



पावर सिस्टम ऑपरेशन कारपोरेशन लिमिटेड
(पावरग्रिड की पूर्ण स्वामित्व प्राप्त सहायक कंपनी)
POWER SYSTEM OPERATION CORPORATION LIMITED
(A wholly owned subsidiary company of POWERGRID)



NORTHERN REGIONAL LOAD DESPATCH CENTRE
18/A, Shaheed Jeet Singh Sansanwal Marg, Katwaria Sarai, New Delhi - 110 016
Tel: 2685 4015, 2685 3082, Tele Fax: 011- 2685 2747

No: NRLDC /Fees & Charges / 2015-16/

Dated: 15th October, 2015

सेवा में
सचिव
केंद्रीय विद्युत विनियानक आयोग
3&4 तल, चन्दरलोक बिल्डिंग
36 जनपथ
नई दिल्ली

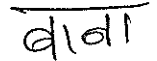
Sub: Application under subsection (4) of section 28 of Electricity Act 2003 read with regulation 6 of Central Electricity Regulatory Commission (fees & charges of Regional Load Despatch Centre and other related matters) Regulations 2015 for NRLDC Charges for the control period 1.4.2014 to 31.3.2019

Sir,

Please find enclosed herewith the application (one no in Original and nine copies) under subsection (4) of section 28 of Electricity Act 2003 read with regulation 6 of Central Electricity Regulatory Commission (fees & charges of Regional Load Despatch Centre and other related matters) Regulations 2015 for NRLDC Charges for the control period 1.4.2014 to 31.3.2019. Copies of the Application shall be served on all respondents upon admission of the application. It is requested to admit the Application for hearing at an early date.

Thanking you,

Yours faithfully,



(के. वी. एस. बाबा)
कार्यपालक निदेशक

Encl: Ten copies of the Application

**BEFORE
THE HON'BLE CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

**FILE NO.....
PETITION NO :/ 2015**

IN THE MATTER OF: Approval under subsection (4) of section 28 of Electricity Act 2003 read with regulation 6 of Central Electricity Regulatory Commission (fees & charges of Regional Load Despatch Centre and other related matters) Regulations 2015 for NRLDC Charges for the control period 1.4.2014 to 31.3.2019

Northern Regional Load Despatch Center (NRLDC) **--- PETITIONER**
Power System Operation Corporation Ltd. (POSOCO)
A wholly owned subsidiary of Power Grid Corporation of India Ltd.
Registered office: B-9, Qutab Institutional Area,
Katwaria Sarai, New Delhi -110016 and

Chairman, UPPCL, Lucknow
& Others

---RESPONDENTS

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**FILED BY
Northern Regional Load Despatch Centre**

**Represented by: K. V. S. BABA
Executive Director, NRLDC**

**Place: New Delhi
Dated: 15.10.2015**

**BEFORE
THE HON'BLE CENTRAL ELECTRICITY REGULATORY COMMISSION
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Chairman, UPPCL, Lucknow

& Others

---RESPONDENTS

MEMO OF PARTIES

01. CMD, UPPCL, Uttar Pradesh Power Corporation Limited, Shakti Bhawan, 14-Ashok Marg, Lucknow-226001
02. Principal Secretary, Government of J&K, Civil secretariat, Srinagar,J&K.
03. CMD, Rajasthan Rajya Vidyut Prasaran Nigam Limited, Vidyut Bhawan, Vidyut Marg, Jaipur-302005
04. Chairman, Punjab State Electricity Board, The Mall, Patiala-147 001
05. Managing Director, Haryana Vidyut Prasaran Nigam Limited, Shakti Bhawan, Sector-6, Panchkula-134109.
06. CMD, Delhi Transco Limited, Shakti Sadan, Kotla Road, New Delhi-110 002
07. Chairman, Himachal Pradesh State Electricity Board, Kumar House, Vidyut Bhawan, Shimla-171004

d/v

08. Managing Director, Power Transmission Corporation of Uttarakhand Limited, 7-B, Lane No-1, VasantVihar Enclave, Dehradun - 248 001.
09. Chief Engineer, Electricity Department, UT Chandigarh, Sector 9-D, UT Chandigarh-160019
10. Chief Electrical Engineer, North Central Railway, GM Office Building, Allahabad, UP.
11. Executive Director, NRTS-I, Power grid Corporation of India Ltd., B-9, Qutab Institutional Area, New Delhi-110016

Users under the category of Generating Stations and Sellers

12. General Manager, Singrauli Super Thermal Power Station, Shakti Nagar, UP-231222
13. General Manager, Rihand Super Thermal Power Station-I, Rihand Nagar, UP-231223
14. General Manager, Rihand Super Thermal Power Station-II, Rihand Nagar, UP-231223
15. General Manager, Rihand Super Thermal Power Station-III, NTPC Rihand, Dist-Sonbhadra, UP - 231223
16. General Manager, Dadri, National Capital Power Project, DadriDhaulana Road, Distt. GautamBuddh Nagar, UP-201008
17. General Manager, Dadri – Stage - II, National Capital Power Project, DadriDhaulana Road, Distt. GautamBuddh Nagar, UP-201008
18. General Manager, Firoz Gandhi Unchahar Thermal Power Project-I, Unchahar, Distt. Raibareilly, UP
19. General Manager, Firoz Gandhi Unchahar Thermal Power Project-II, Unchahar,,Distt. Raibareilly, UP
20. General Manager, Firoz Gandhi Unchahar Thermal Power Project-III, Unchahar, Distt. Raibareilly, UP
21. General Manager, Firoz Gandhi Unchahar Solar PV Power Project, Unchahar, Distt. Raibareilly, UP
22. General Manager, Dadri Gas Power Project, Dhaulana Road, Distt. GautamBuddh Nagar, UP-201008
23. General Manager, Dadri Solar PV Power Project, Dhaulana Road, Distt. GautamBuddh Nagar, UP-201008
24. General Manager, Auraiya Gas Power Project(Gas Fired, RLNG Fired, Liquid Fired), Dibiyapur, DisttEtawah, UP-206244
25. General Manager, Anta Gas Power Project (Gas Fired, RLNG Fired, Liquid Fired), Distt. Baran, Rajasthan-325209
26. Station Director, Narora Atomic Power Station, Narora, Distt. Bulandshahar, UP-202389

27. Station Director, Rajasthan Atomic Power Station-B, Anu Shakti Vihar, Kota, Rajasthan-323303
28. Station Director, Rajasthan Atomic Power Station-C, (RAPS-5&6) PO-Anushakti, Kota, Rajasthan-323304
29. General Manager, Bairasiul Hydro Electric Project, NHPC Ltd., Surangini, Distt. Chamba, HP-176317
30. General Manager, Salal Hydro Electric Project, NHPC Ltd, Jyotipuram, Distt. Udhampur, J&K-182312
31. General Manager, Tanakpur Hydro Electric Project, NHPC Ltd., Banbassa, Distt. Champawa, Uttrakhand-262310
32. General Manager, Chamera-I Hydro Electric Project, NHPC Ltd., Khairi, Distt. Chamba, HP-176310
33. General Manager, Uri Hydro Electric Project, NHPC Ltd., Mohra, Distt. Baramulla, J&K-193122
34. General Manager, Chamera-II Hydro Electric Project, NHPC Ltd., Karian, Distt. Chamba, HP-176310
35. General Manager, Chamera-III Hydro Electric Project, NHPC Ltd., Dharwala, Distt.-Chamba, HP-176311
36. General Manager, Dhauliganga Hydro Electric Project, NHPC Ltd., Tapovan, Dharchula, Pithoragarh, Uttrakhand-262545
37. General Manager, Dulhasti Hydro Electric Project, NHPC Ltd., Chenab Nagar, Distt. Kishtwar, J&K-182206
38. General Manager, Satluj Jal Vidyut Nigam Ltd. Power Project, Jhakri, Rampur, Distt. Shimla, HP-172201
39. General Manager, Tehri Hydro Development Corporation Ltd., Pragatipuram, Rishikesh, Uttrakhand-249201
40. General Manager, Uri 2 Hydro Electric Project, NHPC Ltd., Nowpura, Distt. Baramulla, J&K-193123
41. General Manager, Parbati HE Project Stage-III Behali, P.O- Larji Kullu 175122 Himachal Pradesh
42. General Manager, Parbati HE Project Stage-III Behali, P.O- Larji Kullu 175122 Himachal Pradesh
43. General Manager, Sewa-II Power Station, Mashke, P.O-Khari, Tahsil-Dalhausie, Dist-Chamba, HP-176325

4/10/11

44. General manaher, Rampur HEP, SatlujJalVidyut Nigam Ltd. Power Project, Jhakri, Rampur, Distt. Shimla, HP-172201
45. General Manager, Koteswar HEP, THDCIL, Koteswerpuram, Tehri Garwal-249002
46. General Manager, ADHPL Prini, Tehsil Manali, Distt- Kullu (H.P) India.
47. General Manager, Indra Gandhi Super Thermal Power Project VPO -Jharli, TahsilMatanhail, DistJhajjar (Haryana)-124125
48. General Manager,KarchamWangtoo HEP, Jaiprakash Power House Ventures Limited Baspa - II Hydro -Electric Project Sholtu Colony, PO- Tapti DistKinnaur, -172104 (HP)
49. Director, Malana - II Everest Power Pvt. Ltd 1st Floor, Hall-1, NBCC Tower BikajiCamaPlace,New Delhi – 110 066.
50. Plant In Charge, Shree Cement Thermal Power Project Bangurnagar, Beawar , Dist Ajmer , Rajasthan -305901
51. Company Secretary, Greenco Budhil HPS Ltd, Plot No. 1367 Road No- 45, Jubilee Hills, Hyderabad- 500033

Users under the category of Inter State Transmission Licensees

52. Executive Director, NRTS-I, Power Grid Corporation of India Ltd., B-9, Qutab Institutional Area, New Delhi-110016
53. Director, Operations , Powerlinks Transmission Ltd., 10th Floor, DLF Tower-A, District Centre, Jasola, New Delhi-110044
54. Director, Jaypee POWERGRID Ltd. House No.- 7, Housing Board colony ChuhaBagh, Khaneri Rampur, Busharhr Shimla H.P.
55. Director, APL, Business Development, Achalraj, Opp Mayor Bungalow, Law Garden, Ahmedabad 380009.
56. Executive Director, ParbatiKoldamTransmition Company Ltd. B-9, Qutab Institutional Area New Delhi-110016

..... Respondents

FILED BY
Northern Regional Load Despatch Centre

dtd

Represented by: K. V. S. BABA
Executive Director, NRLDC

Place : New Delhi
Dated : 15.10.2015

**BEFORE
THE CENTRAL ELECTRICITY REGULATORY COMMISSION
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Registered office: B-9, Qutab Institutional Area,
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--- PETITIONER

Chairman, UPPCL, Lucknow
& Others

---RESPONDENTS

To
**The Hon'ble Chairman and
The Companion Members of the Hon'ble CERC**

MOST RESPECTFULLY SHOWETH

1. That the Northern Regional Load Despatch Centre (NRLDC) is a statutory body set up under Section 27 of the Electricity Act, 2003 and performs the functions specified in the Electricity Act under Section 28. The NLDC and RLDCs are being operated by Power System Operation Corporation Limited (POSOCO) (A wholly owned subsidiary of Power Grid Corporation of India Ltd.) w.e.f. 1.10.2010 in accordance with the Gazette

Notification dated 27.9.2010 notified by Ministry of Power, Government of India. The working/functions of the Northern Regional Load Despatch Centre are governed by the Electricity Act 2003, Regulations of the Central Electricity Regulatory Commission [CERC] and Technical Standards of the Central Electricity Authority issued and amended from time to time.

2. That in exercise of powers conferred under section 178 read with section 28(4) of the Electricity Act, 2003, the Central Electricity Regulatory Commission vide notification dated 18th May 2015 issued the Central Electricity Regulatory Commission (Fees and Charges of Regional Load Despatch Centre and other related matters) Regulations, 2015 [**Fee and Charges Regulations, 2015**]. That the said regulations are applicable for determination of fees and charges of NLDC and RLDCs for the control period 2014-19.
3. These fees and charges include Return on equity, Interest on loan capital, Depreciation, Operation and Maintenance expenses excluding human resources expenses, Human Resource expenses of Northern Regional Load Despatch Centre and apportioned NLDC charges and Corporate Office expenses and Interest on working capital.
4. That as per clause 6(1) of the Regulations, 2015, the RLDCs and NLDC shall make application in the formats prescribed in the Appendix 1 to these Regulations within 180 days from the date of notification of these Regulations.
5. As per the methodology mentioned in the RLDC Fees and Charges Regulations, 2015 Fees And Charges have been computed for the next control period 2014-19 for NRLDC and are summarized below:

Fig: Rs.in Lakhs.

Sr. No.	Particulars	Form No.	2014-15	2015-16	2016-17	2017-18	2018-19
1	Return on Equity	Form - 2	424.81	306.49	178.33	195.95	203.53
2	Interest on Loan Capital	Form - 5A	0.00	0.00	0.00	0.00	0.00
3	Depreciation	Form - 6A	118.89	217.01	347.70	375.63	362.87
4	O & M Expenses excluding Human Resource Expenses	Form - 7A	587.21	630.73	677.69	728.35	783.00
5	Human Resource Expenses	Form - 7B	1840.11	2146.80	3042.67	4676.75	5537.89
6	NLDC chargtes & corporate office expenses	Form - 11	924.57	1265.75	1680.50	2535.72	2877.69
7	Interest on working Capital	Form - 8	128.24	151.65	198.58	287.33	330.64
	Total		4023.83	4718.44	6125.47	8799.73	10095.61

Computation philosophy of Annual charges is as below:

a) RETURN ON EQUITY

- i) As per Regulation 17, pre-tax base rate of Return on Equity is 15.50%. After taking into account the Corporate Tax rate of 33.99% of the financial year 2014-15, grossed up Rate of Return on Equity comes at 23.481%.
- ii) As per provisions of the Regulation 10 (2) of the Fees and Charges Regulations 2015, Equity of Rs.1587.12 Lac released due to de-capitalisation during control period 2014-19 has been adjusted from the Equity to be deployed (Rs.730.18 Lacs). Accordingly, ROE has been calculated on net Equity of (-) Rs.856.94 Lac.
- iii) The detailed calculation of Return on Equity is given in Form-2. Year wise Summary of ROE computed for NRLDC is as below:

Fig: Rs.in Lakhs

Financial Year	2014-15	2015-16	2016-17	2017-18	2018-19	Total
ROE	424.81	306.49	178.33	195.95	203.53	1309.12

b) INTEREST ON LOAN (IOL)

As per the Regulation 18, IOL is to be calculated on the Loan outstanding as on 1.4.2014. There is no Interest of Loan component for control period 2014-19 as Principal portion of Loan has been repaid fully. However, FERV on foreign component of Loan is payable each year based on actual.

c) DEPRECIATION

Depreciation has been calculated as per Regulation 19 of the Regulations. Salvage value of the assets (excluding SCADA, IT Equipment and Software) has been considered 10%. Salvage value for the IT Equipment and Software has been

considered NIL. Depreciation rates have been taken as per Appendix-III of the Regulations. Year wise summary of Depreciation computed for NRLDC is as below

Fig Rs. In Lacs

Financial Year	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Depreciation	118.89	217.01	347.70	375.63	362.87	1422.10

In accordance with clause 5 of Regulation 19 of the Fee and Charges Regulation, the assets fully depreciated are as below:

Fig Rs. In Lacs

Item Description	2014-15	2015-16	2016-17	2017-18	2018-19
Power Supply					0.94
SCADA Systems (Software)		11347.97		26.19	25.11
SCADA Systems (Hardware)	2.92	989.68			
IT Systems (Hardware)	0.4		47.66		23.14
IT Systems (Software)					
TOTAL	3.32	12337.65	47.66	26.19	49.19

d) OPERATION AND MAINTANENCE EXPENSES EXCLUDING HUMAN RESOURCE EXPENSES

- i) O&M charges have been calculated as per Regulation 20 of the Fees and Charges Regulations 2015.
- ii) Normalized O&M expenses of 2009-14 have been escalated at the rate of 5.72% and then averaged to arrive at the normalized average O&M expenses at 2013-14 level.
- iii) These charges have been further escalated at the rate of 7.88% to arrive at O&M expenses for the year 2014-15. This rate has been arrived at after taking into consideration the Compounded Annual Growth Rate (CAGR) of actual O&M expenses of the control period 2009-14 and Inflation rate as provided in the Regulation Clause 20(4) of the Fees and Charges Regulations 2015. The O&M expenses for the year 2014-15 have been escalated further at 7.88% to arrive at the O&M expenses for subsequent years.
- iv) SCADA/AMC Charges have been added on the basis of LOAs awarded in

accordance with the Regulation 20 (5).

- v) Out of the total R&M expenses of Rs. 375.94 Lacs, Rs. 174.17 Lacs are for SCADA AMC Charges.
- vi) The details of Operation and Maintenance expenses are given in Form 7A, Form-7C, Form 7D respectively and the summary is reproduced below:

Fig: Rs.in Lakhs

ITEMS	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Repairs and maintenance expenses	69.31	72.03	74.96	78.12	81.53	375.94
Administrative and general expenses, etc	517.90	558.71	602.73	650.23	701.47	3031.04
Total	587.21	630.73	677.69	728.35	783.00	3406.98

e) HUMAN RESOURCE EXPENSES

- i) POSOCO is a knowledge based control centre organization. Human Resource is the main asset of the Company. The physical assets owned by the company comprise of SCADA systems, IT tools and other support infrastructure. POSOCO is an asset light company and these assets are the support tools for the System Operators working in the Load Despatch Centres for operational planning, real time operation, scheduling and despatch, energy accounting, online and offline simulations, market operations, management information, information dissemination, etc.
- ii) The manpower projection for computation of the HR expenses for the control period 2014-19 is based on increased functions/responsibilities of NRLDC over the past few years, which need to be complemented with proportionate increase in manpower for carrying out duties responsibilities with efficacy and quality.
- iii) Additional Manpower has been envisaged in NRLDC to take care of the additional responsibilities in the areas of Regulatory Affairs, integration of renewables, WAMS –PMU project, Big data management, Information Technology, Ancillary Services, Logistics, Energy Efficiency and Physical Security, System Operation, SCADA/ EMS Up gradation, Management of Open Access , Handling of pool accounts and the associated taxation issues, and Human Resource Development.

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- iv) The actual manpower in 2014-15 is 89 and the manpower projected for 2018-19 is 115.
- v) The Level wise manpower of NRLDC as approved by Board of POSOCO is as per Annexure I.
- vi) Normalized HR expenses of 2009-14 have been escalated at the rate of 5.72% and then averaged to arrive at the normalized average HR expenses at 2013-14 level.
- vii) For calculation of HR expenses of 2014-15 on the basis of average normalized escalated expenses of 2009-14, actual manpower of 2014-15 has been considered against the provision of actual manpower of 2013-14 as provided in the Regulations.
- viii) These charges have been further escalated at the rate of 9.27% to arrive at HR expenses for the year 2014-15. This rate has been arrived at after taking into consideration the Compounded Annual Growth Rate (CAGR) of actual HR expenses of the control period 2009-14 as provided in the Regulation Clause 21(6) of the Fees and Charges Regulations 2015. The HR expenses for the year 2014-15 have been escalated further at 9.27% to arrive at the HR expenses for subsequent years.
- ix) As per the provisions of Regulation 21 of RLDC Fees and Charges Regulations, 2015, HR expenses are to be considered on normalized basis with further rationalization considering 50% increase in employee cost on account of pay revision. The wage revision is expected to be effective from 01.01.2017, the human resource expenses for the period from 1.1.2017 to 31.3.2019 have been computed with further rationalization considering 50% increase in employee cost on account of pay revision.
- x) The HR expenses calculations for NRLDC are given in Form-7B with the summary as given below:

Figs Rs. in Lacs

FY	2014-15	2015-16	2016-17	2017-18	2018-19	Total
HR Cost	1840.11	2146.80	3042.67	4676.75	5537.89	17244.21

21/6/17

6. As per the provision of Regulation 29(5) of Fees and Charges of Regional Load Despatch Centre and other related matters Regulations 2015, NRLDC will recover incentive on annual charges based on performance level.

As per the provision of Regulation 29(6) of Fees and Charges of Regional Load Despatch Centre and other related matters Regulations 2015, NRLDC will also compute the Key Performance Indicators as given in appendix VI of the Regulations on annual basis and submit to the Commission with the petition for approval of the Commission.

The incentive will be recovered on each year on annual basis based on the KPIs of previous year and shall be trued up at the end of control period.

7. The NLDC and POSOCO Corporate Office charges for control period have been apportioned among the various RLDCs on the basis of peak demand served in the respective region in the year 2014-15 as indicated in the CEA's website and based on the same the year wise NLDC charges are given below:

(As per CEA Report PEAK DEMAND MET April,2014 to March 2015)						
Region	All India	Northern Region	Western Region	Eastern Region	Southern Region	North Eastern Region
Demand Met (MW)	146,968	47,642	43,145	16,932	37,047	2,202
% Demand met	100.00	32.42	29.36	11.52	25.21	1.50

Figs Rs. in Lacs

Apportionment to RLDCs	2014-15	2015-16	2016-17	2017-18	2018-19
Total NLDC Charges	2852.15	3904.63	5184.07	7822.29	8877.21
Apportioned charges to NRLDC	924.57	1265.75	1680.50	2535.72	2877.69

8. Total projected capital and replacement expenditure (CAPEX/REPEX) provided for 2014-19 for NRLDC Rs.2433.92 Lacs (Rs.572.5 Lacs CAPEX+ Rs.1861.42 Lacs REPEX). Item-wise break-up of the PAPEX and REPEX is as indicated below :

CAPEX

Description	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Land	0.00	0.00	0.00	0.00	0.00	0.00
SCADA/EMS System	0.00	0.00	0.00	0.00	0.00	0.00
IT System	0.00	160.50	137.00	60.00	100.00	457.50

Power Supply	0.00	0.00	50.00	0.00	0.00	50.00
Civil Works	0.00	5.00	10.00	0.00	0.00	15.00
Air Conditioning	0.00	0.00	25.00	25.00	0.00	50.00
Total	0.00	165.50	222.00	85.00	100.00	572.50

REPEX

Description	2014-15	2015-16	2016-17	2017-18	2018-19	Total
SCADA/EMS System	123.00	1039.97	0.00	0.00	0.00	1162.97
IT System	73.02	0.00	35.00	25.00	10.00	143.02
Power Supply	0.00	30.00	125.00	0.00	0.00	155.00
Civil Works	333.67	25.00	10.00	25.00	0.00	393.67
Air Conditioning	1.50	0.00	0.00	0.00	0.00	1.50
Communications	0.00	0.00	0.00	0.00	0.00	0.00
Other Office equipments	5.26	0.00	0.00	0.00	0.00	0.00
Total	536.45	1094.97	170.00	50.00	10.00	1861.42

Copy of the extract of Board Resolution is enclosed at Annexure-I.

9. In line with the para 4 above, duly filled forms prescribed in the Regulations 2015 are enclosed at **Annexure-II**.
10. The cost of foreign exchange rate variation (FERV), as provided in the para 33 of the of the CERC Fee and Charges Regulations, 2015, shall be recovered on year-to-year basis as negative or positive FERV.

PRAYER

It is respectfully prayed that the Hon'ble Commission may be pleased to

1. Approve the charges for NRLDC, as per para-5 above, for control period 1.4.2014 to 31.03.2019.
2. Approve the CAPEX/REPEX mentioned at para 8 above.

3. Approve the manpower mentioned in para 5 (e) above
4. Allow the Applicant to bill and adjust impact of FERV from the respondents on year-to-year basis as negative or positive FERV.
5. Approve the reimbursement of expenditure towards publishing of notices in Newspapers and other expenditure (if any) in relation to the filing of Application as one time recovery.
6. Pass such other order as the Hon'ble Commission deems fit and appropriate in this case and in the interest of justice.

FILED BY
NORTHERN REGIONAL LOAD DESPATCH CENTRE
POWER SYSTEM OPERATION CORPORATION LTD.

dtd

Represented by : K.V.S. BABA
Executive Director, NRLDC

New Delhi

Date : 15 .10.2015



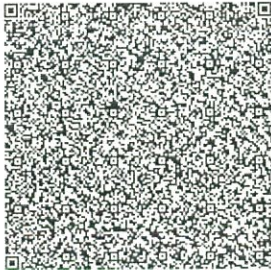
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INDIA NON JUDICIAL

Government of National Capital Territory of Delhi

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Account Reference	: IMPACC (IV)/ dl856503/ DELHI/ DL-DLH
Unique Doc. Reference	: SUBIN-DL85650338230788978759N
Purchased by	: PGCIL 18A KATWARIA SARAI NEW DELHI 16
Description of Document	: Article 4 Affidavit
Property Description	: Not Applicable
Consideration Price (Rs.)	: 0 (Zero)
First Party	: PGCIL 18A KATWARIA SARAI NEW DELHI 16
Second Party	: Not Applicable
Stamp Duty Paid By	: PGCIL 18A KATWARIA SARAI NEW DELHI 16
Stamp Duty Amount(Rs.)	: 10 (Ten only)



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**BEFORE THE HON'BLE
CENTRAL ELECTRICITY REGULATORY COMMISSION,
NEW DELHI**

IN THE MATTER OF: Approval under subsection (4) of section 28 of Electricity Act 2003
read with regulation 6 of Central Electricity Regulatory Commission



कावा

Statutory Alert:

1. The authenticity of this Stamp Certificate should be verified at "www.shcilestamp.com". Any discrepancy in the details on this Certificate and as available on the website renders it invalid.
2. The onus of checking the legitimacy is on the users of the certificate.
3. In case of any discrepancy please inform the Competent Authority.

(Fees & Charges of Regional Load Despatch Centre and other related matters) Regulations 2015 for NRLDC Charges for the control period 1.4.2014 to 31.3.2019.

Northern Regional Load Despatch Center (NRLDC)

--- PETITIONER

Power System Operation Corporation Ltd. (POSOCO)

A wholly owned subsidiary of Power Grid Corporation of India Ltd.

Registered office: B-9, Qutab Institutional Area,

Katwaria Sarai, New Delhi -110016 and

Versus

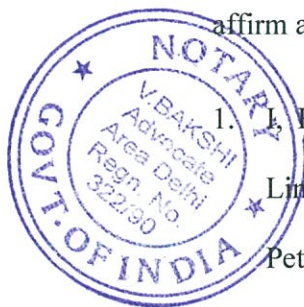
Chairman, UPPCL, Lucknow

& Others

---RESPONDENTS

AFFIDAVIT

I, KVS Baba, working as Executive Director, NRLDC, in the Power System Operation Corporation Limited (A wholly owned subsidiary of POWERGRID), having its registered office at B – 9, Qutab Institutional Area, Katwaria Sarai, New Delhi – 110016, do solemnly affirm and say as follows :-



1. I, KVS Baba, Executive Director, NRLDC, of Power System Operation Corporation Limited, (A wholly owned subsidiary of POWERGRID), the representative of the Petitioner in the above matter, am duly authorized to make this affidavit.

