CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 79/MP/2019

Coram:
Shri P.K. Pujari, Chairperson
Dr. M.K. Iyer, Member
Shri I.S. Jha, Member

Date of Order: 27.06.2019

In the matter of

Petition under 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 2017-18 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,
Power System Operation Corporation Ltd. (POSOCO)
(A Govt. of India undertaking),
Registered office: B-9, Qutab Institutional Area, 1st Floor,
Katwaria Sarai, New Delhi -110016

....Petitioner

Vs.

1. CMD, UPPCL,
   Uttar Pradesh Power Corporation Limited,
   Shakti Bhawan, 14-Ashok Marg,
   Lucknow-226001

2. Principal Secretary,
   Government of J&K,
   Civil secretariat,
   Srinagar, J&K.

3. CMD, Rajasthan

Rajya Vidyut Prasaran Nigam Limited,
Vidyut Bhawan, Vidyut Marg,
Jaipur-302005

4. Chairman,
RUVNL, Vidyut Bhawan,
Janpath, Jyoti Nagar,
Jaipur- 302005, Rajasthan

5. Chairman,
Punjab State Transmission Corporation Limited,
PSEB Head Office The Mall,
Patiala-147 001

6. Managing Director,
Haryana Vidyut Prasaran Nigam Limited,
Shakti Bhawan, Sector-6,
Panchkula-134109

7. Chief Engineer,
Haryana Power Perchase Center,
Room No-308, Shakti Bhawan,
Sector-6 Panchkula-134109, Haryana

8. CMD,
Delhi Transco Limited,
Shakti Sadan, Kotla Road,
New Delhi-110 002

9. Chairman,
Himachal Pradesh State Electricity Board Ltd.,
Kumar House,
Vidyut Bhawan, Shimla-171004

10. Managing Director,
Power Transmission Corporation of Uttarakhand Limited,
7-B, Lane No-1,
Vasant Vihar Enclave,
Dehradun - 248 001.

11. Managing Director,
    Uttarakhand Power Corporation Ltd.,
    Kanwli Road, Urja Bhawan,
    Dehradun-248001,Uttrakhand

12. Chief Engineer, Electricity Department,
    UT Chandigarh,
    Sector 9-D,
    UT Chandigarh-160019

13. Chief Electrical Engineer,
    North Central Railway General Manger Office,
    Subedarganj Uttar Madhya Railway,
    Allahabad, UP- 211011.

14. The DGM, Electrical,
    National Fertilizers Limited,
    District:- Ropar,
    Naya Nangal 140124, Punjab

15. Chief General Manager,
    PGCIL Kurukshetra (±800 KV HVDC Inter Connector Project)
    V.P.O. Bhadson, Opp Piccadily Sugar Mill,
    Tehsil INDRI,
    District Karnal-132117 (Haryana)

16. Senior DGM,
    PGCIL Bhiwadi
    HVDC (±500 KV), 4th Km Mile Stone,
    Bhiwadi- Alwar Bye-Pass Road,
    P.O. Khijuriwas,
    Distt. Alwar, (Rajashtan)-301018.

17. General Manage,
    PGCIL, Dadri HVDC (±500 KV), PO-Vidyut Nagar,
    Distt: Gautambuddh Nagar (
    U.P.)-201008.

18. Senior GM, PGCIL,
    Agra HVDC Terminal 765/400/220 KV,
    Sub-Station,12.6 KM, Mile Stone,
    Shamshabad Road,
    P.O. Shyamo, Agra-283125 (U.P.)

19. Senior DGM, PGCIL,
    Ballia HVDC (±500 KV) Sub-Station,
    Village & Post: Ibrahimpatti, (via Krihirapur),
    Tehsil: Belthra Road,
    Distt:- Ballia (U.P.) Pin-221716.

20. General Manager,
    PGCIL Rihand HVDC Station,
    Inside NTPC Rihand Plant Premises,
    P.O-Bijpur Distt: Sonebhadra,
    (U.P.) Pin-231223

Users under the category of Generating Stations and Sellers

21. General Manager,
    Singrauli Super Thermal Power Station,
    Shakti Nagar, UP-231222

22. General Manager,
    Singrauli Solar PV Power Project,
    Shakti Nagar, UP-231222

23. General Manager,
    Singrauli Small Hydro Power Project,
    Shakti Nagar, UP-231222

24. General Manager,
    Rihand Super Thermal Power Station-I,
    Rihand Nagar, UP-231223

25. General Manager,
    Rihand Super Thermal Power Station-II,
    Rihand Nagar, UP-231223

26. General Manager,
Rihand Super Thermal Power Station-III,
NTPC Rihand, Dist-Sonbhadra,
UP – 231223

27. General Manager, Dadri,
National Capital Power Project,
Dadri Dhaulana Road,
Distt. Gautam Buddh Nagar, UP-201008

28. General Manager,
Dadri – Stage - II,
National Capital Power Project,
Dadri Dhaulana Road, Distt.
GautamBuddh Nagar, UP-201008

29. General Manager,
Firoz Gandhi Unchahar Thermal Power Project-I,
P.O. Unchahar,
Distt. Raibareilly, UP

30. General Manager,
Firoz Gandhi Unchahar Thermal Power Project-II,
P.O. Unchahar,,
Distt. Raibareilly, UP

31. General Manager,
Firoz Gandhi Unchahar Thermal Power Project-III,
P.O. Unchahar,
Distt. Raibareilly, UP

32. General Manager,
Firoz Gandhi Unchahar Thermal Power Project-IV,
P.O. Unchahar, Dist. : Raibareilly (U.P.)
Pin-229406. UP

33. General Manager,
Firoz Gandhi Unchahar Solar PV Power Project,

Unchahar, Distt. Raibareilly, UP

34. General Manager,
Dadri Gas Power Project,
Dhaulana Road,
Distt. Gautam Buddh Nagar, UP-201008

35. General Manager,
Dadri Solar PV Power Project,
Dhaulana Road,
Distt. Gautam Buddh Nagar, UP-201008

36. General Manager,
Auraiya Gas Power Project(Gas Fired, RLNG Fired, Liquid Fired),
Dibiyapur, Distt Etawah, UP-206244

37. General Manager,
Anta Gas Power Project (Gas Fired, RLNG Fired, Liquid Fired),
Distt. Baran, Rajasthan-325209

38. General Manager,
Koldam HPP, NTPC,
Post- Barman, Dist- Bilaspur,
Himachal Pradesh 174013

39. Station Director,
Narora Atomic Power Station,
Narora, Distt. Bulandshahar,
UP-202389

40. Station Director,
Rajasthan Atomic Power Station-B,
NPCIL Rawatbhata, PO- Anu Shakti Vihar, Kota, Rajasthan-323303

41. Station Director, Rajasthan Atomic Power Station-C, (RAPS-5&6)
NPCIL Rawatbhata,
PO-Anushakti Vihar,
Kota, Rajasthan-323303

42. General Manager,
Bairasiul Hydro Electric Project,
NHPC Ltd.,
Surangini, Distt.
Chamba, HP-176317

43. General Manager,
Salal Hydro Electric Project,
NHPC Ltd, Jyotipuram,
Distt. Udhampur, J&K-182312

44. General Manager,
Tanakpur Hydro Electric Project,
NHPC Ltd., Banbassa,
Distt. Champawa,Uttrakhand-262310

45. General Manager,
Chamera-I Hydro Electric Project,
NHPC Ltd., Khairi,
Distt. Chamba, HP-176310

46. General Manager,
Uri Hydro Electric Project,
NHPC Ltd., Mohra,
Distt. Baramulla, J&K-193122

47. General Manager,
Chamera-II Hydro Electric Project,
NHPC Ltd., Karian,
Distt. Chamba, HP-176310

48. General Manager,
Chamera-III Hydro Electric Project,
NHPC Ltd.,Dharwala,
Distt.- Chamba,HP-176311

49. General Manager,
Dhauliganga Hydro Electric Project,

NHPC Ltd., Tapovan, Dharchula,
Pithoragarh, Uttrakhand-262545

50. General Manager, Dulhasti Hydro Electric Project,
NHPC Ltd., Chenab Nagar,
Distt. Kishtwar, J&K-182206

51. General Manager,
Uri 2 Hydro Electric Project,
NHPC Ltd., Nowpura,
Distt. Baramulla, J&K-193123

52. General Manager,
Parbati HE Project Stage-III Behali,
P.O- Larji Kullu 175122 Himachal Pradesh

53. Chief Engineer,
Sewa-II Power Station,
NHPC Ltd. Mashke,
post Bag no-2, P.O-Khari, Dist: Kathua,
Jammu and Kasmir -176325

