

**BEFORE THE MAHARASHTRA ELECTRICITY REGULATORY COMMISSION, MUMBAI**

Case No. 182 of 2014

**IN THE MATTER OF:** Tata Power Company Limited

Vs.

BEST Undertaking & Ors.

**ADDITIONAL PRELIMINARY/INTERIM AFFIDAVIT ON BEHALF OF RELIANCE INFRASTRUCTURE LIMITED.**

I, Sujit N Rao, Dy.General Manager- Legal of Reliance Infrastructure Limited ("RInfra") having office at Reliance Centre, 19, Walchand Hirachand Marg, Ballard Estate, Mumbai 400 038, do hereby solemnly affirm and state as under :

1. That I am the legal and constituted attorney of Reliance Infrastructure Limited, and I am fully conversant with the facts and circumstances of the case. I have been duly authorized and am, competent to affirm this affidavit on behalf of RInfra. I state that I have gone through the contents of the present affidavit and that the same has been prepared under my instructions.
2. I say that, the submissions of RInfra is more particularly set out in **Appendix -A** to the present additional Affidavit. The contents of the said Appendix-A annexed hereto are true and correct to my knowledge and belief and is based on the information/records maintained by RInfra and I believe them to be true.
3. The present affidavit is bona fide and filed in the interest of justice



Solemnly affirmed at Mumbai )  
11<sup>th</sup> day of August, 2015 )

Before me,

Mulla & Mulla & Craigie Blunt & Caroe

*Dhananjay*

Partner

Advocates for Reliance Infrastructure Limited

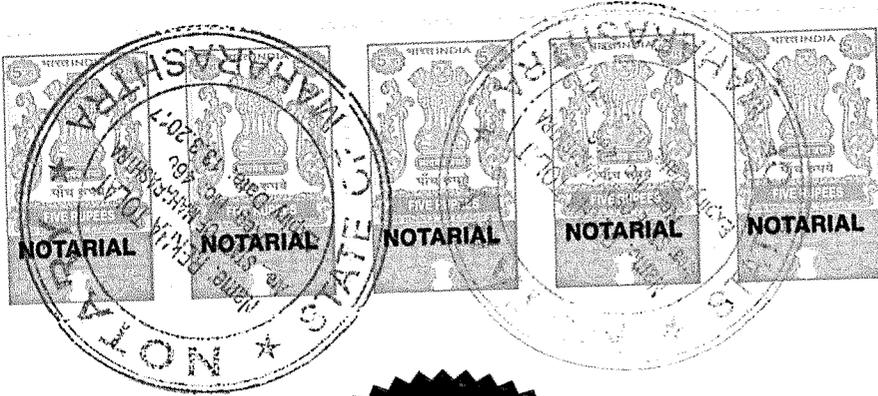
BEFORE ME

*Rekha* 11/8/15  
NOTARY

MAHARASHTRA STATE

*JK* S. no. ~~4342~~ 4342

**TOLAT & CO.**  
MISS. REKHA A. TOLAT, ADVOCATE  
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Mumbai - 400 001.



BEFORE THE MAHARASHTRA ELECTRICITY  
REGULATORY COMMISSION, MUMBAI  
Case No. 182 of 2014

The Tata Power Company Limited

...Petitioner

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ADDITIONAL PRELIMINARY /  
INTERIM AFFIDAVIT IN REPLY ON  
BEHALF OF RELIANCE  
INFRASTRUCTURE LTD

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Dated this 11<sup>th</sup> day of August, 2015



Mulla & Mulla & Craigie Blunt & Caroe,  
Advocates for Reliance Infrastructure Ltd.  
Mulla House, 51 M G Road, Fort  
Mumbai 400 001

## **APPENDIX - A**

### **ADDITIONAL PRELIMINARY/ INTERIM SUBMISSIONS ON BEHALF OF RELIANCE INFRASTRUCTURE LIMITED**

1. **Threshold Submissions:**

- i) During the course of the hearing held by this Hon`ble Commission on 30-07-2015 and in the daily order dated 06-08-2015 communicated in respect of the said hearing, this Hon`ble Commission was, inter alia, pleased to direct the parties viz. *“The Commission directs TPC to file its submission by 5 August, 2015 with copy served on all the parties. RInfra and BEST is directed to file it submission by 10 August, 2015 with copy served on all the parties.”* It was impressed upon the parties that the parties were required to adhere to the timelines.
- ii) The Petitioner (TPC) communicated vide an email at about 17:19 hrs on 06-08-2015, a purported draft protocol which TPC has requested this Hon`ble Commission to consider. By a subsequent email sent to RInfra on 06-08-2015 at 22:37 hrs, TPC purported to convey a purported proposed roll out plan to RInfra. However, RInfra is filing its present Interim Affidavit within the timeline of number of days given to it after the receipt of the affidavit of TPC and thus RInfra has adhered to the timeline while TPC has not.
- iii) Though various orders have been passed by this Hon`ble Commission over a period of time directing TPC to submit its roll out plan, including at the time of granting new distribution license to TPC on 14-08-2014, admittedly TPC has not submitted such a roll out plan which fulfils the requirements. The Petition in respect of roll out plan was originally filed on 09-

10-2014, and resubmitted on 12-02-2015 and in respect of which this Hon`ble Commission issued notice only on 14-07-2015. The notice, as stated by RInfra in its earlier interim submissions filed before this Hon`ble Commission on 29-07-2015 (within the extremely short period given to RInfra to respond to such a major issue) in respect of the said Petition, was served on RInfra with initially a short period of one week being given to respond, which period was thereafter extended by a further week and a preliminary hearing was undertaken on 30-07-2015, on Petitions of TPC which admittedly do not have any particulars whatsoever and ought not to have been entertained in the first place.

- iv) It is respectfully submitted that the issues raised in the Petition are of far reaching importance and would require a detailed exercise not only by the parties, but also by this Hon`ble Commission in view of the peculiar fact situation of the present Case adverted to by the Hon`ble Appellate Tribunal in its judgment dated 28-11-2014, in Appeal Nos.246 and 229 of 2012 ("the said judgment"). Any attempt by TPC to get an expeditious disposal of its Petitions by rushing through the process without a detailed hearing and without due and proper consideration of submissions of various parties would lead to disastrous consequences not only to the consumers but to the distribution licensees whose interests are also mandated to be protected by EA03 as interpreted by the Hon`ble Tribunal as more particularly set out hereinafter.
- v) It is respectfully submitted that Case No. 50 of 2015 relating to the approval of commissioning and capitalization of ongoing capital expenditure is, as is clear from the further submissions of TPC itself, inextricably interlinked with the issues in Case

Nos. 182 of 2014 as TPC, in paragraph 2.2 of its Petition in Case No 50 of 2015, has stated that network development, as per Order dated 22-08-2012 in Case No.151 of 2011, has been considered under the network roll out plan.

2. **Incomplete response of TPC and non-compliance by TPC of the directions of this Hon`ble Commission:**

- i) As is clear from the daily order dated 06-08- 2014, in respect of the proceedings undertaken by this Hon`ble Commission on 30-07-2015, TPC was required to furnish the following information:
- i. Detailed geographical plan indicating existing and proposed network.*
  - ii. Explain how its proposed network rollout plan satisfies the various principles provided in paragraph 58 to 61 of ATE judgment and previous orders of this Commission.*
  - iii. Provide distinction, wherever necessary, for the area served by RInfra and area served by BEST.*
  - iv. Reconcile the figures provided in year wise network rollout and year wise capex phasing.*
  - v. Clarify load projection of 1385 MW, potential load of 1065 MW and load booked of 744 MW considered in network rollout plan. Also separate out the details for RInfra and BEST's area of supply in this respect.*
  - vi. Update the Petition to reflect the new statistics.*
  - vii. Make necessary modifications in the Petition to address the concerns raised by the Commission in its Order dated 14 August, 2014 in Case No. 90 of 2014 as well as issue addressed in ATE judgment.*
  - viii. Submit its response on the preliminary submissions filed by RInfra.”.*
- ii) Out of the above 8 items, the most material items are Item Nos.i, ii, vii and viii.
- iii) In respect of Item i, relating to the detailed geographical plan it is not possible to respond to the issues in respect thereof as the so called plans are incomplete and lack particulars. The copies submitted along with the additional submissions are

unreadable and indecipherable. Thus, in effect, TPC has not complied with Item i.

- iv) In respect of Item ii, TPC has not explained how the proposed network rollout plan satisfies the various principles provided in paragraphs 56 to 61 of the ATE judgment and previous orders of this Hon`ble Commission. For instance, while in its petition TPC has proposed paralleling of network by proposing to migrate existing load of RInfra to its network and also by proposing to develop parallel network in respect of re-development load, it has not set out how the existing network of RInfra is not reliable when the reliability data is already in public domain and is uploaded on the website of RInfra every month, particularly when there is a specific finding in the ATE judgment in paragraph 56: *“therefore, in the circumstances of the present case where a reliable distribution system of RInfra is already existing and physical constraints in laying down of network by Tata Power and very high cost involved in the same, it is in the overall interest of consumers of Tata Power and RInfra that the changeover consumers continue to get supply from Tata Power on the RInfra’s network.”*. Thus, there is a positive finding that there exists a reliable network of RInfra. TPC would be entitled to lay its network only if it is able to satisfy about the alleged unreliability of RInfra’s existing network. Additionally, in paragraph 58 it is specifically found: *“laying down of parallel network in a congested metropolitan city like Mumbai where a reliable distribution network is already existing is to be viewed differently from situation in other areas in the country.....”*. (underlining supplied)

- v) Even in respect of new consumers TPC cannot lay down its network indiscriminately. To the extent possible TPC would be

compelled to use the existing network of RInfra, as observed by the Hon`ble Tribunal.