2. That I submit that, the enclosed information is being filed in compliance of the Hon'ble Commission's ROP dated 14.07.2015 for truing up of NRLDC Fees and Charges for the control period 2009 -2014.
3. That the information provided herein is based on Petitioners Company's official record maintained in the ordinary course of business and I believe them to be true and correct.

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(DEPONENT)

VERIFICATION

Solemnly affirmed at New Delhi on 15th day of October 2015, that the contents of the above affidavit are true to my knowledge and belief and no part of it is false and nothing material has been concealed there from.

दीदी
(DEPONENT)



ATTESTED


Notary Delhi

15 OCT 2015

POWER SYSTEM OPERATION CORPORATION LIMITED

(CIN: U40105DL2009GOI188682)

Extracts from the Minutes of the 42nd Meeting of the Board of Directors of Power System Operation Corporation Limited held on Monday, 17th August, 2015 at 3.00 p.m at the Registered Office of the Company, i.e. B-9, Qutab Institutional Area, Katwaria Sara, New Delhi – 110 016.

Item No.42.2.6:-

(Para No.42.2.6.1 to 42.2.6.4)

Fees and Charges of POSOCO for the Control Period 2014-19:-

42.2.6.1. CEO gave a presentation on the Fees and Charges of POSOCO for the Control Period 2014-19. It was informed that CERC had notified the RLDC Fees and Charges Regulations for the Control Period 2014-19 in May'15. These charges are specified by CERC on a rolling five year basis. The annual charges comprise return on equity, interest on loan, depreciation of assets, O&M including administrative expenses, HR expenses and interest on working capital. It was informed that a petition in this regard has to be filed within 180 days, i.e. latest by Nov'15. Prior to that, the Annual Charges are required to be approved by the Board.

42.2.6.2 Based on the methodology prescribed in the Regulations, the computations for fee and charges for the control period 2014-19 were explained to the Board as under:

Figures in ₹ crore

Region	2014-15	2015-16	2016-17	2017-18	2018-19	Grand Total
NLDC	29	39	50	73	82	273
NRLDC	30	35	46	61	66	237
ERLDC	31	38	41	54	60	224
WRLDC	30	34	43	59	65	231
SRLDC	26	30	39	56	63	214
NERLDC	19	22	31	44	49	165
Total	166	198	250	346	384	1344

42.2.6.3 The component – wise summary as well as computation philosophy of the Annual Charges was also explained to the Board as under:

Figures in ₹ crore

S. No	Particulars	2014-15	2015-16	2016-17	2017-18	2018-19	Total
1	Return on Equity	12	17	22	25	29	105
2	Interest on Loan Capital	0	0	0	0	0	0
3	Depreciation	9	15	23	27	27	100
4	O & M Expenses excluding Human Resource Expenses	42	37	34	35	36	183
5	Human Resource Expenses	98	118	163	247	281	908
6	Interest on working Capital	5	11	8	11	12	48
	Total	166	198	250	346	384	1344

Regarding HR projections, it was informed that the same have been calculated considering the additional responsibilities in the areas of System Operation, Regulatory Affairs, integration of renewables, WAMS –PMU project, Open Access, SCADA/ EMS Up gradation and

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Management, Big data management, Information Technology, Ancillary Services, Logistics, Energy Efficiency and Physical Security, Power System Development Fund (PSDF), Perform, Achieve & Trade (PAT) scheme and Human Resource Development. Further, Board level placements had also been incorporated from F.Y. 2015-16 in the proposed manpower. The method of computation of normalised HR expenses was informed to the Board. Further, the summary of proposed manpower was informed to the Board as under.

Region	2014-15			2015-16			2016-17			2017-18			2018-19		
	Exe	Non-	Total	Exe	Non-	Total	Exe	Non-	Total	Exe	Non-	Total	Exe	Non-	Total
NLDC	71	15	86	101	19	120	120	19	139	135	16	151	140	16	156
NRLDC	56	33	89	62	31	93	75	29	104	81	27	108	90	25	115
ERLDC	53	35	88	53	34	87	62	31	93	67	28	95	76	25	101
WRLDC	51	42	93	62	39	101	75	38	113	81	36	117	90	33	123
SRLDC	53	16	69	62	15	77	75	15	90	81	15	96	90	15	105
NERLDC	39	13	52	46	13	59	56	13	69	64	12	76	70	11	81
Total	323	154	477	386	151	537	463	145	608	509	134	643	556	125	681

The level – wise progression for the block period 2014-19 was also informed to the Board as under:

	Present	2015-16	2016-17	2017-18	2018-19
Directors		5	5	5	5
E9	3	8	9	12	12
E8,E7A	14	25	29	38	46
E6,E6A, E7	80	83	98	107	119
E5-E1	226	265	322	347	374
Total Exec.	323	386	463	509	556
Total Non-Exec	154	151	145	134	125
Total	477	537	608	643	681

It was informed that the total projected Capital as well as Replacement Expenditure (CAPEX / REPEX) provided for the control period 2014-19 worked out to ₹190 crore (CAPEX – ₹101 crore and REPEX ₹89 crore). The details in this regard were placed for information of the Board as under :

CAPEX / REPEX Plan for Control Period 2014-19

Figures in ₹ lakh

S.N.	Region	2014-15			2015-16			2016-17			2017-18			2018-19			Total (14-19)		
		CAPEX	REPEX	Total	CAPEX	REPEX	Total	CAPEX	REPEX	Total	CAPEX	REPEX	Total	CAPEX	REPEX	Total	CAPEX	REPEX	Total
1	NLDC	119.9	0.0	119.9	659.0	0.0	659.0	287.0	0.0	287.0	100.0	1668.0	1768.0	2020.0	0.0	2020.0	3185.9	1668.0	4853.9
2	NRLDC	66.3	470.2	536.5	165.5	1095.0	1260.5	222.0	170.0	392.0	85.0	50.0	135.0	100.0	10.0	110.0	638.8	1795.2	2433.9
3	ERLDC	286.6	8.3	294.9	215.6	1332.5	1548.1	272.0	67.0	339.0	105.0	23.9	128.9	46.3	9.7	55.9	925.5	1441.4	2366.9
4	WRLDC	94.5	0.0	94.5	364.0	1093.5	1457.5	577.0	10.0	587.0	156.0	0.0	156.0	181.0	0.0	181.0	1372.5	1103.5	2476.0
5	SRLDC	75.5	0.0	75.5	798.0	1272.1	2070.1	243.0	52.0	295.0	137.0	21.0	158.0	129.0	6.0	135.0	1382.5	1351.1	2733.6
6	NERLDC	84.3	0.0	84.3	643.9	1532.9	2176.7	271.0	29.0	300.0	1202.5	10.0	1212.5	407.6	4.0	411.6	2609.3	1575.9	4185.2
	Total	727.1	478.5	1205.6	2846.0	6325.9	9171.9	1872.0	328.0	2200.0	1785.5	1772.9	3558.4	2883.9	29.7	2913.5	10114.4	8935.0	19049.4

42.2.6.4 During deliberations, the Board advised that the Notional Equity in funding of assets be limited to 30% (instead of 44.70% as proposed) for the purpose of calculation of Return on Equity (RoE) as prescribed in the Regulations and desired that the petition may be filed with CERC on the basis of revised calculations. Further, the RLDC wise and Component wise Annual Charges for the Control Period 2014-19 be put up for information of the Board upon filing the petition with CERC. With these deliberations, the Board approved the proposal. The Board passed the following resolution:

"Resolved that the Fees and Charges of POSOCO for the control period 2014-19 considering the Notional Equity in funding of assets limited to 30% for the purpose of calculation of Return on Equity (RoE) as prescribed in the RLDC Fees and Charges Regulation for the Control Period 2014-19 be and is hereby approved to be filed before CERC.

Resolved further that Manpower and CAPEX/REPEX projections for the control period 2014-19 as brought out in para 42.2.6.3 above be and is hereby approved.

Resolved Further that CEO be and is hereby authorized to carry out any further modifications as deemed necessary during course of filling of the petitions before CERC and place the same for information of the Board."

P. Chaturvedi
PRITI CHATURVEDI
Joint Secy / Company Secretary
POSOCO

For kind information pl.

ED (NLDC & NRLDC)

ED (SRLDC)

GM (ERLDC)

GM (WRLDC)

GM (NERLDC)

cc : CFD

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TARIFF FILING FORMS (NLDC/RLDCs)

INDEX

Tariff Filing Forms and other information / documents for tariff filing for NLDC/RLDCs

Form No.	Tariff Filing Formats	Tick
FORM-1	Summary Sheet	Filled
FORM-2	Normative Parameters Considered for tariff calculations	Filled
FORM-3	Abstract of Admitted capital cost for existing Projects	Filled
FORM-4A	Abstract of Capital cost estimates and schedule of commissioning for the new projects	
FORM-4B	Element wise break-up of capital cost	
FORM-4C	Break-up of Construction/Supply/Service packages	
FORM-4D	Financial Package upto COD	Filled
FORM-4E	Statement of additional capitalisation after COD	
FORM-4F	Statement of Capital Cost	Filled
FORM-4G	Statement of Capital Works in Progress	
FORM-4H	Financing of Additional Capitalisation	
FORM-4I	Details of Foreign Equity	
FORM-5A	Calculation of Interest on Normative Loan	Filled
FORM-5B	Calculation of Weighted Average Rate of Interest on Actual Loans	Filled
FORM-5C	Details of Foreign Loan	
FORM-5D	Details of Project Specific Loans	
FORM-5E	Details of allocation of Corporate loans to various RLDCs	
FORM-6A	Statement of Depreciations	Filled
FORM-6B	Calculation of Depreciation Rate	Filled
FORM-7A	Details of Operation and Maintenance expenses excluding Human Resource Expenses	Filled
FORM-7B	Details of Human Resource Expenses	Filled
FORM-7C	Details of Repair and Maintenance Expenses	Filled
FORM-7D	Details of Administrative and General expenses	Filled
FORM-8	Calculation of Interest on Working Capital	Filled
FORM-9	Drawn Down Schedule for Calculation of IDC & Financing Charges	
FORM-10	Actual Cash Expenditure	
FORM-11	LDC Development Fund	
FORM-12	Other Income	Filled

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Name of NLDC/RLDCs : Northern Regional Load Despatch Centre
Normative Parameters considered for Tariff Calculations

Particulars	Unit	Existing 2008-09	2014-15	2015-16	2016-17	2017-18	2018-19
1	2	3	4	5	6	7	8
Base rate of Return on Equity	%		15.50%	15.50%	15.50%	15.50%	15.50%
Tax Rate	%		33.99%	34.61%	34.61%	34.61%	34.61%
Receivables in months for WC	Months		2	2	2	2	2
O&M excluding Human Resource expenses in months for WC	Months		1	1	1	1	1
Human Resource Expenses in months for WC	Months		1	1	1	1	1
NLDC Charges in months for WC	Months		1	1	1	1	1
Prime lending Rate of SBI as on 01st April of the year	%						

Fig: Rs.in Lakhs.

EQUITY AS ON 1.4.2014			1728.93	1728.93	1728.93	1728.93	1728.93
ADD CAP 2014-15 (AVG EQUITY DURING THE YEAR)			80.26	160.51	160.51	160.51	160.51
ADD CAP 2015-16 (AVG EQUITY DURING THE YEAR)				-596.44	-1192.89	-1192.89	-1192.89
ADD CAP 2016-17 (AVG EQUITY DURING THE YEAR)					55.77	111.53	111.53
ADD CAP 2017-18 (AVG EQUITY DURING THE YEAR)						18.58	37.17
ADD CAP 2018-19 (AVG EQUITY DURING THE YEAR)							13.37
TOTAL EQUITY			1809.19	1293.00	752.32	826.67	858.62
RATE OF RETURN ON EQUITY			23.481%	23.704%	23.704%	23.704%	23.704%
RETUERN OF EQUITY			424.81	306.49	178.33	195.95	203.53

NOTE: Income tax rate applicable for each financial year is based on the rates as per Income Tax Act, 1961



Petitioner

Name of NLDC/RLDCs : Northern Regional Load Despatch Centre
Abstract of Admitted Capital Cost for the existing Projects

Fig: Rs.in Lakhs.

Capital as admitted by CERC	
Capital cost admitted as on (DOCO)	
01.08.2002	26031(12616.43*)
(Give reference of the CERC relevant Order with Petition No. & Date)	Petition No: 139/2005 dt 09/05/2006
Capital cost after depreciation as on 01.04.09	
Foreign Component, if any (In Million US \$ or the relevant Currency):	
Domestic Component (Rs.in Lakhs)	
Foreign Exchange rate considered for the admitted cost: (Rs.)	
Hedging cost, if any, considered for the admitted Capital cost	
Total Project cost admitted (Rs.Lakhs)	0.00

* Assets worth Rs 12616.43 lakhs as on 31.3.2009 would be transferred to NRLDC

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 Petitioner

Name of NLDC/RLDCs : Northern Regional Load Despatch Centre
Financial Package upto COD

Project Cost as on COD/ 1/04/2014

Rs. 12936.70 Lakhs

Gross Block

Fig.: Rs.in Lakhs.

1	Financial Package as Approved		Financial Package as on COD / 01.04.2009		As Admitted on COD	
	2	3	4	5	6	7
Loan 1 IBRD II						
Loan 2						
and so on						
LDC Dev fund 2009-14				0.00		
Total Loan				261.99		
Equity-				11260.75		
Foreign						
Domestic						
op. equity	INR		INR	1616.65		
equity 2009-14				112.28		
Total Equity				1728.93		
Total Cost				12989.68		
Debt : Equity Ratio						
Debt				84.67		
Equity				13.31		

TOTAL COST AS ON
31.3.2014 as per form
6B
diff -decap 2009-14

12936.70
-52.98

	CAP COST	LDC DEV FUND	Notional Equity	Equity adjusted with Equity Released	Net Notional Equity Utilised
ADD CAP 2014-15	536.45	375.52	160.94	0.42	160.51
ADD CAP 2015-16	1260.47	882.33	378.14	1571.03	-1192.89
ADD CAP 2016-17	392.00	274.40	117.60	6.07	111.53
ADD CAP 2017-18	135.00	94.50	40.50	3.33	37.17
ADD CAP 2018-19	110.00	77.00	33.00	6.26	26.74
TOTAL ADD CAP DURING 2014-19	2433.92	1703.74	730.18	1587.12	-856.94

Calculation of Equity Released		In Rs. Lacs
Opening Gross Block (GB) as on 1.4.2014		12936.70
DECAP 2014-19		12464.01
Remaining GB		472.69
Equity on remaining GB (30%)		141.81
Opening Equity as on 1.4.2014		1728.93
Net Equity on DECAP		1587.12

FY.	Equity Released due to DECAP	DECAP 2014-19	
		In Rs. Lacs	
2014-15	0.42		3.32
2015-16	1571.03		12337.65
2016-17	6.07		47.66
2017-18	3.33		26.19
2018-19	6.26		49.19
	1587.12		12464.01

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Petitioner

NRLDC
Statement of Capital Cost
(To be given for relevant dates and year wise)

(Rs. In Lacs)

	2014-15	2015-16	2016-17	2017-18	2018-19
A a) Opening Gross Block Amount as per books	12219.77	12866.31	2449.39	2793.73	2902.54
b) Amount of capital liabilities in A(a) above		0	0	0	0
c) Amount of IDC, FC, FERV & Hedging cost included in A(a) above	716.93	716.93	56.66	56.66	56.66
d) Amount of IEDC (excluding IDC, FC, FERV & Hedging cost) included in A(a) above	0	0	0	0	0
B a) Addition in Gross Block Amount during the period	646.54	-10416.92	344.34	108.81	60.81
b) Amount of capital liabilities in B(a) above	0				
c) Amount of IDC, FC, FERV & Hedging cost included in B(a) above	0	0	0	0	0
d) Amount of IEDC (excluding IDC, FC, FERV & Hedging cost) included in B(a) above	0	0	0	0	0
C a) Closing Gross Block Amount as per books	12866.31	2449.39	2793.73	2902.54	2963.35
b) Amount of capital liabilities in C(a) above		0	0	0	0
c) Amount of IDC, FC, FERV & Hedging cost included in C(a) above	716.93	56.66	56.66	56.66	56.66
d) Amount of IEDC (excluding IDC, FC, FERV & Hedging cost) included in C(a) above	0	0	0	0	0

1 Relevant date/s means date of COD of unit/s, station and financial year start date and end date



Petitioner

Name of NLDC/RLDCs : Northern Regional Load Despatch Centre
Calculation of Interest on Normative Loans

Fig: Rs.in Lakhs.

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
1	2	3	4	5	6
ACTUAL LOAN					
Gross loan - Opening	10998.76	10998.76	10998.76	10998.76	10998.76
Cum.repayments of Normative Loans upto previous year	10998.76	10998.76	10998.76	10998.76	10998.76
Net Normative loan - Opening	0.00	0.00	0.00	0.00	0.00
Increase/Decrease due to ACE during the Year	0.00	0.00	0.00	0.00	0.00
Repayments of Normative Loans during the year	0.00	0.00	0.00	0.00	0.00
Net loan Normative- Closing	0.00	0.00	0.00	0.00	0.00
Average Normative Net Loan	0.00	0.00	0.00	0.00	0.00
Weighted average Rate of Interest on actual Loans	3.64%	3.64%	3.64%	3.64%	3.64%
Interest on Normative loan	0.00	0.00	0.00	0.00	0.00



Petitioner

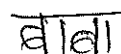
Name of NLDC/RLDCs : Northern Regional Load Despatch Centre
Calculation of Weighted Average Rate of Interest on Actual Loans¹

Fig.: Rs.in Lakhs.

	Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
1	2	4	5	6	7	8
1	Loan-1 IBRD II @ Rs. / USD 44.31					
	Gross loan - Opening	10998.76	10998.76	10998.76	10998.76	10998.76
	Cumulative repayments of Loans upto previous year	4236.00	4965.40	5741.70	6568.22	7447.99
	Net loan - Opening	6762.76	6033.36	5257.06	4430.54	3550.77
	Add: Drawal(s) during the Year	0.00	0.00	0.00	0.00	0.00
	Less: Repayment (s) of Loans during the year	729.40	776.31	826.51	879.77	936.46
	Net loan - Closing	6033.36	5257.06	4430.54	3550.77	2614.31
	Average Net Loan	6398.06	5645.21	4843.80	3990.65	3082.54
	Rate of Interest on Loan (2.44 + 1.20) RATE + GUR FEE	3.64%	3.64%	3.64%	3.64%	3.64%
	Interest on loan	232.89	205.49	176.31	145.26	112.20
2	Loan-2 (ADD CAP LOAN) DOMESTIC BEING BOND XXX					
	Gross loan - Opening	0.00	0.00	0.00	0.00	0.00
	Cumulative repayments of Loans upto previous year	0.00	0.00	0.00	0.00	0.00
	Net loan - Opening	0.00	0.00	0.00	0.00	0.00
	Add: Drawal(s) during the Year	0.00	0.00	0.00	0.00	0.00
	Less: Repayment (s) of Loans during the year					
	Net loan - Closing	0.00	0.00	0.00	0.00	0.00
	Average Net Loan	0.00	0.00	0.00	0.00	0.00
	Rate of Interest on Loan	8.80%	8.80%	8.80%	8.80%	8.80%
	Interest on loan	0.00	0.00	0.00	0.00	0.00
	Total					
	Gross loan - Opening	10998.76	10998.76	10998.76	10998.76	10998.76
	Cumulative repayments of Loans upto previous year	4236.00	4965.40	5741.70	6568.22	7447.99
	Net loan - Opening	6762.76	6033.36	5257.06	4430.54	3550.77
	Add: Drawal(s) during the Year	0.00	0.00	0.00	0.00	0.00
	Less: Repayment (s) of Loans during the year	729.40	776.31	826.51	879.77	936.46
	Net loan - Closing	6033.36	5257.06	4430.54	3550.77	2614.31
	Average Net Loan	6398.06	5645.21	4843.80	3990.66	3082.54
	Interest on loan	232.89	205.49	176.31	145.26	112.20
	Weighted average Rate of Interest on Loans	3.6400%	3.6400%	3.6400%	3.6400%	3.6400%

1 In case of Foreign Loans, the calculations in Indian Rupees is to be furnished. However, the calculations in Original currency is also to be furnished separately in the same form.

- Proof of Interest is Annexed.


Petitioner

MATURITY	SCHEDULED REPAYMENT	NRLDC	HALF YEARLY INSTALMENTS		
DATE	USD in lacs	248.22	INR		
	USD Ex rate		44.31	YEARLY	
	INR IN LAKH		10998.76	REPAYMENT	
	DOCO : 01.08.2002		1.4.2004	INR in Lakh	BALANCE O/S
					10998.76
15-DEC-2006	91.95000	5.173730	229.25	229.25	10769.51
June-15,2007	92.94600	5.229771	231.73		10537.78
15-DEC-2007	95.88600	5.395196	239.06	470.79	10298.72
June-15,2008	98.92400	5.566134	246.64		10052.08
15-DEC-2008	102.10800	5.745288	254.57	501.21	9797.51
June-15,2009	105.34200	5.927254	262.64		9534.87
15-DEC-2009	108.67400	6.114735	270.94	533.58	9263.93
June-15,2010	112.10400	6.307730	279.50		8984.43
15-DEC-2010	115.68000	6.508940	288.41	567.91	8696.02
June-15,2011	119.35500	6.715721	297.57		8398.45
15-DEC-2011	123.12800	6.928015	306.98	604.55	8091.47
June-15,2012	127.04800	7.148581	316.75		7774.72
15-DEC-2012	131.11400	7.377362	326.89	643.64	7447.82
June-15,2013	135.23000	7.608956	337.15		7110.67
15-DEC-2013	139.54200	7.851578	347.90	685.06	6762.77
June-15,2014	144.00000	8.102415	359.02		6403.75
15-DEC-2014	148.55700	8.358823	370.38	729.40	6033.37
June-15,2015	153.26100	8.623502	382.11		5651.26
15-DEC-2015	158.11100	8.896396	394.20	776.31	5257.06
June-15,2016	163.15800	9.180374	406.78		4850.28
15-DEC-2016	168.35200	9.472624	419.73	826.51	4430.55
June-15,2017	173.69200	9.773088	433.05		3997.50
15-DEC-2017	179.18000	10.081880	446.73	879.77	3550.78
June-15,2018	184.86400	10.401701	460.90		3089.88
15-DEC-2018	190.74300	10.732493	475.56	936.46	2614.32
June-15,2019	196.81900	11.074370	490.71		2123.62
15-DEC-2019	203.04100	11.424462	506.22	996.92	1617.40
June-15,2020	209.50900	11.788395	522.34		1095.05
15-DEC-2020	216.17200	12.163301	538.96	1,061.30	556.10
June-15,2021	223.04749	12.550162	556.10	556.10	
TOTAL	4411.54	248.22	10,998.76	10,998.76	

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Name of NLDC/RLDCs : Northern Regional Load Despatch Centre
Statement of Depreciation

Fig.: Rs.in Lakhs.

Financial Year 1	upto 2013-14 2	2014-15 3	2015-16 4	2016-17 5	2017-18 6	2018-19 7
Depreciation on Capital Cost	12632.49	12632.49	12748.28	627.65	930.83	1280.27
Depreciation recovered during the Year		118.89	217.01	347.70	375.63	362.87
Cumulative depreciation deducted due to De-capitalisation or write off of the assets etc.		3.10	12337.65	44.52	26.19	49.09
Cumulative Depreciation recovered upto the year	12632.49	12748.28	627.65	930.83	1280.27	1594.04



Petitioner

	SUMMARY- NRLDC DEPRECIATION -2014-19				
	14-15	15-16	16-17	17-18	18-19
op GB	12936.70	13473.15	14733.62	15125.62	15260.62
additions during the year	536.45	1260.47	392.00	135.00	110.00
closing Gross block	13473.15	14733.62	15125.62	15260.62	15370.62
avg gb	13204.93	14103.39	14929.62	15193.12	15315.62
90 % depreciable	524.56	6895.27	13227.92	13399.85	13462.07
100 % depreciable	12680.36	7208.12	1701.70	1793.28	1853.56
90 % depreciable Value	472.11	6205.74	11905.13	12059.86	12115.86
100 % depreciable value	12680.36	7208.12	1701.70	1793.28	1853.56
total depreciable value	13152.47	13413.86	13606.83	13853.14	13969.41
depreciable remaining value	519.99	665.58	12979.19	12922.32	12689.16
Actual dep	118.89	217.01	347.70	375.63	362.87
Allowed(min of two)	118.89	217.01	347.70	375.63	362.87
dep decap 2014-19	3.10	12337.65	44.52	26.19	49.09
cumulative dep	12748.28	627.64	930.82	1280.26	1594.03

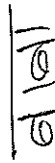
वता

Name of NLDC/RLDCs : Northern Regional Load Despatch Centre

Details of Operation and Maintenance Expense excluding human resource expenses

Fig: Rs.in Lakhs.