54. General Manager,
Naptha Jhakhri HEP,
Satluj Jal Vidyut Nigam Ltd.
Power Project, Jhakri,
Rampur, Distt. Shimla, HP-172201

55. General Manager,
Rampur HEP,
Satluj Jal Vidyut Nigam Ltd. Power Project,
Jhakri, Rampur, Distt. Shimla, HP-172201

56. General Manager,
Tehri Hydro Development Corporation Ltd.,
Bhagirath Puram, Tehri,
Uttrakhand-249001

57. General Manager,

58. Koteshwar HEP, THDCIL,
Koteshwerpuram,
Post Office- Pokhari Tehri Garwal,
Uttarakhand - 249146

59. General Manager, ADHPL,
Village- Prini, PO -Jagat Sukh,
Tehsil - Manali, Distt- Kullu (H.P) India.

60. 39. General Manager,
Indra Gandhi Super Tharmal Power Project,
PO -Jharli, Tahsil Matanhail,
Dist – Jhajjar, (Haryana)-124125

61. General Manager,
Karcham Wangtoo HEP,
Himachal Baspa Power Company Limited,
Sholtu Colony, PO- Tapti,
Dist-Kinnaur, -172104 (HP).

62. Director, Malana - II
Everest Power Pvt. Ltd,
Hall-A/ First Floor Plot No-143-144,
Udyog Vihar, Phase -4,
Gurgaon, Haryana 122015

63. Company Secretary,
Shree Cement Thermal Power Project Bangurnagar,
Beawar , Dist Ajmer,
Rajasthan -305901

64. Company Secretary,
Greenco Budhil HPS Ltd,
Plot No. 1367 Road No- 45,
Jubilee Hills, Hyderabad- 500033

65. Project General Manager,
Himachal Sorang Power Limited, D-7,
Lane-I, Sector-I,

New Shimla, Shimla, H.P.-171009.

66. Director (Power Regulation),
Bhakra Power House, SLDC Complex ,
66 KV Substation, Industrial Area Phase-I,
Madhya Marg, BBMB Chandigarh

67. Superintending Engineer,
Dehar HEP, BBMB, PW, Solapper,
Tehsil Sundernagar,
District: Mandi Himachal Pradesh-175017

68. Superintending Engineer,
Pong Power House Circle,
Power wing BBMB Talwara,
District: Hoshiarpur, Punjab 144216

69. General Manager,
Sainj HEP, HPPCL,
Larji, Distric - Kullu,
Himachal Pradesh, 175122

Users under the category of Inter State Transmission Licensees

70. Executive Director, PGCIL,
NRTS-I, Power Grid Corporation of India Ltd.,
B-9, Qutab Institutional Area,
New Delhi-110016.

71. Director, Operations,
Powerlinks Transmission Ltd.,
10th Floor, DLF Tower-A,
District Centre, Jasola, New Delhi-110044

72. Executive Director & CEO,
Jaypee POWERGRID Ltd.
F-Block, Sector -128
Noida- U.P

73. Director,
Adani Transmission India Ltd,
Business Development, Achalraj,
Opp Mayor Bungalow, Law Garden,
Ahmedabad 380009.

74. Managing Director,
Parbati Koldam Transmission Company LTD.,
5th Floor 1A, JMD Galleria, Sec-48,
Sohna Road, Gourgan,
Haryana 122018.

75. General Manager,
Indira Gandhi Super Thermal Power Project,
Aravali Power company Private Limited,
P.O.: Jharli, Dist-Jhajjar

76. The Vice President,
NRSS XXIX Transmission Limited,
F-1, Mira Corporate Suite, Ishwar Nagar,
Mathura Road, New Delhi – 110065.

77. The DIRECTOR, Patran Transmission Company Limited,
400 KV 220kV GIS Substation,
Village-Banwala, Tehsil-Patran,
District: Patiala 147105 Punjab.

78. The Vice President,
RAPP Transmission Company Ltd,
F-1, Mira Corporate Suite, Ishwar Nagar,
Mathura Road, New Delhi – 110065

79. The Vice President,
NRSS XXXI (B) Transmission Ltd.
Essel Infra projects Ltd. 06th Floor,
Plot No. 19, Film City, Sec-16 A,
Gautam Buddha Nagar , Noida U.P. – 201301

80. The Vice President,
NRSS XXXVI Transmission Ltd.

Essel Infra projects Ltd.
06th Floor, Plot No. 19, Film City, Sec-16 A,
Gautam Buddha Nagar ,
Noida U.P. – 201301

81. CEO, POWERGRID
Unchahar Transmission Ltd.
765/400/220kV Substation,
Village Chauferava, Post & Dist Fatehpur,
Uttar Pradesh, 212601

…..**Respondents**

Parties Present:

1. Ms. Himani Dutta, NRLDC
2. Shri M.K. Agrawal, NRLDC

ORDER

The Petitioner, Northern Regional Load Despatch Centre (hereinafter referred to as "NRLDC"), has filed the present petition under Section 28(4) of Electricity Act, 2003 (hereinafter referred to as 'the Act') 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 (hereinafter referred to as "PLI") for NRLDC for the financial year 2017-18 for the control period 1.4.2014 to 31.3.2019.

Background

2. The Petitioner Northern Region Load Despatch Centre (NRLDC) is a statutory body set up under Section 27 of the Electricity Act, 2003 and performs the functions specified under Section 28 of the Electricity Act, 2003.

(a) 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 (KPIs) 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 31st March and 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, KPI score for NRLDC for the year 2017-18 ending 31.3.2018 has been submitted by petitioner as under:

Sl. No	Key Performance Indicators	Weightage	Previous Year (as allowed by CERC (2016-17)	Current Year (2017-18)
1	Interconnection Meter Error	10	10.00	10.00
2	Disturbance Measurement	10	10.00	10.00
3	Average processing time of shutdown request	10	10.00	10.00
4	Availability of SCADA system	10	10.00	10.00
5	Voltage Deviation Index (VDI)	10	10.00	10.00
6	Frequency Deviation Index (FDI)	10	10.00	10.00
7	Reporting of System Reliability	10	10.00	10.00

Sl. No	Key Performance Indicators	Weightage	Previous Year (as allowed by CERC (2016-17)	Current Year (2017-18)
8	Availability of Website	10	9.98	9.97
9	Availability of Standby Supply	5	5.00	5.00
10	Variance of Capital expenditure	5	4.431	4.476
11	Variance of Non-Capital expenditure	5	5.00	5.00
12	Percentage of Certified Employee	5	4.536	4.577
	Total	**100**	98.947	99.022
		Score		
Slabs		>85%	90-95 %	95-99.022 %
% age Incentive (Slab wise)		7	1	0.804
Net Incentive as %age of Annual Charges		**8.804**		

(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. The incentive shall increase by 1% of annual charges for every 5% increase of performance level above 90%. Accordingly, recovery of Performance Linked Incentive (PLI) works out as 8.804% of the Annual charges for the year 2017-18 (i.e. for 90-95% additional 1% and for 95% to 97.72% additional 0.544%).

Submissions

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 the year ending 31.03.2018 given at para 5, the KPI score given at para6and PLI percentage of Annual Charges of the year 2017-18.

(b) Allow the Applicant to recover the above mentioned incentives from the users for the year 2017-18 as approved by the Hon'ble Commission.

(c) Allow the increase in PRP kitty as prayed in petition No. 344/MP/2018 on 8th November 2018.

(d) Pass such other order(s) as the Hon'ble Commission deems fit and appropriate in this case and in the interest of justice.