- vi) In respect of the requirements to make modifications in TPC's Petition to address the concerns raised by the Hon`ble Commission in the Order dated 14-08-2014, as well as issues addressed in the ATE judgment, TPC has not addressed the said issues at all.
- vii) TPC has not submitted its response to the preliminary submissions filed by RInfra.
- viii) In the circumstances it is respectfully submitted that the Petitions filed by TPC are completely inadequate and non-maintainable and even while attempting to fill up the lacunae and gaps in the Petition, TPC has not given the particulars as required by the Hon`ble Commission. The submissions in the additional affidavit filed on 06-08-2015 by TPC themselves show that the said submissions are incomplete and are based on various assumptions.
- ix) The submissions made herein proceed on the footing that the judgment of the Hon`ble Tribunal dated 28-11- 2014 in Appeal Nos. 246 and 229 of 2012 is applicable. RInfra reserves its right (and the present submissions are without prejudice to such right) to make submissions in respect of the correctness or otherwise of the said judgment, at the appropriate occasion.

### 3. **Object of EA03:**

- i) The preamble to Electricity Act, 2003 reads as under:

*“An Act to consolidate the laws relating to generation, transmission, distribution, trading and use of electricity and generally for taking measures conducive to development of electricity, industry, promoting competition therein, protecting interest of consumers and supply of electricity to all areas, rationalization of electricity tariff, ensuring transparent policies regarding subsidies, promotion of efficient and environmentally benign policies, constitution of Central Electricity Authority, Regulatory Commissions and establishment of Appellate Tribunal and for matters connected therewith or incidental thereto”*

- ii) the Hon`ble Tribunal in the judgment dated 21-12-2012, in Appeal No. 132 of 2011 and batch, has, inter alia, observed as under:

*“(B) Various provisions of the 2003 Act as well as 1910 Act required a distribution licensee to lay down its own distribution network for meeting the universal service obligation to consumers. TPC, the distribution licensee who had been granted license in the year 1907 and who failed to lay its own distribution network cannot now claim right over the distribution network of other licensee to meet its universal service obligations.*

*(C) The only method to use the network of the Distribution Licensee namely RInfra, by the another Distribution Licensee namely TPC, is only through open access under Section 42 of the Act. Section 42(3) envisages the existence of parallel distribution licensee and it is equally applicable in this case where a consumer connected to the network of one distribution licensee i.e. RInfra, takes power from other distribution licensee i.e. TPC in the same area of supply.*

*(D) The State Commission does not have any plenary power to permit something which is not permitted within the Act itself. In this case, there is specific provision for Open Access to allow the TPC to supply to the change over consumers by using the network of RInfra. Hence, the question of invoking plenary powers does not arise.*

*(E) The State Commission is required to look after not only the interest of the consumers but also the interest of licensees. Therefore, the State Commission, while deciding that the change over consumers are liable to pay cross subsidy surcharge to RInfra for using their network has in fact taken into consideration the interest of the consumers as well as the interest of the licensees. Therefore, findings and directions given in the impugned order by the State Commission which would promote healthy competition are perfectly justified.”*

- iii) The provisions of EA03 and the said judgments in Appeal No. 132 of 2011 and batch and Appeal No. 246 and 229 of 2012 have to be read cohesively.
- iv) The inescapable conclusion that is drawn from the aforesaid is that it is not that only and solely consumer interest has to be borne in mind by the Regulatory bodies while taking various actions. The preamble to the Act gives equal importance to developments of electricity industry as much as to protecting the interest of consumers. It is not that the interest of the

distribution companies has to be disregarded for the short term benefit of consumers ignoring the past history of the distribution licensees as well as the ground realities in consonance with the law. It is submitting that protecting the interest of distribution licensee is in long term interest of consumers.

4. The submissions made herein are without prejudice to one another.
5. It is submitted that additional submissions made in respect of roll out plan submitted by TPC on 06-08-2015 also proceed on completely erroneous and misleading footing, inter alia, that new as well as existing RInfra consumers are free to opt for any of the distribution licensee's network, which defeats the very basis, object and purport of the said judgment by apparently seeking to restart the entire matter of cherry picking and selective network laying, only this time under the garb of "consumer choice of network". TPC is, purportedly on an apparent incorrect interpretation to suit itself, seeking to give the said judgment a go by thereby nullifying the same. The purported contentions of TPC run counter to its own earlier stand with regard to duplication of network and constrains in laying the same in its area of supply. However, purported roll out plan submitted by TPC also do not address the core issue of constraints faced by TPC in erecting substations etc.
6. On perusal of the submissions made by TPC in respect of estimated additional load on TPC's network, it appears that TPC has proposed roll out for estimated additional load of 605 MW and 139 MW in RInfra and BEST area of supply respectively. It is submitted that the roll out proposed by TPC completely defies the principle of no duplication of network as it has proposed higher

capex in Rlnfra area wherein it has option to use the existing reliable network of Rlnfra and it has proposed much lower capex in BEST area where it is obligated to lay its distribution network as per judgment of the Hon'ble Supreme Court of India. It is submitted on this short ground alone, roll out plan of TPC is liable to be rejected and TPC be directed to submit revised roll out plan by taking into consideration the possibility of use of existing reliable network of Rlnfra to provide supply to consumers so to avoid burden on consumers as per the said judgment, rather than seeking to lay its own parallel network even in the presence of such existing reliable network.

7. It is submitted that TPC should focus its entire energy and resources in respect of network in BEST area of supply wherein every customer is a potential customer for TPC in view that there is no option to use existing BEST network for providing supply to consumers, in the present legal framework.
8. It is submitted that the numbers provided in various tables in the Petition are inconsistent with each other. To demonstrate, Rlnfra submits the following:-

Table No.	Migration to TPC	Potential load	Potential load	
Additional load in MW	Yellow field	Brown field	Green field	<b>Total</b>
8	102	446	56	<b>605</b>
10	5			
11		524		
12			141	
<b>Total (10+11+12)</b>				<b>670</b>

- 8.1 The total additional load of 605 MW in table no. 8 is inconsistent with the summation of additional loads provided in table nos. 10, 11 and 12.
- 8.2 In table no. 10, H West ward additional load of 5 MW is considered in yellow field, whereas, in table no. 8, said 5 MW additional load is appearing in Yellow field (1 MW) and Brown field (4 MW).

8.3 In table no. 12, H East ward additional load of 24 MW is considered in green field and in table no. 11, said 24 MW is considered in brown field, whereas, in table no. 8, said 24 MW additional load is appearing in Yellow field (8 MW) and Brown field (16 MW).

9. It is submitted that in the tables mentioned below, the sum of the individuals is higher than the total.

		Network planned				
		DSS Capacity (MVA)	33 kV cable (km)	11 kV cable (km)	CSS Capacity (MVA)	LT cable (km)
Table Nos.	Fields	(MVA)	(km)	(km)	(MVA)	(km)
10	Yellow	0	0	0	7	5
11	Brown	360	140	288	476	327
12	Green	100	30	80	151	104
	<b>Total</b>	<b>460</b>	<b>170</b>	<b>368</b>	<b>634</b>	<b>436</b>
1	<b>Total</b>					
17	<b>Total</b>	<b>400</b>	<b>150</b>	<b>320</b>	<b>581</b>	<b>399</b>
	<b>Difference</b>	<b>-60</b>	<b>-20</b>	<b>-48</b>	<b>-53</b>	<b>-37</b>

10. The Hon`ble Commission is requested to take into account such inconsistencies in the Petition and direct the Petitioner to provide rectified numbers. RInfra craves leave to file additional submissions in respect of corrected numbers. In fact, from the aforesaid, clearly the veracity of the data itself is in doubt and is required to be verified. This is further apparent from the following.

11. TPC first purportedly gave its rollout plan in Case No. 90 of 2014 while applying for its license, inter alia, in the common area of supply with RInfra.

11.1 The said rollout plan was rejected by this Hon`ble Commission by its Order dated 14-08-2014.

11.2 A revised rollout plan based on the directions given in the Order dated 14-08-2014, appears to have been given by TPC on 09-10-2014, of which RInfra is not aware.

11.3 When the above Petition, that is, Case No. 182 of 2014 was filed in February 2015, TPC purported to give another rollout plan which,

inter alia, contained “Load Projection for the License Area”. Such load projection was in respect of area of supply common to RInfra as well as BEST. It appears from the additional submissions in, paragraph 22, that TPC has carried out a reassessment of wardwise load projection figures since the submission of Petition in Case No. 182 of 2014.

11.4 On comparison of the load projections in paragraph 3.2.3, Figure 3, and Table Nos.6 and 7 of paragraph 22 of the additional submissions, the following Tables emerge.

