



6th August, 2015
CREG/MUM/MERC/2015/218

To,
Principal Secretary,
Maharashtra Electricity Regulatory Commission,
13th Floor, Centre I, World Trade Centre
Cuffe Parade, Colaba
Mumbai 400 005

Dear Sir,

Sub: Additional Affidavit on behalf of The Tata Power Company Limited in Case No. 182 of 2014 i.e. Petition of Tata Power Company Limited for submission of Revised Network Rollout Plan in compliance to the direction of the Hon'ble Commission in Case No. 90 of 2014

Ref: Hearing in the above mentioned matter on 30th July, 2015

With reference to the above captioned subject, Tata Power submitted its revised Network Rollout before this Hon'ble Commission on 12th February, 2015, in view of the directions given by this Hon'ble Commission in its Order dated 14th August, 2014 in Case NO. 90 of 2014 read with the directions given by the Hon'ble Appellate Tribunal for Electricity ("*Hon'ble Tribunal*") in its Judgment dated 28th November, 2014 in Appeal No. 246 & 229 of 2012.

Thereafter, the captioned petition was listed for hearing on 30th July, 2015 before this Hon'ble Commission. During the hearing, this Hon'ble Commission directed Tata Power to provide certain additional information/ documents.

Accordingly, Tata Power is filing an Additional Affidavit to place on record the additional information sought by this Hon'ble Commission, which has been provided in **Exhibit-A** of the present Additional Affidavit. Tata Power craves leave of this Hon'ble Commission to treat the present Additional Affidavit as a part and parcel of the captioned Petition filed by Tata Power.

Thanking you,

Yours faithfully,

Bhaskar Sarkar

Head -Business Strategy & Regulations, Mumbai Operations

TATA POWER

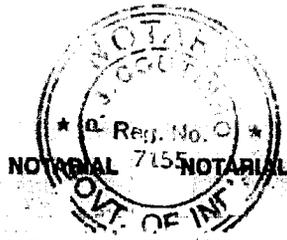
The Tata Power Company Limited

Dharavi Receiving Station Regulations Department Matunga Mumbai 400019

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Registered Office Bombay House 24 Homi Mody Street Mumbai 400 001

CIN : L28920MH1919PLC000567 Website : www.tatapower.com Email : tatapower@tatapower.com



BEFORE THE MAHARASHTRA ELECTRICITY REGULATORY COMMISSION
WORLD TRADE CENTRE, CENTRE NO.1,
13th FLOOR, CUFFE PARADE, MUMBAI 400005
CASE NO. 182 OF 2014

IN THE MATTER OF:

The Tata Power Company Limited

...Petitioner

Versus

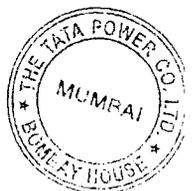
BEST Undertaking & Ors.

...Respondents

**Additional Affidavit on behalf of The Tata Power Company Limited
("Tata Power/ Petitioner")**

I, Mr. Bhaskar Sarkar, son of Mr. Arup Kumar Sarkar, aged 49 years, Head Business Strategy & Regulations (Mumbai Operation) of The Tata Power Company Limited ("**Tata Power/ Petitioner**"), having my office at Dharavi Receiving Station, Near Shalimar Industrial Estate, Matunga, Mumbai 400 019, Maharashtra, India, do hereby state on solemn affirmation as under:-

1. I say that, I am the authorised signatory of Tata Power and am competent to affirm the present Additional Affidavit on behalf of Tata Power.
2. I say that, in view of the directions given by this Hon'ble Commission in its Order dated 14.08.2014 in Case NO. 90 of 2014 read with the directions given by the Hon'ble Appellate Tribunal for Electricity ("**Hon'ble Tribunal**") in its Judgment dated 28.11.2014 in Appeal No.246 of 2012 & Batch, on 12.02.2015, Tata Power submitted its revised Network Rollout before this Hon'ble Commission.



3. I say that, on 30.07.2015, the captioned Petition was listed before this Hon'ble Commission. During the hearing, this Hon'ble Commission directed Tata Power to provide certain additional information/ documents.

4. I say that, the present Additional Affidavit is being filed on behalf of Tata Power to place on record the additional information sought by this Hon'ble Commission, which has been provided in **Exhibit-A** of the present Additional Affidavit. Tata Power craves leave of this Hon'ble Commission to treat the present Additional Affidavit as a part and parcel of the captioned Petition filed by Tata Power.

5. I say that, Tata Power reserves its right to file additional affidavit(s) to place on record any other information sought by this Hon'ble Commission and/ or required for the consideration of the present matter.

6. I say that, Tata Power most respectfully prays that the network roll-out plan be approved by this Hon'ble Commission.

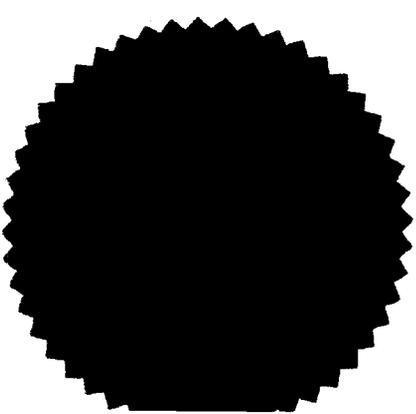
7. I say that the facts stated herein are true and correct to the best of my knowledge based on the records of Tata Power.

[Signature]
DEPONENT
THE TATA POWER
MUM
BOMBAY H

VERIFICATION

I, the deponent above named, do hereby verify that the contents of my above Affidavit are true and correct, no part of it is false and nothing material has been concealed therefrom.

Verified at Mumbai on this 06th day of August, 2015.



