performance of the RLDCs or NLDC, as the case may be, on the basis of weightage specified in Appendix V. The Commission, if required, may seek advice of the Central Electricity Authority for evaluation of the performance of system operator.

(5) The RLDCs or NLDC, as the case may be, shall be allowed to recover incentive of 7% of annual charges for aggregate performance level of 85% for three years commencing from 1.4.2014 and for aggregate performance level of 90% from 1.4.2017. The incentive shall increase by 1% of annual charges for every 5% increase of performance level above 90%: Provided that incentive shall be reduced by 1% of annual charges on prorata basis for the every 3% decrease in performance level below 85%.

(6) The RLDCs or NLDC, as the case may be, shall compute the Key Performance Indicators on annual basis for the previous year ending on 31st March and submit to the Commission along with petitions for approval of the Commission as per Appendix V and Appendix VI of these Regulations:

Provided that the key performance indicators of previous year ending on 31st March shall be considered to recover incentive on each year and shall be trued up at the end of the control period.”

6. The Key Performance Indicators (KPIs) has been specified in Appendix V of the RLDC Fees and Charges Regulations. The Commission may also specify such other parameters.

7. In the light of the above provisions, we have considered the petitioner`s claim for PLI. The Petitioner has submitted that the Commission has notified KPIs and their weightage in the Fees and Charges Regulations, and performance on these KPIs has been quantified to make it measurable. The petitioner has submitted the KPI-wise details in the petition:

(a) **KPI-1: Reporting of Inter-connection metering error:** The meter readings are processed on weekly basis and an error could only be detected after processing the



same and after going through the validation process. RLDCs are reporting the meter errors on weekly basis which are made available on the concerned web-sites as per the provisions of the Regulations. Therefore, in a year, the possible nos. of reports are 52 which have been converted to percentage based on the actual reporting. Percentage performance has been proportionately converted to marks scored.

**(b) KPI-2 Reporting of Grid Incidents and Grid Disturbance:** The grid incidents and grid disturbances are compiled on monthly basis and the same are sent to NLDC for further compilation on National basis for further reporting to the Commission on consolidated basis. As the reporting on grid incidences and grid disturbances is generated on monthly basis, target reports to be generated have been considered to be 12. Percentage performance has been measured based on the actual number of reports generated, which has been proportionately converted to marks scored.

**(c) KPI-3: Average processing time of shut down request (RLDC/NLDC):** The shutdown process uniform across all the RLDCs has been discussed and approved at RPCs level. Time allowed to NLDC for approval of the shut-down requests is 26 Hours and RLDCs is 50 Hours (including NLDC Time). This methodology has been devised considering primarily the planned outages approved in the monthly OCC meetings of RPCs which are processed by RLDCs on D-3 basis (3-day ahead of actual day of outage) based on confirmation from the shutdown requesting agency and the then prevailing grid conditions. RLDCs after processing the shut down requests at regional level, forward the list to NLDC for impact assessment at national



level. After clearance from NLDC, the final list of cleared shutdown requests is sent by respective RLDCs to the requesting agencies on D-1 (i.e. one day ahead of the proposed date of outage). As per the formula used for calculating KPI score for this parameter, performance would be considered as 100%, if the time taken for processing shut down requests is less than the prescribed time i.e. 26 hours for NLDC and 50 Hours RLDCs. If the time taken is more than the prescribed time, then the performance would come down in the same proportion i.e. if the time taken in processing the request is more than 5% of the prescribed time, then the percentage performance would be 95%. Percentage performance has been proportionately converted to marks scored.

**(d) KPI-4: Availability of SCADA; KPI-8: Availability of website; KPI 9- Availability of Standby Power Supply:** Month-wise percentage availability has been calculated and percentage average availability of twelve (12) months has been proportionately converted to marks scored.

**(e) KPI-5: Voltage Deviation Index (VDI); KPI-6: Frequency Deviation Index (FDI); KPI 7- Reporting of System Reliability:** The deviation indices are being reported on daily basis for the critical nodes along with weekly and monthly as per the provisions of the Regulation. The possible number of reports which could be generated (365 daily, 52 weekly and 12 monthly) have been converted to KPI scores based on the actual reporting.