Load Projection for the License Area - RInfra in MW			
Ward	Case No 182 of 2014 - Feb 2015(Pg 23)	Case No 182 of 2014 - Aug 2015(Pg 13)	Diff
H East	82	48	-34
H West	48	17	-31
K East	84	164	80
K West	79	114	35
L	53	52	-1
M East	60	41	-19
M West	28	19	-9
Mira Bhayander	118	116	-2
N	67	104	37
P North	85	72	-13
P South	65	65	0
R Central	47	50	3
R North	47	31	-16
R South	95	39	-56
S	50	75	25
<b>Total</b>	<b>1008</b>	<b>1008</b>	<b>0</b>

Load Projection for the License Area - BEST in MW			
Ward	Case No 182 of 2014 - Feb 2015(Pg 23)	Case No 182 of 2014 - Aug 2015(Pg 13)	Diff
A	49	19	-30
B	0	8	8
C	10	3	-7
D	34	25	-9
E	35	89	54
F North	33	37	4
F South	49	58	9
G North	35	19	-16
G South	29	21	-8
<b>Total</b>	<b>274</b>	<b>280</b>	<b>6</b>

<b>Total</b>	<b>Case No 182 of 2014 - Feb 2015(Pg 23)</b>	<b>Case No 182 of 2014 - Aug 2015(Pg 13)</b>	<b>Diff</b>
<b>A+B</b>	<b>1282</b>	<b>1288</b>	<b>6</b>

- 11.5 Thus, TPC has purported to, despite having contended that it has reassessed the ward-wise load projection matched the total load as given in February 2015, with that given in August 2015, as set out above, there being a mismatch in the ward-wise projections, but as stated above the total load remaining constant.
- 11.6 In paragraph 3.2.3 of the Petition in Case No. 182 of 2014, TPC has given “*Load Booked in Licensed Area*” ward-wise covering Rlnfra as well as BEST area of supply which clearly shows that as on the date of filing of the said Petition on 12-02-2015 a quantum of 744 MW was already booked with TPC, though the total of the said figure comes to 800 MW. Thus, Figure 4, which was given on a duly sworn affidavit itself, was incorrect.
- 11.7 As against its solemn Statement in the petition filed on 12-02-2015 that the quantum of 744 MW was “*Load Booked*” with TPC, in their additional submissions filed on 06-08-2015 i.e. 6 months after filing of the Petition on 12-02-2015, the said load booked has now been shown as “*Load projection*”.
- 11.8 As pointed out earlier, even in case of “load booked” TPC has purported to match the figures though there is discrepancy in ward-wise figures which is clear from the following Tables:

Load Booked in License Area - Rlnfra in MW			
Ward	Case No 182 of 2014 - Feb 2015(Pg 23)	Case No 182 of 2014 - Aug 2015(Pg 15)	Diff
H East	20	24	4
H West	5.8	5	-0.8
K East	185	96	-89
K West	86.6	83	-3.6
L	35	30	-5
M East	22.1	17	-5.1
M West	8.89	7	-1.89
Mira Bhayander	57.2	76	18.8
N	89.7	73	-16.7
P North	48.8	41	-7.8
P South	48.4	42	-6.4
R Central	33.2	28	-5.2
R North	20.2	17	-3.2
R South	18.1	23	4.9
S	6.5	41	34.5
<b>Total (A)</b>	<b>685.49</b>	<b>605</b>	<b>-80.49</b>

Load booked in License Area - BEST in MW			
Ward	Case No 182 of 2014 - Feb 2015(Pg 23)	Case No 182 of 2014 - Aug 2015(Pg 15)	Diff
A	0	10	10
B	0.2	2	1.8
C	0.1	0	-0.1
D	14.9	10	-4.9
E	60.3	44	-16.3
F North	6.2	20	13.8
F South	20.6	33	12.4
G North	7.7	11	3.3
G South	4.8	8	3.2
<b>Total (B)</b>	<b>114.8</b>	<b>139</b>	<b>24.2</b>

<b>Total</b>	<b>Case No 182 of 2014 - Feb 2015(Pg 23)</b>	<b>Case No 182 of 2014 - Aug 2015(Pg 15)</b>	<b>Diff</b>
<b>A+B</b>	<b>800.29</b>	<b>744</b>	<b>-56.29</b>

11.9 TPC has given “*Potential Load targeted for License Area as 1065 MW*” in paragraph 4.3.1 Figure 10 in its Petition being Case No. 182 of 2014 filed on 12-02-2015. On the aforesaid basis, the overall capital expenditure phased out over a period of 7 years was stated to be in the range of Rs.1380 Crore as is clear from Table 13 in paragraph 5.2.3 of the Petition.

11.10 In the additional submissions filed on 06-08-2015, in paragraph 45, TPC has stated that as per reassessment of ward-wise load projection figures (as per Table 16), it has given the current load projection of 744 MW. However, despite the load projection having been reduced from 1065 MW to 744 MW, out of which 605 MW is in RInfra’s area, TPC has maintained the same capital expenditure of Rs.1380 Crore (Table 19), which is the same Table as Table 13 in the Petition in Case No. 182 of 2014 filed in February 2015.

11.11 Thus, it appears that TPC is merely giving an impression that in view of the order of this Hon`ble Commission it is giving an update to reflect the new statistics but nonetheless is keeping the expenditure the same, even after projecting a lower load. Thus clearly the purported revised rollout plan is clearly fraught with data errors and is merely an eye wash and is required to be rejected.

11.12 On perusal of the Petition in Case No 182 of 2014 filed in February 2015, it appears that there is discrepancy in the network details

(existing as on March 2014) submitted by TPC when the same is compared with details submitted during license Petition.

TPC Existing Network Details as on March 2014				
		Case No 182 of 2014- Feb 15	License Petition	Diff
DSS	Nos	27	26	1
DSS Capacity	MVA	915	875	40
HT Network	KM	1833	1897	-64
CSS	Nos	608	668	-60
CSS Capacity	MVA	968	680	288
LT Network	KM	1103	1189	-86

12. The said judgment of the Hon'ble Tribunal sets out the principles for laying network by TPC when existing reliable network already exists and issues certain directions in respect of roll out plan to be approved by this Hon'ble Commission. From the aforesaid judgment, the following clearly emerges:
- i) TPC has not laid its network in its licensed area of supply;
  - ii) TPC has put forward the reason for not laying its network as "*practical difficulties in congested metropolitan cities*";
  - iii) If all the licensees are directed to lay parallel network it will result in some network becoming redundant;
  - iv) Where a reliable distribution of RInfra already exists it would be in the overall interest of consumers of TPC and RInfra that the change over consumers must continue to get supply from TPC on RInfra's network with liberty to change over back to RInfra in case RInfra's tariff becomes attractive – this being so as duplication of network particularly on account of physical constraints and high costs would not be in the overall interest of the consumers (Thus switch over of any consumer using RInfra's network is barred by the said judgment);
  - v) No undue commercial advantage should be gained by TPC by selectively laying down network to cater to only high end consumers and any cherry picking by TPC should be avoided;
  - vi) TPC cannot claim right to lay down distribution network selectively particularly in view of its self professed difficulties in laying down network and the high cost involved;
  - vii) TATA POWER SHOULD BE RESTRICTED TO LAYING DOWN ITS NETWORK ONLY IN AREAS (A) WHERE LAYING DOWN OF PARALLEL NETWORK WOULD IMPROVE THE RELIABILITY OF SUPPLY AND BENEFIT THE CONSUMERS AND (B) EXTEND SUPPLY TO NEW CONSUMERS WHO SEEK CONNECTION FROM TATA POWER. TATA POWER'S ROLLOUT PLAN

SHOULD BE RESTRICTED TO ONLY SUCH AREAS, AND THIS MAY REQUIRE AMENDMENT IN THE LICENSE CONDITIONS OF TATA POWER AFTER FOLLOWING DUE PROCESS AS PER LAW.

- viii) The Rollout Plan shall be approved by the Hon`ble Commission only after hearing RInfra and the consumers.
  - ix) In the meanwhile TPC should be restrained to lay down distribution network in the common license area;
  - x) Only in areas where TPC has made considerable investment in constructing the distribution system in pursuance to the directions of this Hon`ble Commission, it should be allowed to be commission and capitalize such assets to feed the consumers as decided by the Commission, which decision has to be arrived at after hearing the “*concerned parties*”.
  - xi) TPC is directed to submit its Rollout Plan “*as indicated above*” (i.e. in paragraphs 58, 59 and 60 of the judgment) which would mean that: (a) the Rollout Plan submitted should show that there are no practical or physical constraints in laying down the network; (b) If the rollout plan seeks to duplicate any part of network already existing, it should demonstrate that the network already existing is not reliable and that laying down of parallel network would improve the reliability of supply and benefit the consumers (c) the network proposed to be developed as per the Rollout Plan is not selective (d) how the proposed capitalization of activities as per Case 50 of 2015 is subsumed within the Roll-out Plan and (d) keeping in view the aforesaid it would extend supply to new consumers who seek connection from TPC (para 61 of the judgment).
  - xii) A new consumer necessarily means one in whose premises there is no network existing whatsoever and such consumer seeks supply.
13. From the aforesaid it is clear that to implement the said judgment, license conditions are required to be amended for the distribution licensees and particularly for TPC, a Rollout Plan in consonance with the Hon`ble Tribunal’s judgment is required to be submitted by TPC and, in case of ongoing capital works which are yet to be commissioned and capitalised, this Hon`ble Commission has to be satisfied that TPC has already made considerable investment for such works in pursuance of the directions of this Hon`ble

Commission before TPC is allowed to commission and capitalize such works in its distribution system.