NOTARY
P. J. COUTINHO
Reg No. 7155
GOVT. OF INDIA

[Signature]
DEPONENT
BEFORE ME
THE TATA POWER
MUM
BOMBAY H

Peter J. Coutinho
ADVOCATE HIGH COURT &
NOTARY GOVT. OF INDIA
C-9, Gracious Co-op. Hsg. Soc. Ltd.
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Serial No. 0-1-25-1 Date: 06/09/2015
Serial Register No. 191
P. J. Coutinho - Notary

Additional Submission on behalf of The Tata Power Company Limited, qua
its Network Rollout Plan, in light with this Hon'ble Commission's Order
dated 30.07.2015 in Case No. 182 of 2015

A. BACKGROUND

1. The Tata Power Company Limited ("Tata Power") was granted a Distribution Licence on 14.08.2014 for a period of 25 years to supply power in Mumbai District and parts of Mumbai Suburban District, area covered under Mira Bhayandar Municipal Corporation. Tata Power's Network Rollout and development is governed by the principles/ directions set-out hereinafter.
2. The Provisions of the Electricity Act, 2003 ("Electricity Act"), MERC (General Conditions of Distribution Licence) Regulations, 2006 ("General Licence Conditions") and Specific Conditions in Distribution licence No.1 of 2014 granted to Tata Power ("Specific Licence Conditions") provides as under:
 - (a) Tata Power is duty bound to develop and maintain an efficient, co-ordinated and economical distribution system in its area of supply. [Section 42(1) of the Electricity Act read with Regulation 8.3.1 of the General licence Conditions]
 - (b) Where any person, whose premises are situated within the area of supply of a distribution licensee, (not being a local authority engaged in the business of distribution of electricity before the appointed date) requires a supply of electricity from a generating company or any licensee other than such distribution licensee, such person may, by notice, require the distribution licensee for wheeling such electricity in accordance with regulations made by the State Commission and the duties of the distribution licensee with respect to such supply shall be of a common carrier providing non-discriminatory open access. [Section 42(3) of the Electricity Act]
 - (c) Tata Power is duty bound to supply, in terms of the Electricity Act and the Rules and Regulations made thereunder, on an application made by the consumer. [Section 43 of the Electricity Act read with Regulation 8.3.2 of the General licence Conditions]
 - (d) Tata Power is required to submit a detailed Network Rollout plan in accordance with the observations and directions of this Hon'ble Commission in its Order dated 14.08.2014 in Case No. 90 of 2014 and the relevant provisions of the Electricity Act and the Rules and Regulations made thereunder. [Clause 1 of the Specific licence Conditions]
3. This Hon'ble Commission vide its Order dated 22.08.2012 in Case No.151 of 2011 had issued the following directions regarding Network rollout/ development by Tata Power:

"98. Accordingly, the Commission hereby issues the following directions to TPC-D regarding the network roll out plan and capital expenditure to be undertaken over the next one year from the date of this Order:

- a) TPC-D will have to focus all its energies and capital expenditure and ensure that by the end of one year from the date of this Order, TPC-D has rolled out its entire distribution network in the 11 Clusters identified above (to be redrawn into a Municipal Ward-wise Plan by TPC-D) in such a manner that it is in a position to provide supply through its own distribution network to existing and prospective consumers located anywhere within these Clusters, within the minimum time period of one month specified under the MERC SOP Regulations.....*
- c) Further, the Commission has already granted in-principle approval to capital expenditure schemes to be undertaken over the next 2-3 years. In view of the above direction to redraw the Cluster based Plan into a Ward-wise Plan, such that the 11 Clusters identified by the Commission are covered in the first Phase, TPC-D has to re-arrange the Plan such that the schemes covering the 6 Clusters overlapping between TPC-D's proposed Plan and those identified by the Commission (Mira Road, Dahisar, Kurla LBS, Saki, Mindspace, Trombay, MankhurdChembur, Vrindavan, Arogyanidhi, Vasantotsav, and Malad BMC Lagoon) are covered, and the balance schemes are designed for the remaining Clusters. ..."*

4. Based on the aforesaid directions of this Hon'ble Commission, Tata Power has made investment of more than Rs. 1000 crore in last 3 years in developing the distribution network in its Licence Area. The ward wise details of Tata Power's existing network as on 30.06.2015 is highlighted in the Table No.1 below:

Table No. 1: Ward-wise existing Network (in both Mumbai City and Mumbai Suburban Area) as on 30.06.2015 and Consumer Sub Station (“CSS”) Loading

Ward	Existing Network as on 30 th June, 2015					CSS Loading (%)
	DSS Capacity (MVA)	33 kV Cable (km)	11 kV Cable (km)	CSS Capacity (MVA)	LT Cable (km)	
A Ward	0	2	2	0	1	NA
B Ward	0	8	5	1	1	0%
C Ward	0	0	0	0	0	NA
D Ward	40	0	0	0	0	NA
E Ward	0	13	22	10	2	12%
F North Ward	0	32	0	2	0	36%
F South Ward	0	47	61	12	4	30%
G North Ward	0	84	0	8	3	16%
G South Ward	0	67	0	42	15	33%
Mumbai City	40	253	89	75	26	28%
H East Ward	60	84	62	40	24	13%
H West Ward	35	5	10	3	3	17%
K East Ward	200	163	136	127	171	29%
K West Ward	80	21	102	56	62	15%
L Ward	80	115	51	75	108	26%
M East Ward	30	63	41	17	56	9%
M West Ward	0	23	17	4	24	50%
Mira Bhayander Municipal	80	23	113	42	151	18%
N Ward	20	69	43	48	31	15%
P North Ward	140	54	51	69	107	27%
P South Ward	80	101	84	62	67	20%
R Central Ward	10	58	63	8	129	25%
R North Ward	0	9	21	35	38	6%
R South Ward	80	91	26	48	103	27%
S Ward	80	69	35	33	37	27%
Mumbai Suburbs	975	949	856	678	1113	23%
Total Licence Area	1015	1202	945	753	1138	23%

5. It is submitted that in order to ensure optimum utilisation of CSS transformation capacity, the loading should be at least above 50%.