(f) **KPI 10: Variance of Capital expenditure; KPI 11: Variance of Non-Capital expenditure:** The petitioner has submitted that the figures (capital and non-capital) mentioned in the petition for the control period 2014-19, have been considered as targets and the figures as per the balance sheet have been taken as actual performance. Limit of up to 10% variation has been considered for claiming 100% performance and for any additional 3% variation beyond initial 10%, performance shall decrease by 1% in line with the methodology of the incentive calculation prescribed in Regulation 29 (5) of the RLDC Fee and Charges Regulations, 2015. Percentage performance has been proportionately converted to marks scored.

(g) **KPI 12: Percentage of certified employees:** The target percentage of the certification as 85% of the eligible candidates has been assumed for calculating the KPI score. The actual achievement has been calculated against the target and the same has been converted to the KPI score.

8. The parameter-wise submissions made by the petitioner have been examined and dealt with in the succeeding paragraphs:

**A. Inter-connection meter error (Parameter 1)**

9. The total weightage given for this parameter is 10. The petitioner has submitted the details as under:-

Performance during FY 2015-16(In %) A*	100
Marks scored (In proportion of the percentage performance above)	10
*Formula for performance calculation	(No. of weekly reports issued /52)*100

52 represents the total number of weeks in a year



10. The petitioner has submitted that as per Regulation 2.3.2 of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010 (Grid Code), RLDCs are responsible for meter data processing. Accordingly, problems related to meters including those installed at inter-regional/inter-national tie points are reported by RLDCs concerned to the utilities for corrective action. The petitioner has submitted that as per Regulation 6.4.22 of the Grid Code (IEGC), computations on metering data are to be made available to the regional entities for checking/verifications for a period of 15 days. Accordingly, the data on inter-connection meter error is made available in Public Domain on regular basis for checking/verifications of regional entities. The petitioner has submitted that information regarding inter-connection meter error is published on NRLDC website, i.e. [http://nrldc.org/ Discrepancy.aspx](http://nrldc.org/Discrepancy.aspx) on weekly basis. The petitioner has submitted that the discrepancy reports are discussed in detail in the different forum at RPC level.

11. We have considered the submission of the petitioner. Since, the petitioner has complied with the provisions of the Regulation 6.4.22 of the Grid Code, the claims of the petitioner for weightage factor for reporting of inter-connection meter error is allowed for the purpose of incentive.

#### **B. Reporting of grid incidents and grid disturbances (Parameter 2)**

12. The petitioner has submitted that as against the total weightage of 10 for parameter reporting of grid incidents and grid disturbance, actual incidents of such events during the financial year 2015-16 are as under:-



<b>Grid Incidents and Grid Disturbance for 2015-16</b>			
Category	Count (Nos.)	Recovery period	Loss of Energy (MUs)
GI-1	Nil	Nil	Nil
GI-1	86	418:04	Nil
GD-1	114	319:11	153.259
GD-2	Nil	Nil	Nil
GD-3	Nil	Nil	Nil
GD-4	Nil	Nil	Nil
GD-5	Nil	Nil	Nil
<b>All</b>	<b>200</b>	<b>737:15</b>	<b>153.26</b>

13. The petitioner has submitted performance-wise details as under:

Performance during FY 2015-16 (In %) *	100
Marks scored (In proportion of the percentage performance above)	10
<b>*Formula for performance calculation :</b>	(No. of monthly reports issued /12)*100

12 represent the number of months in a year

14. The petitioner has submitted that the incidences of grid disturbance/ incidences are being reported by the Regional Load Despatch Centres to National Load Despatch Centre on a monthly basis which are thereafter compiled and are independently verified by National Load Despatch Centre and reported to the Commission on a monthly basis as a part of monthly operational report issued by National Load Despatch Centre in accordance with the provisions of the Grid Code. The petitioner has submitted the details of the report for the Financial Year 2015-16 as under:-

<b>Month</b>	<b>Date of Reporting</b>
April 2015	22 <sup>nd</sup> May 2015
May 2015	24 <sup>th</sup> June 2015
June 2015	23 <sup>rd</sup> July 2015
July 2015	21 <sup>st</sup> August 2015
August 2015	23 <sup>rd</sup> September 2015
September 2015	21 <sup>st</sup> October 2015
October 2015	23 <sup>rd</sup> November 2015
November 2015	23 <sup>rd</sup> December 2015
December 2015	23 <sup>rd</sup> January 2016
January 2016	22 <sup>nd</sup> February 2016
February 2016	23 <sup>rd</sup> March 2016
March 2016	22 <sup>nd</sup> April 2016





15. We have considered the submissions of the petitioner. Perusal of the above reveals that the petitioner is reporting incident of grid disturbance every month to the Commission. As per our direction, the petitioner has placed on record the details of reporting to the Commission. Accordingly, the claims of the petitioner for weightage factor for reporting of grid incidents and grid disturbance is allowed for the purpose of incentive.