14. RInfra submits that it has been a power distribution utility of the suburban Mumbai since more than 8 decades and has developed reliable network in every nook and corner of its supply area. It has a total of 77 nos. of 33(22)/11kV substations within its licensed supply area with total installed capacity of 3297 MVA fed through a network of nearly 880kms of 33(22)kV underground cable network spread across the supply area. The peak arithmetic demand as seen by the 33(22) kV network during May 2015 was 1996 MVA & coincident demand 1825 MVA; thus having an optimal installed capacity to demand ratio of 1.6. The total installed distribution transformer capacity as on May-June 2015 was about 4606 MVA in more than 6700 nos. of distribution substations (i.e nearly 17 nos. of substations/sq.kms and nearly 12 MVA of installed capacity/sq. km). A meshed open-ring 11kV cable network, totalling to about 3200kms of circuit length, feeds the distribution substations. At the LT level, the total LT mains network length is about 5900 kms reaching each and every domestic consumer; irrespective of whether the consumer is from densely populated slum area such as Shivaji nagar or premium residences in Khar, Juhu, Bandra areas, or remotely located fishermen colonies in Uttan area. Geographical Map giving details of RInfra network details is enclosed herewith and marked as **Annexure “1”**.
15. The overall reliability of RInfra’s network (considering the network spread) is among the best in the nation with availability of 99.99% achieved in view of interconnected mesh network at various voltage level and through deployment of state-of-the-art systems like SCADA (Supervisory Control And Data Acquisition), DMS (Distribution Management System), Integrated GIS (Geographical Information System) and OMS (Outage Management System) which support the physical network and are unparalleled in the country. The unique 11kV and LT Mesh network is far more effective than the traditionally used ‘ring’ network, to ensure that electricity is restored during a power outage, with the least delay or inconvenience to the customers. The overall network planning philosophy of RInfra is the key element in ensuring unmatched reliability that the system provides to its connected consumers,

across the entire license area. The detailed report of RInfra network reliability and expansion philosophy, measures to further improve reliability, cost effectiveness of RInfra network for new/redeveloped loads etc is enclosed herewith and marked as **Annexure “2”**.

16. RInfra submits that in view of its extensive reliable network in the entire area of supply which is common to TPC, any laying of network by TPC would not only result in incurrance of significantly high fixed cost to lay such network, but would also not be justified in view of its marginal utility, since the reliability and quality of supply rendered by existing RInfra’s network is anyway superior and further improvements thereon can be executed by RInfra at little incremental capex on its existing network as against TPC which would have to lay the entire network. RInfra is submitting herewith in Annexure 2, a report on network reliability and expansion philosophy of RInfra, which contains the overall network planning process of RInfra and how the same ensures that RInfra’s cost of extending supply to consumers and its cost of improvement in reliability will only be incremental and hence minimal, as against cost of creation of network from scratch, which would put the burden of cost doubling on all consumers in the area of supply.
17. In fact, this Hon’ble Commission, in its order dated 26-06-2015 in Case No 18 of 2015, in respect of TPC-D’s Multi Year Tariff Mid-Term Review Order, has also held that consumers who opt for TPC supply will have to be provided electricity primarily through the wires of RInfra, as per the said judgment. Relevant extract of the order dated 26-06-2015 is as reproduced below:

“7.1 .....

*In its Judgment dated 28 November, 2014 in Appeal No. 246 of 2012, the ATE has held that national resources are scarce and should not be squandered by duplicating the distribution network in a common area where an existing Licensee already has a well-established network. In its previous Orders, the Commission has maintained that, in a city like Mumbai, where space is a huge constraint, it is practically impossible for all consumers to have a choice of physical network connectivity to more than one Distribution Licensee even though all have a Universal Service Obligation, and practical solutions have to be found to address the typical problems that arise under such circumstances. The existing distribution network has to be effectively utilised by both Licensees to ensure that only optimum capital expenditure is undertaken, the space constraints are addressed, and public inconvenience and disruptions are minimised. The topography of Mumbai is such that it is surrounded by ocean on three sides, with a high population density, unlike Delhi. Moreover, in Delhi, the Distribution Licensees operate in separate areas of supply,*

*and already have their own extensive distribution networks to which they can add. Hence, in the case of Mumbai, power to consumers who opt for TPC-D will have to be provided electricity primarily through the wires of RInfra-D, as per the ATE Judgment in Appeal No. 246 of 2012 dated 28 November, 2014.” (Emphasis Supplied)*

18. RInfra submits that the Hon’ble Commission is itself alive to the need for preventing the cost burden on consumers and inconvenience to public life due to paralleling of network.
19. It is submitted that any blanket approval of roll out plan by this Hon’ble Commission will necessarily lead to duplication of network which is against the principle set out in the said judgment.
20. World over, distribution and transmission utilities are recognised as Natural Monopolies i.e. businesses characterised by high fixed cost, where economies of scale can only be realised with one firm providing all the goods for the given market. It is submitted that the way the distribution systems of RInfra and TPC have evolved over time, puts RInfra in a much better position to realise economies of scale in most areas in its area of supply – be it for extension of network for supply to new connections or for betterment of system to improve quality and reliability of supply. RInfra is, however, suggesting that network expansion and up-gradation should not be permitted to TPC at all, but only suggesting that the same be done by considering the fact that the incremental expansion/up-gradation of network is carried out with minimal fixed cost. The Hon’ble Commission would appreciate that the overall interest of all consumers in the area of supply over a long term will be best served only by ensuring and preserving this situation, rather than permitting indiscriminate duplication of distribution network.
21. Without prejudice to the aforesaid, RInfra now proceeds to reply parawise to the additional submissions made by TPC on 06-08-2015 in respect of its roll out in RInfra area of supply.
22. With reference to paragraph 1, it is submitted that it is mere reproduction of fact and needs no response.
23. With reference to paragraph 2, TPC has merely referred to certain provisions of law and RInfra craves leave to refer to the same for ascertaining their true meaning, interpretation and legal effect.

24. With reference to paragraph 3, it is submitted that it is a reproduction of relevant extract of Commission's order in Case No.151 of 2011 and needs no response.
25. With reference to paragraph 4, it is submitted TPC has made incorrect statement that it has invested Rs.1000 Crore pursuant to directions of Hon'ble Commission in Case No 151 of 2011. Whereas, TPC in its Petition filed in Case No 50 of 2015 has clearly mentioned that it has incurred capex of Rs.361 Crore only (Rs.294 Crore capitalised and Rs.67 Crore yet to be capitalised) out of the DPR that was approved to it pursuant to this Hon'ble Commission's Order in Case No. 151 of 2011. In respect of Table No 1, RInfra submits that TPC has laid negligible network in BEST's area of supply as compared to that of RInfra, wherein it had option to use the existing network of RInfra. This clearly shows that TPC is concentrating on duplicating the network in the area where it can be avoided by utilising RInfra's existing, reliable network and is not proposing to lay network as much as is required in BEST area, where it has no option of utilising BEST's network and is therefore obligated to serve consumers using its own network only.
26. With reference to paragraph 5, TPC's submission that CSS utilisation should be at least 50% is without any basis and has no relevance at all with the proposed roll out plan submitted by TPC. It is submitted that the loading percentage of existing network of TPC and TPC's proposal to enhance the loading of CSS to 50% is completely outside the scope of the present proceedings. These proceedings are confined to approval of TPC's network roll-out plan in accordance with the observations and principles enunciated by the said judgment. In fact, TPC's suggestion appears to be to load its existing network to 50% by making the existing network of RInfra supplying to such consumers, redundant. RInfra submits that this is in complete contravention to the said judgment which has held that consumers who are presently connected to and served by RInfra should be supplied by TPC on changeover only. It is submitted that Hon'ble Tribunal, in the said judgment, has clearly held that duplication of network should not be allowed so as to avoid burden on consumers and existing consumers should be served using the network of RInfra only. However, the said judgment carves out an exception that TPC be allowed to capitalise

such assets where considerable investment is made by TPC pursuant to directions of the Hon'ble Commission in Case No 151 of 2011. TPC has already capitalised Rs 294 Crore and as per their submission in Case No 50 of 2015, only Rs 67 Crore is yet to be capitalised. RInfra submits that this Hon'ble Commission should approve further capitalisation only to the extent of Rs 67 Crore that too subject to checking the veracity thereof by appropriate means. This is even more significant in the light of various discrepancies and the apparent deliberate matching of figures in the additional submissions with what was stated in the Petition filed in February 2015 as is pointed out and elaborated hereinabove. Any additional approval by this Hon'ble Commission would be in violation of the directions of the said judgment. The said judgment nowhere mentions or specifies that TPC is allowed to load CSS to at least 50%. It is submitted that with inherent natural load growth and new load, loading of CSS will increase gradually and reach the desired level of TPC. It is submitted that it cannot be the case of TPC that as soon as it commissions CSS, it should be allowed to load its CSS by at least upto 50% by switching over existing consumers of RInfra.

27. With reference to paragraph 7, it is submitted that the Hon'ble Tribunal has allowed TPC to capitalise the "*considerable investment*" made as per directions of the Hon'ble Commission in Case No 151 of 2011. It is submitted that the said amount is to the extent of Rs 67 Crore as submitted by TPC in its Petition in Case No 50 of 2015. It is denied that Hon'ble Tribunal has protected the entire investment made by TPC in laying network.
28. With reference to paragraphs 9 and 10, RInfra submits that the network rollout plans have been rejected by this Hon'ble Commission.
29. With reference to paragraph 11 and 12, it is submitted that TPC has misinterpreted the principles laid down by the said judgment. RInfra repeats and reiterates what is stated hereinabove. With specific reference to paragraph 12 (b)(i), it is submitted that redeveloped premises cannot be treated as new connection as RInfra network is already existing and providing supply to the existing building. If TPC is allowed to supply to such redeveloped building, it would amount to duplication of network by TPC under the guise of new connection. It is submitted that even if any

augmentation needs to be done to cater to redeveloped premises, the cost of such augmentation for RInfra would only be incremental over its existing network and hence much lower, as against TPC which will have to lay its backbone network to reach to such premises. The report attached as Annexure 2 herewith shows a general illustration as to how the existing meshed 11kV network of RInfra in a given area ensures that the cost of serving new load and incremental load as a result of redevelopment for RInfra would be much lower as compared to TPC which would not have its existing network and would be required to lay down the same.