4. The Respondent UPPCL has filed reply to NLDC vide affidavit dated 20.4.2018 as under :

(a) As per Regulation 29(5) of the RLDC (Fees and charges Regulation 2015, NLDC shall be allowed to recover 7% of the annual charges for aggregate performance level of 85% for 3 years commencing from 01.04.2014. The incentive shall increased by 1% of annual charges for every 5% increase of performance level above 90%. The present performance level calculated by the petitioner is 97.299% which means that the performance linked incentive works out to 8.460% of the annual charges for the year 2017-1 8

(b) The incentive for the performance of NLDC has increased from 7% to 8.46% which means a substantial additional burden of 1.46% which is quite important from the point of view of critical analysis of the calculation of the weightage of KPI as well as percentage of KPI for 2017-18. However, the Petitioner has :-

(i) Failed to provide the derivation of the weightage of KPI against all the 12 Key Performance Indices.

(ii) Failed to provide the details of calculation of percentage of the KPI in respect of all the 12 No. Key Performance Indices.

(c) In view of the above it is prayed the Commission to direct the Petitioner to provide calculations of the weightage as well as the percentage of KPI so that, their analytical study can be carried out by the beneficiaries and the conspicuous points may be brought to the knowledge of Hon'ble Commission which will be helpful in deciding the issues covered under the heading prayer of the Petitioner pertaining to instant petition.

5. In response to reply filed by UPPCL, Petitioner vide its rejoinder dated 06.05.2019 submitted that weightage of each KPI has been assigned as per Appendix -V of CERC (Fees and Charges of Regional Load Despatch centres and related matters) Regulations, 2015. The marks achieved are calculated based on actual performance and weightage assigned against each of the KPI. It is submitted that rational to arrive at the formula for calculation of marks for various KPIs as well as the details of formula, actual achievement and marks scored corresponding to weightage assigned to each of the KPIs is provided with the petition and in the view of the same the petitioner prayed Commission to approve the proposed performance linked incentive based on the KPIs.

6. The Petitioner vide affidavit dated 03.5.2019 has submitted the information called for.

Analysis and Decision

7. The present petition has been filed under Regulations 6 and 29 of the RLDC Fees and Charges Regulations 2015 for approval of Performance Linked Incentive for the financial year 2017-18. 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."

8. In light of the above provisions, we have considered the petitioner's claim for Performance Linked Incentive (PLI). The Petitioner has submitted that the Commission has notified the various performance indicators and their weightage for determination of fees and charges in the RLDC Fees and Charges Regulations and performance on these KPIs is quantified to make it measurable. The Petitioner has submitted KPI-wise details which have been dealt with in the succeeding paragraphs.

KPI-1: Reporting of Inter-connection metering error

9. The Petitioner has submitted that 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. According to the Petitioner, RLDCs are reporting the meter errors on weekly basis and these are made available on web sites as per the recommendations in the Regulation. Therefore, the possible number of reports in a year is 52 which have been converted to percentage based on the actual reporting. Percentage performance has been proportionately converted to marks scored.

10. The total weightage given for this parameter is 10. The Petitioner has submitted performance-wise details as under:

Performance during financial year 2017-18 (In %) A* =	100
Marks scored (In proportion of the percentage performance above)	10
*Formula for performance calculation	[No. of weekly reports issued /52 (Total no. of Weeks)]*100

11. 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. It has submitted that as per Regulation 6.4.22 of the Grid Code, 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. This information on interconnection meter error is published on the on a weekly basis. Web-link for the same is given below:

https://nrldc.in /commercial/ discrepancy-report/ and https://nrldc.in/commercial/sem-data/.

It has submitted that the discrepancy reports are discussed in detail in the different fora at RPC level. Web-link for the same is given below:

http://nrpc.gov.in/submeeting-type/commercial-sub-committee/ &

http://164.100.60.165/meetings/commsub.html)

12. We have considered the submission of the petitioner. The petitioner has complied with the provisions of the Regulation 6.4.22 of the Grid Code. As per Appendix VI of the RLDC Fees and Charges Regulations 2015, the weightage factor for reporting of inter-connection meter error is considered 10 out of 10.

KPI-2: Reporting of Grid Incidents and Grid Disturbance:

13. The Petitioner has submitted that grid incidents and grid disturbances are compiled on monthly basis and the same is forwarded 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. The Petitioner has submitted that percentage performance has been measured based on the actual number of reports generated, which has been converted proportionately to marks scored.

14. 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 2017-18 are as under:

Grid Incidents and Grid Disturbance for financial year 2017-18			
Category	Count (Nos)	Recovery period (Hrs)	Loss of Energy (MUs)
GI-1	10	13:17:00	0.00
GI-2	90	1127:51:00	0.00
GD-1	85	427:56:00	11.02
GD-2	0	0:00:00	0.00
GD-3	0	0:00:00	0.00
GD-4	0	0:00:00	0.00
GD-5	0	0:00:00	0.00
All	**185**	**1569:04:00**	**11.021**

15. The Petitioner has submitted that copy of the report is made available on public domain on POSOCO`s website (https://posoco.in/reports/monthly-reports/monthly-reports-2017-18/) The Petitioner has submitted the details of the report for the financial year 2017-18 as under:

Sl. No.	Month	Date of Reporting
1	April 2017	23nd May 2017
2	May 2017	23rd June 2017
3	June 2017	21nd July 2017
4	July 2017	23nd August 2017
5	August 2017	21rd September 2017
6	September 2017	23st October 2017
7	October 2017	22rd November 2017
8	November 2017	22rd December 2017
9	December 2017	23rd January 2018
10	January 2018	23rd February 2018
11	February 2018	23rd March 2018
12	March 2018	23st April 2018

16. The Petitioner has submitted performance-wise details as under:

Performance during financial year 2017-18 (In %) * =	100
Marks scored(In proportion of the percentage performance above)	10
***Formula for performance calculation :**	(No. of Monthly reports issued /12)*100

17. 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. Accordingly, as per Appendix VI of the RLDC Fees and Charges Regulations, 2015 the weightage factor for reporting of grid incidents and grid disturbance is considered 10 out of 10.

KPI-3: Average processing time of shut down request

18. The Petitioner has submitted that the shut-down process, uniform across all the RLDCs, has been discussed and approved at RPC level. Time allowed to NLDC and RLDCs for approval of the shut-down requests is 26 hours and 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 then prevailing grid conditions. It has submitted that 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 shut down requests is intimated by respective RLDCs to the requesting agencies on D-1 (i.e. one day ahead of the proposed date of outage). The Petitioner has submitted that as per the formula used for calculating KPI score for this parameter, performance will be considered 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 for RLDCs. If the time taken is more than the prescribed time, then the performance will come down in the same proportion e.g. if the time taken in processing the request is more than 5% of the prescribed time then the percentage performance will be 95%. Percentage performance has been proportionately converted to marks scored.

19. 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 2013 and was approved in OCC forum. 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, NRLDC consults NLDC for approval of outage requests.

20. As per above outage planning procedure, shutdown processing time for NLDC/RLDCs is as tabulated below:

Sl. No.	Activity	Day	Time (hrs.)
1	Request of shutdown from indenting agency to concerned RLDC.	D-3	1000
2	Forwarding request of shutdown requiring NLDC approval from RLDC to other concerned RLDCs and NLDC (along with the recommendations and study result)	D-2	1000
3	Comments of other RLDCs or NLDC	D-2	1600
4	Approval or Rejection of Request	D-1	1200

As per table above:
Shutdown Processing Time for NLDC is Calculated as: Sr. No(4) - Sr. No(2)= 26hrs
Shutdown Processing Time for RLDC is Calculated as: Sr. No(4) - Sr. No(1)= 50hrs

21. 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 2017-18 as under:

S.No.	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)
1	Apr'17	279	7092	25.4
2	May'17	261	5562	21.3
3	June'17	189	4236	22.4
4	July'17	140	2904	20.7
5	Aug'17	141	3277	23.2
6	Sep'17	236	4302	18.2
7	Oct'17	310	7023	22.7
8	Nov'17	349	7636	21.9
9	Dec'17	418	9740	23.3
10	Jan'18	277	6099	22.0
11	Feb'18	292	6380	21.8
12	Mar'18	389	9882	25.4
	Total	**3281**	**74133**	**22.6**

22. The petitioner has submitted formula for calculation of performance as follows:

Performance during the financial year 2017-18 (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)

23. We have considered the submission of the petitioner. Accordingly, as per Appendix VI of the RLDC Fees and Charges Regulations 2015, the weightage for average processing time of shut down request is considered 10 out of 10.