**C. Average processing time of shut down request (Parameter 3)**

16. The total weightage for the parameter “average processing time of shut down” request is 10. The petitioner has submitted average processing time of shut down request during the financial year 2015-16 as under:

Month	Total No of shutdown request in a month (B)	Total time (hrs) taken to approve the shutdown in a month (A)	Total time(hrs) taken to approve the shutdown in a month/Total No of shutdown requests in a month (C=A/B)
April 15	172	5492	32
May 15	149	6541	44
June 15	130	3842	30
July 15	127	2207	17
August 15	182	6190	34
September 15	120	2592	22
October 15	258	5970	23
November 15	293	6517	22
December 15	284	5140	18
January 16	165	2805	17
February 16	186	3738	20
March 16	218	7460	34
<b>Total</b>	<b>2284</b>	<b>58494</b>	<b>26</b>

Figures under column ‘A’ represents cumulative hours month wise.

17. The petitioner has further submitted that the total time allowed to NLDC and RLDC for approval of the shutdown requests are 26 hours and 50 (Including NLDC Time) Hours respectively.



**For NRLDC**

Performance during FY 2015-16 (In %)	100
Marks scored (In proportion of the percentage performance above)	10
* Formula for performance calculation	$IF[(A-B*50)>0,(1-(A-B*50)/(B*50))*100,100]$

18. The petitioner has submitted that the procedure to streamline the process of transmission outage coordination between SLDCs, RLDCs, NLDC, RPCs and Indenting Agencies was developed by NLDC in 2015 and approved in OCC fora. As per the approved process, RLDC approves the shutdown requests of inter-State transmission lines and NLDC approves the shut down requests for inter-regional and all 765 KV transmission lines. Therefore, RLDC consults NLDC for approval of outage requests.

Relevant extracts of NRPC approved procedure is as under:

“7.1. Request for outages which are approved by OCC must be sent by the indenting agency of the transmission asset at least 3 days in advance to respective RLDC by 1000 hours as per Format II.(For example, if an outage is to be availed on say 10th of the month, the indenting agency would forward such requests to the concerned RLDC on 7th of the month by 1000 hours.)

7.3. Approval of Outage where Approving Authority is NLDC:

7.3.1. NRLDC shall forward the request for shutdown along with their consent and observation as per Format-III to NLDC/other concerned RLDCs with clear observations regarding possible constraints / contingency plan and consent including study results by 1000 hours of D-2 day. Other concerned RLDCs would forward their observations/ consent/reservations by 1600 hours of D-2.

7.3.2. NLDC shall approve the outage along with the clear precautions/measures to be observed during the shutdown and inform all concerned RLDCs.

7.3.3. The proposed outages shall be reviewed on day ahead basis depending upon the system conditions and the outages shall be approved/refused latest by 1200 Hrs of D-1 day. A suggested format for approval/refusal of outage is enclosed as Format IV.”

19. The petitioner has submitted that as per the above procedure, total time allowed for approval of the shutdown requests to RLDCs including NLDC is 50 hours (1000 hrs of D-3 to 1200 hrs of D-1). Out of these 50 hours, time allowed to NLDC is 26 hours (1000 hrs of D-2 to 1200 hrs of D-1).



20. We have considered the submission of the petitioner. Accordingly, weightage for average processing time of shut down request has been considered as 10 out of 10.

**D. Availability of SCADA (Parameter 4)**

21. The total weightage for this parameter is 10. The petitioner has submitted average processing time of shut down requests during the financial year 2014-15 as under:

<b>Month</b>	<b>% Availability</b>
April 15	100
May 15	100
June 15	99.99
July 15	99.90
August 15	99.90
September 15	100
October 15	100
November 15	100
December 15	100
January 16	100
February 16	100
March 16	100
<b>Average of 12 months</b>	<b>99.98</b>

Performance during FY 2015-16*	<b>99.98</b>
Marks scored (In proportion of the percentage performance above)	<b>10.00</b>

\* Average of 12 months

22. We have considered the submission of the petitioner. We have worked out the average of 12 months as  $(100 + 100 + 99.99 + 99.90 + 99.90 + 100 + 100 + 100 + 100 + 100 + 100 + 100)/12=99.98$ . Accordingly, the marks scored for availability of SCADA has been allowed as 9.998 out of 10.