30. Further, with specific reference to paragraph 12 (b)(g), without prejudice to its contentions in Appeal No 201 of 2014, it is submitted that the Hon'ble Commission in its reply in the said appeal has clearly specified that it will impose restrictions under Section 23 read with Sections 42, 43 and 129 of EA03 while regulating the network roll out of TPC under Section 16 of EA03, which is mandatorily required to be complied by TPC. It is submitted that in order to meet the principles of economics of network development as laid down by the Hon'ble Tribunal, any conditions for network development imposed by the Hon'ble Commission as part of the present proceedings would not be in consonance with the present License issued to TPC and hence would require the Commission to specify the Specific Conditions not only for TPC but also for RInfra, so that the two Licensees are able to ensure most optimal network expansion and modernisation in a coordinated manner. The purported interpretation given by TPC is, as stated above, incorrect thereby giving a complete go by to the said judgment and also seeking permission of this Hon'ble Commission to lay network wherever it chooses.
31. With reference to paragraph 13, it is submitted that the network rollout plan given along with the additional submissions under reply as well as in the Petition contains several discrepancies which are already highlighted. Such rollout plan, inter alia, on the aforesaid basis is clearly required to be rejected.
32. With reference to paragraph 14, it is submitted that TPC has not furnished the details as required by RInfra (Annexure-5 of the RInfra submissions dated 29-07-2015).

33. With reference to paragraph 16, read with paragraph 29, it is not clear as to how migration of load in Yellow Field areas is proposed by TPC. The network roll-out as per paragraph 29 is limited to 7 MVA of CSS capacity and 5 km of LT cable, for an additional load of only 5 MW, whereas the Yellow Field load migration as per Table 8 of the petition is shown as 101 MW. TPC needs to clarify that how they propose to migrate a load of 101 MW and that too spread across all wards, while proposing minimal network rollout and that too only in H West Ward. This implies that TPC is proposing to switchover existing consumers of RInfra across all wards to the extent of the proposed 101 MW. RInfra submits that as per the judgment of the Hon'ble Tribunal, load migration through switchover is only permitted to TPC for consumers as decided by the Hon'ble Commission, in order to commission and capitalise its works, wherever significant capital investment has already been made. Hence, in any event, Load considered by TPC by considering migration of existing RInfra consumers is in contravention to the said judgment.
34. In respect of brown field areas, at the outset it is submitted that TPC has apparently based its assessment on "*MCGM's proposed Development Plan 2013 – 2034*". It is submitted that it is public knowledge that the proposed development plan as published by the Government of Maharashtra has several discrepancies, does not reflect the correct position and thus is under rectification after verifying the real position. It is thus not clear as to how the same has been considered by TPC as the basis of "*Brown field areas*". The projections are thus clearly incorrect and consequently the rollout plan based on such incorrect projections which in turn are based on incorrect DP undergoing major rectification and change is required to be rejected. TPC has considered load growth of almost 446 MW to propose network rollout i.e. TPC is proposing to duplicate the network to the extent of 35% of RInfra's existing load (for total RInfra load – for brown field areas only, the percentage would be even higher). As mentioned above, it is submitted that in case of redeveloped premises, RInfra's network is already existing and providing supply to the existing buildings/structures. If TPC is allowed to supply to such redeveloped premises, it would amount to duplication of network by TPC. It is submitted that even if any augmentation needs to be done to cater to redeveloped premises, RInfra's cost would be only a small fraction of the cost which TPC

will have to incur, as already stated above. A sample computation of the same is annexed herewith and marked as Annexure "2". In respect of green field areas, it is submitted that Hon'ble Commission has to evaluate the cost of expansion based on marginal cost principles i.e. evaluating the incremental capex required by the two licensees to serve the consumer.

35. With reference to paragraphs 17, 18, 21, 22 and 23 the purported identification of Brown field and Green field is denied, inter alia, in view of the fact that the proposed DP itself is under rectification and has been found to be not reliable. RInfra has already commented herein on the discrepancies in the data and repeats and reiterates the same.
36. With reference to paragraph 24, it is submitted that TPC intends to switchover and duplicate network for almost 548 MW (out of total of 605 MW) contrary to the principles and directions of the said judgment, which specifies that even the changeover consumers (consumers receiving supply on RInfra network) will continue to remain connected to RInfra network even if TPC network is available in vicinity. Relevant extract of the said judgment are reproduced below:

*80(ii) .....Therefore, it is in the interest of consumers of Tata Power and RInfra that the changeover consumers of Tata Power continue to get supply from Tata Power on the RInfra, even if a 33/22 kV sub-station of Tata Power is available in the vicinity. It will also be convenient and economical for the consumer to changeover back to RInfra in case RInfra's tariff becomes more attractive in future."* (Emphasis Supplied)

37. With reference to paragraph 28 and 29, it is submitted that roll out principle followed by TPC in yellow field areas is contrary to the said judgment wherein it has considered that any existing consumer of RInfra can opt for TPC network. Also, as mentioned above, switching over of RInfra existing consumers cannot be criteria for loading TPC network and makes RInfra network redundant. It is submitted that TPC should not be allowed any additional capex in respect of roll out for duplicating the network except to the extent of capitalisation Rs 67 Crore already incurred

by TPC and is presently works in progress as per their submissions in Case No. 50 of 2015.

38. With reference to paragraph 30 and 32, RInfra repeats and reiterates what is stated hereinabove.
39. With reference to paragraph 31, it is submitted that information of reliability as sought for by TPC is already available in public domain on RInfra website. Such uploading of data is in compliance of the relevant Regulations framed by this Hon`ble Commission which is also to the knowledge of TPC which is a distribution licensee. However, RInfra had already communicated to TPC that the format in which data was required by TPC is inapplicable. In any event and without prejudice to the aforesaid, RInfra has enclosed detailed report (as Annexure 2) of RInfra network planning philosophy along with details of reliability indices, measures to further improve reliability, cost effectiveness of RInfra network etc.
40. With reference to paragraph 33 and 34, it is submitted that any network rollout plan to be approved for green field areas needs to be considered in light of existing network availability of RInfra or TPC and only that licensee should be allowed to lay network whose marginal cost is lower to lay network to such new consumer.
41. With reference to paragraphs 45 to 48, it is submitted that RInfra has already pointed out the several discrepancies and the incorrect basis on which the such roll out plan is submitted and is liable to be rejected. Further, it appears from a perusal of paragraph 48 that TPC has not given network rollout plan phasing and capex phasing separately for BEST and RInfra area contrary to the directions given by this Hon`ble Commission in its daily Order dated 30-07-2015.
42. With reference to paragraph 49, it is denied that network roll out plan submitted by TPC is in compliance with all statutory provisions and principles set out in the said judgment.
43. With reference to paragraphs 50 and 51, it is submitted that RInfra has annexed its network details in the present submissions. As mentioned above in the present reply, TPC is proposing to duplicate the network for almost 40% of RInfra's existing load inspite of having an option to supply consumers on existing

network of RInfra, contrary to the ruling of Hon'ble Tribunal in the said judgment. TPC has proposed minimal roll out in BEST area of supply wherein it has to lay network to supply to every consumer. In view of the aforesaid, RInfra requests this Hon'ble Commission that present roll out plan ought to be rejected. The purported geographical plans given by TPC along with its additional submissions lack clarity and are not in compliance with the directions given by this Hon'ble Commission.

44. With reference to paragraph 52, it is submitted that TPC has proposed purported roll out plan based on the assumptions made therein and is liable to be rejected in view what is stated herein above.
45. With reference to paragraph 53, it is submitted that TPC has not submitted information as sought by RInfra in terms of Annexure -5 of its reply dated 29-07-2015.
46. In the circumstances, RInfra respectfully submits that the Network roll out plan of TPC in respect of RInfra area of supply should be rejected and TPC should be directed to file revised roll out plan by considering the existing reliable network of RInfra and principles enunciated by Hon'ble Tribunal in the said judgment.

**ANNEXURE “1”**  
**GEOGRAPHICAL MAP –**  
**RINFRA NETWORK**

(A0 SIZE DRAWING – submitted in  
hard copy only)

**ANNEXURE “2”**

**RINFRA NETWORK RELIABILITY**

**AND**

**EXPANSION PHILOSOPHY**

## **Network Reliability and Expansion Philosophy for Rlnfra-Distribution**

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## 1.0 Introduction:

RInfra-D (erstwhile BSES) has been a power distribution utility of the suburban Mumbai since more than 8 decades. It has evolved through this time as one of the best distribution utilities in the country and has been awarded by various agencies for its customer centric approach providing highest levels of reliability through use of latest technologies.

RInfra-D has a total of 77 nos. of 33(22)/11kV substations within its licensed supply area with total installed capacity of 3297 MVA. The peak arithmetic demand as seen by the 33(22) kV network during May 2015 was 1996 MVA & coincident demand 1825 MVA; thus having an optimal installed capacity to demand ratio of 1.6. These 33(22)/11kV substations are fed through a network of nearly 880kms of underground 33kV cable network spread across the supply area.