KPI-4: **Availability of SCADA**

24. Vide Records of Proceedings for the hearing dated 23.4.2019, the Petitioner was directed to explain the procedure for measurement of parameter of "Availability of SCADA". The Petitioner vide its affidavit dated 2.5.2019 submitted the following procedure for measurement of Availability of SCADA:

(a) Availability of SCADA

Main reasons of outages of real-time data are listed below:

1. Failure of critical SCADA servers (hardware level)

2 Failure of critical SCADA applications (software level)

3. Communication failure

Critical infrastructure of SCADA is redundant at server and network level to ensure standby operation and availability in case of any contingency. In case, data at main control centre is not available, then back-up control centre is utilized to visualize the real-time data.

SCADA systems are covered under long term maintenance contract by System Integrator/OEM having financial implications in case of outages even in the component level. The System Integrator need to attend the issues as per time lines defined in the maintenance contract, failing which a portion of the maintenance charges can be deducted as penalty measure. Records of all incidences are maintained along with resolution details. The measures for the maintenance contract have been kept stringent so that it does not affect the overall SCADA system availability to the Grid Operators. The records for KPI are generated in line with above philosophy.

(b) Methodology followed for calculation of SCADA system availability

Both main and back-up SCADA systems have two SCADA servers working in redundant mode with one of the servers in master role and the other in standby role. Consequently, services of SCADA system is considered available when at least one of the redundant servers is up. In the event of failure of both the SCADA servers at Main control centre (CC), monitoring of regional grid can be done through SCADA system of Backup. Accordingly, for the purpose of computation of SCADA availability, the status of main and standby SCADA servers at Main and Backup control centres is checked. If any one of the servers is working at any instant and real time SCADA data is available to the control room, the SCADA system is considered to be available.

The SCADA system at Main and Backup control centres is checked for healthiness on daily basis based on Server logs and system alarms of SCADA system in Hardware and Software levels. Daily check on healthiness of SCADA system

components such as Servers, Networks, and Processes etc. is made by the system integrator and kept in record.

(c) Measurement & Computation of SCADA Availability

There are different levels of severities depending upon the criticality of the failures. Loss of SCADA system to control room is categorised as Severity 1. The severity matrix as per maintenance contract is given below:

Category	Definition
Severity 1 - Urgent	Complete system failure, severe system instability, loss or failure of any major subsystem or system component such as to cause a significant adverse impact to system availability, performance, or operational capability
Severity 2 - Serious	Degradation of services or critical functions such as to negatively impact system operation. Failure of any redundant system component such that the normal redundancy is lost Non-availability of System Integrator's Man-power at Control Centre during working hours, non-availability of spares
Severity 3 – Minor	Any other system defect, failure, or unexpected operation
Severity 4 - General/ Technical Help	Request for information, technical configuration assistance, "how to" guidance and enhancement requests

If due to any fault/maIfunction real time grid operations get affected, down time is recorded for the period for which the fault I malfunctioning persist.

For example, if both Main & Back up Servers of SCADA system are down and Grid operators are not getting any data through SCADA system, the incident is considered with highest severity and contributes to unavailability.

As Communication networks are provided by the ULDC/POWERTEL/Third party lease lines, RLDC does not have direct control over the availability of each links. As

such the data outage due to communication network is not considered under SCADA availability calculation.

The downtime for all such incidents reported in a month are accumulated to arrive at the total system downtime in that Month based on the status of servers stored in SCADA database, month wise %age availability in terms of hours & % age is calculated. The same is compiled for computation of monthly/ quarterly availability of the SCADA system.

25. The Petitioner in its petition has submitted that SCADA system at NRLDC Main Control Centre acquires real time data from Remote Terminal Unit (RTU) /Sub-station Automation System (SAS) for Central Sector Stations and IPPs, ISTS sub-stations in Northern Region, either through Unified Load Despatch and Communication (ULDC) network or through POWERTEL communication network. Main reason reasons of outages of real-time data are listed below:

S. No.	Description	Remarks
1	Failure of critical Servers (hardware level)	Maintained by AMC vendor
2	Failure of critical Applications (software level)	Maintained by AMC vendor
3	Communication equipment failure	Provided and maintained by POWERGRID / Communication provider
4	Communication links failure	Provided and maintained by POWERGRID / Communication Provider

26. The Petitioner has submitted that telemetered data for State sector stations report to NRLDC through respective SLDCs over the inter control centre communication

protocol (ICCP), primarily using the ULDC network. The Petitioner has submitted that NRLDC has backup control centre at different location receiving telemetered data independently through terminal server and State back control centers. The Petitioner has submitted that NRLDC has ensured redundant data links from all terminal server locations with dual reporting to both main and backup control centers. Due to different level of hierarchy of back-ups, NRLDC is able to achieve zero downtime of the SCADA system.

27. The total weightage for this parameter is 10. The Petitioner has submitted percentage availability of 12 months (April 2017 to march, 2018) is 100. The marks claimed by the petitioner is as follows:

Performance during the financial year 2017-18*	**100**
Marks scored (In proportion of the percentage performance above)	**10**
* Average of 12 months	

28. We have considered the submission of the petitioner. We have worked out the average of 12 months as 100. Accordingly, as per Appendix VI of the RLDC Fees and Charges Regulations 2015, the weightage for availability of SCADA is considered 10 out of 10.

KPI-5: Voltage Deviation Index

29. The total weightage for the parameter Voltage Deviation Index (VDI) is 10. The Petitioner has submitted the details of VDI as under:

KPI-5: Voltage Deviation Index (VDI)				
Name of the Region: Northern Regional Load Despatch Centre				
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	765kV Ajmer	Yes	Yes	Yes
2	765kV Aligarh	Yes	Yes	Yes
3	765kV Balia	Yes	Yes	Yes
4	765kV Bhiwani	Yes	Yes	Yes
5	765kV Bareilly	Yes	Yes	Yes
6	765kV Chittorgarh	Yes	Yes	Yes
7	765kV Fatahepur	Yes	Yes	Yes
8	765kV Jhatikara	Yes	Yes	Yes
9	765kV Kanpur	Yes	Yes	Yes
10	765kV Lucknow	Yes	Yes	Yes
11	765kVMeerut	Yes	Yes	Yes
12	765kV Moga	Yes	Yes	Yes
13	765kV Orai	Yes	Yes	Yes
14	765kV Varanasi	Yes	Yes	Yes
15	765kV Anta	Yes	Yes	Yes
16	765kV Phagi	Yes	Yes	Yes
17	765kV Agra	Yes	Yes	Yes
18	765kV Anpara C	Yes	Yes	Yes
19	765kV Anpara D	Yes	Yes	Yes
20	765kV Bara	Yes	Yes	Yes
21	765kV Greater Noida	Yes	Yes	Yes
22	765kV Hapur UP	Yes	Yes	Yes
23	765kV Lalitpur	Yes	Yes	Yes
24	765kV Mainpuri UP	Yes	Yes	Yes
25	765kV Unnao	Yes	Yes	Yes
26	765kV Agra	Yes	Yes	Yes
27	400 kV Bhiwani (BBMB)	Yes	Yes	Yes
28	400 kV Dehar	Yes	Yes	Yes
29	400kV Panipat	Yes	Yes	Yes
30	400 kV Bamnoli	Yes	Yes	Yes
31	400kV Bawana	Yes	Yes	Yes
32	400kV CCG Bawana	Yes	Yes	Yes
33	400 kV Harsh Vihar	Yes	Yes	Yes
34	400 kV Mundka	Yes	Yes	Yes
35	400 kV Baspa	Yes	Yes	Yes
36	400 kV Dhanonda	Yes	Yes	Yes
37	400kV Daultabad	Yes	Yes	Yes