	ITEMS	2014-15	2015-16	2016-17	2017-18	2018-19	Total
	1	2	3	4	5	6	
1	Repairs and maintenance expenses	69.31	72.03	74.96	78.12	81.53	375.94
2	Administrative and general expenses, etc	517.90	558.71	602.73	650.23	701.47	3031.04
3	Total	587.21	630.73	677.69	728.35	783.00	3406.98



Petitioner

FORM-7B

Northern Regional Load Despatch Centre

Account Head	2014-15			2015-16			2016-17			2017-18			2018-19			2019-20		
	Exe	Non-Exe	Total	Exe	Non-Exe	Total	Exe	Non-Exe	Total	Exe	Non-Exe	Total	Exe	Non-Exe	Total	Exe	Non-Exe	Total
SALARIES AND ALLOWANCES																		
Salaries	320.40	102.83	423.23	387.61	105.55	493.16	576.39	121.38	697.77	906.95	194.65	1071.50	1101.13	166.59	1267.72	3292.48	661.00	3953.48
Dearness Allowance	266.71	84.26	350.97	322.66	86.49	409.15	479.81	99.46	579.27	754.98	134.92	889.89	916.63	136.50	1053.13	2740.79	541.64	3282.42
Other Allowances	160.31	50.73	211.04	193.94	52.07	246.01	288.40	59.88	348.28	453.79	81.22	535.02	550.95	82.18	633.13	1647.40	326.08	1973.48
Productivity Linked Incentive	0.13	0.34	0.47	0.16	0.35	0.51	0.23	0.40	0.63	0.37	0.54	0.91	0.45	0.55	1.00	1.34	2.18	3.52
Sub Total..	747.55	238.16	985.71	904.37	244.46	1148.83	1344.84	281.13	1625.96	2116.08	381.33	2497.42	2569.16	385.82	2954.98	7682.01	1630.90	9212.90
OTHER STAFF COST																		
Reimbursement of Medical Expenses	45.53	30.07	75.60	55.08	30.87	85.95	81.91	35.49	117.40	128.88	48.15	177.02	156.47	48.71	205.18	467.86	193.29	661.15
Leave Travel Concession	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reimbursement of House Rent/Lease	147.19	19.88	167.07	178.07	20.40	198.47	264.79	23.46	288.26	416.65	31.83	448.48	505.86	32.20	538.06	1512.56	127.77	1640.33
Encashment of Earned Leave	50.52	15.54	66.05	61.11	15.95	77.06	90.88	18.34	109.22	143.00	24.88	167.87	173.61	25.17	198.78	519.11	99.88	619.00
Ex-Gratia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sub Total..	243.23	65.48	308.72	294.26	67.22	361.48	437.58	77.30	514.88	688.52	104.85	793.37	835.94	106.09	942.03	2499.53	420.94	2920.48
Staff Welfare Expenses	7.58	5.01	12.58	9.17	5.14	14.30	13.63	5.91	19.54	21.45	8.02	29.46	26.04	8.11	34.15	77.85	32.18	110.04
Terminal Benefits	182.68	76.10	258.79	221.01	78.12	299.12	328.65	89.83	418.48	517.12	121.85	638.97	627.84	123.29	751.13	1877.30	489.18	2366.49
Provisions	226.35	47.96	274.31	273.83	49.23	323.06	407.20	56.61	463.81	640.72	76.79	717.52	777.91	77.70	855.60	2326.01	308.30	2634.30
Sub Total..	416.6095	129.0683	545.68	504.00	132.49	636.49	749.47	152.36	901.83	1179.29			1431.79	209.09	1640.88	4281.17	623.00	3724.88
Total	1407.40	432.71	1840.11	1702.63	444.17	2146.80	2531.89	510.78	3042.67	3983.90	692.85	4676.75	4836.89	701.00	5537.89	14462.71	2781.51	17244.21
	1407.40	432.71	1840.11	1702.63	444.17	2146.80	2531.89	510.78	3042.67	3983.90	486.19	3290.79	4836.89	701.00	5537.89	14462.71	2574.84	15858.26

21/6/17

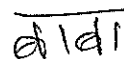
Petitioner

Details of Repairs and Maintenance Expenses

Form..7C							
Name of NLDC/RLDCs : Northern Regional Load Despatch Centre							
Account Head	2014-15	2015-16	2016-17	2017-18	2018-19	Total	
Consumption of Stores and Spares	2.93	3.16	3.41	3.68	3.97	17.14	
Plant and Machinery Repairs and Maintenance	22.92	24.72	26.67	28.77	31.04	134.12	
Civil works repair and maintenance	1.02	1.10	1.19	1.28	1.38	5.98	
AMC of SCADA System	34.83	34.83	34.83	34.83	34.83	174.17	
Civil repairs and maintenance	2.51	2.70	2.92	3.15	3.39	14.67	
Others	4.12	4.45	4.80	5.18	5.58	24.12	
Others(Specify)	0.98	1.06	1.14	1.23	1.33	5.74	
Total:	69.31	72.03	74.96	78.12	81.53	375.94	

Petitioner

Name of NLDC/RLDCs : Northern Regional Load Despatch Centre						
Account Head	2014-15	2015-16	2016-17	2017-18	2018-19	Total
PROPERTY RELATED EXPENSES						
Rent	2.06	2.23	2.40	2.59	2.79	12.07
Rates and Taxes	0.00	0.00	0.00	0.00	0.00	0.00
Insurance	0.40	0.43	0.47	0.51	0.55	2.36
Sub Total..	2.47	2.66	2.87	3.10	3.34	14.43
COMMUNICATION						
Telephone and TrunkCall	15.36	16.57	17.88	19.29	20.81	89.91
Postage and Telegram	0.62	0.67	0.72	0.78	0.84	3.64
Courier Charges	0.59	0.64	0.69	0.74	0.80	3.45
Other (Internet Leased Line Charges)	1.66	1.79	1.93	2.09	2.25	9.73
Sub Total..	18.24	19.67	21.22	22.89	24.70	106.72
PROFESSIONAL CHARGES						
Legal Expenses	6.28	6.77	7.30	7.88	8.50	36.73
Consultancy Charges	1.70	1.83	1.97	2.13	2.30	9.93
Technical Fees	0.34	0.36	0.39	0.42	0.45	1.96
Audit Fees	0.51	0.55	0.59	0.64	0.69	2.97
Other Charges	0.27	0.29	0.31	0.33	0.36	1.55
Sub Total..	9.08	9.79	10.57	11.40	12.30	53.14
CONVEYANCE AND TRAVELLING						
Conveyance Charges	35.47	38.26	41.28	44.53	48.04	207.59
Travelling Charges	19.49	21.02	22.68	24.47	26.40	114.05
Hire Charges of Vehicle	16.76	18.08	19.51	21.05	22.71	98.11
Sub Total..	71.72	77.37	83.47	90.05	97.14	419.75
OTHER EXPENSES						
Electricity Charges	77.87	84.01	90.63	97.77	105.47	455.75
Fees and Subscription	-0.12	-0.12	-0.13	-0.15	-0.16	-0.68
Books and Periodicals	1.86	2.00	2.16	2.33	2.52	10.87
Printing and Stationery	7.34	7.92	8.54	9.22	9.94	42.97
Advertisement	4.73	5.10	5.50	5.94	6.41	27.68
Entertainment	19.23	20.74	22.38	24.14	26.05	112.54
Watch and Ward	145.44	156.90	169.27	182.61	196.99	851.21
Miscellaneous	112.85	121.74	131.33	141.68	152.84	660.44
Organisational Development Expenses	10.14	10.94	11.80	12.73	13.74	59.36
Donation	0.00	0.00	0.00	0.00	0.00	0.00
Traning	12.91	13.93	15.02	16.21	17.48	75.55
Water Charges	13.48	14.54	15.69	16.92	18.25	78.88
Sub Total..	405.73	437.70	472.19	509.40	549.54	2374.57
ADDITIONAL EXPENSES						
EDP Expenditure	10.67	11.51	12.41	13.39	14.45	62.43
Sub Total..	10.67	11.51	12.41	13.39	14.45	62.43
Total:	517.90	558.71	602.73	650.23	701.47	3031.04



Petitioner

Name of NLDC/RLDCs : Northern Rwegional Load Despatch Centre

Calculation of Repairs and Maintenance Expenses

In Rs. Lakh						
PSCC/PSNL	2009-10	2010-11	2011-12	2012-13	2013-14	Base for 2014-15
	29.08	17.37	30.23	24.27	43.49	
		30.74	32.50	34.36	36.33	
			18.36	19.41	20.52	
				31.96	33.79	
5.72%					25.66	
TOTAL					159.79	
AVERAGE					31.96	
					34.48	34.48
	2014-15	2015-16	2016-17	2017-18	2018-19	
7.88%	34.48	37.19	40.12	43.28	46.70	201.77
Add SCADA AMC	34.83	34.83	34.83	34.83	34.83	174.17

Cost of AMC Contract 185.78
 Cost Incl. Service Charge 209.0025

दादा

Name of NLDC/RLDCs : Northern Regional Load Despatch Centre
Calculation of Interest on Working Capital

Fig: Rs.in Lakhs.

Sl.No	Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
1	2	3	4	5	6	7
1	O & M expenses excluding human resource expenses (1 Month)	48.93	52.56	56.47	60.70	65.25
2	Human resource expenses (1 Month)	153.34	178.90	253.56	389.73	461.49
3	NLDC charges (1 Month)	77.05	105.48	140.04	211.31	239.81
4	Receivables (2 Months)	670.64	786.41	1020.91	1466.62	1682.60
5	Total Working Capital	949.96	1123.35	1470.98	2128.36	2449.15
6	Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
7	Interest on Working Capital	128.24	151.65	198.58	287.33	330.64

6/12/11
Petitioner

Other Income

Name of the NLDC/RLDCs: NRLDC

Particulars	Rs. In Lacs					
	As on 31.3.2014	2014-15	2015-16	2016-17	2017-18	2018-19
1	2	3	4	5	6	7
Other Income - Opening		897.14	897.14	897.14	897.14	897.14
Add- Short term open access charges		782.63	476.08	523.69	576.06	633.66
Add: Allocation from REC income						
Add:.....						
Add:.....						
Add:.....						
Gross Income during the year		1679.77	1373.22	1420.83	1473.2	1530.8
Less: Utilisation to meet shortfall						
Less: Use for.....						
So on						
....						
Net Income as on 31st March		1679.77	1373.22	1420.83	1473.2	1530.8


Petitioner

Actual Demand Served on Regional basis in year 2014-19

(As per CEA Report PEAK DEMAND MET April,2014 to March 2015)

Region	All India	Northern Region	Western Region	Eastern Region	Southern Region	North Eastern Region
Demand Met (MW)	1,46,968	47,642	43,145	16,932	37,047	2,202
Ratio (All india vs Regions)	1.00	0.32	0.29	0.12	0.25	0.01
% Demand met	100.00	32.42	29.36	11.52	25.21	1.50

All figures in Rs lakhs					
	2014-15	2015-16	2016-17	2017-18	2018-19
Total Annual NLDC Charges	2852.15	3904.63	5184.07	7822.29	8877.21
NR Proportion	924.57	1265.75	1680.50	2535.72	2877.69
WR Proportion	837.30	1146.27	1521.87	2296.37	2606.06
ER Proportion	328.59	449.85	597.25	901.20	1022.73
SR Proportion	718.96	984.26	1306.78	1971.81	2237.72
NER Proportion	42.73	58.50	77.67	117.20	133.01

दाल



पावर सिस्टम ऑपरेशन कॉर्पोरेशन लिमिटेड

(पावरग्रिड की पूर्ण स्वामित्व प्राप्त सहायक कंपनी)

POWER SYSTEM OPERATION CORPORATION LIMITED

(A wholly owned subsidiary of POWERGRID)



पंजीकृत एवं केन्द्रीय कार्यालय: बी-9, प्रथम तल, कुतुब इंस्टीट्यूशनल एरिया, कटवारिया सराय, नई दिल्ली – 110016
Registered & Corporate Office : B-9, 1st Floor, Qutub Institutional Area, Katwaria Sarai, New Delhi – 110016
Website : www.posoco.in, www.nldc.in, Tel: 011-26536832, 26524522, Fax: 011-26524525, 26536901

No: NLDC-POSOCO/F&C /CERC/2015-16/

Dated: 20th October, 2015

To,

The Secretary
Central Electricity Regulatory Commission
3rd & 4th Floor, Chanderlok Building
36, Janpath New Delhi - 110 001
Fax:-011-23753923

Sub: Application filed under subsection (4) of section 28 of Electricity Act 2003 and Regulation 6 of the Central Electricity Regulatory Commission (Fee and Charges of Regional Load Despatch Centre and other related matters) Regulations, 2015.

Sir,

Please find enclosed herewith the Application (one no. in original and nine copies) under subsection (4) of section 28 of Electricity Act 2003 and Regulation 6 of the RLDC fees and Charges Regulation 2015. Copies of the Application shall be served on all respondents upon admission of the Application. It is requested to admit the Application for hearing at an early date.

Thanking you,

Yours faithfully,

(Rajendra Piplonia)
Deputy General Manager
(NLDC-POSOCO)

Encl: Ten copies of the Application

BEFORE
THE HON'BLE CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI
APPLICATION NO :/2015

IN THE MATTER OF: Application filed under subsection (4) of section 28 of Electricity Act 2003 and Regulation 6 of the Central Electricity Regulatory Commission (Fee and Charges of Regional Load Despatch Centre and other related matters) Regulations, 2015 for NLDC Charges for the control period 2014-19.

Power System Operation Corporation Ltd. (POSOCO)
(a wholly owned subsidiary of POWERGRID)
Registered office: B-9, Qutab Institutional Area, 1st floor,
Katwaria Sarai, New Delhi -110016

---- APPLICANT

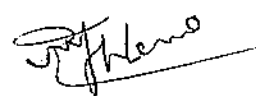
Users of RLDCs
(As per Memo of Parties)

---- RESPONDENTS

INDEX

Sl. No.	Description	Enclosure	Page
1.	Memo of Parties	Yes	3-15
2.	Application	Yes	16-95
3.	Affidavit	Yes	96-97

FILED BY
Power System Operation Corporation Ltd.



Represented by: Rajendra Piplonia
Deputy General Manager (POSOCO)

Place: New Delhi
Dated: 20th October, 2015

MEMO OF PARTIES

Power System Operation Corporation Ltd.(POSOCO)
(a wholly owned subsidiary of POWERGRID)
Registered office: B-9, Qutab Institutional Area, 1st floor,
Katwaria Sarai, New Delhi -110016
Corporate office at "Saudamini" ,Plot no.2,
VERSUS

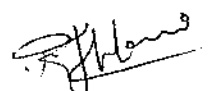
---- Applicant

NRLDC

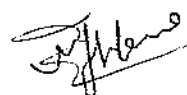
01. CMD, UPPCL, Uttar Pradesh Power Corporation Limited, Shakti Bhawan, 14-Ashok Marg, Lucknow-226001
02. Principal Secretary, Government of J&K, Civil secretariat, Srinagar,J&K.
03. CMD, Rajasthan RajyaVidyutPrasaran Nigam Limited, VidyutBhawan, VidyutMarg, Jaipur-302005
04. Chairman, Punjab State Electricity Board, The Mall, Patiala-147 001
05. Managing Director, Haryana VidyutPrasaran Nigam Limited, Shakti Bhawan, Sector-6, Panchkula-134109.
06. CMD, Delhi Transco Limited, Shakti Sadan, Kotla Road, New Delhi-110 002
07. Chairman, Himachal Pradesh State Electricity Board, Kumar House, VidyutBhawan, Shimla-171004
08. Managing Director, Power Transmission Corporation of Uttarakhand Limited, 7-B, Lane No-1, VasantVihar Enclave, Dehradun - 248 001.
09. Chief Engineer, Electricity Department, UT Chandigarh, Sector 9-D, UT Chandigarh-160019
10. Chief Electrical Engineer, North Central Railway, GM Office Building, Allahabad, UP.
11. Executive Director, NRTS-I, Power grid Corporation of India Ltd., B-9, Qutab Institutional Area, New Delhi-110016

Users under the category of Generating Stations and Sellers

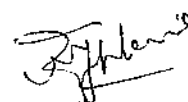
12. General Manager, Singrauli Super Thermal Power Station, Shakti Nagar, UP-231222
13. General Manager, Rihand Super Thermal Power Station-I, Rihand Nagar, UP-231223
14. General Manager, Rihand Super Thermal Power Station-II, Rihand Nagar, UP-231223
15. General Manager, Rihand Super Thermal Power Station-III, NTPC Rihand, Dist-Sonbhadra, UP - 231223



16. General Manager, Dadri, National Capital Power Project, DadriDhaulana Road, Distt. GautamBuddh Nagar, UP-201008
17. General Manager, Dadri – Stage - II, National Capital Power Project, DadriDhaulana Road, Distt. GautamBuddh Nagar, UP-201008
18. General Manager, Firoz Gandhi Unchahar Thermal Power Project-I, Unchahar, Distt. Raibareilly, UP
19. General Manager, Firoz Gandhi Unchahar Thermal Power Project-II, Unchahar,,Distt. Raibareilly, UP
20. General Manager, Firoz Gandhi Unchahar Thermal Power Project-III, Unchahar, Distt. Raibareilly, UP
21. General Manager, Firoz Gandhi Unchahar Solar PV Power Project, Unchahar, Distt. Raibareilly, UP
22. General Manager, Dadri Gas Power Project, Dhaulana Road, Distt. GautamBuddh Nagar, UP-201008
23. General Manager, Dadri Solar PV Power Project, Dhaulana Road, Distt. GautamBuddh Nagar, UP-201008
24. General Manager, Auraiya Gas Power Project(Gas Fired, RLNG Fired, Liquid Fired), Dibiyaapur, DisttEtawah, UP-206244
25. General Manager, Anta Gas Power Project (Gas Fired, RLNG Fired, Liquid Fired), Distt. Baran, Rajasthan-325209
26. Station Director, Narora Atomic Power Station, Narora, Distt. Bulandshahar, UP-202389
27. Station Director, Rajasthan Atomic Power Station-B, Anu Shakti Vihar, Kota, Rajasthan-323303
28. Station Director, Rajasthan Atomic Power Station-C, (RAPS-5&6) PO-Anushakti, Kota, Rajasthan-323304
29. General Manager, Bairasiul Hydro Electric Project, NHPC Ltd.,Surangini, Distt. Chamba, HP-176317
30. General Manager, Salal Hydro Electric Project, NHPC Ltd, Jyotipuram, Distt. Udhampur, J&K-182312
31. General Manager, Tanakpur Hydro Electric Project, NHPC Ltd., Banbassa, Distt. Champawa,Uttarakhand-262310
32. General Manager, Chamera-I Hydro Electric Project, NHPC Ltd., Khairi, Distt. Chamba, HP-176310



33. General Manager, Uri Hydro Electric Project, NHPC Ltd., Mohra, Distt. Baramulla, J&K-193122
34. General Manager, Chamera-II Hydro Electric Project, NHPC Ltd., Karian, Distt. Chamba, HP-176310
35. General Manager, Chamera-III Hydro Electric Project, NHPC Ltd., Dharwala, Distt.-Chamba, HP-176311
36. General Manager, Dhauliganga Hydro Electric Project, NHPC Ltd., Tapovan, Dharchula, Pithoragarh, Uttarakhand-262545
37. General Manager, Dulhasti Hydro Electric Project, NHPC Ltd., Chenab Nagar, Distt. Kishtwar, J&K-182206
38. General Manager, Satluj Jal Vidyut Nigam Ltd. Power Project, Jhakri, Rampur, Distt. Shimla, HP-172201
39. General Manager, Tehri Hydro Development Corporation Ltd., Pragatipuram, Rishikesh, Uttarakhand-249201
40. General Manager, Uri 2 Hydro Electric Project, NHPC Ltd., Nowpura, Distt. Baramulla, J&K-193123
41. General Manager, Parbati HE Project Stage-III Behali, P.O- Larji Kullu 175122 Himachal Pradesh
42. General Manager, Parbati HE Project Stage-III Behali, P.O- Larji Kullu 175122 Himachal Pradesh
43. General Manager, Sewa-II Power Station, Mashke, P.O-Khari, Tahsil-Dalhausie, Dist-Chamba, HP-176325
44. General Manager, Rampur HEP, Satluj Jal Vidyut Nigam Ltd. Power Project, Jhakri, Rampur, Distt. Shimla, HP-172201
45. General Manager, Koteswar HEP, THDCIL, Koteswarpuram, Tehri Garwal-249002
46. General Manager, ADHPL Prini, Tehsil Manali, Distt- Kullu (H.P) India.
47. General Manager, Indra Gandhi Super Thermal Power Project VPO -Jharli, Tahsil Matanhail, Dist Jhajjar (Haryana)-124125
48. General Manager, Karcham Wangtoo HEP, Jaiprakash Power House Ventures Limited Baspa - II Hydro -Electric Project Sholtu Colony, PO- Tapti Dist Kinnaur, -172104 (HP)
49. Director, Malana - II Everest Power Pvt. Ltd 1st Floor, Hall-1, NBCC Tower Bikaji Cama Place, New Delhi - 110 066.
50. Plant In Charge, Shree Cement Thermal Power Project Bangurnagar, Beawar, Dist Ajmer, Rajasthan -305901



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

Users under the category of Inter State Transmission Licensees

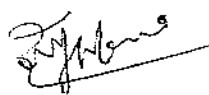
52. Executive Director, NRTS-I, Power Grid Corporation of India Ltd., B-9, Qutab Institutional Area, New Delhi-110016
53. Director, Operations , Powerlinks Transmission Ltd., 10th Floor, DLF Tower-A, District Centre, Jasola, New Delhi-110044
54. Director, Jaypee POWERGRID Ltd. House No.- 7, Housing Board colony ChuhaBagh, Khaneri Rampur, Bushahr Shimla H.P.
55. Director, APL, Business Development, Achalraj, Opp Mayor Bungalow, Law Garden, Ahmedabad 380009.
56. Executive Director, ParbatiKoldamTransmission Company Ltd. B-9, Qutab Institutional Area New Delhi-110016

WRLDC

Distribution List

I. Users under the category of Distribution Licensees and Buyers

1. Managing Director, MSEDCL, Prakashgad, 5th Floor, Bandra East, Maharashtra Mumbai 400051.
2. Managing Director, GUVNL, Sardar Patel Vidyut Bhavan race Course Gujarat Vadodara 390007 .
3. Managing Director, MP Power Management Co Ltd, 3rd Floor, Block No 11, Shakti Bhavan, Rampur, Madhya Pradesh 482008
4. Managing Director, CSPDCL, PO - Sunder Nagar Chhattisgarh Raipur, Dangania 492013.
5. Secretary (Power), Electricity Department, UT of Daman & Diu, Sachivalaya, Daman & Diu Moti Daman 396210
6. Secretary (Power), UT of Dadra Nagar & Haveli, Secretariat, Electric Department, 66kv Amli Road, Dadra Nagar & Haveli Silvassa 396230
7. Managing Director, ESSAR STEEL INDIA LIMITED, 27th KM, Surat Hazira Road, Gujarat Surat 394270
8. Chief Electrical Engineer, Goa Electricity Department, Government of Goa, 3rd Floor, Vidyut Bhavan, Panjim, Goa – 403001.



9. General Manager, Bhadravathi HVDC, Power Grid Corporation of India Ltd, Sumthana Village, Bhadravathi(Tahsil), Bhadravathi, Chandrapur(Dist), Maharashtra-442 902
10. General Manager, Vindhayachal HVDC, Power Grid Corporation of India Ltd, P.O.Vindhyanagar, P.Box.No.12, Singrauli(Dist), Madhya Pradesh-486 885

II. Users under the category of Generating Stations and Sellers

11. General Manager, Korba STPS STG (I & II), NTPC Ltd., P.O.: Vikas Bhavan, Jamnipali, Korba(District), Chhattisgarh- 495 450.
12. General Manager, Korba STPS STG (III), NTPC Ltd, P.O.Vikas Bhavan, Jamnipali, Korba(Dist), Chhattisgarh- 495 450.
13. General Manager, VSTPS-STAGE-I, Vindhayachal STPS, NTPC Ltd, P.O.: Vindhyanagar, Sidhi(District), Madhya Pradesh – 486 885
14. General Manager, VSTPS-STAGE-II, Vindhayachal STPS, NTPC Ltd. ,P.O.: Vindhyanagar, Sidhi(Dist),Madhya Pradesh – 486 885
15. General Manager, VSTPS-STAGE-III, Vindhayachal STPS, NTPC Ltd, P.O.: Vindhyanagar, Sidhi(Dist),Madhya Pradesh – 486 885
16. General Manager, VSTPS-STAGE-IV, Vindhayachal STPS, National Thermal Power Corporation of India Ltd, P.O Vindhyanagar, Sidhi(Dist),Madhya Pradesh – 486 885
17. General Manager, VSTPS-STAGE-V, Vindhayachal STPS, National Thermal Power Corporation of India Ltd, P.O Vindhyanagar, Sidhi(Dist),Madhya Pradesh – 486 885
18. General Manager, Kawas Gas Power Project, NTPC Ltd , P.O.Aditya Nagar, Surat, Gujarat - 394 516
19. General Manager, Gandhar Gas Power Project, NTPC Ltd, P.O.: NTPC Township, Bharuch(Dist), Gujarat- 392215
20. General Manager, SIPAT TPS Stg-I, NTPC Ltd, SIPAT, Chhattisgarh - 495558.
21. General Manager, SIPAT TPS Stg-II, NTPC Ltd., SIPAT, Chhattisgarh-495558..
22. General Manager, Mouda STPP Stage-I, NTPC Ltd, Mouda Ramtek Road, P.O.Mouda, Nagpur (Dist), Maharashtra
23. General Manager, Mouda STPP Stage-II, NTPC Ltd, Mouda Ramtek Road, P.O.Mouda, Nagpur (Dist), Maharashtra
24. General Manager ,2 X 135 MW Kasaipali Thermal Power Project, ACB (India) Ltd. District - Korba Chhattisgarh Chakabura 495445
25. General Manager, Bharat Aluminium Co. Ltd, Captive Power plant-II, BALCO Nagar Chhattisgarh Korba 495684



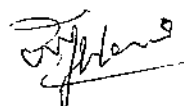
26. Executive Director, Costal Gujarat Power Ltd (CGPL-UMPP), Tunda Vandh Road, Tunda Village, Mundra, Gujarat Kutch 370435
27. Excecutive Director, DB Power, Village - Baradarha, Post - Kanwali, Dist - Janjgir, Champa, Chhattisgarh Baradarha 495695
28. Executive Director Jindal Power Ltd. Stg-I, OP Jindal STPP, PO-Tamnar, Gjarghoda Tehsil, Chhattisgarh District - Raigarh, 496107
29. Executive Director Jindal Power Ltd. Stg-II, OP Jindal STPP, PO-Tamnar, Gjarghoda Tehsil, Chhattisgarh District - Raigarh, 496107
30. Executive Director, DGEN Mega Power Project, Plot No Z-9, Dahej SEZ Area (Eastern side), At: Dahej, Taluka-Vagra, Dist-Bharuch, Gujarat 392130
31. Executive Director, EMCO Power Ltd, Plot No B-1, Mohabala MIDC Growth Center Post Tehsil - Warora, Dist - Chandrapur, Maharashtra 442907
32. Executive Director, ESSAR POWER MP LTD. Village Bandhora, Post- Karsualal, Tehsil-Mada, Distt. Singrauli, Madhya Pradesh - 486886
33. General Manager, GMR CHHATTISGARH ENERGY LTD Skip House, 25/1, Museum Road, Bangalore, Karnataka 560025
34. Managing Director, Jaippee Nigrie Super Thermal Power Project, Nigri District, Singrauli, Madhya Pradesh 486668
35. Executive Director, DCP, OP Jindal STPP, PO-Tamnar, Gjarghoda Tehsil, Chhattisgarh District - Raigarh, 496107
36. Station Director, Nuclear Power Corporation of India ltd, Kakrapara Atomic Power Station, PO - via Vyara, Dist - Surat, Gujarat - 395651
37. Station Director,Tarapur Atomic Power Station 1&2, Nuclear Power Corporation of India Ltd,P.O.TAPP, Thane(Dist), Maharashtra- 401 504
38. Station Director,Tarapur Atomic Power Station 3&4, Nuclear Power Corporation of India Ltd,P.O.TAPP, Thane(Dist), Maharashtra- 401 504
39. Managing Director, Korba West Power Co.Ltd.,Village - Chhote Bhandar, P.O. - Bade Bhnadar, Tehsil - Pussore, District - Raigarh, Chhattisgarh Raigarh 496100
40. Managing Director, KSK Mahanadhi , 8-2-293/82/A/431/A, Road No 22 Jubilee Hills Andhra Pradesh Hyderabad 500033
41. General Manager(Comm), LANCO Power Ltd, Plot No - 397, phase -III, Udyog Vihar, Haryana Gurgaon 122016
42. General Manager, NTPC-SAIL Power Company Privte Ltd, Puranena Village, Chhattisgarh Dist - Durg, Bhilai 490021