The total installed distribution transformer capacity as of May-June 2015 was about 4606 MVA in more than 6700 nos. of distribution substations (i.e. more than 17 nos. of substations/sq.kms and nearly 12 MVA of installed capacity/sq. km). A meshed open-ring 11kV cable network, totaling to about 3200 kms of circuit length, feeds the distribution substations.

At the LT level, the total LT mains network length is nearly 5900 kms reaching each and every domestic consumer; irrespective of whether, the consumer is from densely populated slum area of Shivaji nagar or premium residences in Khar, Juhu, Bandra areas, or remotely located fishermen colonies in Uttan area.

Some of the main elements of the network are given in table-1 below.

**Table-1: Major Network Components**

Sr. No.	Network Element	UoM	Status as on May 2015
1	No. of 33(22)/11kV substation	Nos.	77
2	PT Installed Capacity	MVA	3297
3	Average Loading of PT's	%	61
4	33kV Network Length	kms	880
5	11kV Feeders	Nos.	1047
6	11kV Network Length	kms	~3200
7	Average Loading of 11kV network	%	47%
8	No. of Distribution Substation	Nos.	6735
9	DT Installed Capacity	MVA	4606
10	Average Loading of DT's	%	51%
11	LT Network Length	kms	~5897
12	No. of RInfra-D Consumers	Nos.	~29 Lakhs

The unique 11kV and LT Interconnected Mesh network is far more effective than the traditionally used 'ring' network, to ensure that electricity is restored during a power outage, with the least delay or in-convenience to the customers.

The overall reliability of the network is among the best in the nation with ASAI of 99.99% and is achieved in view of interconnected mesh network at various voltage level and through deployment of state-of-art systems like SCADA (Supervisory Control And Data Acquisition), DMS (Distribution Management System), Integrated GIS (Geographical Information System) and OMS (Outage Management System) which support the physical network and are unparalleled in the country. Reliability of Rlnfra-D network has to be computed for area as a whole to reflect the strengths of its mesh network built over decades.

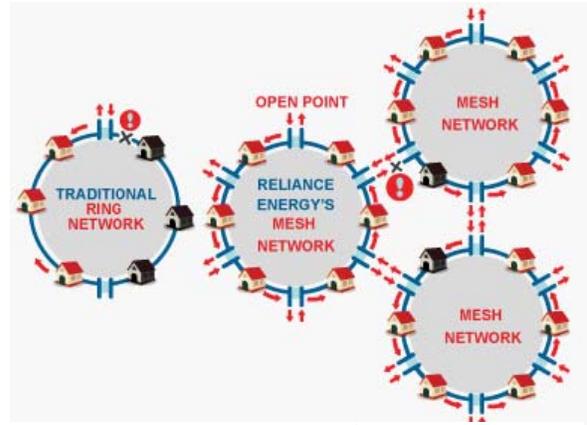


Figure-1: Meshed Network Concept

Table-2 below gives the various reliability indices of Rlnfra-D network for FY2014-15.

Table-2: Rlnfra-D Reliability Indices (FY2014-15)

Sr. No.	Description	SAIDI (mins)	SAIFI (nos.)	CAIDI (mins)
1.	Overall	53.94	1.69	31.91
2.	Excluding one-off events* and external utility damages	31.80	1.1	28.50

\* Simultaneous multiple events at HT level in the same locality

In order to understand the philosophy of network reliability and expansion, with the perspective of parallel network, following points are briefed in this document.

1. 4-levels of network reliability
2. Forward path for network reliability improvement
3. Cost effectiveness for new and redevelopment projects

## 2.0 4-Levels of Network Reliability:

At Rlnfra-D, the power distribution network has been divided into four levels, which play key role in maintaining the highest levels of reliability.

### 2.1 LT Network:

Since more than 90% of our customers are supplied power at LT level, this clearly is the most spread out network in the power distribution system. Every single customer is fed through a largely interconnected LT Main Line network in the form of a meshed open ring system. A sample LT Main Line network is depicted in the figure-2 below.

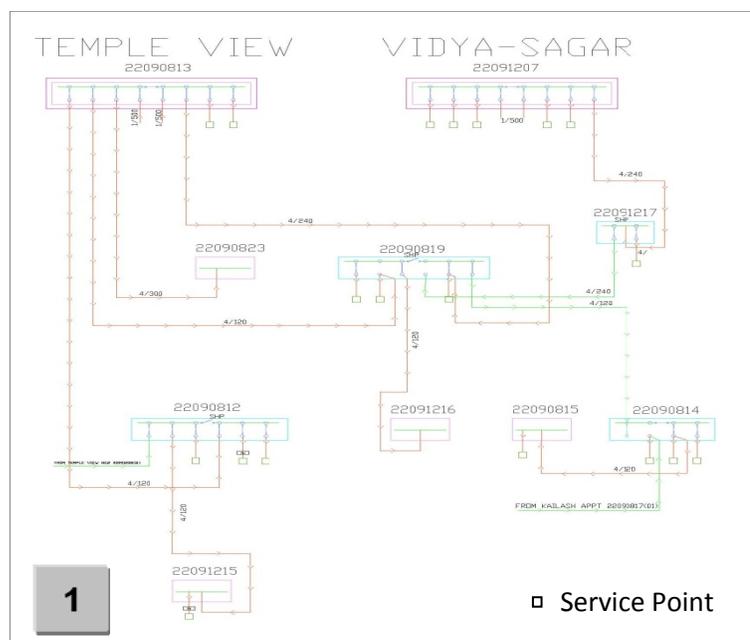


Fig-2: Sample LT Network of Rlnfra-D

Usually either one of at least two or three of the circuits of any LT distribution pillar can interchangeably be used as incomer. Under normal conditions, one of the circuits acts as an incomer for the outgoing circuits and the service points being fed from that distribution pillar. During any abnormality in the related LT network, the network is rearranged by isolating the faulty sections and restoring the supply to the affected consumers through normally open circuits.

The average loading of the LT Main Line feeders is about 40%, which facilitates easy load transfers in the event of LT abnormalities. By monitoring and maintaining the loading of the LT feeders, the supply is restored in minimum time.

## 2.2 HT Network:

The HT network consists of 11kV and 33(22) kV network. The 11kV network, comprising of more than 750 nos. of feeders, feeding more than 6000 nos. of distribution substations, forms the backbone of the entire distribution system. Whereas, the 33(22)kV network acts as source to the 11kV network and comprises of about 190 feeders emanating from various EHV stations of RInfra-T and TPC-T spread across the entire supply area.

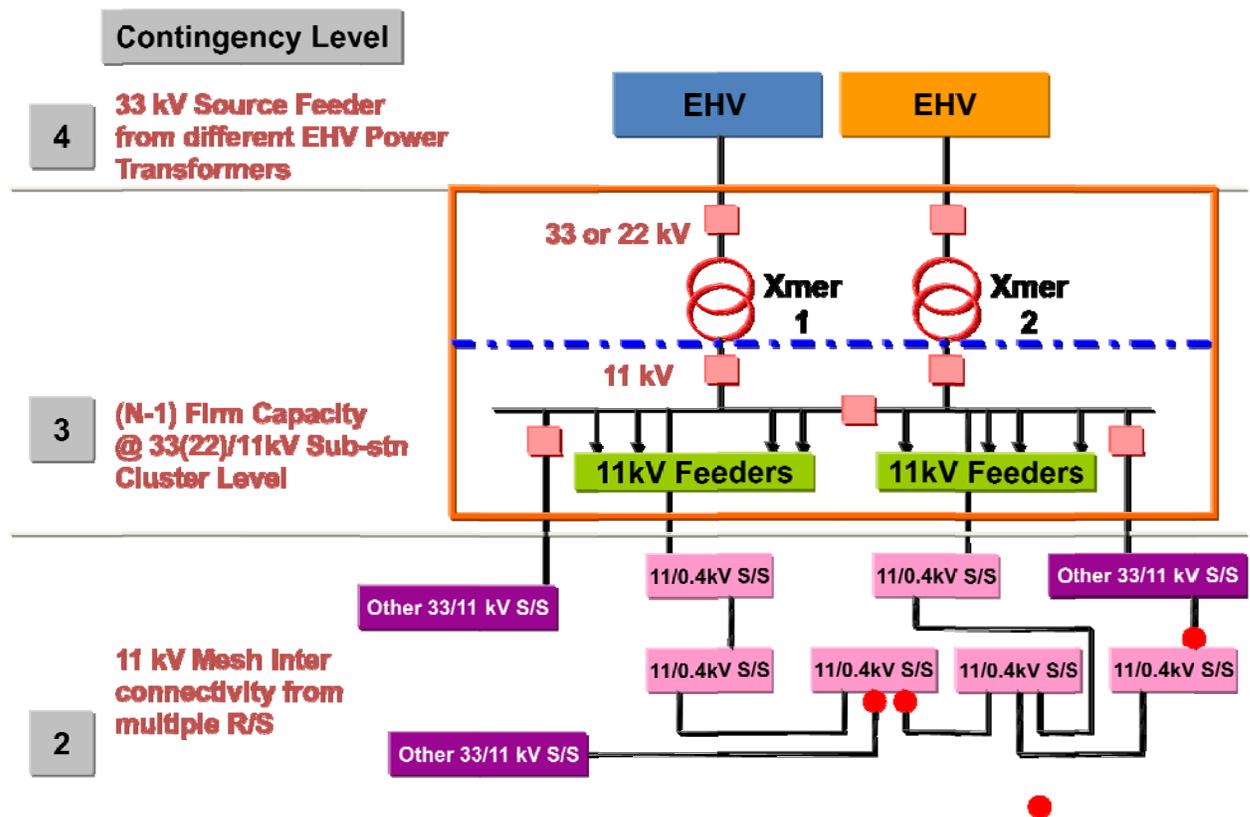


Figure-3: Typical HT Network of RInfra-D

A typical HT network is shown in figure-3. The network redundancy is maintained through the other three levels (LT network being the first level of the network as explained in section 'An' above).