KPI-5: Voltage Deviation Index (VDI)				
Name of the Region: Northern Regional Load Despatch Centre				
38	400 kV Dipalpur	Yes	Yes	Yes
39	400 kV Kabulpur	Yes	Yes	Yes
40	400 kV Kirori	Yes	Yes	Yes
41	400 kV MGTPS	Yes	Yes	Yes
42	400 kV Nawada	Yes	Yes	Yes
43	400 kV Nuhiyawali	Yes	Yes	Yes
44	400 kV RGTPS	Yes	Yes	Yes
45	400kV Abdulapur	Yes	Yes	Yes
46	400kV Agra	Yes	Yes	Yes
47	AGRA HVDC	Yes	Yes	Yes
48	400kV Ajmer	Yes	Yes	Yes
49	400kV Allahabad	Yes	Yes	Yes
50	400kV Amargarh	Yes	Yes	Yes
51	400kV Amritsar	Yes	Yes	Yes
52	400kV Auriya	Yes	Yes	Yes
53	400 kV Baghpat	Yes	Yes	Yes
54	400kV balia	Yes	Yes	Yes
55	400kV Ballabhgarh	Yes	Yes	Yes
56	400kV Bassi	Yes	Yes	Yes
57	400kV Bahadurgarh	Yes	Yes	Yes
58	400kV Bhiwadi	Yes	Yes	Yes
59	400kV Bhiwani	Yes	Yes	Yes
60	400 kV Bamnoli	Yes	Yes	Yes
61	Bhiwadi HVDC	Yes	Yes	Yes
62	400kV Banala	Yes	Yes	Yes
63	400kV Bairaily	Yes	Yes	Yes
64	400 kV Bareilly1	Yes	Yes	Yes
65	400kV Chamba	Yes	Yes	Yes
66	400kV Chamera1	Yes	Yes	Yes
67	400kV Chamera2	Yes	Yes	Yes
68	Dadri HVDC	Yes	Yes	Yes
69	400kV Dehradhun	Yes	Yes	Yes
70	400 kV Dadri	Yes	Yes	Yes
71	400kV Dulasthi	Yes	Yes	Yes
72	400kV Fathepur	Yes	Yes	Yes
73	400kV Fatehabad	Yes	Yes	Yes
74	400kV Gorakhpur	Yes	Yes	Yes
75	400kV Gurgaon	Yes	Yes	Yes
76	400kV Hissar	Yes	Yes	Yes
77	400 kV Hamirpur	Yes	Yes	Yes
78	400 kV Jalandhar	Yes	Yes	Yes
79	400kV Jaipur South	Yes	Yes	Yes
80	400kV Jhajjar	Yes	Yes	Yes
81	400kV Jind	Yes	Yes	Yes

KPI-5: Voltage Deviation Index (VDI)				
Name of the Region: Northern Regional Load Despatch Centre				
82	400kV Jhatikara	Yes	Yes	Yes
83	400kV Kaithal	Yes	Yes	Yes
84	400kV Kanpur	Yes	Yes	Yes
85	400kV Kishanpur	Yes	Yes	Yes
86	400kV Kankroli	Yes	Yes	Yes
87	400kV Koldam	Yes	Yes	Yes
88	400kV Kota	Yes	Yes	Yes
89	400 kV Karcham	Yes	Yes	Yes
90	400 kV Kota	Yes	Yes	Yes
91	400kV Koteshwar-Powergrid	Yes	Yes	Yes
92	400kV Koteshwar-THDC	Yes	Yes	Yes
93	Kurukshetra HVDC	Yes	Yes	Yes
94	400 kV Ludhiana	Yes	Yes	Yes
95	400kV Lucknow	Yes	Yes	Yes
96	400kV Lucknow1	Yes	Yes	Yes
97	400kV Mainpuri	Yes	Yes	Yes
98	400 kV Mandaula	Yes	Yes	Yes
99	400kV Manesar	Yes	Yes	Yes
100	400kV Maharanibagh	Yes	Yes	Yes
101	400kV Meerut	Yes	Yes	Yes
102	400kV Malerkotra	Yes	Yes	Yes
103	Mundra HVDC	Yes	Yes	Yes
104	400kV Nalagarh	Yes	Yes	Yes
105	400kV Neemrana	Yes	Yes	Yes
106	400kV Naptha	Yes	Yes	Yes
107	400kV Patiala	Yes	Yes	Yes
108	400kV Patran	Yes	Yes	Yes
109	400kV Panchkulla	Yes	Yes	Yes
110	400 kV Parbati3	Yes	Yes	Yes
111	400kV RAPPC	Yes	Yes	Yes
112	Rihand HVDC	Yes	Yes	Yes
113	400kV Rihand	Yes	Yes	Yes
114	400kV Roorkee	Yes	Yes	Yes
115	400 kV Shree Cement	Yes	Yes	Yes
116	400kV Sikar	Yes	Yes	Yes
117	400kV Singrauli	Yes	Yes	Yes
118	400 kv Sujangarh	Yes	Yes	Yes
119	400 kV Sambha	Yes	Yes	Yes
120	400kV Sohanwal	Yes	Yes	Yes
121	400kV Sonipat	Yes	Yes	Yes
122	400kV Srinagar	Yes	Yes	Yes
123	400kV Saharanpur	Yes	Yes	Yes
124	400kV Tehri	Yes	Yes	Yes

KPI-5: Voltage Deviation Index (VDI)				
Name of the Region: Northern Regional Load Despatch Centre				
125	400kV Uri2	Yes	Yes	Yes
126	400 kV Uri	Yes	Yes	Yes
127	400 kV Varanasi	Yes	Yes	Yes
128	400kV Vanpoh	Yes	Yes	Yes
129	400 kV Dhuri	Yes	Yes	Yes
130	400kV Makhu	Yes	Yes	Yes
131	400kV Muktsar	Yes	Yes	Yes
132	400kV Nakodar	Yes	Yes	Yes
133	400kV Rajpura TPS	Yes	Yes	Yes
134	400 kV Talwandi sabo	Yes	Yes	Yes
135	400 kV kashipur	Yes	Yes	Yes
136	400kV Rishikesh	Yes	Yes	Yes
137	400 kV Kawai (Adani)	Yes	Yes	Yes
138	400kV Ajmer	Yes	Yes	Yes
139	400kV Akal	Yes	Yes	Yes
140	400kV Alwer	Yes	Yes	Yes
141	400kV Anta	Yes	Yes	Yes
142	400kV Barmer	Yes	Yes	Yes
143	400kV Bhadla	Yes	Yes	Yes
144	400 kV Bhilwara	Yes	Yes	Yes
145	400kV Bikaner	Yes	Yes	Yes
146	400kV Chittorgarh	Yes	Yes	Yes
147	400kV Chittorgarh	Yes	Yes	Yes
148	400 kV Deedwana	Yes	Yes	Yes
149	400kV Heerapura	Yes	Yes	Yes
150	400kV Hindaun	Yes	Yes	Yes
151	400kV Jodhpur	Yes	Yes	Yes
152	400 kV kalisindh	Yes	Yes	Yes
153	400kV Merta	Yes	Yes	Yes
154	400 kV Phagi	Yes	Yes	Yes
155	400 kV Rajwest	Yes	Yes	Yes
156	400 kV Ratangarh	Yes	Yes	Yes
157	400kV Suratgarh TPS	Yes	Yes	Yes
158	400 KV Agra(UP)	Yes	Yes	Yes
159	400 kV Allahabad(UP)	Yes	Yes	Yes
160	400 kV Aligarh	Yes	Yes	Yes
161	400 kV Alaknanda	Yes	Yes	Yes
162	400 kV Anpara C	Yes	Yes	Yes
163	400 kV Anpara D	Yes	Yes	Yes
164	400kV Anpara	Yes	Yes	Yes
165	400kV Ataur	Yes	Yes	Yes
166	400 kV Azamgarh-1	Yes	Yes	Yes
167	400 KV Bara	Yes	Yes	Yes
168	400 kV CB Ganj	Yes	Yes	Yes