43. General Manager, Ratnagiri Gas & Power Pvt Ltd, 2nd Floor, Block-2, IGL Complex, Sector-126, Express-way, Noida, Uttar Pradesh- 201304
44. Managing Director, Sasan Power Ltd, DAKC, I Block, 2nd Floor, North Wing, Thane Belapur Road, Koparkhairana Maharashtra New Mumbai 400710
45. Member (Power) , Narmada Control Authority, Narmada Sadan, Sector -B, Scheme No 74, Vijaynagar, Indore, Madhya Pradesh-452010 (Mobile: 9978934846)
46. Managing Director, Vandana Vidyut Bhavan, M. G. Road Chhattisgarh Raipur 492001
47. CEO, MB Power (Madhya Pradesh) Ltd., Corporate Office: 239, Okhla Industrial Estate Phase-III, New Delhi- 110020 (Tel: 011-47624100)
48. Chief General Manager, RKM Powergen Pvt. Ltd., Village: Uchpinda, PO: Dhurkot, Dist: Janjgir-Champa, Chhattisgarh -495692
49. Head (Commercial), Jhabua Power Ltd., Village – Barrella, Post – Attaria, Tahsil – Ghansor, Dist – Seoni, Madhya Pradesh – 480997
50. Head(Commercial), Dhariwal Infrastructure Ltd., CESC House, Chowringhee Square, Kolkata – 700001
51. Head (Commercial), SKS Power Generation Chhattisgarh Ltd., 501B, Elegant Business Park, Andheri Kurla Road, J B Nagar, Andheri (East), Mumbai – 400059 (Mob: 07389939063)
52. General Manager/ Plant Head, NTPC Ltd., Solapur Super Thermal Power Station, PO: Hotgi Station, Taluka: South Solapur, District: Solapur, Maharashtra-413003.
53. Sr. Vice President (Power), M/s. TRN Energy Pvt. Ltd., 18, Vasant Enclave, Rao Tula ram Marg, New Delhi-110057

III. Users under the category of Inter State Transmission Licensees

54. General Manager, Power Grid Corporation of India Ltd. Western Region - I Headquarters, PO - Uppalwadi, Sampritinagar, Nagpur, Maharashtra - 440026
55. Managing Director, ESSAR Power Transmission Co Ltd, A-5, Sector -3 , Gautam Buddha Nagar, Uttar Pradesh, Noida 201301
56. Executive Director, Jindal Power Ltd., OP Jindal STPP, OP Jindal STPS, PO- Tamnar, Chhattisgarh District - Raigarh, 496107
57. Executive Director, Torrent PowerGrid Ltd, Torrent House, Off Ashram Road, Gujarat Ahmedabad 380009



58. Vice President, Western Region Transmission (Gujarat) Pvt. Ltd., 12th Floor, Building No - 10-B, DLF, Cyber City, Haryana Gurgaon 122002
59. Vice President , Western Region Transmission (Maharashtra) Pvt. Ltd., 12th Floor, Building No - 10-B, DLF, Cyber City, Haryana Gurgaon 122002
60. General Manager (Comm), Adani Power Ltd. Achalraj, Opp Mayor Bungalow, Law Garden, Ahmedabad, Gujarat - 380006
61. Head (Commercial), Bhopal Dhule Transmission Company Ltd., C-2, Mitra Corporate Suite, Iswar Nagar, Mathura Road, New Delhi -110065
62. Head (Commercial), Raichur Solapur Power Transmission Company Ltd, Patel Estate, SV Road, Jogeshwari West, Mumbai 400102
63. Head(Commercial), Jabalpur Transmission Company Ltd, Tower-B, 1st Floor, Logix Techno Park, Sector-127, Noida, Uttar Pradesh- 201301

ERLDC

Users under the Category of Distribution Licensees & Buyers

1. Chairman, Bihar State Holding Co. Ltd., Vidyut Bhavan, Bailey Road, Patna, Bihar 800021
2. Chairman, Jharkhand Urja Vikash Nigam Limited, Dhurwa Road, Ranchi, Jharkhand 834002
3. Chairman, Damodar Valley Corporation, DVC Tower, VIP Road, Kolkata, WB 700054
4. Chairman, Grid Corporation of India Ltd, Janpath, Bhubaneswar, Odisha 751022
5. Secretary, Power Deptt., Govt. of Sikkim, Kaji Road Sikkim Gangtok 731101
6. Chairman, West Bengal State Electricity Distribution Corporation Limited, Bidyut Bhavan, Saltlake, Kolkata WB 700091
7. Executive Director, ER-I, Power Grid Corporation (I) Ltd., Boring Road, Patna 800001
8. Addl. General Manager, NTPC Vidyut Vyapar Nigam Limited, Lodhi Road New Delhi 110003

Users under the Category of Generating Stations & Sellers

9. General Manager, Farakka Super Thermal Power Plant-I&II, NTPC Ltd., Farakka, WB 742236
10. General Manager, Kahalgaon Super Thermal Power Plant-I NTPC Ltd, Bhagalpur Bihar 813214
11. General Manager, Kahalgaon Super Thermal Power Plant-II NTPC Ltd, Bhagalpur Bihar 813214



12. Executive Director, Talcher Super Thermal Power Stn-I NTPC Ltd, Nayapalli, Odisha 751012
13. Chief Engineer (Elect), Teesta V HEP, NHPC, Singtam, East Sikkim 737134
14. Chief Engineer, Rangit Hydro Electric Project NHPC, P.O. Rangit Nagar South Sikkim 737111
15. Chairman, Damodar Valley Corporation DVC Tower, VIP Road West Bengal Kolkata 700054
16. General Manager, Farakka Super Thermal Power Plant-III, NTPC Ltd., Farakka, WB 742236
17. Sr. VP, Sterlite Energy Limited 1st. Floor, City Mart Complex, Baramunda, Odisha 751023
18. CEO, Maithon Power Limited MA-5 Gogna Colony, P.O: Maithon, Dhanbad, Jharkhand 828027
19. Addl. General Manager, National Thermal Power Corporation Limited, BARH Thermal Power Station, Patna, Bihar 803213
20. Chairman, GATI Infrastructure Ltd, 268, Udyog Vihar, Phase-IV, Gurgaon, Haryana 122001
21. DGM (Electrical), Adhunik Power & Natural Resource Limited Village: Padampur, PS: Kandra Tata-Seraikela Road, Jharkhand 832105.
22. Addl. General Manager(Commercial), Talcher Solar PV, ER-II Headquarters,NTPC Limited, 3rd Floor, OLIC Builiding, Plot No.: N-17/2, Nayapalli, Odissa Bhubaneswar 751012.
23. GM (Power Sales & Regulatory), GMR Kamalanga Energy Ltd, Plot No.-29, Satyanagar, Bhubaneswar, Odissa-751007.
24. Head Power & Sales, Jindal India Thermal Power Ltd., Plot No.12,Local Shopping Complex,Sector-B1,Vasant Kunj, New Delhi- 110070.
25. Chief Engineer (PTR), WBSEDCL, Power Trading & Regulatory Cell, Bidyut Bhavan, Block - A, Sector-II, Saltlake,Kolkata, West Bengal- 700091.
26. Advisor(Power), Ind-Barath Energy Utkal Ltd , Sahajbahal, PO CgarpaliBarpali, Dist - Jharsuguda, Odisha , Pin – 768211.
27. Head Commercial, Tata Power Trading Co. Ltd ., C-43,Sec-62, UP Noida 201307.
28. Sr. General Manager (PP), Grid Corporation of India Ltd., Janpath, Orissa, Bhubaneswar 751022

Users under the Category of Inter-State Transmission Licensees

29. Chairman, East North Interconnection Company Ltd., C-2, Mathura Road, New Delhi 110065
30. Executive Director, ER-I, Power Grid Corporation (I) Ltd Boring Road, Patna 800001

31. General Manager, Powerlinks Transmission Limited Vidyut Nagar, Siliguri WB 734015

SRLDC

Users under the category of Distribution licensees and Buyers

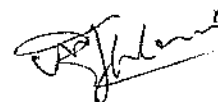
1. The General Manager (O&M and Commercial), POWERGRID, SRTS-II, PragatiMahalaxmi, South Block, (2nd & 3rd Floor) No.62, 3rd Cross, MEI Road, Industrial Suburb, Yeshwantpur, Bangalore - 560 022.
2. The Chief Engineer (Commercial), Andhra Pradesh Power Co-ordination Committee, 4th Floor, Room No: 451, VidyutSoudha, Khairatabad, Hyderabad-500 082. Andhra Pradesh State.
3. The Addl. Director (Projects), Power Company of Karnataka Ltd., KPTCL Building, KaveriBhavan, Bangalore - 560 009, Karnataka State
4. The Chief Engineer (Commercial & Tariff), Kerala State Electricity Board, VydyuthiBhavanam, Pattom, Thiruvananthapuram - 695 004, Kerala State.
5. The Chief Financial Controller (Revenue), 7th Floor, Eastern Wing, NPKRR Maaligai, TANGEDCO, TNEB Ltd., 144, Anna Salai, Chennai - 600 002, Tamil Nadu State.
6. The Superintending Engineer - I, I Floor, Main Building, Electricity Department, Govt of Puducherry, PIN: 605001, Puducherry
7. The Executive Engineer, Electricity Department, Division No: III, Curti, Ponda, Goa , Pin: 403 401
8. Executive Director, POWERGRID HVDC, PGCIL, Southern Regional Transmission System – II, Near.RTO Driving Test Track, Singanayakanhalli, Yelahanka, Bangalore – 560 064, Karnataka

Users under the category of Generating Stations and Sellers

9. General Manager , RAMAGUNDAM STG I & II
NTPC, RSTPS, Jyothi Nagar, Dist. Karim Nagar, Telangana - 505 215
10. General Manager, RAMAGUNTAM STG III
NTPC, RSTPS, Jyothi Nagar, Dist. Karim Nagar, Telangana - 505 215
11. The AGM (Commercial), SIMHADRI STG II
NTPC, Southern Region Head Quarters, II & V Floors, MCH Complex, R.P. Road Secunderabad, Telangana - 500003
12. Executive Director, NTPC, TALCHER STG II
Angul, Orissa - 7591011



13. Chief General Manager, NLC TPS II STG I
Neyveli Lignite Corpn. Ltd, Thermal Power Station II, Neyveli 607 801, Tamil Nadu
14. Chief General Manager, NLC TPS II STG II
Neyveli Lignite Corpn. Ltd , Thermal Power Station II, Neyveli 607 801, Tamil Nadu
15. Chief General Manager, NLC TPS I EXPANSION
Neyveli Lignite Corpn. Ltd., Thermal Power Station I (Exp.), Neyveli 607 801, Tamil Nadu
16. Deputy General Manager, NLC TPS II EXPANSION
Neyveli Lignite Corpn. Ltd., Thermal Power Station II (Expn.), Neyveli 607 801, Tamil Nadu
17. Station Director, MAPS
Nuclear Power Corpn. Of India Ltd, Madras Atomic Power Station, Kalpakkam – 603 102, Tamil Nadu
18. Station Director, KGS UNITS 1&2
Nuclear Power Corpn. Of India Ltd, Kaiga Generating Station, Kaiga – 581 400, Karwar, Karnataka
19. Station Director, KGS UNIT 3&4
Nuclear Power Corpn. Of India Ltd, Kaiga Generating Station, Kaiga – 581 400, Karwar, Karnataka
20. The Station Director
Kudankulam Nuclear Power Project, Nuclear Power Corporation of India Ltd., Kudankulam Post, Radhapuram Taluk – 627106, Tamil Nadu
21. The General Manager
NTPC Tamilnadu Energy Company Ltd., Vallur Thermal Power Project, Vellivoyalchavadi Post, Poneri Taluck, Tiruvallur Dist, Chennai – 600 013, Tamil Nadu
22. The General Manager
NLC Tamilnadu Power Limited, 2 * 500MW JV Thermal Power Project, Harbour Estate, Tuticorin – 628 004, Tamilnadu
23. Executive Director, LANCO, KODAPALLI
LANCO KONDAPALLI POWER PVT. LTD, Kondapalli, Ibrahimpatnam Mandal, PIN 521 228 (Telangana)
24. The Chairman & Managing Director
Meenakshi Energy Pvt Ltd., NSL ICON, Plot No. 1, 2, 3, 4, H-No-8-2-684/2/A, 2nd Floor, Road No. 12, Banjara Hills, Hyderabad 500034, Telengana
25. The General Manager



Simhapuri Energy Ltd., Madhucon Green lands, 6 – 3 – 866 / 2, 3rd Floor, Begumpet,
Hyderabad – 560016, Telengana

26. The President & CEO

Coastel Energen Pvt Limited, 7th Floor, Buhari Towers, No.4 Moores Road, Chennai –
600006, Tamil Nadu

27. The Chief Commercial Officer (CCO)

Thermal Powertech Corporation India Ltd., 6-3-1090, A-Block, 5th Floor, T.S.R Towers,
Raj Bhavan Road, Somajiguda, Hyderabad 500082, Telangana

28. The AGM-Electrical

IL&FS Tamil Nadu Power Company Ltd, C. Pudhupettai (Post), Parangipettai (Via),
Chidambaram (TK), Cuddalore 608502, Tamil Nadu

Users under the category of Inter State Transmission Licensees

1. Executive Director

POWERGRID ISTS, Southern Regional Transmission System – II, Near.RTO Driving Test
Track, Singanayakanhalli, Yelahanka, Bangalore – 560 064, Karnataka.

2. The Project In Charge

Raichur Sholapur Transmission Company Limited, Patel Estates, S.V.Road, Jogeshwari
(West), Mumbai 400102, Maharashtra

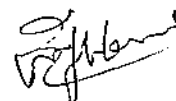
NERLDC

Users under the category of Distribution licensees and Buyers

1. Chairman, APDCL, Bijuli Bhavan, Paltan Bazar, Guwahati-781001
2. Chairman, MeECL, Lumjingshai, Short Round Road, Shillong-793001
3. Chairman & Managing Director, TSECL Agartala-799001, Tripura
4. Chief Engineer (WZone), Dept. of Power, Govt. of Ar. Pradesh, Itanagar-791111
5. Engineer-in-Chief, Dept. of Power, Govt. of Mizoram, Aizawl-796001, Mizoram
6. Chief Engineer (Power), Dept. of Power, Govt. of Nagaland, Kohima-797001
7. Managing Director, Manipur State Power Distribution Co. Ltd, Keishampat, Imphal-795001

Users under the category of Generating Stations and Sellers

8. General Manager, Doyang HEP, NEEPCO, Wokha, Nagaland



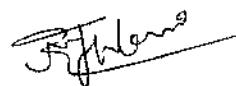
9. General Manager, Ranganadi HEP, NEEPCO, P.O. RanganadiProj. Dist. Subansiri, Ar. Pradesh-791121
10. General Manager, AGBPP, NEEPCO, Kathalguri, Tinsukia, Assam
11. General Manager, AGTPP, NEEPCO, Ramchandranagar, Agartala, Tripura
12. General Manager, KHANDONG HEP, NEEPCO, Umrangsoo, N.C.Hills, Assam
13. General Manager, KOPILI HEP, NEEPCO, Umrangsoo, N.C.Hills, Assam
14. General Manager, KOPILI-2 HEP, NEEPCO, Umrangsoo, N.C.Hills, Assam
15. Chief Engineer, NHPC Loktak HEP Leimatak-795124, Manipur
16. Managing Director, ONGC Tripura Power Company Ltd, 6th Floor, A Wing, IFCI Tower-61, Nehru Place, New Delhi, 110019

Users under the category of Inter State Transmission Licensees

17. Executive Director, NERTS, Power Grid Corporation of India Ltd., Lapalang, Shillong-793006, Meghalaya.
18. The Managing Director, North Eastern Transmission Company Ltd, 1st Floor, Ambience Corporate Tower, Ambience Mall, Gurgaon, 122001, Haryana.

..... Respondents

APPLICANT
POWER SYSTEM OPERATION CORPORATION LTD.



Represented by: **Rajendra Piplonia**
Deputy General Manager (POSOCO)

New Delhi
Dated: 20.10.2015

BEFORE
THE CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

FILE NO:.....

APPLICATION NO:.....

IN THE MATTER OF: Approval under subsection (4) of section 28 of Electricity Act 2003 read with regulation 6 of Central Electricity Regulatory Commission (fees & charges of Regional Load Despatch Centre and other related matters) Regulations 2015 for NLDC Charges for the control period 1.4.2014 to 31.3.2019

National Load Despatch Center (NLDC)

--- APPLICANT

Power System Operation Corporation Ltd. (POSOCO)

A wholly owned subsidiary of Power Grid Corporation of India Ltd.

Registered office: B-9, Qutab Institutional Area,

Katwaria Sarai, New Delhi -110016 and

Chairman, UPPCL, Lucknow

& Others

---RESPONDENTS

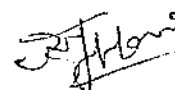
To

The Hon'ble Chairman and

The Companion Members of the Hon'ble CERC

MOST RESPECTFULLY SHOWETH

1. That the National Load Despatch Centre (NLDC) is a statutory body set up under Section 26 of the Electricity Act, 2003 and performs the functions specified in National Load Despatch Centre Rules, 2004 notified by Ministry of Power on 2nd March 2005. The NLDC and RLDCs are being operated by Power System Operation Corporation Limited



(POSOCO) (A wholly owned subsidiary of Power Grid Corporation of India Ltd.) w.e.f. 1.10.2010 in accordance with the Gazette Notification dated 27.9.2010 notified by Ministry of Power, Government of India. The working/functions of the National Load Despatch Centre are governed by the Electricity Act 2003, NLDC Rules 2004, Regulations of the Central Electricity Regulatory Commission [CERC] and of the Central Electricity Authority issued and amended from time to time.

2. That in exercise of powers conferred under section 178 read with section 28(4) of the Electricity Act, 2003 , the Central Electricity Regulatory Commission vide notification dated 18th May 2015 issued the Central Electricity Regulatory Commission (Fees and Charges of Regional Load Despatch Centre and other related matters) Regulations, 2015 [**Fee and Charges Regulations, 2015**]. That the said regulations are applicable for determination of fees and charges of NLDC and RLDCs for the control period 2014-19.
3. That these fees and charges include Return on equity, Interest on loan capital, Depreciation, Operation and Maintenance expenses excluding human resources expenses, Human Resource expenses, NLDC charges and Corporate Office expenses and Interest on working capital.
4. That as per clause 6(1) of the RLDC Fees and Charges Regulations, 2015, the RLDCs and NLDC shall make application in the formats prescribed in the Appendix 1 to these Regulations within 180 days from the date of notification of these Regulations.
5. As per the methodology mentioned in the RLDC Fees and Charges Regulations, 2015, Fees and Charges have been computed for the next control period 2014-19 for NLDC and are summarized below:

In ₹ Lacs

S. N.	Particulars	2014-15	2015-16	2016-17	2017-18	2018-19	Total
1	Return on Equity	200.13	228.58	261.09	280.30	361.13	1331.22
2	Interest on Loan Capital	0.00	0.00	0.00	0.00	0.00	0.00
3	Depreciation	270.73	290.60	286.11	511.14	706.27	2064.85
4	O & M Expenses excluding Human Resource Expenses	588.17	626.13	659.24	626.26	566.16	3065.96
5	Human Resource Expenses	1793.12	2759.32	3977.63	6404.60	7243.65	22178.32
	Total	2852.15	3904.63	5184.07	7822.29	8877.21	28640.35

Computation philosophy of Annual charges is as below:

a) RETURN ON EQUITY

- (i) As per Regulation 17, pre-tax base rate of Return on Equity is 15.50%. After taking into account the Corporate Tax rate of 33.99% of the financial year 2014-15, grossed up Rate of Return on Equity comes at 23.481%.
- (ii) As per provisions of the Regulation 10 (2) of the Fees and Charges Regulations 2015, Equity of ₹ 464.10 Lacs released due to de-capitalisation during control period 2014-19 has been adjusted from the Equity to be deployed (₹ 1456.16 Lacs). Accordingly, ROE has been calculated on net Equity of ₹ 992.06 Lacs.
- (iii) The detailed calculation of Return on Equity is given in Form-2. Year wise summary of ROE computed for NLDC is as below:

In ₹ Lacs

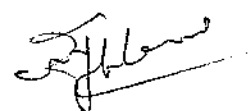
Financial Year	2014-15	2015-16	2016-17	2017-18	2018-19	Total
ROE	200.13	228.58	261.09	280.30	361.13	1331.22

b) INTEREST ON LOAN (IOL)

As per the Regulation 18, IOL is to be calculated on the Loan outstanding as on 1.4.2014. There is no Interest of Loan component for control period 2014-19 as Principal portion of Loan has been repaid fully. However, FERV on foreign component of Loan is payable each year based on actuals.

c) DEPRECIATION

Depreciation has been calculated as per Regulation 19 of the Regulations. Salvage value of the assets (excluding IT Equipment and Softwares) has been considered 10%. Salvage value for the IT Equipment and Softwares has been considered NIL.



Depreciation rates have been taken as per Appendix-III of the Regulations. Year wise summary of Depreciation computed for NLDC is as below

In ₹ Lacs

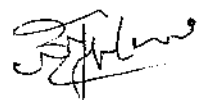
Financial Year	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Depreciation	270.73	290.60	286.11	511.14	706.27	2064.85

In accordance with clause 5 of Regulation 19 of the Fee and Charges Regulation, the assets fully depreciated are as below:

Asset Description	Amount Depreciated (In ₹ Lacs)	Year of Depreciation
Scada Systems (Software)	950.89	2014-15
Scada Systems (Hardware)	600.58	2016-17
IT Systems (Software)	256.89	2015-16

d) OPERATION AND MAINTANENCE EXPENSES EXCLUDING HUMAN RESOURCE EXPENSES

- (i) O&M charges have been calculated as per Regulation 20 of the Fees and Charges Regulations 2015.
- (ii) Normalized O&M expenses of 2009-14 have been escalated at the rate of 5.72% and then averaged to arrive at the normalized average O&M expenses at 2013-14 level.
- (iii) These charges have been further escalated at the rate of 7.88% to arrive at O&M expenses for the year 2014-15. This rate has been arrived at after taking into consideration the Compounded Annual Growth Rate (CAGR) of actual O&M expenses of the control period 2009-14 and Inflation rate as provided in the Regulation Clause 20(4) of the Fees and Charges Regulations 2015. The O&M expenses for the year 2014-15 have been escalated further at 7.88% to arrive at the O&M expenses for subsequent years.
- (iv) SCADA/AMC Charges have been added on the basis of LOAs awarded in accordance with the Regulation 20 (5).



(v) Out of the total R&M expenses of ₹ 989.09 Lacs, ₹ 787.06 Lacs are for SCADA AMC Charges.

(vi) The details of Operation and Maintenance expenses are given in Form 7A, Form-7C, Form 7D respectively and the summary is reproduced below:

In ₹ Lacs

ITEMS	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Repairs and maintenance expenses	233.31	243.31	246.24	180.72	85.52	989.09
Administrative and general expenses, etc	354.86	382.83	412.99	445.54	480.65	2076.86
Total	588.17	626.13	659.24	626.26	566.16	3065.96

e) HUMAN RESOURCE EXPENSES

- (i) POSOCO is a knowledge based control centre organization. Human Resource is the main asset of the Company. The physical assets owned by the company comprise of SCADA systems, IT tools and other support infrastructure. POSOCO is an asset light company and these assets are the support tools for the System Operators working in the Load Despatch Centres for operational planning, real time operation, scheduling and despatch, energy accounting, online and offline simulations, market operations, management information, information dissemination, etc.
- (ii) The manpower projection for computation of the HR expenses for the control period 2014-19 is based on increased functions/responsibilities of NLDC over the past few years, which need to be complemented with proportionate increase in manpower for carrying out duties responsibilities with efficacy and quality.
- (iii) Additional Manpower has been envisaged in NLDC to take care of the additional responsibilities in the areas of Regulatory Affairs, integration of renewables, WAMS –PMU project, Big data management, Information Technology, Ancillary Services, Logistics, Energy Efficiency and Physical Security, System Operation, SCADA/ EMS Up gradation and Management, Power System Development Fund (PSDF), Open Access , handling of pool accounts and the associated taxation issues, and Human Resource Development.



- (iv) Board Level placements have also been incorporated from 2015-16 onwards in the proposed manpower.
- (v) The actual manpower in 2014-15 is 86 and the manpower projected for 2018-19 is 156.
- (vi) The Level wise manpower of NLDC and POSOCO Corporate Centre as approved by Board of POSOCO is as per **Annexure I**.
- (vii) Normalized HR expenses of 2009-14 have been escalated at the rate of 5.72% and then averaged to arrive at the normalized average HR expenses at 2013-14 level.
- (viii) For calculation of HR expenses of 2014-15 on the basis of average normalized escalated expenses of 2009-14, actual manpower of 2014-15 has been considered against the provision of actual manpower of 2013-14 as provided in the Regulations.
- (ix) These charges have been further escalated at the rate of 9.27% to arrive at HR expenses for the year 2014-15. This rate has been arrived at after taking into consideration the Compounded Annual Growth Rate (CAGR) of actual HR expenses of the control period 2009-14 as provided in the Regulation Clause 21(6) of the Fees and Charges Regulations 2015. The HR expenses for the year 2014-15 have been escalated further at 9.27% to arrive at the HR expenses for subsequent years.
- (x) As per the provisions of Regulation 21 of RLDC Fees and Charges Regulations, 2015, HR expenses are to be considered on normalized basis with further rationalization considering 50% increase in employee cost on account of pay revision. The wage revision is expected to be effective from 01.01.2017, the human resource expenses for the period from 1.1.2017 to 31.3.2019 have been computed with further rationalization considering 50% increase in employee cost on account of pay revision.
- (xi) The HR expenses calculations for NLDC are given in Form-7B with the summary as given below:



In ₹ Lacs

FY	2014-15	2015-16	2016-17	2017-18	2018-19	Total
HR Cost	1793.12	2759.32	3977.63	6404.60	7243.65	22178.32

6. As per the provision of Regulation 29(5) of Fees and Charges of Regional Load Despatch Centre and other related matters Regulations 2015, NLDC will recover incentive on annual charges based on performance level.