1. At 11kV network level – by having a meshed open-ring network which enables restoration of supply in the event of contingencies of 11kV cable/switchgears. More than 40% of the 11kV feeders have (n-2) or more redundancy while the rest satisfy at least (n-1) condition.
2. At 33(22)/11kV substation level – by ensuring (n-1) reliability through interconnected 11kV network by forming clusters so that supply to the entire network is restored in minimum number of operations during failure of any one of the incoming feeds in the cluster.

Cluster-based philosophy ensures that the huge investment (approx. Rs. 20-30 Crs. per 40MVA installed capacity, excluding cost of land) required for commissioning of 33(22)/11kV substations is utilized in an optimum manner. The average loading of 33 (22)/11kV substations is limited at 60%-70% level instead of 50% [as would be required for achieving

substation-wise (n-1) for a 2x20MVA substation configuration)]. In case of failure of one of the incomers (PT/33kV feeder), partially the load is restored through the 11kV bus coupler in the affected 33(22)/11kV substation. At the same time, the balance affected customers are restored remotely, on the interconnected 11kV network within the clusters, through direct feeders/DMS operated 11kV switchgear in distribution substations and if required through operations in the field.

3. At 33(22)kV source level – by ensuring each 33(22)/11kV substation receives power from difference EHV Power Transformers (if feasible, from difference EHV stations). This strategy secures against possible mass black-out due to issues at EHV level.

### 3.0 Forward Path for Network Reliability Improvement:

RInfra-D, as an organization, strives to better itself in every possible way. In continuation of its efforts to provide more and more reliable and quality supply in the most economic way to the consumers, RInfra-D is working at various levels as described below.

- a) Commissioning of new 33/11kV substations – As a regular practice, RInfra-D commissions new 33(22)/11kV substations every year based on system loading and load growth requirements, in order to strengthen its 33kV network and meet the growing demand of its supply area.

The table below gives the existing and proposed loading scenario at power transformer level post execution of WIP projects

Division	MD (MVA)*	PT Capacity (MVA)	% Existing PT Loading	Capacity Addition WIP (MVA)**	Total post WIP Commissioning (MVA)	% PT Loading post WIP Commissioning
SD	339	552	61%	69	621	55%
SCD	336	610	55%	20	630	53%
CD	476	760	62%	80	840	57%
ND	355	515	69%	60	575	62%
ED	490	860	57%	26	886	55%
<b>Total</b>	<b>1996</b>	<b>3297</b>	<b>60%</b>	<b>255</b>	<b>3552</b>	<b>56%</b>

\* Peak Demand as of May 2015

\*\* WIP projects as approved in DPR considering capex FY2015-16

- b) Improvement of 11kV Cable network – The 11kV network is being strengthened by replacing smaller size and fault prone sections for increasing available system margins and improving reliability of its network.
- c) Expansion of DMS program – RInfra-D has witnessed an improvement in SAIDI level from 212 minutes in FY 2006-07 to 54 mins in FY 2014-15. This improvement in reliability was realized mainly due to automation and FPI (Fault Passage Indicator) installation at about 1487 nos. of its substations (only about 22% of total volume) under the DMS program. Going forward RInfra-D will increase the proportion of automated substations to further improve reliability of network.
- d) Improvement in LT Network – Various new initiatives/technologies (Theft-proof pillars, theft aversion boxes, Fuse strip pillars, LT network standardization and automation, etc) are being implemented on the LT side of the network to further enhance the system security at LT levels.

**4.0 Cost effectiveness for Supply to New & Redevelopment projects:**

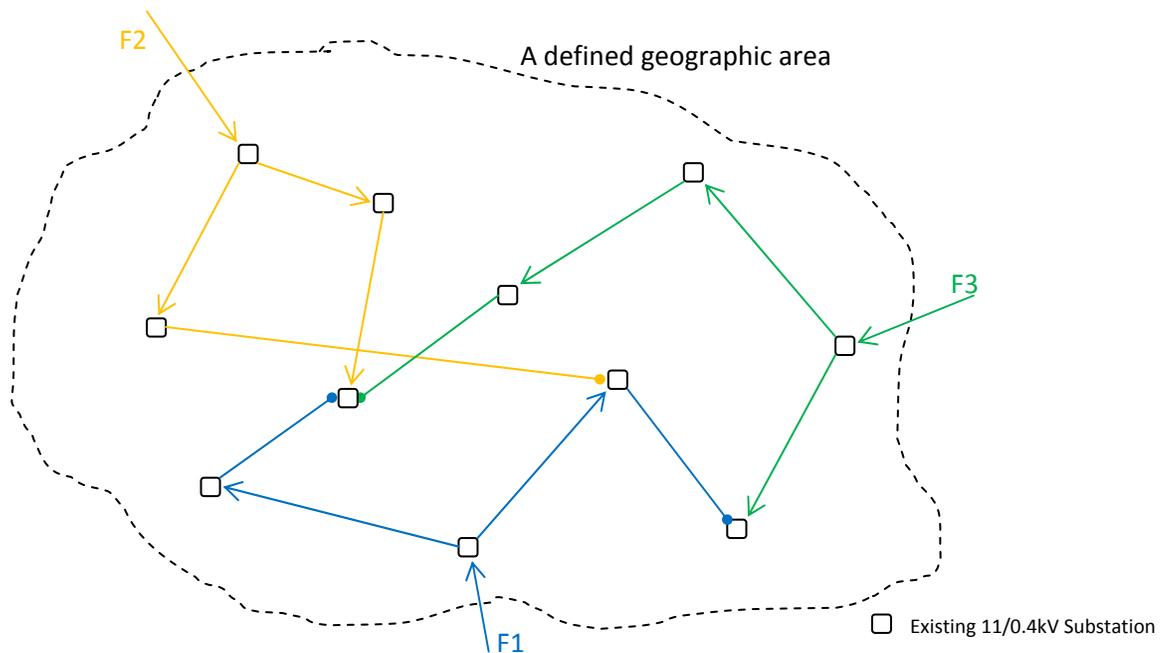
**4.1 Supply to New projects:**

As explained in the introduction section above, Rlnfra-D, being the power distribution utility since 8-decades in the sub-urban Mumbai, has an existing distribution network spread all across the entire licensed area (except areas in Versave & Chene Village as these areas are recently added to Rlnfra-D's licensed area and Ganpat Patil Nagar in Dahisar West area due to CRZ restriction and stretches inside Borivali National Park due to forest restrictions). As a result of this extensive network, it is relatively easy for Rlnfra-D to release new connections by extending/upgrading/augmenting the existing network depending on the quantum of load required.

For Rlnfra-D, commissioning of a new 11/0.4kV substation to release supply to a new/redevelopment project consumer, would generally require only loop-in-out of nearby existing 11kV cable whereas for another licensee with only sparse network availability, it might be necessary to lay long length 11kV cables from nearest 33(22)/11kV substation. Consequently, the incremental cost required by Rlnfra-D for releasing new/redevelopment loads would be much less. This is illustrated below.

**Scenario-1: Existing Network of Rlnfra-D**

*(a small area being fed by Rlnfra-D at 11kV from 33/11kV substations outside the area)*

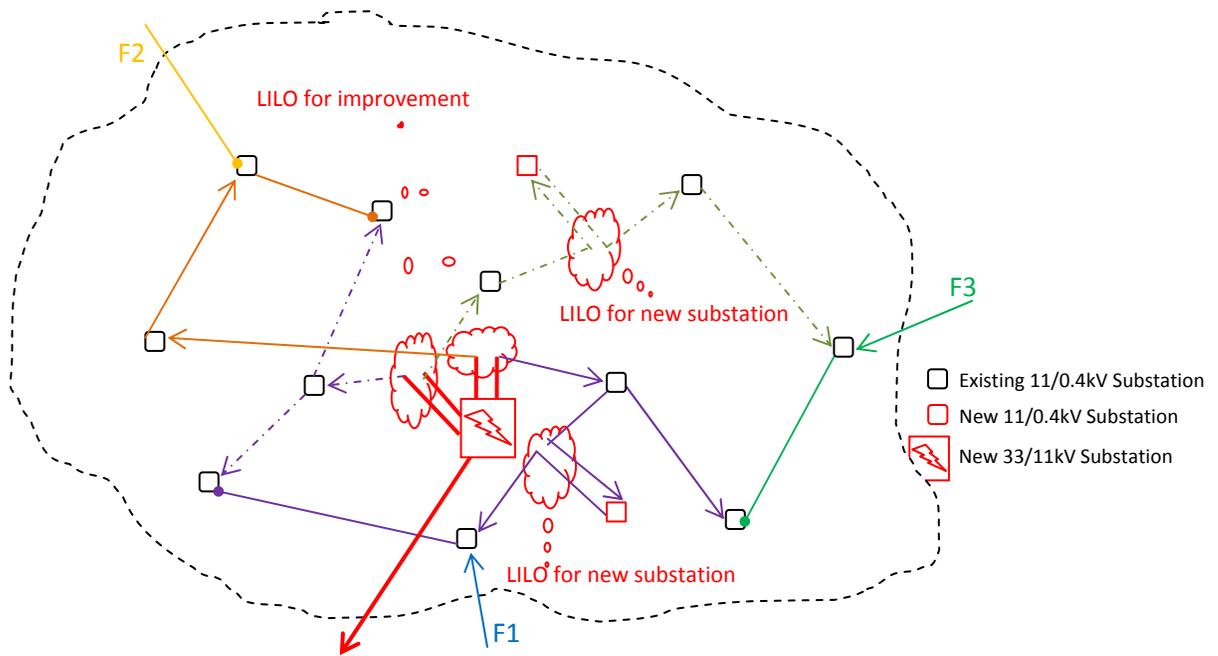


Salient points of Scenario-1:

- ✓ The area is fed by 3 nos. of 11kV feeders from 33/11kV substations outside the limits of the defined area
- ✓ These feeders are configured in a Meshed network to feed 11/0.4kV substations which in turn supply to the LT consumers through the LT Main Line and Services.