KPI-5: Voltage Deviation Index (VDI)				
Name of the Region: Northern Regional Load Despatch Centre				
169	400 kV Greater Noida	Yes	Yes	Yes
170	400 kV Greater Noida(UP)	Yes	Yes	Yes
171	400 kV Lucknow-1(UP)	Yes	Yes	Yes
172	400kV Mau	Yes	Yes	Yes
173	400 kV Moradabad-1	Yes	Yes	Yes
174	400kV Mathura	Yes	Yes	Yes
175	400 kV Muradnagar New	Yes	Yes	Yes
176	400 kV Murad Nagar-1	Yes	Yes	Yes
177	400 Muzaffarnagar	Yes	Yes	Yes
178	400kV Obra B	Yes	Yes	Yes
179	400kV Obra A	Yes	Yes	Yes
180	400kV Panki	Yes	Yes	Yes
181	400kV Paricha	Yes	Yes	Yes
182	400kV Rosa	Yes	Yes	Yes
183	400 kV Sikandrabad	Yes	Yes	Yes
184	400 kV Sultanpur-1	Yes	Yes	Yes
185	400 kV Unnao-G	Yes	Yes	Yes
186	400kV Unnao	Yes	Yes	Yes
187	400kV Vishnuprayag	Yes	Yes	Yes
188	400 kV Varanasi(UP)	Yes	Yes	Yes
189	400kV Rampur	Yes	Yes	Yes

30. The Petitioner has submitted that VDI is calculated in line with the methodology specified in Appendix VI of CERC (Fees and Charges of Regional Load Despatch Centre and other related matters) Regulations, 2015. Voltage deviation index of important substations is calculated on daily, weekly as well as monthly basis and same is intimated to utilities via daily, weekly and monthly reports. VDI for each important station is calculated as the percentage of time the voltage was outside the IEGC range (380-420 kV at 400 kV level, 728-800 kV at 765 kV level). For this purpose, data recorded by SCADA is used. The percentage of samples lying outside the IEGC specified range constitutes the VDI for the station. A sample calculation is shown below:

Sub-Station	%age of time Voltage below 728 kV	%age of time Voltage between 728 kV & 800kV	%age of time Voltage above 800 kV	Voltage deviation index (%age of time voltage is outside IEGC band)	Maximum Voltage (kV)	Minimum Voltage (kV)	Average Voltage (kV)
Agra	0.00%	100.00%	0.00%	0.00%	796	755	777

Accordingly, Corrective actions are being taken in Real Time Grid Conditions, by NRLDC. Apart from these, based on feedback from RLDCs, region wise persistent High Voltage and Low Voltage issues are being reported in 'NLDC Operational feedback' every quarter. As an example, the web link for quarterly operational feedback available at NLDC website is given under:

https://posoco.in/download/nldc-operational-feedback_january_2018_q3/?wpdmdl=16163

Nodes experiencing low/high voltage are listed on page no. 46-48 of Operational Feedback . This information is being discussed in meetings of the Standing Committee (SCM) on Power System Planning with all the stake holders. Corrective action is also being discussed in Operation Coordination Committee (OCC) meetings of NRPC.

NRLDC also uploads the information on Voltage Deviation Index (VDI) on its website on daily, weekly and monthly basis as a part of its Daily, Weekly and Monthly reports. The relevant web links are given under:

KPI-5 (VDI)	Web Link on NRLDC website
Daily VDI	https://nrldc.in/reports/vdi/vdi-765kv/ https://nrldc.in/reports/vdi/
Weekly VDI	https://nrldc.in/weekly-vdi/

Monthly VDI	https://nrldc.in/reports/monthly/

31. The Petitioner has submitted that persistent problems of low/high voltage are identified in the quarterly operational feedback submitted to CTU and CEA. The total weightage given for this parameter is 10. The Petitioner has submitted performance-wise details as under:

Performance during financial year 2017-18*	**100**
Marks scored (In proportion of the percentage performance above)	**10**
* Formula for performance calculation	[((No.of daily reports issued (to be derived from column C/365(Total no.of days in financial year 2017-18)*100)+(No. of weekly reports issued (to be derived from column D)/ 52 (Total no. of weeks in financial year 2017-18)*100)+(No. of monthly reports issued (to be derived from column E/12)*100))]/3

32. The Petitioner has submitted that Section-6.11 of the NRLDC Operating Procedure-2017-18, Dated: 20.07.2017, gives the corrective actions to be taken in the event of voltage going high/ low. The relevant extract of the NRLDC Operating Procedure, 2016 is extracted as under:

The following specific action at Grid Substations / Generating Stations shall be taken in the event of voltage going high / low.:-
In the event of high voltage (e.g., 400kV bus voltages going above 410kV), the following specific steps would be taken by the respective grid substations / generating station at their own, unless specifically mentioned by NRLDC otherwise;

- *The bus reactors be switched in*
- *The manually switchable capacitor banks be taken out*
- *The switchable line/ tertiary reactors be taken in*
- *Operate synchronous condensers for VAR absorption*
- *Operate hydro generators / gas turbines as synchronous condenser for VAR absorption wherever possible*

- *Opening of the lightly loaded lines in consultation with NRLDC, keeping in view the security of the balance network.*

In the event of low voltage, (e.g. 400kV bus voltages going down below 390kV), the following specific steps would be taken by the respective grid substations / generating station at their own, unless specifically mentioned by NRLDC otherwise;

- *The bus reactors be switched out*
- *The capacitor banks be switched in*
- *The switchable line / tertiary reactors be taken out*
- *Operate synchronous condensers for VAR generation*
- *Operate hydro generators / gas turbines as synchronous condenser for VAR generation, wherever possible*
- *Closing of lines which were opened to control high voltage, in consultation with NRLDC*

33. The Petitioner has submitted that corrective actions are being taken in Real Time Grid Conditions by NRLDC. The Petitioner has submitted that apart from these, persistent high voltage and low voltage are being reported every quarter to the NLDC operational feedback.

34. We have considered the submission of the petitioner. It is observed that intimation of VDI is given to utilities for corrective action through daily, weekly and monthly reports. Accordingly, as per Appendix VI of the RLDC Fees and Charges Regulations 2015, the weightage for Voltage Deviation Index (VDI) is considered 10 out of 10.

KPI-6: Frequency Deviation Index

35. The Petitioner has submitted that Frequency Deviation Index (FDI) is calculated as the percentage of time frequency is outside the Grid Code band. The total weightage for FDI is 10. The Petitioner has submitted moth wise details of FDI i.e. April, 2017 to March, 2018.

36. FDI is calculated as the percentage of time frequency is outside IEGC band. Ten second synchrophasor data is used for the calculation. The percentage of samples lying below 49.90 Hz and above 50.05 Hz together constitutes FDI. The sample is shown below:

Date	Percentage of time frequency is			Freq. Deviation Index (FDI)	Average Frequency (Hz)
	<49.90 Hz	49.90 - 50.05 Hz	>50.05 Hz		
01-May-17	3.36	73.47	23.17	26.53	50.00

37. The deviation indices are being reported on daily basis for the critical nodes along with weekly and monthly reporting as per Regulation. The possible no. of reports which could be generated (365 for daily, 52 for weekly and 12 for monthly) has been converted to KPI scores based on the actual reporting. NRLDC uploads the information regarding FDI on its website on daily, weekly and monthly basis as a part of its daily, weekly and monthly reports for which the relevant web links are as under:

KPI-6 (FDI)	Web Link on NRLDC website
Daily FDI	https://posoco.in/reports/frequency-profile/frequency-profile-2017-18/
Weekly FDI	https://posoco.in/reports/weekly-reports/weekly-reports-2017-18/
Monthly FDI	https://posoco.in/reports/monthly-reports/monthly-reports-2017-18/

38. The total weightage for this parameter Reporting of frequency deviation index (FDI) is 10. The Petitioner has submitted the following reports of system reliability The details of KPI-VI are as under:

KPI-6: Frequency Deviation Index (FDI)				
Name of the Region: Northern Regional Load Despatch Centre				
A	B	C	D	E
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**
1	Apr-17	Yes	Yes	Yes
2	May-17	Yes	Yes	Yes
3	Jun-17	Yes	Yes	Yes
4	Jul-17	Yes	Yes	Yes
5	Aug-17	Yes	Yes	Yes
6	Sep-17	Yes	Yes	Yes
7	Oct-17	Yes	Yes	Yes
8	Nov-17	Yes	Yes	Yes
9	Dec-17	Yes	Yes	Yes
10	Jan-18	Yes	Yes	Yes
11	Feb-18	Yes	Yes	Yes
12	Mar-18	Yes	Yes	Yes

Performance during financial year 2017-18*	**100**
Marks scored (In proportion of the percentage performance above)	**10**
*Formula for performance calculation	[((No. of daily reports issued (to be derived from column C/365(Total no.of days in financial year 2017-18))*100)+(No. of weekly reports issued(to be derived from column D)/ 52 (Total no. of weeks in financial year 2017-18))*100)+(No. of monthly reports issued (to be derived from column E/12)*100))]/3

39. We have considered the submission of the petitioner. It is observed that intimation of FDI is given to utilities for corrective action through daily, weekly and monthly reports. Accordingly, as per Appendix VI of the RLDC Fees and Charges Regulations 2015, the weightage for Frequency Deviation Index (FDI) is considered 10 out of 10.