As per the provision of Regulation 29(6) of Fees and Charges of Regional Load Despatch Centre and other related matters Regulations 2015, NLDC will also compute the Key Performance Indicators as given in appendix VI of the Regulations on annual basis and submit to the Commission with the petition for approval of the Commission.

The incentive will be recovered on each year on annual basis based on the KPIs of previous year and shall be trued up at the end of control period.

7. The NLDC and POSOCO Corporate Office charges for control period have been apportioned among the various RLDCs on the basis of peak demand served in the respective region in the year 2014-15 as indicated in the CEA's website and based on the same the year wise NLDC charges are given below:

(As per CEA Report PEAK DEMAND MET April, 2014 to March 2015)						
Region	All India	Northern Region	Western Region	Eastern Region	Southern Region	North Eastern Region
Demand Met (MW)	146,968	47,642	43,145	16,932	37,047	2,202
% Demand met	100.00	32.42	29.36	11.52	25.21	1.50

						In ₹ Lacs
Apportionment to RLDCs	2014-15	2015-16	2016-17	2017-18	2018-19	
NR	924.57	1265.75	1680.50	2535.72	2877.69	
WR	837.30	1146.27	1521.87	2296.37	2606.06	
ER	328.59	449.85	597.25	901.20	1022.73	
SR	718.96	984.26	1306.78	1971.81	2237.72	
NER	42.73	58.50	77.67	117.20	133.01	
Total NLDC Charges	2852.15	3904.63	5184.07	7822.29	8877.21	

8. Total projected capital and replacement expenditure (CAPEX/REPEX) provided for 2014-19 for NLDC & POSOCO Corporate Centre, is ₹ 4853.86 Lacs (₹ 3185.86 Lacs CAPEX+

₹ 1668 Lacs REPEX). Major items are as below:

- (i) ₹ 1668 Lacs for replacement of SCADA System.
- (ii) ₹ 1105 Lacs towards procurement of IT Systems (Hardware and Software). IT Systems include general IT infrastructure, Data Base Management System, Business Intelligence software, Simulation software, Web Based Scheduling software, Forecasting Software, Transient Analysis, Deviation Settlement Software, Reporting System, Financial Accounting System, PSDF Software, Software for weather system etc.
- (iii) ₹ 2000 Lacs towards Civil Works at NLDC, Corporate office.

CAPEX/REPX Plan is placed at **Annexure-II**. Applicable excerpts from the Board Resolution have been enclosed at **Annexure-I**.

- 9. In line with the para 4 above, duly filled forms prescribed in the Regulations 2015 are enclosed at **Annexure-III**.
- 10. The cost of foreign exchange rate variation (FERV), as provided in the para 33 of the CERC Fee and Charges Regulations, 2015, shall be recovered on year-to-year basis as negative or positive FERV.
- 11. Engagement of Consultants

It is submitted that there is an increasing requirement for hiring of services of consultants for providing services of specialized nature for reliable and secure grid operation. A few of these services are to be provided in accordance with the directions from the Hon'ble Commission / Government of India. A list of such services along with the estimated cost is tabulated below:



S N	Services required	Agency	Estimated Cost	Remarks
1	Primary response testing of generating units	M/s Solvina International AB, Sweden dated 23 rd July 2014	Contract value: 56,00,000/- SEK Estimated value in Indian Currency: INR 4.37 Crores approx. (As on 19.10.2015).	Activity taken up by POSOCO in accordance with the directions of the Hon'ble CERC in petition no 191/2011 vide order dated 31 st Dec 2012 to do a pilot project for testing in hydro, thermal and gas fired units. (Annexure-IV)
2	To review the status of implementation of recommendations of the Enquiry Committee and Protection Audit (Package A)	M/s Tractabel Engineering S.A. Romania, 2 nd June 2015	Contract value: EURO 292,224 +INR 2.06 crores Estimated value in Indian Currency: INR 4.22 Crores (As on 19.10.2015)	Pursuant to the recommendations of the Task Force on Power System Analysis under contingencies, Ministry of Power, Govt. of India directed vide letters 16 th July 2014 and 29 th Sep 2014 that consultants be appointed by POWERGRID and POSOCO to bear all the expenses (Annex-V).
3	To review transmission system transfer capability and review of Operational and long term planning (Package-B)	M/s Powertech Labs Inc., Canada dated 7 th August 2015	Contract value: USD 2164541.50 + INR 9,37,344/- Estimated value in Indian Currency: INR 14.12 crores (As on 19.10.2015)	

In addition to the above activities, the Hon'ble Commission vide order dated 13.10.2015 in petition no. 11/SM/2015 on roadmap to operationalize Reserves in the country has also directed to commission a detailed study through a consultant on market based framework for efficient provisioning of secondary reserves from all generators across the country and suggest a proposal to the Commission for implementation by 1st April, 2017 giving due consideration to the experience gained in the implementation of Spinning Reserves w.e.f. 1st April 2016 (Annexure-VI).



In view of the increasing complexity in power system operation and market operation, particularly the introduction of Renewable Energy (RE) sources, a need arises for new market instruments, such as ancillary services, demand response, sub-hourly market, imbalance pricing etc. This further necessitates an expert advice through the consultancy route in the coming years.

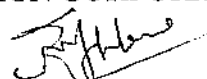
The above activities are based on pan- India perspective and would offer significant benefits to all users in the entire grid. The Hon'ble Commission may allow these charges to be reimbursed from the LDC Development Fund as one time expenses by NLDC and also allow any similar expenditure incurred in future on the same lines based on the directions from the Hon'ble Commission/Govt. of India.

PRAYER

It is respectfully prayed that the Hon'ble Commission may be pleased to

1. Approve the charges for NLDC, as per para-5 above, for control period 1.4.2014 to 31.03.2019.
2. Approve the CAPEX/ REPEX mentioned in para 8 above.
3. Approve the manpower mentioned in para 5 (e) above
4. Allow the Applicant to bill and adjust impact of FERV from the respondents on year-to-year basis as negative or positive FERV.
5. Approve the reimbursement of expenditure towards publishing of notices in Newspapers and other expenditure (if any) in relation to the filing of Application as one time recovery.
6. Pass such other order as the Hon'ble Commission deems fit and appropriate in this case and in the interest of justice.

FILED BY
NATIONAL LOAD DESPATCH CENTRE
POWER SYSTEM OPERATION CORPORATION LTD.


Represented by Rajendra Piplonia
Dy. General Manager, NLDC

New Delhi

Date 20.10.2015

POWER SYSTEM OPERATION CORPORATION LIMITED

(CIN: U40105DL2009GOI188682)

Extracts from the Minutes of the 42nd Meeting of the Board of Directors of Power System Operation Corporation Limited held on Monday, 17th August, 2015 at 3.00 p.m at the Registered Office of the Company, i.e. B-9, Qutab Institutional Area, Katwaria Sara, New Delhi – 110 016.

Item No.42.2.6:-

(Para No.42.2.6.1 to 42.2.6.4)

Fees and Charges of POSOCO for the Control Period 2014-19:-

42.2.6.1. CEO gave a presentation on the Fees and Charges of POSOCO for the Control Period 2014-19. It was informed that CERC had notified the RLDC Fees and Charges Regulations for the Control Period 2014-19 in May'15. These charges are specified by CERC on a rolling five year basis. The annual charges comprise return on equity, interest on loan, depreciation of assets, O&M including administrative expenses, HR expenses and interest on working capital. It was informed that a petition in this regard has to be filed within 180 days, i.e. latest by Nov'15. Prior to that, the Annual Charges are required to be approved by the Board.

42.2.6.2 Based on the methodology prescribed in the Regulations, the computations for fee and charges for the control period 2014-19 were explained to the Board as under:

Figures in ₹ crore

Region	2014-15	2015-16	2016-17	2017-18	2018-19	Grand Total
NLDC	29	39	50	73	82	273
NRLDC	30	35	46	61	66	237
ERLDC	31	38	41	54	60	224
WRLDC	30	34	43	59	65	231
SRLDC	26	30	39	56	63	214
NERLDC	19	22	31	44	49	165
Total	166	198	250	346	384	1344

42.2.6.3 The component – wise summary as well as computation philosophy of the Annual Charges was also explained to the Board as under:

Figures in ₹ crore

S. No	Particulars	2014-15	2015-16	2016-17	2017-18	2018-19	Total
1	Return on Equity	12	17	22	25	29	105
2	Interest on Loan Capital	0	0	0	0	0	0
3	Depreciation	9	15	23	27	27	100
4	O & M Expenses excluding Human Resource Expenses	42	37	34	35	36	183
5	Human Resource Expenses	98	118	163	247	281	908
6	Interest on working Capital	5	11	8	11	12	48
	Total	166	198	250	346	384	1344

Regarding HR projections, it was informed that the same have been calculated considering the additional responsibilities in the areas of System Operation, Regulatory Affairs, integration of renewables, WAMS –PMU project, Open Access, SCADA/ EMS Up gradation and

Management, Big data management, Information Technology, Ancillary Services, Logistics, Energy Efficiency and Physical Security, Power System Development Fund (PSDF), Perform, Achieve & Trade (PAT) scheme and Human Resource Development. Further, Board level placements had also been incorporated from F.Y. 2015-16 in the proposed manpower. The method of computation of normalised HR expenses was informed to the Board. Further, the summary of proposed manpower was informed to the Board as under.

Region	2014-15			2015-16			2016-17			2017-18			2018-19		
	Exe	Non-	Total	Exe	Non-	Total	Exe	Non-	Total	Exe	Non-	Total	Exe	Non-	Total
NLDC	71	15	86	101	19	120	120	19	139	135	16	151	140	16	156
NRLDC	56	33	89	62	31	93	75	29	104	81	27	108	90	25	115
ERLDC	53	35	88	53	34	87	62	31	93	67	28	95	76	25	101
WRLDC	51	42	93	62	39	101	75	38	113	81	36	117	90	33	123
SRLDC	53	16	69	62	15	77	75	15	90	81	15	96	90	15	105
NERLDC	39	13	52	46	13	59	56	13	69	64	12	76	70	11	81
Total	323	154	477	386	151	537	463	145	608	509	134	643	556	125	681

The level – wise progression for the block period 2014-19 was also informed to the Board as under:

	Present	2015-16	2016-17	2017-18	2018-19
Directors		5	5	5	5
E9	3	8	9	12	12
E8,E7A	14	25	29	38	46
E6,E6A, E7	80	83	98	107	119
E5-E1	226	265	322	347	374
Total Exec.	323	386	463	509	556
Total Non-Exec	154	151	145	134	125
Total	477	537	608	643	681

It was informed that the total projected Capital as well as Replacement Expenditure (CAPEX / REPEX) provided for the control period 2014-19 worked out to ₹190 crore (CAPEX – ₹101 crore and REPEX ₹89 crore). The details in this regard were placed for information of the Board as under :

CAPEX / REPEX Plan for Control Period 2014-19

Figures in ₹ lakh

S.N.	Region	2014-15			2015-16			2016-17			2017-18			2018-19			Total (14-19)		
		CAPEX	REPEX	Total	CAPEX	REPEX	Total	CAPEX	REPEX	Total	CAPEX	REPEX	Total	CAPEX	REPEX	Total	CAPEX	REPEX	Total
1	NLDC	119.9	0.0	119.9	659.0	0.0	659.0	287.0	0.0	287.0	100.0	1668.0	1768.0	2020.0	0.0	2020.0	3185.9	1668.0	4853.9
2	NRLDC	66.3	470.2	536.5	165.5	1095.0	1260.5	222.0	170.0	392.0	85.0	50.0	135.0	100.0	10.0	110.0	638.8	1795.2	2433.9
3	ERLDC	286.6	8.3	294.9	215.6	1332.5	1548.1	272.0	67.0	339.0	105.0	23.9	128.9	46.3	9.7	55.9	925.5	1441.4	2366.9
4	WRLDC	94.5	0.0	94.5	364.0	1093.5	1457.5	577.0	10.0	587.0	156.0	0.0	156.0	181.0	0.0	181.0	1372.5	1103.5	2476.0
5	SRLDC	75.5	0.0	75.5	798.0	1272.1	2070.1	243.0	52.0	295.0	137.0	21.0	158.0	129.0	6.0	135.0	1382.5	1351.1	2733.6
6	NERLDC	84.3	0.0	84.3	643.9	1532.9	2176.7	271.0	29.0	300.0	1202.5	10.0	1212.5	407.6	4.0	411.6	2609.3	1575.9	4185.2
	Total	727.1	478.5	1205.6	2846.0	6325.9	9171.9	1872.0	328.0	2200.0	1785.5	1772.9	3558.4	2883.9	29.7	2913.5	10114.4	8935.0	19049.4

42.2.6.4

During deliberations, the Board advised that the Notional Equity in funding of assets be limited to 30% (instead of 44.70% as proposed) for the purpose of calculation of Return on Equity (RoE) as prescribed in the Regulations and desired that the petition may be filed with CERC on the basis of revised calculations. Further, the RLDC wise and Component wise Annual Charges for the Control Period 2014-19 be put up for information of the Board upon filing the petition with CERC. With these deliberations, the Board approved the proposal. The Board passed the following resolution:

"Resolved that the Fees and Charges of POSOCO for the control period 2014-19 considering the Notional Equity in funding of assets limited to 30% for the purpose of calculation of Return on Equity (RoE) as prescribed in the RLDC Fees and Charges Regulation for the Control Period 2014-19 be and is hereby approved to be filed before CERC.

Resolved further that Manpower and CAPEX/REPEX projections for the control period 2014-19 as brought out in para 42.2.6.3 above be and is hereby approved.

Resolved Further that CEO be and is hereby authorized to carry out any further modifications as deemed necessary during course of filling of the petitions before CERC and place the same for information of the Board."

[Handwritten signature]
For the Chairman
Chairman, Board of Directors
of the Central Board of Secondary Education
New Delhi

For kind information pl.

ED (NLDC & NRDC)

ED (SRDC)

GM (ERLDC)

GM (WRDC)

GM (NERLDC)

CC : CEO

NAME OF RLDC/NLDC: NLDC

CAPEX in Year 2014-19 (Information as per clause 2(a) of Regulation 5 of RLDC Fees and Charges Regulations 2015)								
All figures in Lakhs								
S.No.	Name of the Work	Itemwise Depreciation rate as per Annex-III of Regulations	2014 - 15 Basic Cost	2015 - 16 Basic Cost	2016 - 17 Basic Cost	2017 - 18 Basic Cost	2018 - 19 Basic Cost	Total
1	Land under full ownership (Freehold) (Category A of Annex-III of Regulations)							
(i)	Sub-Total							
2	Land Details (Category B of Annex-III of Regulations)							
(i)	Sub-Total							
3	SCADA systems							
3a	Hardware							
	DSA hardware	15%						0.00
	WAMS system	15%						0.00
	Sub Total		0	0	0	0	0	0.00
3b	Software							
	DSA Software	30%						0.00
	WAMS system	30%						0.00
	Sub Total		0	0	0	0	0	0
3	IT Systems							
3a	Hardware (Category C (M) of Annex-III of Regulations)							
i	IT Infrastructure	15%	3.80	160.00	10.00	10.00	10.00	193.80
ii	DBMS	15%		50.00				50.00
iii	Business Intelligence (BI)	15%		18.00				18.00
iv	Office Computer System	15%	13.69	33.00				46.69
v	PA and VC system	15%						0.00
vi	REMC	15%			5.00			5.00
vii	Access control and security system	15%						0.00
ix	Document digitisation / management system	15%						0.00
	Sub Total		17.49	261.00	15.00	10.00	10.00	313.49
3b	Software (Category C (N) of Annex-III of Regulations)							
i	IT Infrastructure	30%		28.00	10.00	10.00	10.00	58.00
	Business Intelligence (BI)	30%		250.00				250.00
ii	DBMS	30%		50.00				50.00
iii	Simulation Software	30%	95.37	6.00	40.00	60.00		201.37
iv	MDM	30%		3.00				3.00
v	Web based Scheduling	30%		5.00				5.00
vi	Forecasting S/W	30%			30.00			30.00
vii	STOA	30%			25.00			25.00
viii	Transient Analysis	30%			40.00			40.00
ix	Dev Settlement Software	30%			10.00			10.00
x	Reporting System	30%			12.00			12.00
xi	Financial accounting system	30%			20.00			20.00
xii	PSDF s/w	30%		32.00	40.00			72.00
xiii	S/W for weather data	30%			15.00			15.00
xiv	CIM							0.00
xv	HR Automation							0.00
xvi	Ancillary Services							0.00
xvii	Document management system							0
xviii	Website CMS							0
	Sub Total		95.37	374.00	242.00	70.00	10.00	791.37
4	Power Supply (Category C (O) of Annex-III of Regulations)							
(i)	Solar system	5.28%						0
(iv)	DG Set	5.28%						0
(iii)	Electrical Works	5.28%						0
	Sub Total		0	0	0	0	0	0
5	Civil Works (Category C (A) of Annex-III of Regulations)							
i	SCADA Upgradation	3.34%			10.00	10.00		20.00
ii	REMC	3.34%			10.00			10.00
iii	Office Building	3.34%					2000.00	2000.00
iv	Power supply system	3.34%						0.00
v	Renovation	3.34%						0.00
vi	Boilard system (Road Barrier)	3.34%						0.00
vii	Boundary wall / Fencing	3.34%						0.00
viii	Water supply system	3.34%						0.00
	Sub Total	3.34%	0.0	0.0	20.0	10.0	2000.0	2030.00
6	Air conditioning System (Category C (I) of Annex-III of Regulations)							
(i)	Airconditioning System Static	5.28%						0
(ii)	Airconditioning System Portable	9.50%	3.50	5.00	10.00	10.00		28.50
	Sub Total		3.50	5.00	10.00	10.00	0.00	28.50
7	Communication System (Category C (J) of Annex-III of Regulations)							
(i)	EPEABX System	6.33%						0
(ii)	Telephone Handset	6.33%						0
	Sub-Total		0	0	0	0	0	0
8	Other Infrastructure, Including Equipments (Category C (K) of Annex-III of Regulations)							
i	Furnitures	6.33%	3.50	4.00				7.50
ii	Fire alarm/lighting system	6.33%		15.00				15.00
iii	Water Cooler	6.33%						0.00
iv	Floor furnishing	6.33%						0.00
v	Library System	6.33%						0.00
vi	Fitness equipments	6.33%						0.00
	Sub Total		3.50	19.00	0.00	0.00	0.00	22.50
9	Any other Asset not covered under any of the Categories mentioned above (Category C (L) of Annex-III of Regulations)							
i		5.28%						0.00
	Total (1 to 9)		119.86	659.00	287.00	100.00	2020.00	3185.86

NAME OF RLDC/NLDC: NLDC

REPEX in Year 2014-19 (Information as per clause 2(b) of Regulation 5 of RLDC Fees and Charges Regulations 2015)

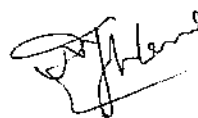
							All figures in Lacs	
S.No.	Name of the Work	Itemwise Depreciation rate as per Annex-III of Regulations	2014 - 15	2015 - 16	2016 - 17	2017 - 18	2018 - 19	Total
1	SCADA systems							
1a	Hardware							
(i)	Upgradation of NLDC SCADA System	15%				756.00		756
	Sub Total		0	0	0	756.00	0	756
1b	Software							
(i)	Upgradation of NLDC SCADA System	30%				912.00		912
(ii)								0
	Sub Total		0	0	0	912	0	912
2	IT Systems							
2a	Hardware (Category C (M) of Annex-III of Regulations)							
(i)								
2b	Software (Category C(N) of Annex-III of Regulations)							
(i)								
	Sub Total							
3	Power Supply (Category C(C) of Annex-III of Regulations)							
4	Civil Works (Category C(A) of Annex-III of Regulations)							
(i)								
	Sub Total							
5	Air conditioning System (Category C(I) of Annex-III of Regulations)							
(i)								
6	Communication System (Category C(L) of Annex-III of Regulations)							
(i)								
7	Other Infrastructure, including Equipments (Category C(j) of Annex-III of Regulations)							
(i)	LED light							
8	Any other Asset not covered under any of the Categories mentioned above (Category C(o) of Annex-III of Regulations)							
(i)								
(ii)								
	Total (1 to 8)		0	0	0	1668	0	1668

TARIFF FILING FORMS (NLDC/RLDCs)

INDEX

Tariff Filing Forms and other information / documents for tariff filing for NLDC/RLDCs

Form No.	Tariff Filing Formats	Tick
FORM-1	Summary Sheet	
FORM-2	Normative Parameters Considered for tariff calculations	Filled
FORM-3	Abstract of Admitted capital cost for existing Projects	Filled
FORM-4A	Abstract of Capital cost estimates and schedule of commissioning for the new projects	
FORM-4B	Element wise break-up of capital cost	
FORM-4C	Break-up of Construction/Supply/Service packages	
FORM-4D	Financial Package upto COD	
FORM-4E	Statement of additional capitalisation after COD	Filled
FORM-4F	Statement of Capital Cost	
FORM-4G	Statement of Capital Works in Progress	Filled
FORM-4H	Financing of Additional Capitalisation	
FORM-4I	Details of Foreign Equity	
FORM-5A	Calculation of Interest on Normative Loan	
FORM-5B	Calculation of Weighted Average Rate of Interest on Actual Loans	Filled
FORM-5C	Details of Foreign Loan	Filled
FORM-5D	Details of Project Specific Loans	
FORM-5E	Details of allocation of Corporate loans to various RLDCs	
FORM-6A	Statement of Depreciations	
FORM-6B	Calculation of Depreciation Rate	Filled
FORM-7A	Details of Operation and Maintenance expenses excluding Human Resource Expenses	Filled
FORM-7B	Details of Human Resource Expenses	Filled
FORM-7C	Details of Repair and Maintenance Expenses	Filled
FORM-7D	Details of Administrative and General expenses	Filled
FORM-8	Calculation of Interest on Working Capital	Filled
FORM-9	Drawn Down Schedule for Calculation of IDC & Financing Charges	
FORM-10	Actual Cash Expenditure	
FORM-11	LDC Development Fund	
FORM-12	Other Income	Filled
		Filled



Name of NLDC/RLDCs : National Load Despatch Centre & POSOCO CC
Summary Sheet

FORM-1

Sr. No.	Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
1	2					
1	Return on Equity	3	4	5	6	7
2	Interest on Loan Capital					
3	Depreciation	200.13	228.58	261.09	280.30	361.13
4	O & M Expenses excl Human Resource Expenses	0.00	0.00	0.00	0.00	0.00
5	Human Resource Expenses	588.17	626.13	659.24	511.14	706.27
	Total	1793.12	2759.32	3977.63	6404.60	566.16
		2852.15	3904.63	5184.07	7822.29	7243.65
						8877.21

[Signature]

**Name of NLDC/RLDCs : National Load Despatch Centre & POSOCO CC
Normative Parameters considered for Tariff Calculations**

Fig: Rs.in Lakhs.

Particulars	Unit	2014-15	2015-16	2016-17	2017-18	2018-19
1						
Base rate of Return on Equity	2			5	6	7
Tax Rate	%		15.50%	15.50%	15.50%	15.50%
Receivables in months for WC	%		34.61%	34.61%	34.61%	34.61%
O&M excluding Human Resource expenses in months for WC	Months	2	2	2	2	2
Human Resource Expenses in months for WC	Months	1	1	1	1	1
NLDC Charges in months for WC	Months	1	1	1	1	1
Prime lending Rate of SBI as on 01/04/14	Months	1	1	1	1	1
	%					

EQUITY AS ON 1.4.2014						
ADD CAP 2014-15 (AVG EQUITY DURING THE YEAR)		834.42	834.42	834.42	834.42	834.42
ADD CAP 2015-16 (AVG EQUITY DURING THE YEAR)		17.88	35.75	35.75	35.75	35.75
ADD CAP 2016-17 (AVG EQUITY DURING THE YEAR)			94.12	188.25	188.25	188.25
ADD CAP 2017-18 (AVG EQUITY DURING THE YEAR)				43.05	86.10	86.10
ADD CAP 2018-19 (AVG EQUITY DURING THE YEAR)					37.98	75.97
TOTAL EQUITY						303.00
RATE OF RETURN ON EQUITY						
RETURN OF EQUITY						
		852.30	964.29	1101.47	1182.50	1523.48
		23.4813%	23.7039%	23.7039%	23.7039%	23.7039%
		200.13	228.58	261.09	280.30	361.13

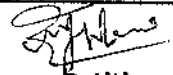
NOTE: Income tax rate applicable for each financial year is based on the rates as per Income Tax Act, 1961


Petitioner

**Name of NLDC/RLDCs : National Load Despatch Centre
Abstract of Admitted Capital Cost for the existing Projects**

Fig: Rs.in Lakhs.

Capital as admitted by CERC	
Capital cost admitted as on (DOCO)	
(Give reference of the CERC relevant Order with Petition No. & Date)	
Capital cost after depreciation as on 01.04.09	
Foreign Component, if any (In Million US \$ or the relevant Currency):	
Domestic Component (Rs.in Lakhs)	
Foreign Exchange rate considered for the admitted cost: (Rs.)	
Hedging cost, if any, considered for the admitted Capital cost	
Total Project cost admitted (Rs.Lakhs)	


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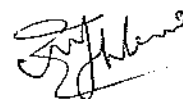
Name of NLDC/RLDCs : National Load Despatch Centre

Abstract of Admitted Capital Cost Estimates and schedules of Commissioning for

NEW PROJECTSCAPITAL COST ESTIMATES

Fig: Rs.in Lakhs.