### E. Voltage Deviation Index (Parameter 5)

23. The total weightage for the parameter Voltage Deviation Index (VDI) is 10. The petitioner has submitted Voltage Deviation Index (VDI) as under:

Name of the Region: NRLDC				
S. No.	Name of the 400/765 kV substation	Intimation to utilities through Daily reports for corrective action or not	Intimation to utilities through weekly reports for corrective action or not	Intimation to utilities through monthly reports for corrective action or not
A	B	C	D	E
1	400 kV Rihand	Yes	Yes	Yes
2	400 kV Gorakhpur	Yes	Yes	Yes
3	400 kV Bareilly	Yes	Yes	Yes
4	400 kV Kanpur	Yes	Yes	Yes
5	400 kV Dadri	Yes	Yes	Yes
6	400 kV Ballabgarh	Yes	Yes	Yes
7	400 kV Bawana	Yes	Yes	Yes
8.	400 kV Bassi	Yes	Yes	Yes
9.	400 kV Hissar	Yes	Yes	Yes
10.	400 kV Moga	Yes	Yes	Yes
11	400 kV Abdullapur	Yes	Yes	Yes
12	400 kV Nalagarh	Yes	Yes	Yes
13	400 kV Kishenpur	Yes	Yes	Yes
14	400 kV Wagoora	Yes	Yes	Yes
15	765 kV Fatehpur	Yes	Yes	Yes
16	765 kV Balia	Yes	Yes	Yes
17	765 kV Moga	Yes	Yes	Yes
18	765 kV Agra	Yes	Yes	Yes
19	765 kV Bhiwani	Yes	Yes	Yes
20	400 kV Unnao	Yes	Yes	Yes
21	400 kV Agra	Yes	Yes	Yes
22	400 kV Murad Nagar	Yes	Yes	Yes
23	400 kV Roorkee	Yes	Yes	Yes
24	400 kV Balia	Yes	Yes	Yes
25	400 kV Bhiwadi	Yes	Yes	Yes
26	765 kV Meerut	Yes	Yes	Yes
27	765 kV Jhatikara	Yes	Yes	Yes
28	765 kV Lucknow	Yes	Yes	Yes
29	765 kV Anpara	Yes	Yes	Yes
30	765 kV Bareilly	Yes	Yes	Yes
31	765 kV Anta	Yes	Yes	Yes
32	765 kV Phagi	Yes	Yes	Yes



33	400 kV Amritsar	Yes	Yes	Yes
34	400 kV Kashipur	Yes	Yes	Yes
35	400 kV Hamirpur	Yes	Yes	Yes
36	400 kV Rishikesh	Yes	Yes	Yes

VDI of important stations which experience high or low voltages and are critical to grid security has been indicated.

24. According to the petitioner, VDIs of important sub-stations are being calculated and reported on daily basis and is also being hosted on websites by RLDCs which is, thereafter, compiled at NLDC and circulated internally. Similarly, RLDCs are also calculating and reporting VDI on their websites as part of weekly reports. The petitioner has further submitted that NLDC independently calculates and reports VDIs of important sub-station on a monthly basis which is available on website as part of monthly report.

25. The petitioner has submitted that persistent problems of low/high voltage are identified in the quarterly operational feedback submitted to CTU and CEA.

Performance during FY 2015-16*	<b>100</b>
Marks scored (In proportion of the percentage performance above)	<b>10</b>
* Formula for performance calculation	$\left[ \left( \frac{\text{No. of daily reports issued (to be derived from column C)}}{366(\text{Total no. of days in FY 2015-16})} \right) * 100 \right] + \left[ \frac{\text{No. of weekly reports issued (to be derived from column D)}}{52(\text{Total no. of weeks in FY 2015-16})} * 100 \right] + \left[ \frac{\text{No. of monthly reports issued (to be derived from column E)}}{12} * 100 \right] / 3$

26. The petitioner has submitted that Clause 2.2.4.6 of the NLDC Operating Procedure, 2015 provides the corrective actions to be taken in the event of voltage going high and low. The relevant extract of the Clause 2.2.4.6 of the NLDC Operating Procedure, 2015 is extracted as under:-

“2.2.4.6. The following corrective measures shall be taken in the event of voltage going high / low:-



i) In the event of high voltage (when the bus voltage going above 410 kV), following specific steps would be taken by the respective grid substation/generating station at their own, unless specifically mentioned by NLDC/RLDC/SLDCs.