**Scenario-2: New 33/11kV substation in the defined area by RInfra-D**

(to meet new load and load growth 2x20MVA 33/11kV substation is commissioned within the defined area by RInfra-D)



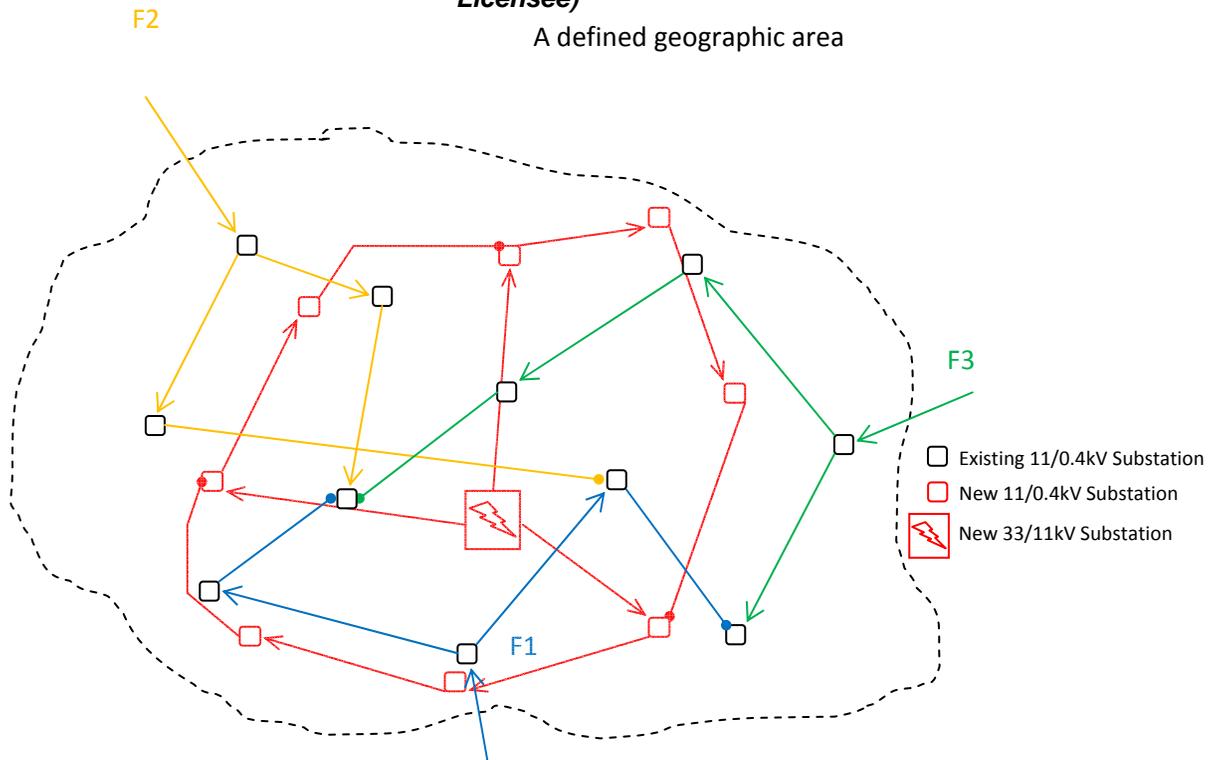
**Salient points of Scenario-2:**

- ✓ A new 33/11kV substation is commissioned by RInfra-D within the defined area limits
- ✓ New 11kV feeders are created by LILO of existing nearby 11kV cables (about 0.2 to 1.0 km cable is required per run)
- ✓ New 11/0.4kV substations are commissioned to cater to specific new loads by LILO of nearby 11kV cable network (about 0.2-0.3 km cable is required per run)
- ✓ The switch positions of the 11kV network is reconfigured to optimally supply to the load in the defined area
- ✓ The total 11kV cable laying required is about 5-7 kms per 2x20MVA installed capacity in order to fully utilize the new capacity.
- ✓ **Incremental capex required (only cost of 11kV cable laying considered, other costs for commissioning of 33/11kV substation being common to both utilities) is about Rs. 7.7 Crs.**

**Scenario-3: New Network development in the defined area by another Licensee**

(to meet new load 2x20MVA 33/11kV substation is commissioned within the defined area by another Licensee)

A defined geographic area



Salient points of Scenario-3:

- ✓ Completely new network (including 33/11kV substation, 11/0.4kV substation, HT and LT cable network) is developed by the licensee to feed the consumers within the defined area
- ✓ About 32 km of new 11kV cable (reference Component-3, Section 4.2.2 of “Network Rollout Plan for Tata Power-D” dated February 2015) will be laid in order to utilize the capacity of the 33/11kV substation commissioned in the defined area.
- ✓ **Incremental capex required (only cost of 11kV cable laying considered, other costs for commissioning of 33/11kV substation being common to both utilities) is about Rs. 27.82 Crs.**

Thus it is evident through these case scenarios, that, the additional capex required for another licensee will be approximately Rs. 20 Crs as compared to RInfra-D for the same set of consumers.

**4.2 Supply to Redevelopment Projects:**

In case of a redevelopment projects, RInfra-D is even more cost effective, since the network to supply to the rehabilitated consumers already exists. Any additional load required for the re-development project, in most cases, can be released from the margins available on the existing network. Even if any network augmentation is required, it would only be minimal for RInfra-D as compared to any other utility, which will have to lay entirely new network, which will not only be at a much higher cost than the incremental capex required by RInfra-D, but would also make the existing network of RInfra-D completely redundant..

For illustration purposes, following situation is considered:

- ✓ An existing building having RInfra-D’s substation within its layout goes for redevelopment
- ✓ The said substation houses a 630kVA distribution transformer which is loaded to about 55% (i.e. 346 kVA) out of which 250 kVA is the existing load of the said building itself, while the balance load is of some other building in the vicinity
- ✓ Post redevelopment the estimated load of the said building will be about 500 kVA (i.e. double of existing load)

#### Scenario-1: RInfra-D supplies to the redeveloped project:

- ✓ In order to meet the additional load of the redeveloped building, RInfra-D will have to upgrade the existing substation DT size from 630 kVA to 990kVA.
- ✓ The new loading of the substation DT, post actual realization of the estimated load will be about 60% (i.e. 596kVA; 500kVA of redeveloped building plus 96kVA of existing external loads)
- ✓ On the 11kV network, the additional 250kVA load will be easily absorbed without need of any upgradation/augmentation due to the available margins
- ✓ The total cost required would be about Rs. 0.17 Cr. (excluding the cost of LT network laying for new supply, which will be common for both the utilities)

#### Scenario-2: Other utility supplies to the redeveloped project:

- ✓ In order to meet the load of the redeveloped building, the other licensee will have to lay 11kV network from its nearest available network.
- ✓ Assuming that there is a nearby network of the other licensee at 2km distance from the said project, the other licensee will have to lay minimum two runs of 11kV cable for a length of 2km.
- ✓ A new 11/0.4kV substation with 990kVA DT will have to be commissioned in the said project by the other licensee
- ✓ The total cost required would be about Rs. 3.67 Cr. (excluding the cost of LT network laying for new supply, which will be common for both the utilities)

It is evident through this illustration, that, the additional capex required by a licensee other than RInfra-D will be approximately Rs. 3.50 Crs for the same set of consumers.

### 4.3 Cost of Supply (Summary):

In order to supply to the same set of customers within the defined/licensed area, incremental cost of RInfra-D is always going to be cheaper compared to the other licensee due to the strong and widespread existing network, especially in case of redevelopment projects.

### 5.0 Inference:

The optimum levels of built-in redundancy in RInfra-D's network, ensures that supply to customers is restored even in situations when there is more than one system element at various levels under outage. The testimonial to this is a consistently high value of each of the reliability indices during the recent years. Furthermore, with a strong existing network and future network augmentation plans along with technology driven initiatives, the reliability and quality of supply of RInfra-D network is set to improve manifolds in the coming years.

In addition to the splendid reliability of supply of the existing network of RInfra-D due to its unique meshed system, the presence of extensive network of RInfra-D in the area of supply also ensures that any further improvements to reliability of supply can be effected by RInfra-D with least capex. At the same time, the network reach of RInfra-D also ensures that all additional load in case of redevelopment projects and even new loads in largely green field areas can be met by RInfra-D at a much lower capex as compared to what any other distribution licensee would require, who does not have a network as extensive as RInfra-D.