Board of director / agency approving the Capital Cost Estimates :		
Date of Approval of the Capital Cost Estimates		
Price Level of Approved Estimates		
Foreign Exchange Rates considered for the Capital Cost Estimates		
Capital Cost Excl IDC and FC		
Foreign Components if any		
Domestic Components		
Capital Cost Excl IDC, FC, FERV and Hedging Cost		
IDC, FC, FERV, Hedging Cost		
Foreign Components if any		
Domestic Components		
Total IDC, FC, FERV, Hedging Cost		
Rate of taxes and Duties Considered		
Capital Cost incl IDC, FC, FERV and Hedging Cost		
Foreign Components if any		
Domestic Components		
Capital Cost incl IDC, FC		



Name of NLDC/RLDCs : National Load Despatch Centre
Element wise break-up of Capital Cost (POSOCO Portion)

Form-4B

Sl.N o.	Break Down	Lakhs.		Liabilities / Provision	Variation	Reasons for variation	Admitted cost
		As per original estimates	As on COD				
1	2	3	4	5	6	7	8
A	Preliminary works & Land						
1.1	Design & Engineering						
1.2	Land						
1.3	Site preparation						
1.0	Total Preliminary works & land						
B	Civil Works						
2.1	Control Room & Office Building including HVAC						
2.2	Township & Colony						
2.3	Roads & Drainage						
2.4	Foundation of structures						
2.5	Misc. Civil works (Infrastructure, Building, Colony)						
2.0	Total Civil works						
C	Equipments						
3.1	Computer System (Including SCADA & Power Supplies)						
3.2	Terminal Equipments (ER/WR)						
3.3	Terminal Equipments (NR)						
3.4	VSAT System						
3.5	Inland Freight and insurance @ 4% of CIF/Ex Works						
3.6	Erection Testing and Commissioning						
3.0	Total Equipments						
D	Miscellaneous Tools						
4.1	Misc. Tools and Plants @ 1% of Equipment cost						
4.2	Maintenance at 1% of equipment cost						
4.3							
4.0	Total Spares*						
E	Taxes & Duties						
5.1	Service Tax on Erection/consultancy/training @10.2%						
5.2	Other Taxes & Duties						
5.0	Total Taxes & Duties						

R. J. H. S.

[Signature]

Name of NLDC/RLDCs : National Load Despatch Centre
Financial Package upto COD

FORM-4D

Project Cost as on COD^{1/} 1.4.2014

Date of Commercial Operation of the Transmission element²

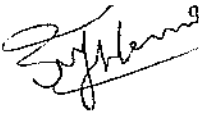
Rs. 2780.73 Lakhs
1.4.2009

1	Financial Package as Approved		Financial Package as on COD		As Admitted on COD	
	Currency and Amount ³		Currency and Amount ³		Currency and Amount ³	
2	3	4	5	6	7	
Loan 1 IBRD II			INR		INR	
Loan 2 IBRD III				600.02		
Loan 3 BOND XXV & XXVIII				758.90		
and so on						
LDC Dev fund 2009-14				0.00		
Total Loan				588.10		
Equity-				1947.02		
Foreign						
Domestic	INR		INR	0.00	INR	
op. equity				582.36		
add 2009-14				252.04		
Total Equity				834.40		
Total Cost						
Debt : Equity Ratio				2781.42		
Debt				70.00		
Equity				30.00		

	CAP COST	LDC DEV FUND	Notional Equity	Equity adjusted with Equity Released	Net Notional Equity Utilised
ADD CAP 2014-15	119.88	83.92	35.96	0.21	35.75
ADD CAP 2015-16	659.00	461.30	197.70	9.46	188.25
ADD CAP 2016-17	287.00	200.90	86.10	0.00	86.10
ADD CAP 2017-18	1768.00	1237.60	530.40	454.43	75.97
ADD CAP 2018-19	2020.00	1414.00	606.00	0.00	606.00
TOTAL ADD CAP DURING 2014-19	4853.88	3397.72	1456.16	464.10	992.06

Calculation of Equity Released	
	In Rs. Lacs
Opening Gross Block (GB) as on 1.4.2014	0.00
DECAP 2014-19	1546.41
Remaining GB	-1546.41
Equity on remaining GB (30%)	-463.92
Opening Equity as on 1.4.2014	834.40
Net Equity on DECAP	1298.32

FY.	Equity Released due to DECAP	DECAP 2014-19
	In Rs. Lacs	
2014-15	0.21	0.71
2015-16	9.46	31.50
2016-17	0.00	0.00
2017-18	454.43	1514.20
2018-19	0.00	0.00
	464.10	1546.41


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(To be given for relevant dates and year wise)

(Rs. in Lacs)

	2014-15	2015-16	2016-17	2017-18	2018-19
A					
a) Opening Gross Block Amount as per books	3420.86	3540.03	4167.53	4454.53	4708.33
b) Amount of capital liabilities in A(a) above	158.43	187.71	187.71	187.71	187.71
c) Amount of IDC, FC, FERV & Hedging cost included in A(a) above	640.13	640.13	640.13	640.13	640.13
d) Amount of IEDC (excluding IDC, FC, FERV & Hedging cost) included in A(a) above	0	0	0	0	0
B					
a) Addition in Gross Block Amount during the period	119.17	627.5	287	253.8	2020
b) Amount of capital liabilities in B(a) above	29.28	0.00	0.00	0.00	0.00
c) Amount of IDC, FC, FERV & Hedging cost included in B(a) above	0	0	0	0	0
d) Amount of IEDC (excluding IDC, FC, FERV & Hedging cost) included in B(a) above	0	0	0	0	0
C					
a) Closing Gross Block Amount as per books	3540.03	4167.53	4454.53	4708.33	6728.33
b) Amount of capital liabilities in C(a) above	187.71	187.71	187.71	187.71	187.71
c) Amount of IDC, FC, FERV & Hedging cost included in C(a) above	640.13	640.13	640.13	640.13	640.13
d) Amount of IEDC (excluding IDC, FC, FERV & Hedging cost) included in C(a) above	0	0	0	0	0


Petitioner

#REF!

Statement of Capital Work in Progress
(To be given for relevant dates and year wise)

Fig.: Rs.in Lakhs.

As on relevant date¹

A	a) Opening CWIP Amount as per books	
	b) Amount of capital liabilities in A(a) above	
	c) Amount of IDC, FC, FERV & Hedging cost included in A(a) above	
B	a) Addition/Adjustment in CWIP Amount during the period	Not Applicable
	b) Amount of capital liabilities in B(a) above	
	c) Amount of IDC, FC, FERV & Hedging cost included in B(a) above	There is no Capital
C	a) Capitalisation / Transfer to fixed asset of CWIP Amount during the period	Work Under Progress
	b) Amount of capital liabilities in C(a) above	
	c) Amount of IDC, FC, FERV & Hedging cost included in C(a) above	
D	a) Closing Gross Block Amount as per books	
	b) Amount of capital liabilities in D(a) above	
	c) Amount of IDC, FC, FERV & Hedging cost included in D(a) above	

¹ Relevant date/s means date of COD of unit/s, station and financial year start date and end date



PETITIONER

Name of NLDC/RLDCs : National Load Despatch Centre
Financing of Additional Capitalisation

Fig: Rs.in Lakhs.

Financial Year (Starting from 1.4.2014)	Projected / Actual					Admitted				
	Year 1	Year 2	Year 3	Year 4	Year 5 & So on	Year 1	Year 2	Year 3	Year 4	Year 5 & So on
1	2	3	4	5	6	7	8	9	10	11
Amount capitalised in Work/Equipment										
Financing Details										
Loan-1										
Loan-2										
Loan-3										
Loan-4										
Loan-5										
Loan-6										
Total Loan ²										
Equity										
Internal Resources										
Others										
Total										

Petitioner

NOTE

1. Year 1 refers to Financial Year of COD and Year 2, Year 3 etc. are the subsequent financial years respectively.

2. Loan details for meeting the additional capitalisation requirement should be given as per Form-7 or 8 whichever is relevant

Details of Foreign Equity
(Details only in respect of Equity infusion if any applicable to the project under petition)

[illegible]

¹ Name of the currency to be mentioned e.g. US \$, DM, etc. etc.

2. in case of equity infusion more than once during the year, Exchange rate at the date of each infusion to be given.

 Petitioner

Calculation of Interest on Normative Loans

Fig: Rs.in Lakhs.

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
1	2	3	4	5	6
ACTUAL LOAN					
Gross loan - Opening	1358.90	1358.90	1358.90	1358.90	1358.90
Cum.repaysments of Normative Loans upto previous year	1358.90	1358.90	1358.90	1358.90	1358.90
Net Normative loan - Opening	0.00	0.00	0.00	0.00	0.00
Increase/Decrease due to ACE during the Year	0.00	0.00	0.00	0.00	0.00
Repayments of Normative Loans during the year	0.00	0.00	0.00	0.00	0.00
Net loan Normative- Closing	0.00	0.00	0.00	0.00	0.00
Average Normative Net Loan	0.00	0.00	0.00	0.00	0.00
Weighted average Rate of Interest on actual Loans	6.12%	6.06%	5.99%	5.91%	5.82%
Interest on Normative loan	0.00	0.00	0.00	0.00	0.00

[Signature]
Petitioner

Name of the Company

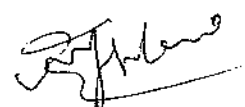
Name of Region:

Name of NLDC/RLDCs : National Load Despatch Centre
Calculation of Weighted Average Rate of Interest on Actual Loans¹

FORM- 5B

Sr. No.	Particulars	Fig.: Rs.in Lakhs.				
		2014-15	2015-16	2016-17	2017-18	2018-19
1	2	4	5	6	7	8
1	Loan-1 (BOND-XXV)					
	Gross loan - Opening					
	Cumulative repayments of Loans upto previous year	3.00	3.00	3.00	3.00	3.00
	Net loan - Opening	0.75	1.00	1.25	1.50	1.75
	Add: Drawal(s) during the Year	2.25	2.00	1.75	1.50	1.25
	Less: Repayment (s) of Loans during the year	0.00	0.00	0.00	0.00	0.00
	Net loan - Closing	0.25	0.25	0.25	0.25	0.25
	Average Net Loan	2.00	1.75	1.50	1.25	1.00
	Rate of Interest on Loan	2.13	1.88	1.63	1.38	1.13
	Interest on loan	10.10%	10.10%	10.10%	10.10%	10.10%
		0.21	0.19	0.16	0.14	0.11
2	Loan- (BOND-XXVIII)					
	Gross loan - Opening					
	Cumulative repayments of Loans upto previous year	755.90	755.90	755.90	755.90	755.90
	Net loan - Opening	125.98	188.97	251.96	314.95	377.94
	Add: Drawal(s) during the Year	629.92	566.93	503.94	440.95	377.96
	Less: Repayment (s) of Loans during the year	0.00	0.00	0.00	0.00	0.00
	Net loan - Closing	62.99	62.99	62.99	62.99	62.99
	Average Net Loan	566.93	503.94	440.95	377.96	314.97
	Rate of Interest on Loan	598.43	535.44	472.45	409.46	346.47
	Interest on loan	9.33%	9.33%	9.33%	9.33%	9.33%
		55.83	49.96	44.08	38.20	32.33
3	Loan- (IBRD III 9.25 LACS @ 51.55)					
	Gross loan - Opening					
	Cumulative repayments of Loans upto previous year	476.84	476.84	476.84	476.84	476.84
	Net loan - Opening	72.69	99.05	126.56	155.27	185.23
	Add: Drawal(s) during the Year	404.15	377.78	350.28	321.57	291.61
	Less: Repayment (s) of Loans during the year	0.00	0.00	0.00	0.00	0.00
	Net loan - Closing	26.36	27.51	28.71	29.96	31.26
	Average Net Loan	377.78	350.28	321.57	291.61	260.35
	Rate of Interest on Loan	390.97	364.03	335.92	306.59	275.98
	Interest on loan	3.24%	3.24%	3.24%	3.24%	3.24%
		12.67	11.79	10.88	9.93	8.94
4	Loan- (IBRD III 2.16 LACS @ 49.33 drawl date 12.5.2009)					
	Gross loan - Opening					
	Cumulative repayments of Loans upto previous year	106.55	106.55	106.55	106.55	106.55
	Net loan - Opening	16.25	22.14	28.29	34.70	41.40
	Add: Drawal(s) during the Year	90.30	84.41	78.26	71.85	65.16
	Less: Repayment (s) of Loans during the year	0.00	0.00	0.00	0.00	0.00
	Net loan - Closing	5.89	6.15	6.42	6.69	6.98
	Average Net Loan	84.41	78.26	71.85	65.16	58.17
	Rate of Interest on Loan	87.36	81.34	75.06	68.50	61.66
	Interest on loan	3.24%	3.24%	3.24%	3.24%	3.24%
		2.83	2.64	2.43	2.22	2.00
5	Loan- (IBRD III 0.33 LACS @ 50.381 drawl date 15.5.2009)					
	Gross loan - Opening					
	Cumulative repayments of Loans upto previous year	16.63	16.63	16.63	16.63	16.63
		2.53	3.45	4.41	5.41	6.45

NLDC_2014-19_21-09-15.xlsx



Details of Foreign Loans

(Details only in respect of loans applicable to projects under petition)

Name of NLDC/RLDCs :

National Load Despatch Centre

Exchange rate as on COD (Rs. / USD)

Exchange rate as on 31.03.2009 (Rs. / USD)

Sl.	Financial year (Starting from COD / Date of Transfer)	2009-10				2010-11				2011-12			
		2	3	4	5	6	7	8	9	10	11	12	13
		Date	Amount (Foreing Currency)	Exchange rate	Amount (Rs.)	Date	Amount (Foreing Currency)	Exchange rate	Amount (Rs.)	Date	Amount (Foreing Currency)	Exchange rate	Amount (Rs.)
	IBRD-III (USD)												
A.1	At the date of drawl /												
	DOCO (Gross Loan)												
2	Schedule repayment date												
3	Schedule repayment date of principal												
4	Schedule repayment date of interest												
	At the end of financial year (Gross Loan)												
B	In case of Hedging												
1	At the date of hedging												
2	Period of hedging												
3	Cost of hedging												
	IBRD-III (USD)												
A.1	At the date of drawl /												
	DOCO (Gross Loan)												
2	Schedule repayment date												
3	Schedule repayment date of principal												
4	Schedule repayment date of interest												
	At the end of financial year (Gross Loan)												
B	In case of Hedging												
1	At the date of hedging												
2	Period of hedging												

Name of NLDC/RLDCs : National Load Despatch Centre
Details of Project Specific Loans

Fig.: Rs.in Lakhs.

Particulars	Package1	Package2	Package3	Package4	Package5	Package6
1	2	3	4	5	6	7
Source of loan ¹						
Currency ²						
Amount of Loan sanctioned	IBRD loans have been drawn for the basket of projects. Package wise details are not available.					
Amount of Gross Loan drawn upto 31.03.2009/COD ^{3,4,5,13,15}						
Interest Type ⁶						
Fixed Interest Rate, if applicable						
Base Rate, if Floating Interest ⁷						
Margin, if Floating Interest ⁸	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
Are there any Caps/Floor ⁹						
If above is yes, specify caps/floor						
Moratorium Period ¹⁰						
Maratorium effective from						
Reapayment period ¹¹						
Repayment effective from						
Repayment Frequency ¹²						
Repayment Installment ^{13,14}						
Base Exchange Rate ¹⁶						
Are foreign currency loan hedged?						
If above is yes, specify details ¹⁷						


 Petitioner

Name of NLDC/RLDCs : National Load Despatch Centre
Details of Allocation of Corporate Loans to Various RLDCs

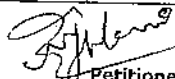
Form-5E

Fig.: Rs.in Lakhs.

Particulars	Package1	Package2	Package3	Package4	Package5	Package6
1	2	3	4	5	6	7
Source of loan ¹						
Currency ²						
Amount of Loan sanctioned						
Amount of Gross Loan drawn upto 31.03.2009/COD ^{3,4,5,13,14}						
Interest Type ⁶						
Fixed Interest Rate, if applicable						
Base Rate, if Floating Interest ⁷						
Margin, if Floating Interest ⁸	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
Are there any Caps/Floor ⁹						
If above is yes, specify caps/floor						
Moratorium Period ¹⁰						
Moratorium effective from						
Repayment period ¹¹	The Domestic Loans have been allocated to the package out of General Pool and package wise details are not available					
Repayment effective from						
Repayment Frequency ¹²						
Repayment Installment ^{13,14}						
Base Exchange Rate ¹⁵						
Are foreign currency loan hedged?						
If above is yes, specify details ¹⁷						

Distribution of loan packages to various transmission elements

Eastern Region						
Transmission element1						
Transmission element 2 and so on						
Total						
Western Region						
Transmission element1						
Transmission element 2 and so on						
Total						
Northern Region						
Transmission element1						
Transmission element 2 and so on						
Total						
Southern Region						
Transmission element1						
Transmission element 2 and so on						
Total						
North-Eastern Region						
Transmission element1						
Transmission element 2 and so on						
Total						
RLDC						
Total						


 Petitioner

Name of NLDC/RLDCs : National Load Despatch Centre
Statement of Depreciation

Financial Year	upto 2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
1	2	3	4	5	6	7
Depreciation on Capital Cost		1620.12	1890.65	2155.76	2441.87	1438.81
Depreciation recovered during the Year		270.73	290.60	286.11	511.14	706.27
Cumulative depreciation deducted due to De-capitalisation or write off of the assets etc.		0.20	25.49	0.00	1514.20	0.00
Cumulative Depreciation recovered upto the year	1620.12	1890.65	2155.76	2441.87	1438.81	2145.08

Fig.: Rs.in Lakhs.


 Petitioner

NLDC FORM DEPRECIATION		Depreciation Sch. As per Annexure III of Regulations	Dep rate	Gross Block 01-04-2014	addition	addition	addition	addition	addition
Asset Description	Sr. no. A	Sr. no. B	Sr. no. C(A)	Sr. no. C(C)	Sr. no. C(I)(i)	Sr. no. C(I)(ii)	Sr. no. C(N)	Sr. no. C(M)	Sr. no. C(J)
Land Under Full Ownership(Freehold)									
Land (Lease)									
Civil Works									
Power Supply									
Air Conditioning Systems - Static									
Air Conditioning Systems - Portable									
Scada Systems (Software)									
Scada Systems (Hardware)									
Other Infrastructure, including equipments									
Communication System									
IT Systems (Hardware)									
IT Systems (Software)									
TOTAL									
Accumulated Dep									
Depreciation Decapital									

H.D.C DEPRECIATION		Depreciation Sch. As per Annexure III of Regulations	Dep rate	Dep %	adj	adj	adj	adj	adj	adj
Asset Description	Sr. no. A				14-15	15-16	16-17	17-18	18-19	
Land Under Full Ownership(Freehold)			0.00%							
Land (Lease)										
Civil Works			3.34%	100.00%						
Power Supply			3.34%	90.00%						
Air Conditioning Systems - Static			5.28%	90.00%						
Air Conditioning Systems- Portable			5.28%	90.00%						
Scada Systems (Software)			8.50%	90.00%						
Scada Systems (Hardware)			30.00%	100.00%				913.62		
Other Infrastructure, including equipments			15.00%	100.00%				600.58		
Communication System			8.33%	90.00%						
IT Systems (Hardware)			6.33%	90.00%						
IT Systems (Software)			15.00%	100.00%	0.71					
TOTAL			30.00%	100.00%	0.71	31.50	0.00	1514.20	0.00	
Accumulated Dep										
Depreciation Depreciable										

3

NEOC DEPRECIATION		Depreciation Sch. As per Annexure III of Regulations		Dep %		Dep rate		Op. Dep-01-04-14		after adj of 14-15 adjustment		Dep 14-15		acc dep 31-03-15	
Asset Description	Sr. no. A	Sr. no. B	Sr. no. C(A)	Sr. no. C(C)	Sr. no. C(I)(I)	Sr. no. C(I)(II)	Sr. no. C(N)	Sr. no. C(M)	Sr. no. C(U)	Sr. no. C(L)	Sr. no. C(M)	Sr. no. C(N)	Sr. no. C(N)	Sr. no. C(N)	Sr. no. C(N)
Land Under Full Ownership(Freehold)															
Land (Lease)															
Civil Works															
Power Supply															
Air Conditioning Systems - Static															
Air Conditioning Systems - Portable															
Scada Systems (Software)															
Scada Systems (Hardware)															
Other Infrastructure, including equipments															
Communication System															
IT Systems (Hardware)															
IT Systems (Software)															
TOTAL															
Accumulated Dep															
Depreciation Description															

W.D.C. DEPRECIATION									
Asset Description	Depreciation Sch. As per Annexure III of Regulations	Dep rate	Dep %	after ad of 15-16 adjustment			dep 15-16		
	Sr. no. A			ad/ Gross Block of 01-04-2014	ad/ op. Dep of 01-04-14	on op	on add 14-15	total dep 15-16	on add 14-15 on add 15-16
Land Under Full Ownership(Freehold)									
Land (Lease)		0.00%		0.00	0.00	0.00	0.00	0.00	0.00
Civil Works		3.34%	100.00%	0.00	0.00	0.00	0.00	0.00	0.00
Power Supply		3.34%	100.00%	698.38	131.01	23.33	0.00	23.33	154.34
Air Conditioning Systems - Static		5.28%	100.00%	32.62	9.22	1.72	0.00	1.72	10.94
Air Conditioning Systems- Portable		5.28%	100.00%	0.00	0.00	0.00	0.00	0.00	0.00
Scada Systems (Software)		9.50%	100.00%	0.00	0.00	0.00	0.33	0.57	0.50
Scada Systems (Hardware)		30.00%	100.00%	950.89	950.89	0.00	0.00	0.00	950.89
Other Infrastructure, including equipments		15.00%	100.00%	800.58	496.66	80.09	0.00	80.09	586.75
Communication System		8.33%	100.00%	137.52	34.45	8.71	0.22	9.53	43.16
IT Systems (Hardware)		8.33%	90.00%	0.00	0.00	0.00	0.00	0.00	0.00
IT Systems (Software)		15.00%	100.00%	103.14	44.62	15.47	2.62	37.67	60.09
TOTAL		30.00%	100.00%	225.38	187.41	42.88	28.51	127.69	42.92
Accumulated Dep				2748.52	1849.26	182.30	31.78	290.60	2037.56
Depreciation Decap/w, off					26.49				2155.76

[Signature]

ALDC FORM 6B		Depreciation		Depreciation Sch. As per Annexure III of Regulations		Dep %		Dep rate		after adj of 16-17 adjustment		dep 16-17		acc dep 31-03-17	
Asset Description										adj op. Dep of 01-04-14	on op	on add 14-15	on add 15-16	on add 14-15	on add 15-16
Land Under Full Ownership(Freehold)	Sr. no. A							0.00%		0.00	0.00	0.00	0.00	0.00	0.00
Land (Lease)	Sr. no. B							0.00%		0.00	0.00	0.00	0.00	0.00	0.00
Civil Works	Sr. no. C(A)							3.34%		0.00	0.00	0.00	0.00	0.00	0.00
Power Supply	Sr. no. C(C)							3.34%		698.38	23.33	0.00	0.00	0.00	0.00
Air Conditioning Systems - Static	Sr. no. C(i)(i)							5.28%		32.62	10.94	1.72	0.00	0.00	0.00
Air Conditioning Systems- Portable	Sr. no. C(i)(ii)							5.28%		0.00	0.00	0.00	0.00	0.00	0.00
Scada Systems (Software)	Sr. no. C(N)							9.80%		0.00	0.00	0.33	0.48	0.00	0.00
Scada Systems (Hardware)	Sr. no. C(M)							30.00%		950.89	0.00	0.00	0.00	950.89	0.00
Other Infrastructure, including equipments	Sr. no. C(J)							15.00%		586.75	13.83	0.00	0.00	0.00	0.00
Communication System	Sr. no. C(L)							8.33%		137.52	8.71	0.22	1.20	0.00	0.00
IT Systems (Hardware)	Sr. no. C(M)							6.33%		0.00	0.00	0.00	0.00	0.00	0.00
IT Systems (Software)	Sr. no. C(N)							15.00%		103.14	15.47	2.82	39.15	0.00	0.00
TOTAL								30.00%		225.39	0.00	28.61	112.20	225.39	1.13
Accumulated Dep										2748.52	61.06	31.78	153.03	2094.52	38.24
Depreciation Depreciable										0.00					2441.87

[Signature]

Form 6B

NCD DEPRECIATION																
Asset Description	Depreciation Sch. As per Annexure III of Regulations	Dep %	Dep rate	add Gross Block of 01-04-2014	after adj of 17-18 adjustment	dep 17-18					acc dep 31-03-18					
	Sr. no. A			04-14	04-14	on op	on add 14-15	on add 15-16	on add 16-17	on add 17-18	total dep 17-18	op dep 15-16	on add 14-15	on add 15-16	on add 16-17	on add 17-18
Land Under Full Ownership(Freehold)		0.00%			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Land (Lease)																
Civil Works		3.34%	0.001113		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Power Supply		3.34%	0.1113		698.38	23.33	0.00	0.00	0.00	0.00	24.17	201.00	0.00	0.00	0.00	1.00
Air Conditioning Systems - Static		5.28%	0.0004		32.62	12.66	1.72	0.00	0.00	0.00	1.72	14.38	0.00	0.00	0.00	0.00
Air Conditioning Systems- Portable		5.28%	0.0004		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scada Systems (Software)		9.50%	0.0003		0.00	0.00	0.33	0.48	0.95	0.48	2.24	0.00	1.16	1.20	1.43	0.48
Scada Systems (Hardware)		30.00%	0.0003		37.27	37.27	0.00	0.00	0.00	136.80	136.80	37.27	0.00	0.00	0.00	136.80
Other Infrastructure, including equipments		15.00%	0.0002		0.00	0.00	0.00	0.00	0.00	56.70	56.70	0.00	0.00	0.00	0.00	56.70
Communication System		6.33%	0.0002		137.52	51.87	8.71	0.22	1.20	0.00	10.13	60.58	0.77	3.00	0.00	0.00
IT Systems (Hardware)		8.35%	0.0002		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IT Systems (Software)		15.00%	0.0003		100.14	75.56	15.47	2.62	39.15	2.25	60.24	91.03	9.17	97.88	3.38	0.75
TOTAL		30.00%	1.000000		225.38	225.38	0.00	23.84	112.20	72.60	219.14	225.39	95.37	280.60	108.90	10.50
Accumulated Dep					1234.32	580.42	49.23	27.01	155.03	76.47	611.14	629.65	106.47	382.68	114.71	205.40
Depreciation Descrptn off																1438.81

Signature

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NLDC FORM 6B	SUMMARY-NLDC DEPRECIATION -2014-19			
	14-15	15-16	16-17	17-18
op GB	2780.73	2899.90	3527.40	3814.40
additions during the year	119.17	627.50	287.00	253.80
closing Gross block	2899.90	3527.40	3814.40	4068.20
avg gb	2840.32	3213.65	3670.90	3941.30
90 % depreciable	872.03	887.54	914.54	939.54
100 % depreciable	1968.29	2326.11	2756.36	3001.76
90 % depreciable Value	784.83	798.79	823.09	845.59
100 % depreciable value	1968.29	2326.11	2756.36	3001.76
total depreciable value	2753.11	3124.90	3579.45	3847.35
depreciable remaining value	1132.99	1234.25	1423.69	1405.48
Actual dep	270.73	290.60	286.11	511.14
Allowed(min of two)	270.73	290.60	286.11	511.14
Decap dep 2014-19	0.20	25.49	0.00	1514.20
cumulative dep	1890.65	2155.76	2441.87	1438.81
				2145.08

Details of Operation and Maintenance Expense excluding human resource expenses

Fig: Rs.in Lakhs.