6. The Geographical Information System (“GIS”) Map showing existing network developed by Tata Power under the directions from this Hon’ble Commission for Mumbai Suburbs & Mumbai City areas, is annexed hereto and marked as **Annexure-1A and 1B**.

7. It is pertinent to note that the Hon’ble Appellate Tribunal for Electricity (“Hon’ble Tribunal”) has vide its Order dated 28.11.2014 in Appeal No. 246 of 2012 and 229 of 2012 and batch matters has set aside this Hon’ble Commissions Order dated 22.08.2012. However, while setting aside the said Order, the Hon’ble Tribunal (in its Order dated 28.11.2014) has protected the investment made by Tata Power for laying/ developing of distribution network in terms of the directions of this Hon’ble Commission in its Order dated 22.08.2012. However, the Hon’ble Tribunal has done away with the restrictions on the class of consumers imposed by this Hon’ble Commission in the Order dated 22.08.2012 in Case No. 151 of 2011.[Para 59, 72 and 73 of the Hon’ble Tribunal’s Order dated 28.11.2014]

8. The findings of the Hon'ble Supreme Court in the matter of *Municipal Corporation of Greater Mumbai v. Maharashtra Electricity Regulatory Commission and Ors.* reported as (2015) 2 SCC 438 holds the field with regard to laying/ development of network in the area where both Tata Power and BEST are licensed to supply electricity. As held in Para 27 of the said Judgment, unless BEST permits wheeling of electricity supplied by Tata Power (under Section 42 of the Electricity Act), by making its network available, Tata Power will have to supply to its consumers from its own distribution network in terms of Section 43 of the Electricity Act. For this purpose, if Tata Power does not have its network it will have to lay down its own network.

9. Further, this Hon'ble Commission issued the following directions, vide its Order dated 14.08.2014 in Case No. 90 of 2014 ("Licence Order"), as regards the Network Rollout Plan submitted by Tata Power:

"7.1.4(A)(a)Therefore, if TPC is granted a licence in the proposed area of supply, it will have to expand its LT network substantially for last mile connectivity even to achieve servicing of 50% of the demand as envisaged in its Business Plan.....

7.1.4(A)(c) Considering its existing network, TPC will have to expand its LT network substantially for last mile connectivity. TPC has shown considerable improvement in laying its distribution network in the last one or two years. However, the Commission observes that it is important that the network development shall happen in a fashion that creates a level playing field, and fosters competition amongst the licensees in the same area with the purpose of ensuring power is available to all categories of consumers including the lowest category.....

7.1.4(D)Issue II(iv) Since TPC is seeking to be a second Distribution Licensee and considering the peculiar facts of the proposed Licence area, it is the endeavour of this Commission to ensure that the manner, in which the USO is met by TPC, is competitive, cost effective and in the best interest of the consumers.....

7.1.5 (d) ...Therefore, the Commission deems it appropriate to specify a Phase Wise Rollout to ensure that TPC lays its network in its entire area of licence in a time bound manner.....

7.1.5 (g)...As observed in Case No. 85 of 2013, even though TPC has made progress in laying its network, it has not been able to fully comply with the directions issued by the Commission in Case No. 151 of 2011.....

7.1.5 (i) The rollout plan submitted by TPC is inadequate as it seeks to cater to 50% of the total expected load by catering to only 31% of consumers, which is not conducive to a level playing field and genuine competition. In its rollout plan, TPC has not addressed the past directions issued and time lines prescribed by the Commission in its Orders, i.e. in Case No. 151 of 2011 and Case No. 85 of 2013. Further, in its proposed rollout plan TPC has not proposed a detailed methodology to ensure that laying of network will be done to ensure supply to all categories of consumers including the category of consumers with lowest consumption...."

10. Based on the aforesaid directions, Tata Power revised its Network Rollout Plan and submitted the same to this Hon'ble Commission on 09.10.2014. The revisions in the Modified Network Rollout Plan are set out in Table No.2 below:

Table No. 2: Modifications carried out by Tata Power in its Network Rollout Plan, based on this Hon'ble Commission's directions in Case No. 90 of 2014

Particulars	Unit	Network Rollout over 5 years		Remarks
		Business Plan - April 2014 Case No. 90 of 2014	Revised Network Rollout - Oct 2014	
No of DSS	Nos	17	20	- Network was planned to cater to 50% of the load of Mumbai . Later, on the the direction of the Hon'ble Commission in Case No. 90 of 2014, the network phasing was changed.
Power transformers Capacity (DSS)	MVA	680	800	
33 KV HT Network	Km	255	200	
11 KV Network	Km	1360	630	
No of CSS (11/0.4 or 22/0.4)	Nos	408	665	- Reach to 50% of the LT consumers was met through additional CSS capacity
CSS (MVA)	MVA	408	665	- Further, LT Network was modified based on the network density of comparable licensee
LT Mains Cable	Km	2040	1925	
Total Capex .	Rs. Crore	1879	2060	

*As the Business Plan submitted during the Licence Application was for a period of 5 years, the comparison of 5 years has been presented between the Network Rollout Planned in Network Rollout Plan in Case No. 90 of 2014 and the revised Network Rollout Plan submitted on 9th October, 2014

11. Pursuant to the filing of the revised Network Rollout Plan on 09.10.2014, the Hon'ble Tribunal, in its Judgment dated 28.11.2014 in Appeal 246 of 2012 & Appeal 229 of 2012 & other batch matters, issued the following directions:

23. *The provision for a second distribution licensee in the Act has been given to promote competition the benefit of which should go to the consumers..... The consumer has to ultimately decide the distribution licensee from whom he wants to take the supply....*