KPI-7: Reporting of System Reliability

40. The Petitioner has submitted that deviation indices are being reported on daily basis for the critical nods along with weekly and monthly as per the Fees and Charges Regulations. The Petitioner has submitted that the possible number of reports which could be generated (365 for daily, 52 for weekly and 12 for monthly) have been converted to KPI scores based on the actual reporting.

41. The total weightage for this parameter Reporting of System Reliability (RSR) is 10. The Petitioner has submitted the following reports of system reliability:

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

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 17	Yes	Yes	Yes
2	May, 17	Yes	Yes	Yes
3	June'17	Yes	Yes	Yes
4	July'17	Yes	Yes	Yes
5	August17	Yes	Yes	Yes

6	September,17	Yes	Yes	Yes
7	October 17	Yes	Yes	Yes
8	November 17	Yes	Yes	Yes
9	December17	Yes	Yes	Yes
10	January 18	Yes	Yes	Yes
11	February 18	Yes	Yes	Yes
12	March 18	Yes	Yes	Yes

X*	**100**
*Formula	[((No. of daily reports issued (to be derived from column C/365(Total no. of days in financial year 2017-18))*100)+(No. of weekly reports issued(to be derived from column D) /52 (Total no. of weeks in financial year 2017-18))*100)+(No. of monthly reports issued (to be derived from column E/12)*100))]/3

(b) Reporting of ATC violations (To be reported to CERC)

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 17	Yes	Yes	Yes
2	May17	Yes	Yes	Yes
3	June17	Yes	Yes	Yes
4	July17	Yes	Yes	Yes
5	August 17	Yes	Yes	Yes
6	September 17	Yes	Yes	Yes
7	October 17	Yes	Yes	Yes
8	November17	Yes	Yes	Yes
9	December 17	Yes	Yes	Yes
10	January 18	Yes	Yes	Yes
11	February 18	Yes	Yes	Yes

12	March18	Yes	Yes	Yes

Y*	**100**
*Formula	[((No. of daily reports issued (to be derived from column C/365(Total no. of days in FY 2017-18))*100)+(No. of weekly reports issued(to be derived from column D) /52 (Total no. of weeks in FY 2017-18))*100)+(No. of monthly reports issued (to be derived from column E/12)*100))]/3

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

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 17	Yes	Yes	Yes
2	May17	Yes	Yes	Yes
3	June17	Yes	Yes	Yes
4	July17	Yes	Yes	Yes
5	August 17	Yes	Yes	Yes
6	September 17	Yes	Yes	Yes
7	October 17	Yes	Yes	Yes
8	November17	Yes	Yes	Yes
9	December 17	Yes	Yes	Yes
10	January 18	Yes	Yes	Yes
11	February 18	Yes	Yes	Yes
12	March18	Yes	Yes	Yes

Z*	**100**
*Formula	[((No. of daily reports issued (to be derived from column C/365(Total no. of days in FY 2017-18))*100)+(No. of weekly reports issued(to be derived from column D) 52 (Total no. of weeks in FY 2017-18))*100)+(No. of monthly reports issued (to be derived from column E/12)*100))]/3

Performance during financial year 2017-18*=	**100**

Marks scored (In proportion of the percentage performance above)	**10**
*Formula	**(X+Y+Z)/3**

42. The Petitioner has submitted that violation of percentage of times N-1 criteria in the inter-regional corridors is being reported by NRLDC on daily, weekly and monthly basis. Further NLDC also publishes these reports and web-links for the same are given under:

KPI-7	**Web Link given on NLDC website**
Daily reporting	https://posoco.in/reports/system-reliability-indices/daily-vdittcatc/daily-vdittcatc-2017-18/
Weekly reporting	https://posoco.in/reports/system-reliability-indices/weekly-vdittcatc/weekly-vdittcatc-2017-18/
Monthly reporting	https://posoco.in/reports/system-reliability-indices/monthly-vdittcatc/monthly-vdittcatc-2017-18/

The Petitioner has placed on record the Reports of 12 months (April 2017 to March 2018) indicating N-1 criteria violations**.**

(ii) With regard to (b) above, the Petitioner has submitted that violation of percentage of times ATC (i.e. Available Transfer Capability) in the inter-regional corridors is being reported by NRLDC on daily weekly and monthly basis Further NLDC also publishes these reports and web-links for the same are given under::

KPI-7	**Web Link given on NLDC website**
Daily reporting	https://posoco.in/reports/system-reliability-indices/daily-vdittcatc/daily-vdittcatc-2017-18/
Weekly reporting	https://posoco.in/reports/system-reliability-indices/weekly-vdittcatc/weekly-vdittcatc-2017-18/
Monthly reporting	https://posoco.in/reports/system-reliability-indices/monthly-vdittcatc/monthly-vdittcatc-2017-18/

(iii) With regard to (c) above, the Petitioner has submitted that the percentage of times the angular difference on important buses was beyond the permissible limits and the same is being reported by NRLDC on daily, weekly and monthly basis Further NLDC also publishes these reports and web-links for the same are given under::

KPI-7	Web Link given on NRLDC website
Daily reporting	https://posoco.in/reports/system-reliability-indices/daily-angular-difference/daily-angular-difference-2017-18/
Weekly reporting	https://posoco.in/reports/system-reliability-indices/weekly-angular-difference/weekly-angular-difference-2017-18/
Monthly reporting	https://posoco.in/reports/system-reliability-indices/monthly-vdittcatc/monthly-vdittcatc-2017-18/

The Petitioner has placed on record the monthly reports (April 2017 to March 2018) on angular difference between important buses.

43. The Petitioner has submitted that the score for KPI No-7 (Reporting of System Reliability) has come out to be 10 out of 10. We have considered the submission of the Petitioner. Accordingly, as per Appendix VI of the RLDC Fees and Charges Regulations 2015, the weightage claimed for reporting system reliability is allowed as 10 out of 10.

KPI-8: Availability of website

44. In regard to the availability of websites the Petitioner has submitted that different type of network monitoring tools have been deployed at different control centre to capture the outages of websites, some of those are PRTG, Trend Micro Anti-APT Deep Discovery etc. This network management software generates the comprehensive

reports. Similarly, with the ISP service provider's user interface, user can see the availability of the ISP links which is commercially linked also. Depending upon the availability data, month wise percentage availability has been calculated. Percentage average availability of 12 months has been proportionately converted to marks scored.

45. The total weightage for the parameter "availability of website" is 10. The Petitioner has submitted the details of percentage of availability of website for all 12 months (April, 2017 to March,2018) as 99.69%. The details of marks scored are as follows:

KPI-8: Availability of website		
Name of NLDC / RLDC : NRLDC		Northern Regional Load Despatch Centre
S. No.	**Month**	**% Availability**
1	Apr-17	99.37
2	May-17	99.55
3	Jun-17	99.09
4	Jul-17	99.54
5	Aug-17	99.92
6	Sep-17	100.00
7	Oct-17	99.88
8	Nov-17	99.86
9	Dec-17	99.85
10	Jan-18	99.92
11	Feb-18	100.00
12	Mar-18	99.26

Performance during financial year 2017-18*	**99.69**
Marks scored (In proportion of the percentage performance above)	**9.97**
* Average of 12 months	

46. We have considered the submission of the Petitioner. The Petitioner has reported availability of website as 99.69%. The weightage claimed for availability of website is allowed as 9.97 out of 10.