	ITEMS	2014-15	2015-16	2016-17	2017-18	2018-19	Total
	1	2	3	4	5	6	
1	Repairs and maintenance expenses	233.31	243.31	246.24	180.72	85.52	989.09
2	Administrative and general expenses, etc	354.86	382.83	412.99	445.54	480.65	2076.86
3	Total	588.17	626.13	659.24	626.26	566.16	3065.96

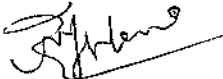

 Petitioner

Details of Repairs and Maintenance Expenses

Form..7C

Name of NLDC/RLDCs : National Load Despatch Centre

Account Head	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Consumption of Stores and Spares	0.25	0.27	0.30	0.32	0.34	1.49
Plant and Machinery Repairs and Maintenance	11.82	12.75	13.76	14.84	16.01	69.17
Civil works repair and maintenance	0.51	0.55	0.59	0.64	0.69	2.99
Plant and Machinery	198.79	206.07	206.07	137.38	38.76	787.06
Civil repairs and maintenance	0.69	0.75	0.81	0.87	0.94	4.06
Others	0.37	0.40	0.43	0.46	0.50	2.15
Others(Specify)	20.87	22.52	24.29	26.21	28.27	122.17
Total:	233.31	243.31	246.24	180.72	85.52	989.09


Petitioner

Name of NLDC/RLDCs : National Load Despatch Centre						
Account Head	2014-15	2015-16	2016-17	2017-18	2018-19	Total
RENTAL RELATED EXPENSES						
Rent	0.00	0.00	0.00	0.00	0.00	0.00
Rates and Taxes	1.85	1.99	2.15	2.32	2.50	10.81
Insurance	0.39	0.43	0.46	0.50	0.53	2.31
Sub Total..	2.24	2.42	2.61	2.81	3.04	13.12
COMMUNICATIONS						
Telephone and TrunkCall	10.67	11.51	12.42	13.40	14.46	62.46
Postage and Telegram	0.01	0.01	0.01	0.01	0.02	0.07
Courier Charges	0.08	0.09	0.10	0.10	0.11	0.48
Other (Internet Leased Line Charges)	0.67	0.72	0.78	0.84	0.91	3.92
Sub Total..	11.44	12.34	13.31	14.36	15.49	66.93
LEGAL AND PROFESSIONAL FEES						
Legal Expenses	15.17	16.36	17.65	19.05	20.55	88.78
Consultancy Charges	9.64	10.40	11.22	12.10	13.05	56.41
Technical Fees	0.38	0.41	0.45	0.48	0.52	2.24
Audit Fees	19.27	20.79	22.43	24.20	26.10	112.79
Other Charges	2.79	3.01	3.25	3.51	3.78	16.34
Sub Total..	47.25	50.98	54.99	59.33	64.00	276.56
TRAVELLING AND CONVEYANCE						
Conveyance Charges	22.77	24.57	26.50	28.59	30.84	133.27
Travelling Charges	35.87	38.70	41.75	45.04	48.59	209.94
Hire Charges of Vehicle	23.60	25.46	27.46	29.63	31.96	138.11
Sub Total..	82.24	88.72	95.71	103.26	111.39	481.32
OTHER EXPENSES						
Electricity Charges	37.33	40.27	43.45	46.87	50.56	218.48
Fees and Subscription	13.78	14.86	16.03	17.30	18.66	80.62
Books and Periodicals	1.17	1.26	1.36	1.46	1.58	6.82
Printing and Stationery	11.73	12.65	13.65	14.72	15.88	68.62
Advertisement	3.49	3.76	4.06	4.38	4.72	20.40
Entertainment	2.45	2.64	2.85	3.07	3.31	14.32
Watch and Ward	31.86	34.37	37.08	40.00	43.15	186.47
Miscellaneous	52.29	56.41	60.85	65.65	70.82	306.02
Organisational Development Expenses	37.30	40.24	43.41	46.83	50.52	218.29
Donation	0.02	0.03	0.03	0.03	0.03	0.14
Traning	14.74	15.91	17.16	18.51	19.97	86.29
Water Charges	2.59	2.79	3.01	3.25	3.51	15.15
Sub Total..	208.73	225.18	242.93	262.07	282.72	1221.63
EDP EXPENDITURE						
EDP Expenditure	2.96	3.19	3.44	3.71	4.00	17.30
Sub Total..	2.96	3.19	3.44	3.71	4.00	17.30
Total:	354.86	382.83	412.99	445.54	480.65	2076.86


Petitioner

Account Head	2014-15			2015-16			2016-17			2017-18			2018-19			2019-20		
	Exe	Non-Exe	Total	Exe	Non-Exe	Total	Exe	Non-Exe	Total	Exe	Non-Exe	Total	Exe	Non-Exe	Total	Exe	Non-Exe	Total
SALARIES AND ALLOWANCES																		
Salaries	381.13	41.25	422.38	592.43	57.09	649.52	865.27	70.18	935.45	1418.22	86.11	1504.33	1607.08	94.09	1701.17	4864.13	348.73	5212.86
Dearness Allowance	316.44	31.30	347.74	491.87	43.32	535.19	718.40	53.28	771.65	1177.49	65.34	1242.83	1334.28	71.40	1405.69	4038.48	264.62	4303.10
Other Allowances	189.13	18.93	208.06	293.98	26.21	320.18	429.37	32.21	461.58	703.75	39.52	743.28	797.47	43.19	840.66	2413.70	160.06	2573.76
Productivity Linked																		
Incentive	0.19	0.15	0.35	0.30	0.21	0.51	0.43	0.26	0.70	0.71	0.32	1.03	0.81	0.35	1.16	2.44	1.31	3.75
Sub Total..	886.89	91.63	978.52	1378.58	126.84	1505.41	2013.47	155.92	2169.38	3300.17	191.30	3491.47	3739.65	209.03	3948.68	11316.75	774.72	12093.47
OTHER STAFF COST																		
Reimbursement of Medical Expenses	58.83	12.58	71.41				133.56	21.41	154.97	218.92	26.27	245.18	248.07	28.70	276.77	750.82	105.37	857.20
Leave Travel Concession																		
Reimbursement of House																		
Rent/lease	178.82	9.37	188.19	277.96	12.96	290.92	405.97	15.93	421.91	685.41	19.55	684.96	754.02	21.36	775.39	2282.19	79.17	2361.36
Encashment of Earned Leave	36.49	2.31	38.80	56.72	3.20	59.92	82.84	3.93	86.78	135.78	4.83	140.61	153.87	5.27	159.14	485.70	19.54	485.24
Ex-gratia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sub Total..	274.14	24.26	298.40	426.13	33.58	459.71	622.38	41.28	663.65	1020.11	50.64	1070.75	1155.95	55.34	1211.29	2498.72	205.09	3703.80
Staff Welfare Expenses																		
Terminal Benefits	173.14	19.15	192.29	289.13	26.50	315.63	393.07	32.58	425.65	644.26	39.97	684.23	730.06	43.68	773.73	2209.65	161.87	2371.53
Provisions	275.97	24.78	300.75	428.97	34.30	463.27	626.53	42.17	668.69	1026.91	51.74	1078.64	1163.06	58.53	1220.19	3522.03	208.52	3731.55
Sub Total..	468.18	48.00	516.19	727.75	66.44	794.20	1062.91	81.68	1144.59	1742.17	100.21	1842.38	1974.18	109.50	2083.68	5975.20	405.84	6381.05
Total	1629.22	163.91	1793.12	2532.46	226.86	2759.32	3698.76	276.87	3977.63	6062.45	342.15	6404.60	6869.79	373.87	7243.65	20792.67	1385.65	22178.32
	1629.22	163.91	1793.12	2532.46	226.86	2759.32	3698.76	276.87	3977.63	6062.45	342.15	6404.60	6869.79	373.87	7243.65	20792.67	1385.65	22178.32

FORM- 8

Name of NLDC/RLDCs : National Load Despatch Centre
Calculation of Interest on Working Capital

Fig: Rs.in Lakhs.

Sl.No	Particulars	2009-10	2010-11	2011-12	2012-13	2013-14
1	2	3	4	5	6	7
1	O & M expenses excluding human resource expenses					
2	Human resource expenses					
3	NLDC charges					
4	Receivables					
5	Total Working Capital					
6	Rate of Interest					
7	Interest on Working Capital					


Petitioner

Draw Down Schedule for Calculating of IDC & Financial Charges

FORM - 9

Name of NLDC/RLDCs :

National Load Despatch Centre

Sl. No.	Draw Down Particulars	Quantum in Foreign Currency	Quarter 1		Date	Quarter 2			Date	(Amount in lacs) Quarter n (COD)		
			Exchange rate on draw down date	Aamount in Indian Rupee		Amount (Foreign Currency)	Exchange rate	Amount (Rs.)		Amount (Foreign Currency)	Exchange rate	Amount (Rs.)
1	Loans											
1.1	Foreign Loans											
1.1.1	IBRD-III (USD) *											
	Draw down Amount											
	IDC											
	Financing Charges											
	Foreign Exchange rate Variation											
	Hedging Cost											
1.1.2	Foreign Loan 2											
	Draw down Amount											
	IDC											
	Financing Charges											
	Foreign Exchange rate Variation											
	Hedging Cost											
1.1	Total Foreign Loans											
	Draw down Amount											
	IDC											
	Financing Charges											
	Foreign Exchange rate Variation											
	Hedging Cost											
1.2	Indian Loans											
1.2.1	Bond - XXV											
	Draw down Amount											
	IDC											
	Financing Charges											
	Foreign Exchange rate Variation											
	Hedging Cost											
1.2.2	Bond - XXVIII											
	Draw down Amount											
	IDC											
	Financing Charges											
	Foreign Exchange rate Variation											
	Hedging Cost											
1.2	Total Indian Loans											
	Draw down Amount											
	IDC											
	Financing Charges											
	Foreign Exchange rate Variation											
	Hedging Cost											
1	Total of Loans drawn											
	IDC											
	Financing Charges											
	Foreign Exchange rate Variation											
	Hedging Cost											
2	Equity											
2.1	Foreign equity drawn											
2.2	Indian equity drawn											
	Total equity drawn											

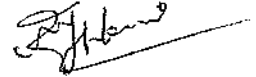


Petitioner

Name of NLDC/RLDCs : National Load Despatch Centre
Actual cash expenditure

Fig: Rs.in Lakhs.

	Quarter-I	Quarter-II	Quarter-III	Quarter-n (COD)
Payment to contractors/suppliers				
% of fund deployment				


Petitioner

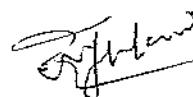
Calculation of LDC DEVELOPMENT FUND A/C FOR THE CONTROL PERIOD 2014-19

		Rs in crores					
Particular	2014-15	2015-16	2016-17	2017-18	2018-19	total	
Income							
Revenue							
Depreciation	10.50	14.95	22.67	26.89	27.94	102.96	
IOL (Interest on Loan)	0.00	0.00	0.00	0.00	0.00	0.00	
ROE (Return of Equity)	12.04	12.17	12.50	13.96	15.70	66.38	
Revenue from Operation (A)	22.55	27.12	35.17	40.85	43.63	169.33	
Bank Interest	43.52	43.00	43.00	44.00	45.00	218.52	
Supervision Charges	0.85	1.00	1.00	1.00	1.00	4.85	
Registration Income	1.80	1.00	1.00	1.00	1.00	5.80	
Other income (B)	46.17	45.00	45.00	46.00	47.00	229.17	
Total Income (A+B)	68.72	72.12	80.17	86.85	90.63	398.50	
Expenditure							
Interest on Loan	0.00	0.00	0.00	0.00	0.00	0.00	
Guarantee Fee & Finance Charges	0.00	0.00	0.00	0.00	0.00	0.00	
CSR (Corporate Social Responsibility)	1.91	1.91	1.91	1.91	1.91	9.55	
Training Expenditure recoverable form LDC Fund	0.56	0.57	0.58	0.59	0.60	2.90	
Total Expenditure (C)	2.47	2.48	2.49	2.50	2.51	12.45	
Appropriations							
Equity Deployment	0.00						
Income Tax	33.50	35.18	36.93	38.78	40.72	185.11	
Dividend & Dividend Tax	23.89	23.89	23.89	23.89	23.89	119.45	
CAPEX	8.44	64.20	15.40	24.91	20.39	133.35	
Total Appropriations (D)	65.83	123.27	76.22	87.58	85.00	437.90	
Expenditure & Appropriations (C+D)	68.30	125.75	78.71	90.08	87.52	450.36	
Net LDC Development Fund (Income -Exp & Appropriation) (A+B-C-D) Transferred TO LDC Development Fund	0.42	-53.62	1.46	-3.23	3.12	-51.85	

Other Income

Name of the NLDC/RLDCs: NLDC

Particulars	Rs. In Lacs				
	2014-15	2015-16	2016-17	2017-18	2018-19
1	3	4	5	6	7
Other Income - Opening	2645.62	2645.62	2645.62	2645.62	2645.62
Add- Short term open access charges	555.79	607.22	664.3	727.08	796.13
Add: Allocation from REC income	330.21	132.85	87.68	57.87	38.19
Add:.....					
Add:.....					
Add:.....					
Gross Income during the year	3531.62	3385.69	3397.60	3430.57	3479.94
Less: Utilisation to meet shortfall					
Less: Use for.....					
So on					
....					
Net Income as on 31st March	3531.62	3385.69	3397.6	3430.57	3479.94



Petitioner

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No.191/2011 (Suo-motu)

Coram:

Shri Pramod Deo, Chairperson

Shri S.Jayaraman, Member

Shri V.S.Verma, Member

Shri M.Deena Dayalan, Member

Date of Hearing: 30.10.2012

Date of order: 31.12.2012

In the matter of

Compliance with the Regulation 5.2 (f) of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010 regarding restricted governor mode of operation by the generating companies.

And

In the matter of

- 1 NTPC Ltd., New Delhi
- 2 NHPC Ltd. Faridabad
- 3 North Eastern Electric Power Corporation Ltd, Shillong
- 4 Neyvelli Lignite Corporation Ltd., Chennai
- 5 Tehri Hydro Development Corporation India Ltd., Rishikesh
- 6 NTPC Sail Power Corporation Ltd., New Delhi
- 7 Satluj Jal Vidyut Nigam Ltd. (SJVN), Shimla
- 8 Haryana Power Generation Corporation Ltd. (HPGCL)
- 9 Uttar Pradesh Rajya Vidyut Utpadan Nigam Ltd.
- 10 Teesta Urja Ltd., New Delhi
- 11 Gujarat State Electricity Generation Company (GSEC)
- 12.Kerala State Electricity Board, Kerala
- 13 Uttarakhand Power Generation Ltd., Dehradun
- 14 Karnataka Power Trading Company Ltd, Karnataka
- 15 Power Development Department, J & K
- 16 Damodar Valley Corporation, Kolkata
- 17 Jharkhand State Electricity Board, Ranchi
- 18 Orissa Power Generation Company Ltd, Bhubaneshwar
- 19 West Bengal Power Development Corporation Ltd., Kolkata
- 20 Central Electricity Supply Company Ltd., Kolkata
- 21 Orissa Hydro Electricity Corporation Ltd., Bhubaneshwar
- 22 Meghalya Electricity Corporation Ltd., Shillong
- 23 Assam State Electricity Board, Guwahati
- 24 M.P. Power Generating Company Ltd. (MPPGCL)
- 25 Chattisgarh State Power Generating Company Ltd. Raipur
- 26 Andhra Pradesh Generation Company Ltd., Hyderabad.
- 27 Maharashtra State Power Generating Co. Ltd. (Mahagenco)

28 Punjab State Power Corporation Ltd., Patiala
29 Rajasthan Rajya Vidyut Utpadan Nigam Ltd. , Jaipur
30 Maha TATA Ltd., Mumbai
31 Maha Rel, Mumbai
32 Jindal Power Ltd., New Delhi
33 LANCO Ltd., Gurgaon
34 Narmada Control Authority, Indore
35 JSW Ltd., Mumbai

...Respondents

Following were present:

Shri S.K.Sonee, POSOCO
Shri S.R.Narasimhan, NLDC
Shri V.K. Agarwal, NRLDC
Shri S.C.Sexana, NLDC
Miss Joyti Prasad, NLDC
Shri Rajiv Porwal, NLDC
Shri M.Pradeep Reddy, NLDC
Shri Mohit Joshi, NLDC
Shri M.A.K.P.Singh, NCA
Shri Rohit Chabra, NTPC
Shri P.P.Francis, NTPC
Shri S.K.Sharma, NTPC
Shri Ajay Dua, NTPC
Miss Silpa Agarwal, NTPC
Shri C.L.Sabrina, NLC
Shri Piyush Kumar, NHPC
Shri Amrik Singh, NHPC
Shri Romesh, SJVNL
Shri Rajiv Agarwal, SJVNL
Shri Ashok Kumar, SJVNL
Shri H.W Vyas, MPGCL
Miss Ranjitha Ramchandran, Advocate, CESC

ORDER

The Commission vide its order dated 9.10.2012 had observed as under:

"8. As all the generating stations are not on the RGMO mode, fluctuation in system frequency is adversely affecting the power system and the generating stations. Considering the seriousness of the situation, Chairman and Managing Directors of the North Eastern Electric Power Corporation Ltd., Satluj Jal Vidyut Nigam Ltd., Haryana Power Generation Corporation Ltd., Uttar Pradesh Rajya Vidyut Utpadan Nigam Ltd., Teesta Urja Ltd., Gujarat State Electricity Generation Company, Uttarakhand Power Generation Ltd., PDD, J&K, Damodar Valley Corporation, Jharkhand State Electricity Board, Central Electricity Supply Company Ltd., Assam State Electricity Board, Punjab State Power Corporation Ltd., Rajasthan Rajya Vidyut Utpadan Nigam Ltd, Maha TATA Ltd., Maha Rel, Lanco Ltd., and APCL Ltd. are directed to show cause by 23.10.2012 as to why they will not be held personally liable for the penalty under

Section 142 of the Electricity Act, 2003 for non-compliance with the directions of the Commission and provisions of the Grid Code with regard to implementation of RGMO.

9. It is observed that the reports on RGMO are not being received from NLDC/RLDCs in regular intervals. It may be noted that NLDC/RLDCs are required to monitor the status of implementation of RGMO by the generators and submit a monthly report so that necessary action can be taken against the defaulting generating companies. If NLDC/RLDCs are not getting cooperation from the generating companies to get the necessary information, they should file appropriate application by impleading the concerned generating companies."

2. National Load Despatch Centre (NLDC) vide its reply dated 29.10.2012 has submitted that in the procedure on "Assessment of Frequency Response Characteristics of Control Areas in Indian Power System" already filed in Petition No. 47/MP/2012, it has been suggested that the monitoring of Frequency Response Characteristics (FRC) might be done at the control area level as it is difficult to monitor generating station-wise response. Internationally, a method and associated equipment for performing online frequency response tests for individual generators have been developed. It is a Hardware-in-the-Loop method that combines a real time simulator, data acquisition system and signal generators. Principally, the normal frequency feedback of the governor, i.e. the real frequency, is replaced by a frequency generated by test equipment. This method allows the generating unit to be tested without varying the grid frequency and it has been used in Sweden for the last decade at over 50 generating units. An IEEE paper describing this method for testing of frequency control capability in island operation has already been submitted to the Commission.

3. NLDC has suggested that a similar philosophy for testing frequency response of individual generators should also be adopted in India. Simultaneously, control area

wise FRC monitoring might also continue. NLDC has proposed that a committee comprising of experts from Central Electricity Authority, Central Transmission Utility, National/Regional/State Load Despatch Centers and Central/State/Private generating companies should be formed for proposing the testing protocol and performing field tests. Based on the direction of the Commission, the Committee should would be submit a report in a time bound manner, detailing the frequency response related performance of different generators vis-à-vis standards specified in Grid Code. NLDC is willing to take the lead in the matter, if so desired by the Commission.

4. In response to show cause notice dated 9.10.2012, replies have been filed by the Tata Power Company Ltd., Maha Rel., Mumbai, Madhya Pradesh Power Generating Company Limited, SJVN Limited, CESC Limited, Teesta Urja Ltd, Rajasthan Rajya Vidyut Utpadan Nigam Ltd., Lanco Amarkantak Power Limited, Uttar Pradesh Rajya Vidyut Utpadan Nigam Ltd., Gujarat State Electricity Corporation Ltd. and North Eastern Electric Power Corporation Ltd.

5. Tata Power Company Limited and SJVN Limited have filed their replies vide letters dated 30.10.2012 and 23.10.2012, respectively. It is clarified that the parties are required to make their submissions in response to the notice issued by the Commission through affidavits in accordance with Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999.

6. Maha Reliance Mumbai vide its affidavit dated 30.10.2012 has submitted the reasons for delay in implementation of RGMO at Dahanu Thermal Power Station. It

has been submitted that to address the principal issues *inter-alia* including implementation of RGMO in the intra-State generating stations arising out of difference in ABT mechanism at State and Regional level, Maharashtra State Load Despatch Centre has filed a petition before MERC for removal of difficulties in implementation of final balancing and settlement mechanism which is pending before the MERC.

7. Madhya Pradesh Power Generating Company Limited (MPPGCL) in its affidavit dated 27.10.2012 has submitted that orders for supply and work of RGMO operation has been placed on M/s BHEL. MPPGCL is constantly pursuing M/s BHEL to spare time slot of their experts in next available opportunity when units are under shut down. MPPGCL has requested to condone the delay being caused in implementation of RGMO in respect of its units No. 1 to 4 of SGTPS, Birsinghpur and Unit No. 5 of ATPS, Chachai and extend the period of implementation of the same to Annual over Haul (AOH) of Financial Year 2014-15.

8. CESC Limited in its reply dated 19.10.2012 has submitted that Units 1 and 2 of Budge Budge Power Station are of Siemens (earlier persons) make and could not be switched over from FGMO to RGMO as the relevant expertise to change governor software for such units is no longer available. CESC Limited has submitted that it runs three units in FGMO (unit 1 and 2 in FGMO and unit 3 in RGMO). The generating station thus responds to the system frequency and modifies the steam input accordingly. For FGMO, the responses are uniform throughout the frequency range. Eastern Regional Power Committee in its TCC meeting held on 20.4.2012 has checked and recorded the status of RGMO in the Eastern Region. The ERPC

recorded the RGMO/FGMO status of CESC Limited's Budge Budge power station as "Response Satisfactory".

9. Teesta Urja Limited in its reply dated 19.10.2012 has submitted that its 1200 MW Teesta-III HEP is presently under construction and yet to be synchronized with the grid.

10. Rajashthan Rajya Vidyut Utpadan Nigam Limited has submitted the details regarding RGMO and requested to condone delay in submission of requisite details.

11. Lanco Amarkantak Power Limited in its reply dated 17.10.2012 has submitted that RGMO was implemented in both its operational units from 17.3.2012 and 25.4.2012 and information in this regard was sent to WRPC on 26.4.2012.

12. Uttar Pradesh Rajya Vidyut Utpadan Nigam Ltd.(UPRVUNL) in its reply dated 15.11.2012 has submitted that it has initiated suitable steps for switching over its four thermal generating stations to RGMO. UPRVUNL has enumerated the reasons for not implementing the RGMO in its generating stations. UPRVUNL has requested not to take any adverse action in form of penalty against it and it will ensure timely compliance of the orders/directions of the Commission.

13. Gujarat State Electricity Corporation Limited (GSECL) in its reply has submitted that the matter was continuously being pursued with the Original Equipment Manufacturer i.e. M/s BHEL with regard to the changes required in the Hydro plants.

BHEL recently has submitted its offers for both Ukai HPS and Kadana HPS regarding changes to be made and time required for the same. The operation of Ukai HPS and Kanda HPS on RGMO is being done with manual intervention. GSECL has further submitted as under:

(a) Ukai and Kadana Hydro machines are being operated at full load during peak/demand hours, and being hydro stations, they will be the last units to set backing down or reserve shut down. As such, these units operate at full load during the improvement of frequency upto 50.2 Hz without any load reduction, thus full filing the criteria of RGMO.

(b) Ukai and Kadana Hydro machines are not capable to achieve 110% of MCR in case of sudden fall of frequency due to GT constraints and obsoslete design;

(c) As directed by the Commission by its order dated 12.3.2012, the load reduction in case if frequency rises to 50.2 Hz is being done manually.

14. It has been submitted that the GSECL has implemented RGMO in other machines without giving any chance of complaint to WRLDC/SLDC.

15. North Eastern Electric Power Corporation Ltd. (NEEPCO) in its reply dated 5.12.2012 has submitted that necessary orders for new governor system with the OEM have been placed on M/s BHEL. However, the delivery period being long, the system can only be made operational by March, 2014 in all the generating stations of

NEEPCO, barring Kopili 2nd Stage extension plant which expected date of commissioning is March, 2013.

16. During the course of hearing on 30.10.2012, with regard to Committee for evaluating the frequency response, the representative of the NLDC submitted that Committee would only be required to frame the protocols/modalities and testing can be left to a small team comprising of members decided by the Committee. The team would visit all the generators with the equipment and induce the frequency to test the generator's governor response to such induced frequency.

17. Learned counsel for the CESC Limited submitted that Budge Budge plant of CESC Ltd has three units of 250 MW each. Units 1 and 2 are Siemens make and are equipped with FGMO and unit-3 is BHEL make and is equipped with RGMO. However, the generating station responds to the system frequency, ERPC and ERLDC have recorded the governor response of the units as satisfactory in various OCC and TCC meetings.

18. The representative of the SJVNL submitted that Nathpa Jhakri plant is having pondage capacity up to three hours, therefore, it is exempted from RGMO operation as per the stipulation of proviso of Regulation 5.2 (f) (i) of the Grid Code.