24. *The concept of level playing field is that the players in the market get an equal opportunity of competing with each other without any bias and are subjected to same rules of the competition. The competitors should be able to offer the price at which they want to supply power and let the market forces determine the rest. In this case the State Commission has determined the tariff for different categories of consumer for both the licensees following the same Regulations. It is for the consumer to decide the choice of its supplier.By putting restriction on some categories of consumers to changeover to Tata Power, the State Commission has denied choice to certain categories of consumers to avail supply at cheaper tariff to which they are entitled as per the scheme of the 2003 Act and also as per the changeover protocol devised by the State Commission.....*

26. *Therefore, evidently it is the tariff fixed by the State Commission which is ultimately deciding the trend of movement of consumers and in no way can be termed as 'cherry picking' by Tata Power.*

44. *....The changeover gives low end consumers flexibility to choose supplier depending on the tariff decided by the State Commission from time to time without going into the hassle of change of service line.*

48. If a consumer is satisfied with the changeover arrangement, we feel the consumer cannot be forced to switchover.

49. Merely because Tata Power has not switched over the subsidized residential changeover consumers in the vicinity of its network, does not establish that Tata Power is selectively laying its LT network as these consumers have not chosen to switch over to Tata Power's system.

57. Consumer interest is one of the main features of the Electricity Act, 2003.....

58. 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 where there are deficiencies in the existing distribution network resulting in constraints in maintaining a reliable supply to the existing consumers and extending supply to new consumers. Practical difficulties in laying down the network and extending the 11/0.4 kV network all around the congested areas in multi-storeyed buildings and narrow lanes of slums and the extremely high cost involved in making an unnecessary expenditure has to be considered. In some areas it may be practically impossible to lay down the parallel network by Tata Power due to space constraints. Tata Power itself has stated that it is facing practical difficulties to lay down the distribution network. Tata Power at the same time cannot maintain its right to lay down distribution network selectively even in areas where a reliable network of RInfra is existing. Tata Power should therefore, be restricted to lay down its network only in areas where laying down of parallel network would improve the reliability of supply and benefit the consumer and also for extending supply to new consumers who seek connection from Tata Power. Tata Power's Rollout Plan should therefore, be restricted to only such areas. This may also require amendment in the licence condition of Tata Power, after following due process as per law. The Rollout Plan shall be approved by the State Commission only after hearing RInfra and the consumers. In the meantime, Tata Power should be restrained to lay down distribution network in the distribution area common to RInfra.

59. However, where Tata Power has already made considerable investment in constructing the distribution system in pursuance of the directions of the State Commission, it should be allowed to be commissioned and capitalized, to feed the consumers as decided by the State Commission....

61. In view of above, Tata Power is directed to submit its Roll Out Plan as indicated above for approval of the State Commission. In the meantime, Tata Power is restrained to lay down its distribution network in the area common to RInfra till further orders of the State Commission on its Rollout Plan as per the directions given in this judgment. However, Tata Power can supply power to the existing consumers of RInfra irrespective of category of consumer on the request of the consumers only through RInfra's network by paying the necessary wheeling charges as well as the other compensatory charges including the cross subsidy charges to RInfra. However, there shall be no restriction on Tata Power or RInfra to lay network for supply to new connections. The State Commission shall consider to give approval for laying down of network by Tata Power only in areas where there are distribution constraints and laying down of a parallel network by Tata Power will improve reliability of supply and benefit the consumers, only after hearing RInfra and the consumers. Similarly, RInfra shall not lay network in any area where only Tata Power's network is existing and use Tata Power network for changeover of consumers, if any, till further orders by the State Commission, except for extending supply to new connections. The State Commission is directed to devise a suitable protocol in this regard after following due procedure. This may require change in licence condition of the licensees which the State Commission shall decide after following due procedure as per law.

72. On the other hand the restrictions imposed by the Commission in the impugned order are restrictions on the licensee on not to supply electricity to all

category of consumers, who wish to take supply from the Tata Power other than residential consumers having monthly consumption of less than 300 units.

73. In fact, such a restriction has denied other consumers from exercising their choice of supplier guaranteed by the Act....

74. The Act has mandated the State Commission to protect the interests of the consumers. The State Commission, while giving any direction to the licensee is bound to ensure that such direction is in the interests of the consumer.....

78. Before parting, we wish to state that we have given the above findings in view of the circumstances of the case where difficulties are being experienced in laying distribution network by the parallel licensee namely, Tata Power, to provide connectivity to all consumers in the licensed area common to Rlnfra and in the ultimate interest of the consumers.

80. Summary of Our Findings

.....(iii) In view of the practical difficulties in laying down parallel network in Mumbai as pointed out by Tata Power we have given some directions under paragraphs 58 to 61 regarding restricting the Roll out Plan of the Tata Power only to the areas where laying down of parallel network will improve the reliability of supply and benefit the consumers and directions for continuation of changeover arrangement irrespective of category or consumption of consumers, commissioning of network where a substantial expenditure has been incurred by Tata Power in laying down new network on the directions of the State Commission, consumers who had already switched over to Tata Power, laying down network for providing new connection, changeover and switch over protocol, change in licence conditions of the licensees, etc. However, there shall be no restriction on any licensee to lay network for supply to new connections. The State Commission is also directed to decide the detailed protocol for switchover and changeover after hearing all concerned.

(v) Directions given to Tata Power by the State Commission in the impugned order are set aside.

12. From the perusal of the above, the following principles are noteworthy:-
- (a) Protection of consumer interest is paramount in terms of the statutory framework. The consumer has to ultimately decide the distribution licensee from whom he wishes to avail supply. The consumer has the choice to elect both its source of supply (choose the distribution licensee from whom he wishes to avail to supply) as well as the mode of supply (option of open access under Section 42 or avail supply under Section 43 of the Electricity Act). The consumer has a choice whether it wishes to avail supply from a distribution licensee through its own distribution network (Section 43 of the Electricity Act) or from another distribution licensee/ other source from the network of any other distribution licensee (Section 42 of the Electricity Act), except in in case of consumers presently catered on BEST's network, wherein it is at the discretion of BEST to grant open access to the consumer (Section 42 of the Electricity Act).
 - (b) There are no restrictions on the distribution licensee in laying/ development of network, where such:-
 - (i) Network is required to supply to new consumers including new consumers in redeveloped premises.