- a. The bus reactor is switched in
- b. The manually switchable capacitor banks is taken out
- c. The switchable line/tertiary reactor or convertible line reactor ( if the line kept open for High voltage) wherever possible are taken in.
- d. Optimize the filter banks at HVDC terminal
- e. All the generating units on bar shall absorb reactive power within the capability curve
- f. Operate synchronous condensers wherever available for VAR absorption
- g. Operate hydro generator/gas turbine as synchronous condenser for VAR absorption wherever such facilities are available
- h. Bring down power flow on HVDC terminals so that loading on parallel EHVAC network goes up, resulting in drop in voltage.
- i. Open lightly loaded lines in consultation with RLDC/SLDC for ensuring security of the balanced network. To the extent possible, it must be ensured that no loop of transmission lines is broken due to opening of lines to control the high voltage.

ii) In the event of low voltage (when the bus voltage going down below 390kV), following specific steps would be taken by the respective grid substation/generating station at their own, unless specifically mentioned by NLDC/RLDC/SLDCs.

- a. Close the lines which were opened to control high voltage in consultation with RLDC/SLDC.
- b. The bus reactor is switched out
- c. The manually switchable capacitor banks are switched in.
- d. The switchable line/tertiary reactor are taken out
- e. Optimize the filter banks at HVDC terminal
- f. All the generating units on bar shall generate reactive power within capability curve.
- g. Operate synchronous condenser for VAR generation
- h. Operate hydro generator/gas turbine as synchronous condenser for VAR generation wherever such facilities are available
- i. Increase power flow on HVDC terminals so that loading on parallel Extra High Voltage (EHV) network goes down resulting in rise in voltage.”

27. The petitioner has submitted that corrective actions are being taken in Real Time Grid Conditions, by NLDC at 765 kV and Inter-regional level by opening /closing shunt reactors, transmission lines, etc. and by RLDCs for other Inter-State system. The petitioner has submitted that for voltage deviations taking place in/resulting from intra-State system, RLDCs write regularly to the constituents and also discuss in the OCC meetings. The petitioner has placed on the record the extracts from OCC meeting of



RPCs, sample letters from RLDCs stating sustained voltage deviation and suggested corrective actions. The petitioner has submitted that apart from these, persistent high voltage and low voltage are being reported in the NLDC operational feedback every quarter. Link for NLDC operational feedback for the quarter July 2015 to Sept 2015 quarter is [http://posoco.in/download/nlhc-operational-Feedback\\_october\\_2015\\_q2/?wpdmdl=7214](http://posoco.in/download/nlhc-operational-Feedback_october_2015_q2/?wpdmdl=7214). This information was discussed in Standing Committee on Power System Planning of different regions with all the stakeholders. The petitioner has submitted that corrective actions are also being discussed in Standing Committee Meetings and OCC Meetings.

28. We have considered the submission of the petitioner. As per Regulation 29 (6) of the Fees and Charges Regulations, RLDCs or NLDC are required to compute the Key Performance Indicators on annual basis for the previous year ending on 31<sup>st</sup> March and are required to submit the same to the Commission for approval. The petitioner has computed the Key Performance Indicators on annual basis. Accordingly, the weightage for Voltage Deviation Index (VDI) is considered as 10 out of 10.