19. The representative of the MPPGCL submitted that orders for supply and work of RGMO operation has been placed on M/s BHEL. In unit No. 4 during AOH the software has been installed by BHEL and its interfacing with the field instrument is

to be done. MPPGCL is constantly pursuing BHEL to spare time slot of their experts in next available opportunity when unit is under shut down.

20. We have considered the submission of the respondents. As per Regulation 5.2 (f) of the Grid Code, all thermal generating units of 200 MW and above and all hydro units of 10 MW and above which are synchronized with the grid, irrespective of their ownership, shall be required to have their governors in operation at all time in accordance with the provisions in sub-clauses (i) to (iii) of the said Regulation.

21. It is noted Rajasthan Rajya Vidyut Utpadan Limited, Lanco Amarkantak Power Ltd, Maha Reliance, Tata Power Limited, UPRVUNL, SJVNL, Teesta Urja Ltd, CESC Limited, Gujarat State Electricity Corporation Ltd. and North Eastern Electric Power Corporation Ltd. have filed their replies and therefore, proceedings initiated under Section 142 of the Act against them are dropped with the directions to comply with Grid Code strictly in future. The respondents, Haryana Power Generation Corporation Ltd, Uttarakhand Power Generation Limited, Power Development Department, Jammu and Kashmir, Jharkhand State Electricity Board, Assam State Electricity Board and Punjab State Power Corporation Ltd. have not filed reply nor have entered appearance in person or through advocate. We deprecate the attitude of the respondents towards the order of the Commission in the matter.

22. In our view, respondents who have not filed any reply have clearly violated the provisions of Regulation 5.2 (f) of the Grid Code. Accordingly, we impose a penalty of ₹ one lakh each on the Haryana Power Generation Corporation Ltd, Uttarakhand Power Generation Limited, Power Development Department, Jammu and Kashmir,

Jharkhand State Electricity Board, Assam State Electricity Board and Punjab State Power Corporation Ltd. The penalties shall be deposited within one month from the date of issue of the order.

23. The NLDC in its submission dated 29.10.2012 has provided the account of frequency response of the generating stations to the following events:

- (i) Jhajjar units tripped on 10.9.2012 at 14.11.40 Hrs
- (ii) Tehri and Koteshwar units tripped on 10.9.2012 at 11.19 Hrs
- (iii) Korba units tripped on 11.9.2012 at 00.40 Hrs
- (iv) Sipat units tripped on 14.9.2012 at 18.58.00 Hrs
- (v) CGPL Mundra 800 MW unit tipped on 18.9.2012 at 14.39.00 Hrs
- (vi) Talcher-Kolar Pole-2 tripping on 5.10.2012 at 12.29.00 Hrs

24. On perusal of the record submitted by the NLDC, it is observed that data pertains to a time gap of around five to eight minutes after the event. As such, the data cannot be said to exhibit the primary response of the generators due to RGMO. The primary response from generators shall come within thirty to sixty seconds of generation loss/load throw off. As such, position after five to eight minutes is controlled by the commercial implications of UI mechanism. In view of the above position, it would not be prudent to categorize the stations as 'low frequency response' or 'adequate response' stations based on the data as submitted by the NLDC. The method and associated equipment for performing online frequency response tests for individual generators, as suggested by NDLC may become handy for ascertaining the primary response of the generators to the major events of generation loss/load throw.

25. It has come to our notice that Task Force under the Chairmanship of Member (Thermal), Central Electricity Authority has been constituted with the following 'Terms of Reference':

"a) Visit Dadri NCTPS & GPS and formulate the 'Term of Reference' for conducting the primary response tests on following generating units by a third party

- i. 500 MW thermal unit at Dadri NCTPS
- ii. 210 MW thermal unit at Dadri NCTPS
- iii. 130 MW gas turbine unit at Dadri GPS
- iv. 216 MW gas turbine unit at Bawana GPS
- v. 180 MW hydro unit at Chamara-I HPS
- vi. 250 MW hydro unit at Tehri HPS

- b) Develop a detailed testing procedure
- c) Conduct testing and tuning on the identified units
- d) Prepare a report of the pilot project by April 2013."

26. We direct the above task force to complete the testing and tuning of identified units in a time bound manner of the date of issue of the order. We also direct NLDC to extend all help to the Task Force and facilitate early completion of the listing of primary responses in a time bound manner and submit copy of the report to the Commission with its comments/suggestions.

27. NLDC shall be the nodal agency for smooth functioning of the Committee. Any expenditure on the testing of frequency response in the above stations shall be borne

by the RLDC and shall be charged as part of RLDC charges under 'System Operation Charges'. However, cost of such testing after the first stage shall have to be borne by the respective generating company. The Committee constituted to finalize the protocols/modalities of testing shall finalize its report within six months from the date of issue of the order. We direct the NLDC to submit to the Commission a report containing test results within two months thereafter.

28. The petition is disposed of with the above directions.

Sd/-	sd/-	sd/-	sd/-
(M. Deena Dayalan)	(V.S.Verma)	(S.Jayaraman)	(Dr. Pramod Deo)
Member	Member	Member	Chairperson

No. 11/48/2012-PG
Government of India
Ministry of Power

Shram Shakti Bhawan, Rafi Marg
New Delhi, dated 16th July' 2014

ORDER

Subject: Appointment of Consultant to conduct the study/analysis to ensure secure and reliable operation of the National Grid and constitution of a Grid Study Committee to facilitate Consultant in his task based on the follow up action on decisions taken on the recommendations contained in the report submitted by Task Force on Power System Analysis under contingencies-regarding

In pursuance of the decisions taken in the meeting by Secretary (P) to consider recommendations contained in the report submitted by Task Force on Power System Analysis under contingencies, it has been decided by the Competent Authority that Power Grid Corporation of India Limited (PGCIL) would appoint a Consultant to conduct the study/analysis to ensure secure and reliable operation of the National Grid with the following Terms of Reference (TOR):-

Tasks to be taken up in the timeframe of 3 months

- (i) Analysis of Third Party Protection Audit carried out earlier of PGCIL and individual States system, identify gaps and suggest methodology to address them.
- (ii) Calculation of Transfer Capability (TTC/ATC) for entire country State-wise, including neighbouring countries where the power transfer is taking place- Existing, required up to 2016-17 and suggestions for addressing the gap. The methodology for optimum calculation of TTC/ ATC may be given.

A preliminary report in this regard would be submitted to the Ministry of Power in 6 weeks.

Tasks to be taken up in the timeframe of 6 months

- (i) Review the status of implementation of the recommendations of the Enquiry Committee.
- (ii) Carrying out actual Protection Audit to address the gaps, in consultation and collaboration with states and all stakeholders as per present and future requirements up to 2016-17.

RA/SRN
21/7/14

- (iii) Guidelines for computer aided studies related to relay settings and recommendations thereof.
- (iv) Guidelines for developing and implementing islanding schemes
- (v) Suitable suggestions in the Regulatory framework to ensure Secure and efficient grid operation.

2. Further, a Grid Study Committee comprising the following as members would also be constituted to facilitate the Consultant's study/analysis :-

- | | | | |
|-------|-----------------------------|---|----------|
| (i) | Member (GO&D), CEA | - | Chairman |
| (ii) | Chief Engineer (GM), CEA | - | Member |
| (iii) | COO, CTU | - | Member |
| (iv) | STUs (One from each region) | - | Member |
| (v) | Executive Director, POSOCO | - | Member |
| (vi) | Other Members, as required | | |

3. All administrative and logistic expenses on account of Grid Study Committee will be borne by the Central Transmission Utility, i.e. Power Grid Corporation of India Limited.

Yours faithfully



(Ajay Joshi)

Under Secretary to the Govt. of India
Telefax:011-23730264

To

1. CMD, PGCIL
2. Chairman & all Members of the Grid Study Committee
3. Chairperson, CEA
4. Member (GO&D), CEA
- ✓ 5. CEO, POSOCO
6. NIC for updating the website

Copy for information:

1. PPS to Secretary (P)/Sr.PPS to AS(DC)/ PPS to JS (Trans)/PPS to Director(PG), MoP, Shram Shakti Bhawan, New Delhi.

No. 11/48/2012-PG
Government of India
Ministry of Power

Shram Shakti Bhawan, Rafi Marg
New Delhi, dated 29th September '2014

ORDER ADDENDUM

Sub:- Appointment of Consultant to conduct the study/analysis to ensure secure and reliable operation of the National Grid and constitution of a Grid Study Committee to facilitate Consultant in his task based on the follow up action on decisions taken on the recommendations contained in the report submitted by Task Force on Power System Analysis under contingencies-regarding

In continuation of this Ministry's Order no. 11/48/2012-PG dated 16.07.2014, it is stated that Competent Authority, has approved that POSOCO would bear all the expenses towards Consultancy Service for study/analysis to ensure secure and reliable operation of the National Grid,

Yours faithfully

Girish Kumar

(Girish Kumar)

Section Officer

Telefax:011-23730264

To

1. Member (GO&D), CEA, Chairman
2. Chief Engineer (GM), CEA
3. CMD, PGCIL
4. CEO, POSOCO
5. COO, CTU
6. NIC for updating the website

Copy for information:

1. PPS to Secretary (P)/Sr.PPS to AS (DC)/ PPS to JS (Trans)/PPS to Director(PG),
MoP, Shram Shakti Bhawan, New Delhi.

29/9
Sh. Srivastava, Dir (GM)

RA SRN
7/10/14

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 11/SM/2015

Coram:

Shri Gireesh B. Pradhan, Chairperson

Shri A.K. Singhal, Member

Shri A.S. Bakshi, Member

Dr. M.K. Iyer, Member

Date of Order: 13.10.2015

In the matter of

Roadmap to operationalise Reserves in the country

ORDER

The Electricity Act, 2003 entrusts on the Central Commission important responsibilities inter-alia of regulating the inter-State transmission of electricity, specifying grid code and also enforcing standards with respect to quality, continuity and reliability of service by licensees. Laying down of framework for effective and secure grid operation is thus one of the most important mandates of the Commission. The Central Commission has taken initiatives towards this end through regulations on Indian Electricity Grid Code and Deviation Settlement Mechanism and related matters. The Commission has also issued direction from time to time for enforcing grid discipline.

2. Over the period, reliance of the utilities on the grid for meeting their short term energy demand was increasing. This caused serious threat to grid security. The Commission, therefore, tightened the operating band of grid frequency and made deviation charges stringent enough to discourage the utilities from deviation from their schedule. This has started yielding the desired results in terms of operation of the grid

closer to 50 Hz. The Commission has reiterated time and again that un-scheduled inter-change (UI) mechanism cannot be used as platform for meeting the energy demand of the utilities. Last mile imbalances are inevitable, but for this reliance on grid is not desirable. This need be planned for, and adequate reserves need be contracted to address such last mile imbalances.

3. The National Electricity Policy (NEP) mandates that adequate reserves may be maintained to ensure secure grid operation:

“5.2.3 In order to fully meet both energy and peak demand by 2012, there is a need to create adequate reserve capacity margin. In addition to enhancing the overall availability of installed capacity to 85%, a spinning reserve of at least 5%, at national level, would need to be created to ensure grid security and quality and reliability of power supply.”

4. However, creation of adequate system reserve margin and spinning reserves at national level has not yet materialised. In furtherance to the provisions relating to the requirement of Spinning Reserves in the Electricity Act, 2003, National Electricity Policy and Tariff Policy, and to facilitate-large scale integration of renewable energy sources, balancing, deviation settlement mechanism and associated issues, CERC constituted a Committee vide letter No, 25/1/2015/Reg. Aff. (SR)/CT.RC dated 29th May 2015, under the chairmanship of Shri A.S. Bakshi, Member CERC, to examine the technical and commercial issues in connection with Spinning Reserves and evolve suggested regulatory interventions in this context.

5. The Committee submitted its final report to the Commission on 17th September 2015 (annexed as Annexure-I). Major findings of the Committee are as under:

- (a) Spinning Reserves are required to be maintained of requisite quantum depending upon the grid conditions. Operation at constant frequency target of 50.0 Hz with constant area interchange should be the philosophy adopted.
- (b) The Spinning Reserve may be maintained, to start with at the regional level in a distributed manner.
- (c) The respective RLDC should be the Nodal agency at the regional level and NLDC at the country level.
- (d) Each region should maintain secondary reserves corresponding to the largest unit size in the region and tertiary reserves should be maintained in a decentralized fashion by each state control area for at least 50% of the largest generating unit available in the state control area. This would mean secondary reserves of 1000 MW in Southern region; 800 MW in Western regions; 800 MW in Northern region; 660 MW in Eastern region and 363MW in North-Eastern region (total approx. 3600 MW on an All India basis). Primary reserves of 4000 MW should be maintained on an All India basis considering 4000 MW generation outage as a credible contingency. The same should be provided by generating units in line with the IEGC provisions.
- (e) The reserve requirement may be estimated by the nodal agency on day-ahead basis along with day ahead scheduling of all available generating stations.

- (f) Implementation of AGC is necessary along with reliable telemetry and communication. The AGC may be planned to be operationalised in the power system from 1.4.2017.
- (g) It is essential that load forecasting is done at each DISCOM level, at each SLDC/State level and each RLDC/Regional level and finally at NLDC/country level.
- (h) It is also essential to forecast the generation from renewable sources of energy by the generators, and similarly by the DISCOMs, by the SLDCs and by the RLDCs.
- (i) To start with a regulated framework in line with the Ancillary Services Regulations may be evolved for identification and utilising of spinning reserves and implemented with effect from 1.4.2016. This framework may continue till 31.3.2017.
- (j) The reserves at the regional level, should be assigned to specific identified generating station or stations duly considering the various technical and commercial considerations including energy charges of the generating stations. The nodal agency should be empowered to identify the ISGS irrespective of type and size of the generating station for providing spinning reserve services and it should be mandatory for such generating stations to provide spinning reserve services.

- (k) The nodal agency may have the option of carrying such reserves on one or more plants on technical and commercial considerations and may withhold a part of declared capacity on such plants from scheduling. It could be in terms of % of declared capacity or in MW term as deemed fit.
- (l) A framework as specified in the Central Electricity Regulatory Commission (Ancillary Services Operations) Regulations, 2015 may be followed for the Spinning Reserve Services as well. The Central Electricity Regulatory Commission (Ancillary Services Operations) Regulations, 2015 may be amended to incorporate the necessary changes in this regard.
- (m) Going forward, a market based framework may be put in place from 1st April 2017 for achieving greater economy and efficiency in the system. A detailed study is required to be carried out before the market mechanism on spinning reserves is put in place. It is suggested that the NLDC be directed to commission study through a consultant in the context and submit a proposal to the Commission for approval.

The Commission has carefully considered and accepted the findings of the Committee.

6. One of the important components of ensuring grid reliability includes achieving adequacy of supply and maintaining the load-generation balance. This poses a challenge to grid operators on various time-scales: on a daily level as weather varies, for example, on an hourly level as load varies during the day, and on sub-hourly/time-

block level as there are errors in forecasting of load or unplanned outages of generating units or transmission lines. Sudden disturbances in the Power System can initiate a steep fall or rise in the frequency of the Power System, which can be detrimental to the Power System operation, if not contained immediately. Thus, to ensure 24x7 power supply and grid reliability, grid operators must have access to reserves at different locations and factoring transmission constraints, the system operators should be able to increase or decrease power supply on the grid at any time of the day.

7. Three types of reserves are generally considered depending on the timeline of initiation and functional need. Primary control refers to local automatic control available in all conventional generators, which delivers reserve power negatively proportional to frequency change. Such immediate automatic control is implemented through turbine speed governors, in which the generating units respond quickly to the frequency deviation as per droop characteristic of the units. However, this response to arrest frequency drop or rise lasts for short period of up to 30 seconds - 15 minutes, within which secondary control should come into play should the contingency last longer than that. IEGC section 5.2(i) specifies a provision for primary reserves, as under:

"The recommended rate for changing the governor setting, i.e., supplementary control for increasing or decreasing the output (generation level) for all generating units, irrespective of their type and size, would be one (1.0) per cent per minute or as per manufacturer's limits. However, if frequency falls below 49.7Hz, all partly loaded generating units shall pick up additional load at a faster rate, according to their capability."

However, this has not been adhered to fully by the generators.

8. Secondary control involves Automatic Generation Control (AGC) which delivers reserve power in order to bring back the frequency and the area interchange programs to their target values. For AGC, units as well as load dispatch centres have to be equipped with necessary communication infrastructure, as it involves sending automated control signals from the LDC to the generator based on grid conditions. AGC has been absent in the Indian power system. Very commonly, this results in 'load shedding' by DISCOMs in case generation is lagging load. The Indian power sector was beset with scarcity for a long time; however, now the scenario is changing and margin for reserves is feasible. With a large interconnected grid meeting a peak load of over 145 GW, both primary and secondary controls are essential components for reliable grid operation.

9. Tertiary control refers to manual change in the dispatching and unit commitment in order to restore the secondary control reserve, as loss of generator may cause a system contingency that lasts for several hours.

10. Traditionally, imbalance handling on the Indian grid has been done through the Unscheduled Interchange (UI) or the Deviation Settlement Mechanism (DSM) framework, in which the frequency-linked UI rate gave a signal to the grid participants to correct for instantaneous frequency deviations. However, it led to use not meant for, and further grid indiscipline besides stress/constraints in the transmission network. While measures like tightening of the operating grid frequency band and provision for deterrent deviation charges, have been resorted to and this has resulted in improvement of grid operation, the Commission feels that the power system operation in

the country still needs to mature further. Even now States have been deviating from schedule substantially. For instance, in 2014-15, Rajasthan deviated in the range of (+) 1202 to (-) 1324; UP in the range of 1613 to (-) 2291; Karnataka in the range of 945 to (-) 787 etc.; Tamil Nadu in the range of 546 to (-) 990; Gujarat in the range of 1174 to (-) 1162. These are not only undesirable but also a cause of serious concern. The DSM Regulations provide for a periodic review of the DSM rates and the Commission directs the Staff to undertake a review of the same and submit a proposal for consideration of the Commission.

11. The Commission would like to underscore that grid does not generate electricity and as such cannot be relied upon for meeting energy needs. Reserves and reserves alone can address this and the earlier the stakeholders realise this, the better it is for safe and secure system operation. Reserves assume greater significance additionally in the wake of the goal of integration of large scale variable renewable energy sources. With increasing penetration of variable and intermittent RE generation, flexible generation such as pumped storage hydro plants are needed. There is a need for more flexibility in the operation of conventional generation plants also and flexibility needs to be quantified, measured and duly compensated for. The Commission has already made a beginning in this direction by proposing amendment to the Indian Electricity Grid Code (IEGC) in respect of 'technical minimum' which is expected to be notified shortly. 'Ramp up' and 'ramp down' rates are other important parameters for flexibility which would gradually be introduced through Regulations.

12. The grid operator would now be required to undertake planning exercise to meet Net Load, which is defined as: $\text{Net load} = \text{Load} - \text{RE power}$. This quantum must be met with conventional generation with adequate flexibility at every point in time. To even begin an exercise of planning for ongoing load-generation balance, load forecasting is essential. It is also necessary to ensure conventional generators to generate as per the schedules. Forecasting and scheduling of solar and wind generating stations is the next critical step for the grid operators to estimate the amount of RE power they can anticipate to be injected into the grid, on a day-ahead and hour-ahead basis. Thus, the variability that can be predicted in the forecasts must be accounted for in planning flexible generation as well as tertiary reserves day-ahead and hour-ahead. Furthermore, balancing the uncertainty of RE power on a continuous basis necessitates a streamlined process for deploying spinning reserves. This would be effectively balancing the forecasting error in net load.

13. The Commission notified Central Electricity Regulatory Commission (Ancillary Services Operations) Regulations, 2015 on 19th August 2015 with the objective of utilizing un-requisitioned surplus in ISGS. These regulations are a first step towards the entire gamut of Ancillary Services, starting with tertiary frequency control services. Applicable to regional entities, the regulations outline a framework for both Regulation Up and Regulation Down service by Reserves Regulation Ancillary Services (RRAS) providers. NLDC along with RLDC, operating as the nodal agency, shall call for these services in varying situations, such as extreme weather events, loss of generating unit

or transmission line outage, load-generation imbalance, etc. The RRAS providers shall be paid from the Regional DSM Pools.

14. Furthermore, the Commission notified the Order on Extended Market Session on Power Exchanges on 8th April, 2015, and the power exchanges started operating extended hours for intra-day products by end of July. The trading window is now open round-the-clock for delivery of power on the same day, with a 3-hour delivery time-frame. This can enable to significantly correct for intra-day imbalances in a proactive manner, and not passively rely on the grid for the same. It is expected that the Distribution Control Centres (DCCs) of DISCOMs also operate in a 24 x 7 manner to reap the advantages from these extended market sessions. Depending on the market needs, there is a need for newer products in the electricity market to provide more opportunities to the participants to balance their portfolio. The Commission directs the staff to examine this aspect of market design and submit a proposal for consideration of the Commission.

15. It is also expected that with provision for reserves and harnessing the same through 'controls', the inter area power flows would be manageable and help in optimizing the Transmission Reliability Margin (TRM). This would benefit all stakeholders to a great extent.

16. In due recognition of the above factors, the Commission would like to chart out a road map for introduction of reserves in the country. Accordingly, the Commission directs as under:

- (a) For reliable and secure grid operation, to maintain continuous load-generation balance, to counter generation outages as well as unexpected load surges or crashes, and for large scale integration of variable renewable power, it is essential for the grid operators to have access to distributed Spinning Reserves which are dispatched taking due care of transmission constraints whenever required.
- (b) The Commission reiterates the need for mandating Primary Reserves as well as Automatic Generation Control (AGC) for enabling Secondary Reserves.
- (i) All generating stations that are regional entities must plan to operationalise AGC along with reliable telemetry and communication by 1st April, 2017. This would entail a one-time expense for the generators to install requisite software and firmware, which could be compensated for. Communication infrastructure must be planned by the CTU and developed in parallel, in a cost-effective manner.
- (ii) On the other hand, National/Regional/State Load Dispatch Centres (NLDC/RLDCs/SLDCs) would need technical upgrades as well as operational procedures to be able to send automated signals to these generators. NLDC /RLDCs and SLDCs should plan to be ready with requisite software and procedures by the same date.

- (iii) The Central Commission advises the State Commissions to issue orders for intra-state generators in line with this timeline as AGC is essential for reliable operation of India's large inter-connected grid.

(c) To start with, a regulated framework in line with the Ancillary Services Regulations would need be evolved for identification and utilising of spinning reserves and implemented with effect from 1st April, 2016. This framework may continue till 31st March, 2017. This may only include generating stations regulated by CERC, which could be started off with a manual process for secondary reserves. The NLDC/POSOCO is directed to submit a detailed procedure in this regard for approval by the Commission within one month from the issue of this Order. The amendments required in various Regulations issued by the Commission would also need to be indicated. As the Renewable Energy (RE) penetration levels increase in the coming years, the impact on the quantum of reserves would need to be separately studied and provided for through further amendments.

(d) In the long term, however, a market based framework is required for efficient provision of secondary reserves from all generators across the country. For this, NLDC/POSOCO is directed to commission a detailed study through a consultant and suggest a proposal to the Commission for implementation by 1st April, 2017, giving due consideration to the experience gained in the implementation of Spinning Reserves w.e.f. 1st April, 2016.

- (e) The States must undertake separate scheduling and energy accounting of all generating and load entities. Deployment of DSM framework shall greatly prepare the State to differentiate between and attribute deviations caused due to various entities involved. Recording of this data shall also give the State grid operator much needed clarity on which entities are responsible for schedule deviations, and to what extent.
- (f) Load forecasting must be undertaken by all DISCOMs. Combined with DSM, it is the foundation on which strong and reliable grid management can be built.
- (g) In order to ensure reliable and secure operation of the grid, in addition to compliance to standards and regulations, adequate defense mechanisms such as Under Frequency Relays (UFRs), df/dt (rate of change of frequency), System Protection Schemes (SPS), etc. must be put in place and which also need to be periodically reviewed and checked for healthiness.

17. The petition is disposed of in terms of the above directions.

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

sd/-
(A. S. Bakshi)
Member

sd/-
(A.K. Singhal)
Member

sd/-
(Gireesh B. Pradhan)
Chairperson



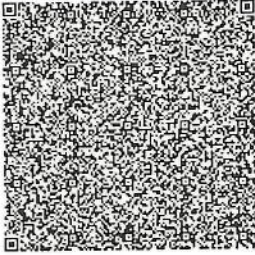
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THE HON'BLE CENTRAL ELECTRICITY REGULATORY
COMMISSION,
NEW DELHI

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PETITION NO. 100/2015

IN THE MATTER OF: Application filed under subsection (4) of section 28 of Electricity Act 2003 and Regulation 6 of the Central Electricity Regulatory Commission (Fee and Charges of Regional Load Despatch Centre and other related matters) Regulations, 2015 for NLDC Charges for the control period 2014-19.

Power System Operation Corporation Ltd. (POSOCO)

B-9, Qutab Institutional Area, 1st floor,

Katwaria Sarai, New Delhi -110016

---- PETITIONER

Users of RLDCs

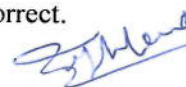
(As per Memo of Parties)

--- RESPONDENTS

AFFIDAVIT

I, Rajendra Piplonia , working as Deputy General Manager, Power System Operation Corporation Limited (A wholly owned subsidiary of Power Grid Corporation of India Limited), having its registered office at B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi-110016, do solemnly affirm and state as follows:-

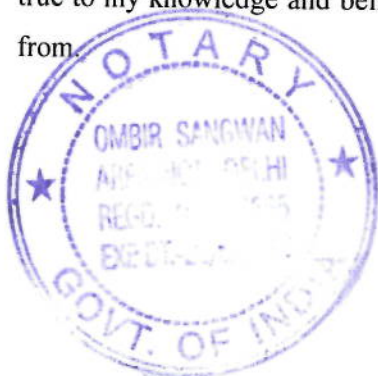
1. I, Rajendra Piplonia, Deputy General Manager, Power System Operation Corporation Limited (A wholly owned subsidiary of Power Grid Corporation of India Limited), the representative of the Petitioner in the above matter, am duly authorized to make this affidavit.
2. The statements made in the Petition herein are based on the Company's official record maintained in the ordinary course of business and I believe them to be true and correct.



DEPONENT

VERIFICATION

Solemnly affirmed at Delhi on this 20th day of October, 2015 that the contents of the above affidavit are true to my knowledge and belief and no part of it is false and nothing material has been concealed there from.



ATTESTED

NOTARY PUBLIC
DELHI (INDIA)

20 OCT 2015



DEPONENT