- (ii) Demand is made by an existing consumer/consumers and development is in consumer interest; or
 - (iii) Substantial investment is already made and network needs to be loaded for enhanced economic use; or
 - (iv) The Reliability of the existing network is low
- (c) Distribution licensee is required to maintain an efficient, coordinated and economical distribution system. Duplication of network should be avoided if:
- (i) There is a reliable distribution network of a licensee existing in a particular area; AND
 - (ii) There are physical constraints in laying down of any new network; AND
 - (iii) There is very high cost involved in laying down such parallel network, which is not in consumer interest.

In such circumstances, the consumers may continue to avail electricity from any distribution licensee using the existing distribution network.

- (d) Consumer is free to choose supply either in terms of Section 42 or 43 of the Electricity Act. Hon'ble Commission has been directed to lay down a detailed protocol after hearing the parties.
- (e) The Hon'ble Tribunal in its Order dated 29.11.2014 has protected the investment made by Tata Power for laying/ developing of distribution network in terms of the directions of this Hon'ble Commission in its Order dated 22.08.2012 in Case No. 151 of 2012. However, the Hon'ble Tribunal has done away with the restrictions on the class of consumers imposed by this Hon'ble Commission in the Order dated 22.08.2012 in Case No. 151 of 2011.
- (f) The principles of laying of any distribution network, migration of consumers etc. are to be made applicable uniformly to all distribution licensees in terms of the principles set out hereinabove.
- (g) The Hon'ble Tribunal's Judgment dated 28.11.2014 in Appeal No. 246 of 2012 & batch has clarified that should this Hon'ble Commission require as a part of the present proceedings it may amend the licenses of the distribution licensees to give effect to the judgment. Amendment of licence is not a pre-condition before approving the roll-out plan of Tata Power

13. Based on the direction of the Hon'ble Tribunal, Tata Power once again revised its Network Rollout Plan dated 09.10.2014. The Modified Network Rollout Plan was thereafter submitted to this Hon'ble Commission on 12.02.2015 vide Tata Power's Petition No. 182 of 2014. The Modified Network Rollout Plan contained the following revisions with respect to the previous Plan submitted on 09.10.2014 as set out in Table No. 3 below:

Table No. 3: Modifications carried out in Tata Power's Network Rollout Plan based on the Hon'ble Tribunal's Judgment dated 28.11.2014

Particulars	Unit	Network Rollout over 7 years (FY 2014-15 to FY 2020-21)		Remarks
		Revised Network Rollout - Oct 2014	Revised Network Rollout - Feb 2014 (Post Appeal 246 Judgment)	
No of DSS	Nos	28	22	
Power transformers Capacity (DSS)	MVA	1120	540	- Backbone network planned as per the estimated load from new consumers and improving reliability in an area rather than for catering to 50% load
33 KV HT Network	Km	280	220	
11 KV Network	Km	900	432	
No of CSS (11/0.4 or 22/0.4)	Nos	1000	904	- Last Mile Network is planned for catering to the estimated load from new consumers and loading of existing network wherein substantial investment has been made, rather than to reach 50% of the capacity
CSS (MVA)	MVA	1000	739	
LT Mains Cable	Km	2455	509	
Total Capex	Rs. Crore	2845	1380	- Cost effective & competitive network ensured by network design & phasing

* Considering a probability of 70-80% of realisation, the actual Capex would be of the order of Rs.1000 Crores over a period of 7 Years

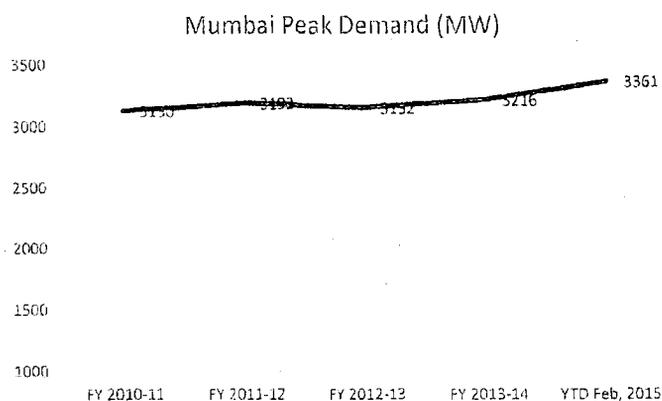
14. During the hearing held on 30.07.2015 in Case No. 182 of 2014, this Hon'ble Commission sought certain additional information/ documents qua its Modified Network Rollout Plan, the details of which are provided hereinafter for the consideration of this Hon'ble Commission. This Network Rollout Plan has been further modified taking latest inputs with regards to load projections.