#### **F. Frequency Deviation Index (Parameter 6)**

29. The total weightage for the parameter Frequency Deviation Index (FDI) is 10. The petitioner has submitted FDI during 2015-16 as under:-



S. No.	Month	Intimation to utilities through Daily reports for corrective action or not	Intimation to utilities through weekly reports for corrective action or not	Intimation to utilities through monthly reports for corrective action or not
A	B	C	D	E
1	April 15	Yes	Yes	Yes
2	May 15	Yes	Yes	Yes
3	June 15	Yes	Yes	Yes
4	July 15	Yes	Yes	Yes
5	August 15	Yes	Yes	Yes
6	September 15	Yes	Yes	Yes
7	October 15	Yes	Yes	Yes
8	November 15	Yes	Yes	Yes
9	December 15	Yes	Yes	Yes
10	January 16	Yes	Yes	Yes
11	February 16	Yes	Yes	Yes
12	March 16	Yes	Yes	Yes

Performance during FY 2015-16*	<b>100</b>
Marks scored (In proportion of the percentage performance above)	<b>10</b>
* Formula for performance calculation	$\left( \left( \frac{\text{No. of daily reports issued (to be derived from column C)}}{366} \right) \times 100 + \left( \frac{\text{No. of weekly reports issued (to be derived from column D)}}{52} \right) \times 100 + \left( \frac{\text{No. of monthly reports issued (to be derived from column E)}}{12} \right) \times 100 \right) / 3$

30. We have considered the submission of the petitioner. FDIs submitted by the petitioner are found to be in order. Accordingly, weightage for FDI has been allowed as 10 out of 10.

### **G. Reporting of System Reliability (Parameter 7)**

31. The total weightage for this parameter Reporting of System Reliability (RSR) is

10. The petitioner has submitted the following report of system reliability:

(a) Reporting of (N-1) violations (To be reported to the Commission)





Month	Intimation to utilities through Daily reports for corrective action or not	Intimation to utilities through weekly reports for corrective action or not	Intimation to utilities through monthly reports for corrective action or not
B	C	D	E
April 15	Yes	Yes	Yes
May 15	Yes	Yes	Yes
June 15	Yes	Yes	Yes
July 15	Yes	Yes	Yes
August 15	Yes	Yes	Yes
September 15	Yes	Yes	Yes
October 15	Yes	Yes	Yes
November 15	Yes	Yes	Yes
December 15	Yes	Yes	Yes
January 16	Yes	Yes	Yes
February 16	Yes	Yes	Yes
March 16	Yes	Yes	Yes

X*	<b>100</b>
*Formula	$\left( \left( \frac{\text{No. of daily reports issued (to be derived from column C)}}{366} \right) \times 100 + \left( \frac{\text{No. of weekly reports issued (to be derived from column D)}}{52} \right) \times 100 + \left( \frac{\text{No. of monthly reports issued (to be derived from column E)}}{12} \right) \times 100 \right) / 3$

(b) Reporting of ATC violations (To be reported to the Commission)

Month	Intimation to utilities through Daily reports for corrective action or not	Intimation to utilities through weekly reports for corrective action or not	Intimation to utilities through monthly reports for corrective action or not
B	C	D	E
April 15	Yes	Yes	Yes
May 15	Yes	Yes	Yes
June 15	Yes	Yes	Yes
July 15	Yes	Yes	Yes
August 15	Yes	Yes	Yes
September 15	Yes	Yes	Yes
October 15	Yes	Yes	Yes
November 15	Yes	Yes	Yes
December 15	Yes	Yes	Yes
January 16	Yes	Yes	Yes
February 16	Yes	Yes	Yes
March 16	Yes	Yes	Yes



Y*=	<b>100</b>
*Formula	$\left( \left( \frac{\text{No. of daily reports issued (to be derived from column C)}}{366} \right) \times 100 + \left( \frac{\text{No. of weekly reports issued (to be derived from column D)}}{52} \right) \times 100 + \left( \frac{\text{No. of monthly reports issued (to be derived from column E)}}{12} \right) \times 100 \right) / 3$

(c) Reporting of Angle difference between important buses (To be reported to the Commission)

Month	Intimation to utilities through Daily reports for corrective action or not	Intimation to utilities through weekly reports for corrective action or not	Intimation to utilities through monthly reports for corrective action or not
<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
April 15	Yes	NO	NO
May 15	Yes	NO	NO
June 15	Yes	NO	NO
July 15	Yes	NO	NO
August 15	Yes	NO	NO
September 15	Yes	NO	NO
October 15	Yes	NO	NO
November 15	Yes	NO	NO
December 15	Yes	NO	NO
January 16	Yes	NO	NO
February 16	Yes	NO	NO
March 16	Yes	NO	NO

Z*=	<b>33.33</b>
*Formula	$\left( \left( \frac{\text{No. of daily reports issued (to be derived from column C)}}{366} \right) \times 100 + \left( \frac{\text{No. of weekly reports issued (to be derived from column D)}}{52} \right) \times 100 + \left( \frac{\text{No. of monthly reports issued (to be derived from column E)}}{12} \right) \times 100 \right) / 3$

Performance during FY 2015-16*	<b>77.78</b>
Marks scored (In proportion of the percentage performance above)	<b>7.78</b>
*Formula	<b>(X+Y+Z)/3</b>



32. The petitioner has submitted that the score for KPI No-7 (Reporting of System Reliability) has come out to be 7.78 out of 10.