KPI-9: Availability of Standby power supply

47. The Petitioner has submitted that powers to all the critical infrastructures are supplied through redundant UPS system and battery system. Inputs to these UPS are being supplied either through incoming feeders or DG sets (in case of failure of main inputs). These auxiliary systems are also under AMC and are being checked/tested on regular basis. The Petitioner has submitted that trial runs are carried out on weekly basis to check the DG set availability and daily records are being maintained at each of the locations. The Petitioner has submitted the month-wise percentage in line with the methodology of incentive calculation prescribed in Regulation 29 (5) of the Fees and Charges Regulations. The Petitioner has submitted that percentage performance has been proportionately converted to marks scored.

48. The Petitioner has submitted the details of percentage of availability of standby power supply" for all 12 months (April, 2017 to March, 2018) as 100%. The total weightage for the parameter "availability of standby power supply" is 5. The Petitioner has submitted availability of standby power supply as under:

Performance during financial year 2017-18*	**100**
Marks scored (In proportion of the percentage performance above)	**5**
* Average of 12 months	

49. We have considered the submission of the Petitioner. The Petitioner has submitted the availability of standby power supply as 100%. Weightage for availability of standby power supply is allowed as 5 out of 5.

KPI-10: Variance of Capital expenditure

50. 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:

(Rs.in lakh)

Capital Expenditure allowed by CERC (A)	Actual Expenditure incurred (B)	% Variation C= ABS (A-B)/A)*100
135.00	79.02	41.47
In column A, figures as per the RLDCs Fees and Charges orders by CERC for the control period 2014-19 have been considered. In Column B , value as per Balance Sheet of FY 2017-18 has been considered		

51. The Petitioner has submitted that the amount considered in the column A above is for the control period 2014-19 as per the Fees and Charges Regulations. The Petitioner has submitted that in Column B, value as per balance sheet for the year 2017-18 has been considered.

Performance during FY 2017-18*:	89.51
*** Formula**	**IF(C>10, 100-(C-10)/3,100)#**
Marks Scored (in proportion of the %age performance above)	**4.48**
* Average of 12 months	
# Up to 10% variation, performance is proposed to be considered 100% and for any additional 3% variation beyond intitial 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.	

52. The Petitioner has submitted that figures indicating in the present petition has been considered as targets and the figure as per the balance sheet have been considered as actual performance. The Petitioner has submitted that limit of upto 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 percentage performance has been converted proportionately to marks scored.

53. We have considered the submission of the Petitioner. The weightage claimed for variance of capital expenditure is allowed as 4.48 out of 5.

KPI-11: Variance of Non-Capital expenditure

54. 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:

(Rs.in lakh)

Non Capital Expenditure allowed by CERC (A)	Actual Expenditure incurred (B)	% Variation C= ABS(A-B)/A)*100
2539.37	2673.76	5.29
In the Non-Capital Expenditure, HR Expenses , O&M Expenses have been considered. In column A, figures as per the RLDCs Fees and Charges Orders by CERC for the control period 2014-19 have been considered. In Column B , value as per Balance Sheet of FY 2017-18 has been considered.		

Performance during financial year 2017-18*	**100**
***Formula**	**IF(C>10,100-(C-10)/3,100)#**
Marks Scored (in proportion of the percentage performance above)	5.00

*Average of 12 months
#Upto 10% variation, performance is proposed to be considered 100% 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 RLDC Fees and Charges Regulations 2015.

55. We have considered the submission of the petitioner. It is observed that the actual expenditure incurred as per balance sheet furnished by the petitioner is Rs 2708.90 lakh. The percentage variation is computed as 6.68%. Accordingly, the weightage for variance of non-capital expenditure is allowed as 5 out of 5.

KPI-12: Percentage of certified employees

56. The Petitioner has submitted that the pursuant to recommendations of G.B. Pradhan Committee, a framework was developed for System Operators from the States and POSOCO for training and certification by certifying agency, i.e. NPTI. The Petitioner has submitted that framework provides for Basic Level, Specialist Level and Management Level Courses. Till date 6 Basic Level certification and 5 specialist level certifications have been introduced (Two on Regulatory Framework in Power Sector, Two on Power System Reliability and one on Power System Logistics). The examinations are held online on an all India basis. Basic Level Certification is a foundation level exam where all System Operators in the country can appear, whereas, specialist level exams focus on a particular area of expertise. Validity duration of both the certificates is three years. Eligible System Operators are required to have at least one valid certificate to be considered as certified.

The term “Eligible” in the preceding paragraph includes all executives who are deployed in Technical Functions in the respective RLDC/ NLDC on the cut-off date i.e. (excluding HR, Finance, Legal, Company Secretariat, Executive Secretaries etc.).

“No. of Employees Certified”- is number of eligible employees who have at least one valid certificate (either basic level or specialist level) on the date specified

57. 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 31.3.2015(A)	No. of Employees for Certification as on 31.3.2015(B)	Percentage of Employees Certified as on 31.3.2015 (C=B/A*100)
52	31	59.62

Performance during financial year 2017-18*	**91.54**
***Formula**	**IF [C<85,(100-(85-C)/3),100]#**
Markes Scored (in proportion of the %age performance above)	4.58
* Average of 12 months	
#Upto 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 the Regulation 29(5) of the RLDC Fees and Charges Regulations 2015	

58. We have considered the submission of the petitioner. As per the methodology of the incentive specified in Regulation 29 (5) of the RLDC 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 4.58 out of 5.

59. We have considered the submissions of the Petitioner with regard to KPI. The following KPIs are allowed as per the methodology specified in Appendix-V of the RLDC Fees and Charges Regulations:

Sl. No	Key Performance Indicators	Weightage	Petitioner claimed for financial year 2017-18	Allowed
1	Reporting of Interconnection meter error	**10**	10.00	10.00
2	Reporting of Grid Incidents and Grid Disturbance	**10**	10.00	10.00
3	Average processing time of shut down request	**10**	10.00	10.00
4	Availability of SCADA System	**10**	10.00	10.00
5	Voltage Deviation Index (VDI)	**10**	10.00	10.00
6	Frequency Deviation Index (FDI)	**10**	10.00	10.00
7	Reporting of System Reliability	**10**	10.00	10.00
8	Availability of Website	**10**	9.97	9.97
9	Availability of Standby Supply	**5**	5.00	5.00
10	Variance of Capital expenditure	**5**	4.48	4.48
11	Variance of Non Capital expenditure	**5**	5.00	5.00
12	Percentage of Certified Employee	**5**	4.58	4.58
	Total	**100**	**99.022**	**99.022**

60. Perusal of the above table reveals that the Petitioner has achieved 98.022 % Key Performance Indicators out of 100%. Further, the Commission in its order dated 10.06.2019 in Petition No. 344/MP/2018 has provided as under:

"62. …….in exercise of provisions of "Power to Relax" under Regulation 35 of Fees and Charges Regulations, 2015 we hereby relax Regulation 29(5) of Fees and Charges Regulations, 2015 and direct that RLDCs or NLDC, as the case may be, shall be allowed to recover incentive of 15% of annual charges post implementation

of pay revision w.e.f 1.1.2017 subject to ceiling as per DPE Guidelines in place of 7%, keeping other provisions of Regulation 29(5) same. In case of shortfall as per DPE Guideline, the balance amount shall be paid from the LDCD fund."

61. In view of the above, the petitioner is allowed to recover incentive as 16.804% of annual charges for the financial year 2017-18 subject to ceiling as per DPE Guidelines. In case of shortfall as per DPE Guidelines, the balance amount shall be paid from the LDCD fund.

62. The Petition No. 79/MP/2019 is disposed of in terms of the above.

Sd/-	**Sd/-**	**Sd/-**
(I. S. Jha)	**(Dr. M. K. Iyer)**	**(P.K. Pujari)**
Member	**Member**	**Chairperson**