B. LOAD GROWTH IN MUMBAI CITY AND MUMBAI SUBURBAN AREA

Re: Overall Load growth in Mumbai city and Mumbai suburban area

15. It is submitted that, for a period from FY 2010-11 till the submission of the Business Plan by Tata Power, peak demand of Mumbai has increased at Cumulative Annual Growth Rate ("CAGR") of about 1%. However, this growth is not consistent as there was a reduction in peak demand in FY 2012-13 by more than 1% as compared to FY 2011-12. Going forward, the growth in Mumbai is expected to be on a CAGR of 2-3%. However, in the present exercise, the Network Rollout Plan has been designed considering a six/seven year period. In this regard, the following graph is noteworthy:

Graph No. 1: Entire Mumbai Peak Demand from FY 2010-11 till filing of Petition for Tata Power's Network Rollout Plan



Re: Growth pattern Classification

16. For the purpose of Network Rollout, the load growth in the Mumbai (both Mumbai City and Mumbai Suburban Area) is classified into 3 different growth patterns:

- (a) **Yellow Field Areas:** These are saturated areas with limited potential of growth in next 5-7 years. These areas are unlikely to see any substantive development considering that there are number of heritage structures and are already congested with minimal possibility of redevelopment during the network rollout plan period.
- (b) **Brown Field Areas:** Areas having considerable potential of growth in terms of redevelopment of existing properties. These areas are assessed based on the existing land base with high density of slums, MHADA chawls and the presence of mill lands, as identified in the MCGM's proposed Development Plan (2013-2034) and inputs from various developers.
- (c) **Green Field Areas:** Areas having significant potential for new growth in near future (Next 5-7 years). These are areas where development is expected to commence based on proposed amendment in land usage permissions, for eg: salt pan areas, Mumbai Eastern Coast development, etc. These could also include areas presently in the No Development Zone and likely to be relaxed in due course of time.

I. Load Growth in Mumbai Suburban Area

17. Based on the aforesaid classification, Tata Power has identified ward wise growth pattern in Mumbai Suburban Area which is more particularly set out in Table No.4 below:

Table No. 4: Classification of wards based on Growth pattern - Mumbai Suburban Area

Ward	Area details	Yellow Field	Brown Field	Green Field
H East Ward*	Santacruz			√
H West Ward	Bandra to Santacruz	√		
K East Ward	Andheri (E)			
K West Ward	Andheri (W)			
L Ward	Kurla			
M East Ward	Chembur (E)			
M West Ward	Chembur (W)			
Mira Bhayander Municipal	Mira Bhayander			√
N Ward	Ghatkopar			
P North Ward	Malad			
P South Ward	Goregaon			
R Central Ward	Borivali			
R North Ward	Dahisar			
R South Ward	Kandivli			
S Ward*	Vikhroli-Kanjurmarg			√
T Ward	Bhandup-Mulund	Outside Licence Area		

* S Ward has been classified as Brown Field however, it is expected that the other part of the ward (substantial area) is expected to come up under Green Field.

The areas are identified primarily as an outcome of references in the proposed DP 2013-2034.

18. The GIS Maps showing the ward wise growth patterns in Mumbai Suburban Area are annexed hereto and marked as Annexure-2A, 2B and 2C.

II. Load Growth in Mumbai City Area

19. Based on the aforesaid classification, Tata Power has identified ward wise growth pattern in Mumbai City Area which is more particularly set out in Table No.5 below:

Table No.5: Classification of wards based on Growth pattern - Mumbai City

Ward	Area details	Yellow Field	Brown Field	Green Field
A Ward	Marine Lines, Colaba	√		
B Ward*	J J Hospital	√		√
C Ward	Chandanwadi	√		
O Ward	Nana Chowk			
E Ward*	Byculla			√
F North Ward*	Matunga			√
F South Ward*	Parel			√
G North Ward	Mahalaxmi			
G South Ward*	Dadar	√		

* Parts of B, E, F (North), F (South) & G (South) Wards have been classified under different ward classification categories

The areas are identified primarily as an outcome of references in the proposed DP 2013-2034

20. The GIS Maps showing the ward wise growth patterns in Mumbai City Area are annexed hereto and marked as **Annexure-3A, 3B and 3C**.

Re: Ward wise assessment of Load Projection

21. The ward wise assessment of load projection is the aggregate of the load growth/addition based on following:

- (a) Estimated natural load growth of existing consumers
- (b) Estimated load growth due to redevelopment of existing properties
- (c) Estimated addition in load on account of opening of new areas for development

A brief explanation of the data parameters considered for computing the load increase/addition are as follows:

(a) Estimated natural load growth of existing consumers – Following is the method used for estimation of load growth in each ward:

Step 1: Built-up Area in (sq. ft) has been considered as per the Development Plan of MCGM.

Step 2: Connected Load Density has been assumed as 1 MW per 100,000 sq. ft (1kW per 100 sq. ft.) that would mature over the period of Development Plan. By applying the Connected Load Density to the Built-up Area in Step 1, the estimated Connected Load in a ward is computed.

Step 3: The Connected Load in a ward from Step 2 is then apportioned to the load usage categories Residential (apartment and slums), Commercial and Industrial in a ward, based on actual built up land base as available in the Development Plan.

Step 4: Thereafter, a load usage to connected load ratio i.e. load factor is applied to estimated Connected Load (as computed in Step 3) for various activities in order to arrive at the Demand that would be catered in a ward. Based on the trend analysis, load factor of 10% has been considered for slums, 15% for other residential load, 20% for commercial load and 30% for industrial load.

Step 5: Estimated Demand from Step 4 is assumed to grow in a certain percentage i.e. 1.5% CAGR for residential demand, slum demand and industrial demand, 3.5% growth in commercial demand.

Step 6: The aggregate of estimated demand as computed from Step 5 is envisaged in the ward over the Network Rollout Plan period.

Step 7: The difference between the estimated demand over the Network Rollout Plan period and the estimated present load in the ward is considered as the natural growth of existing consumers in a ward.

- (b) Estimated load growth due to redevelopment of existing properties – This load is estimated based on the load surveyed, discussions with developers, etc.
- (c) Estimated addition in load on account of opening of new areas for development – This is an estimate of load addition that is expected due to various developmental activities and opening of areas for development like the development of eastern corridor, salt pan lands, etc.

Ward-wise computation of load projection based on above methodology has been presented in Annexure 4.

22. Tata Power has carried out a reassessment of the ward-wise load projection figures since the submission of petition. It has been observed that the current load projection is 1289 MW (1009 MW of Mumbai Suburbs + 280 MW of Mumbai City) against the earlier projected figure of 1324 MW (Total 1385 MW- 61 MW of T Ward).