33. We have considered the submission of the petitioner. Accordingly, weightage claimed for reporting system reliability is allowed as 7.78 out of 10.

#### **H. Availability of website (Parameter 8)**

34. The total weightage for the parameter “availability of website” is 10. The petitioner has submitted the percentage of availability of website as under:

Month	% Availability
April 15	99.70
May 15	100.00
June 15	99.91
July 15	100.00
August 15	99.98
September 15	100.00
October 15	99.96
November 15	99.97
December 15	99.97
January 16	99.98
February 16	99.97
March 16	99.36

Performance during FY 2015-16*	<b>99.9</b>
Marks scored (In proportion of the percentage performance above)	<b>9.99</b>

\* Average of 12 months

35. We have considered the submission of the petitioner. The petitioner is reporting availability of website regularly. Accordingly, the weightage claimed for availability of website is allowed as 9.99 out of 10.



### I. Availability of Standby power supply (Parameter 9)

36. The total weightage for the parameter “availability of standby power” is 5. The petitioner has submitted availability of standby power supply as under:

Performance during FY 2015-16*	<b>100</b>
Marks scored (In proportion of the percentage performance above)	<b>5</b>

\* Average of 12 months

37. The petitioner has further submitted that availability of backup power supply depends on the sub systems, namely (i) Availability of UPS/Battery backup, and (ii) Availability of DG set. According to the petitioner, in case main power supply fails and the system does not get any power supply, the duration shall be considered as back supply failure.

38. We have considered the submission of the petitioner. The petitioner has claimed that there has been no failure in availability of standby power supply. Accordingly, weightage claimed for availability of Standby power supply is considered as 5 out of 5.

### J. Variance of Capital expenditure (Parameter 10)

39. The total weightage for the parameter “Variance of capital expenditure” is 5. The petitioner has submitted the details of Variance of Capital Expenditure as under:

(₹ in lakh)

Capital allowed by the Commission (A)	Expenditure by the	Actual incurred (B)	Expenditure	% Variation $C = ((A-B)/A) * 100$
1260.47		1219.87		3.22



40. The petitioner has submitted that the amount considered in the column A above is as per the Fees and Charges Regulations for the control period 2014-19. The petitioner has submitted that in Column B, value as per balance sheet for the year 2014-15 has been considered.

Performance during FY 2015-16*	<b>100</b>
<b>*Formula</b>	<b>IF(C&gt;10,100-(C-10)/3,100)#</b>
Marks Scored (in proportion of the percentage performance above)	5.00
*Average of 12 months	
# Up to 10% variation, performance is proposed to be considered 100% and for any additional 3% variation beyond initial 10%, performance shall be decrease by 1% in line with the methodology of the incentive calculation prescribed in Regulation 29(5) of the Fees and Charges Regulations.	

41. The petitioner has submitted that limit of up to 10% variation has been considered for claiming 100% performance and for any additional 3% variation beyond initial 10%, performance shall decrease by 1% in line with the methodology of the incentive calculation prescribed in the Regulation 29(5) of the Fees and Charges Regulations. The petitioner has submitted that the intent of the formula is that 10%variation limit for claiming 100% performance is on both sides i.e. positive and negative. Similarly, for variation of more than 10%, performance would vary in the same manner whether the variation in CAPEX utilization is positive or negative. Therefore, value of variation should be absolute value only. Accordingly, formula for percentage variation can be read as “Percentage Variation  $C=ABS ((A-B)/A)*100$ ”.

42. We have considered the submission of the petitioner. The weightage claimed for variance of capital expenditure is provisionally considered as 5 out of 5.



### **K. Variance of Non-Capital expenditure (Parameter 11)**

43. The total weightage for the parameter “variance of non-capital expenditure” is 5.

The petitioner has submitted the details of variance of non-capital expenditure as under:-

(₹ in lakh)

Non-capital Expenditure allowed by the Commission (A)	Actual Expenditure incurred (B)	Percentage Variation $C = ((A-B)/A) * 100$
2190.087	2323.49	6.09
In the non-capital expenditure, HR Expenses, O&M Expenses and Depreciation have been considered. In column A, figures as per the Fees and Charges for the control period 2014-19 have been considered. In column B, value as per balance sheet for the year 2015-16 has been considered.		

Performance during FY 2014-15*	<b>100</b>
<b>*Formula</b>	<b>IF(C&gt;10,100-(C-10)/3,100)#</b>
Marks Scored (in proportion of the percentage performance above)	5.00
*Average of 12 months	
# Up to 10% variation, performance is proposed to be considered 100% and for any additional 3% variation beyond initial 10%, performance shall be decrease by 1% in line with the methodology of the incentive calculation prescribed in the regulation 29(5) of the RLDC Fees and Charges Regulations, 2015.	

44. We have considered the submission of the petitioner. The weightage claimed for variance of non-capital expenditure is allowed as 5 out of 5.

### **L. Percentage of certified employees (Parameter 12)**

45. The total weightage for the parameter “variance of percentage of certified employees” is 5. The petitioner has submitted the details of variance of percentage of certified employees as under:-



No. of Employees for Certification as on 31.3.2016 (A)	No. of Employees for Certification as on 31.3.2016 (B)	Percentage of Employees Certified as on 31.3.2016 (C=B/A*100)
46	42	91.30

Performance during FY 2015-16*	<b>100</b>
<b>*Formula</b>	<b>IF(C&lt;85, (100-(85-C)/3),100)#</b>
Marks Scored (in proportion of the percentage performance above)	5
*Average of 12 months	
# Up to 85% certification, performance is proposed to be considered 100% and for certification below 85%, performance shall decrease by 1% for every 3% decrease in the certification in line with the methodology of the incentive calculation prescribed in Regulation 29(5) of the Fees and Charges Regulations.	

46. We have considered the submission of the petitioner. As per methodology of the incentive specified in Regulation 29 (5) of the Fees and Charges Regulations, for certification upto 85%, performance would be considered 100% and for certification below 85%, performance would be decreased by 1% for every 3% decrease in the certification. Accordingly, the weightage for percentage of certified employees is considered as 5 out of 5.

47. We have considered the submissions of the petitioner with regard to KPI. The following Key Performance Indicators are allowed as per the methodology specified in Appendix-V of the Fees and Charges Regulations:-

S. No	Key Performance Indicators	Weight age	Claimed for FY2015-16	Allowed
1	Reporting of Inter-connection meter	10	10	10
2	Reporting of Grid Incidents and Grid Disturbance	10	10	10
3	Average processing time of shut down request	10	10	10



<b>4</b>	Availability of SCADA System	<b>10</b>	10	10
<b>5</b>	Voltage Deviation Index (VDI)	<b>10</b>	10	10
<b>6</b>	Frequency Deviation Index (FDI)	<b>10</b>	10	10
<b>7</b>	Reporting of System Reliability	<b>10</b>	7.78	7.78
<b>8</b>	Availability of Website	<b>10</b>	9.99	9.99
<b>9</b>	Availability of Standby Supply	<b>5</b>	5	5
<b>10</b>	Variance of Capital expenditure	<b>5</b>	5	5
<b>11</b>	Variance of Non Capital expenditure	<b>5</b>	5	5
<b>12</b>	Percentage of Certified Employee	<b>5</b>	5	5
	<b>Total</b>	<b>100</b>	<b>97.77</b>	<b>97.77</b>

48. As per the above table, the petitioner has achieved 97.77% Key Performance Indicators out of 100%. Accordingly, the petitioner is allowed to recover incentive of 8.554% of annual charges for the financial year 2015-16.

49. Petition No. 52/MP/2017 is disposed of in terms of above.

**sd/-**  
**(Dr. M.K Iyer)**  
**Member**

**sd/-**  
**(A.S.-Bakshi)**  
**Member**

**sd/-**  
**(A.K.-Singhal)**  
**Member**

**sd/-**  
**(Gireesh B.-Pradhan)**  
**Chairperson**