Based on the aforesaid calculation, the ward wise Potential load Growth is assessed in Table No.6 and 7 below:

Table No. 6: Ward-wise assessment of Load Growth – Mumbai Suburban Area

Ward	Yellow Field	Brown Field	Green Field	Estimated natural load growth of existing consumers (MW)	Estimated load growth due to redevelopment of existing properties (MW)	Estimated addition in load on account of opening of new areas for development (MW)	Load Projection (MW)
				a	b	c	d=a+b+c
H East Ward*			v	28	20	-	48
H West Ward	v			11	6	-	17
K East Ward				29	135	-	164
K West Ward				28	87	-	114
L Ward				17	55	-	52
M East Ward				18	22	-	41
M West Ward				10	9	-	19
Mira Bhayander Municipal			v	28	57	31	116
N Ward				21	84	-	104
P North Ward				23	49	-	72
P South Ward				17	48	-	65
R Central Ward				17	33	-	50
R North Ward				11	20	-	31
R South Ward				21	18	-	39
S Ward*			v	20	6	49	75
T Ward		Outside Licence Area					
Mumbai Suburbs				299	630	80	1,009

Table No. 7: Ward-wise assessment of Load Growth – Mumbai City

Ward	Yellow Field	Brown Field	Green Field	Estimated natural load growth of existing consumers (MW)	Estimated load growth due to redevelopment of existing properties (MW)	Estimated addition in load on account of opening of new areas for development (MW)	Load Projection (MW)
				a	b	c	d=a+b+c
A Ward	√			19	-	-	19
B Ward*	√		√	4	-	4	8
C Ward	√			3	-	-	3
D Ward				10	15	-	25
E Ward*			√	11	60	17	89
F North Ward*			√	10	6	20	37
F South Ward*			√	15	21	23	58
G North Ward				11	8	-	19
G South Ward*	√			16	5	-	21
Mumbai City				101	114	54	280

Re: *Estimated Load addition on Tata Power's network considered for network Rollout Plan*

23. For the purpose of estimating load addition on Tata Power's network in various wards, following factors have been considered:

- (a) Migration to Tata Power network in yellow field areas has been worked out after evaluation of ward/area wise availability of existing network. Percentages of 10% – 50 % share of estimated natural growth of existing customers have been assumed based on spare capacity available in existing network
- (b) Probability of consumers in redevelopment areas opting for availing supply on Tata Power's network. Share of 60%-80% of load growth due to redevelopment in the brown field areas have been considered depending on the load already booked with Tata Power
- (c) Probability of triggers happening for green field development. Similarly share of 50%-70% of potential new development in Greenfield areas have been considered.

I. Mumbai Suburban area within Tata Power Licence area

24. The ward wise estimated additional load that would be catered on Tata Power's network in Mumbai Suburban area set-out in Table No.8 below:

Table No. 8: Ward wise details of estimated additional load to be catered on Tata Power's network in Mumbai Suburban area

Ward	Area details	MW			
		Migration to Tata Power in Yellow field area	Potential Load Assessment of Tata Power in Brown field	Potential Load Assessment of Tata Power in Green field	Estimated Additional Load on Tata Power's Network
		a	b	c	d=a+b+c
H East Ward	Santacruz	8	16	-	24
H West Ward	Bandra to Santacruz	1	4	-	5
K East Ward	Andheri (E)	15	81	-	96
K West Ward	Andheri (W)	14	69	-	83
L Ward	Kurla	5	25	-	30
M East Ward	Chembur (E)	2	15	-	17
M West Ward	Chembur (W)	1	6	-	7
Mira Bhayander Municipal	Mira Bhayander	14	40	22	76
N Ward	Ghatkopar	6	67	-	73
P North Ward	Malad	7	34	-	41
P South Ward	Goregaon	8	34	-	42
R Central Ward	Borivali	5	23	-	28
R North Ward	Dahisar	3	14	-	17
R South Ward	Kandivli	11	13	-	23
S Ward	Vikhroli-Kanjurmarg	2	5	34	41
Mumbai Suburbs		102	446	56	605

II. Mumbai City area within Tata Power Licence area

25. The ward wise estimated additional load that would be catered on Tata Power's network in Mumbai city area set-out in Table No.9 below based on the principles and assumptions as described above:

Table No. 9: Ward wise details of estimated additional load to be catered on Tata Power's network in Mumbai City area

Ward	Area details	MW			
		Migration to Tata Power in Yellow field area	Potential Load Assessment of Tata Power in Brown field	Potential Load Assessment of Tata Power in Green field	Estimated Additional Load on Tata Power's Network
		a	b	c	d=a+b+c
A Ward	Marine Lines, Colaba	10	-	-	10
B Ward	JJ Hospital	-	-	2	2
C Ward	Chandanwadi	-	-	-	-
D Ward	Nana Chowk	-	10	-	10
E Ward	Byculla	6	30	9	44
F North Ward	Matunga	5	4	10	20
F South Ward	Parel	7	14	11	33
G North Ward	Mahajaxm	6	5	-	11
G South Ward	Dadar	5	3	-	8
Mumbai City		38	68	32	139

C. PRINCIPLES & EVALUATION OF NETWORK DEVELOPMENT

26. The principles as set out in para 2-12 hereinabove, are considered for the development of Network as detailed below:

I. Mumbai Suburban Area

27. Based on the above guidelines, analysis of presence of existing network, as also the load growth analysis, the following principles have been developed for the Network Rollout Plan in the Mumbai Suburban area:

Re: Yellow Field Areas

28. As regards the Yellow Field areas in Mumbai Suburban area, Tata Power has submitted its Network Rollout Principles based on the following:

- (a) Limited network development: Development of network only for laying last mile connectivity to serve any consumer who wishes to migrate to the Chosen Distribution Licensee.
- (b) Utilisation of under-utilised network already existing.
- (c) Network addition only in areas where the existing network of the Distribution Licensee is loaded /aged and needs augmentation/replacement and has low reliability performance parameters in terms of faults & interruptions, where network development is in the Consumer interest or where there are no constraints in laying network

29. In light of the principles set out hereinabove, the ward wise Network Rollout planned in Yellow Field Areas in Mumbai Suburban Area is provided in Table No.10 below:

Table No. 10: Ward-wise Network Rollout – Yellow Field Areas – Mumbai Suburban Area

Ward	Estimated Additional Load on Tata Power's Network	Existing Network as on 30th June, 2015		Network Planned				
		DSS Capacity (MVA)	CSS Capacity (MVA)	DSS Capacity (MVA)	33 kV Cable (km)	11 kV Cable (km)	CSS Capacity (MVA)	LT Cable (km)
H West Ward	5	35	3	0	0	0	7	5

Re: Brown field Areas

30. As regards the Brown Field areas in Mumbai Suburban area, Tata Power has submitted its Rollout Plan principles based on the following:

- (a) Network development would be needed in these areas where backbone network needs to be developed or augmented by either utility.
- (b) These areas would be experiencing a substantial load growth.
- (c) Backbone development is required to cater to the redevelopment load.
- (d) Network would be added in areas where the existing network of other Distribution Licensee is adequately loaded or has low reliability performance parameters in terms of faults and interruptions and needs strengthening for catering to new consumers. The reliability of the existing network of other Distribution Licensees in the common licence area is evaluated based on the limited information of their MYT Plan and record of interruptions faced by Changeover consumers.

31. It may further be noted that Tata Power had sought for details from R Infra regarding the issue of reliability of its network vide its mail dated 30.07.2015 which is yet to

be supplied by R Infra vide their mail dated 1.8.2015. The email exchanges has been enclosed as Annexure-5.

32. In light of the principles set out hereinabove, the ward wise Network Rollout planned in Brown Field Areas in Mumbai Suburban Area is provided in Table No.11 below:

Table No. 11: Ward-wise Network Rollout - Brown Field Areas - Mumbai Suburban Area

Ward	Estimated Additional Load on Tata Power's Network	Existing Network as on 30th June, 2015		Network Planned				
		DSS Capacity (MVA)	CSS Capacity (MVA)	DSS Capacity (MVA)	33 kV Cable (km)	11 kV Cable (km)	CSS Capacity (MVA)	LT Cable (km)
H East Ward	24	60	40	20	10	16	13	9
K East Ward	96	200	127	40	20	32	89	61
K West Ward	83	80	66	100	50	80	89	61
L Ward	30	80	75	6	0	0	9	6
M East Ward	17	30	17	20	10	16	16	11
M West Ward	7	0	4	0	0	0	11	8
N Ward	73	20	48	90	30	72	88	60
P North Ward	41	140	69	0	0	0	41	28
P South Ward	42	80	62	10	0	8	27	19
R Central Ward	28	10	8	40	10	32	13	9
R North Ward	17	10	35	0	0	0	21	14
R South Ward	23	80	48	0	0	0	19	13
S Ward	41	80	33	40	10	32	40	27
Mumbai Suburbs	524	870	633	360	140	288	476	327

Re: *Green field Areas*

33. As regards the Green Field Areas are concerned in Mumbai Suburban area, Tata Power has submitted its Rollout Plan based on the following:

- Development of backbone network is economical as there is a load growth in the next 5-7 years.
- Network development to serve load booked.

34. In light of the principles set out hereinabove, the ward wise Network Rollout planned in Green Field Areas in Mumbai Suburban Area is provided in Table No.12 below:

Table No. 12: Ward-wise Network Rollout - Green Field Areas - Mumbai Suburban Area

Ward	Estimated Additional Load on Tata Power's Network	Existing Networks as on 30th June, 2015		Network Planned				
		DSS Capacity (MVA)	CSS Capacity (MVA)	DSS Capacity (MVA)	33 kV Cable (km)	11 kV Cable (km)	CSS Capacity (MVA)	LT Cable (km)
H East Ward	24	60	40	20	10	16	13	9
Mira Bhayander Municipal	76	80	42	40	10	32	98	67
S Ward	41	80	33	40	10	32	40	27
Mumbai Suburbs	141	220	115	100	30	80	151	104

35. The GIS map showing the ward wise network proposed for Mumbai Suburb area is annexed hereto and marked as Annexure-6.

H. Mumbai City area

36. In addition to the guidelines set out for Network Rollout in Mumbai Suburban Area, the following additional guidelines has also been considered in proposing the network Rollout for Mumbai City area:

- (a) Tata Power has the obligation to supply to all consumers in accordance with Section 43 of the Electricity Act. In this regard, para 30 of the Judgment of the Hon'ble Supreme Court in the matter of *Municipal Corporation of Greater Mumbai v. Maharashtra Electricity Regulatory Commission and Ors.* reported as (2015) 2 SCC 438 is noteworthy. Para 30 of the said Judgment is reproduced hereunder for the ease of reference:

"...30. Once we read the provisions in the aforesaid manner, it becomes clear that there is no exemption from universal service obligation to any distribution licensee under the Act, on account of the presence of a "local authority" as a distribution licensee in the particular area of supply, which is also reinforced by Para 5.4.7 of the National Electricity Policy which clearly states that the second licensee in the same area shall have the obligation to supply to all consumers in accordance with Section 43"

37. Based on the above and as per the principles of network development in each growth area the network development is as detailed below:

Re: Yellow Field Areas

38. As regards the Yellow Field Areas are concerned in Mumbai City area, Tata Power has submitted its Rollout Plan based on the following:

- (a) Limited network development: Development of network only for laying last mile connectivity to serve any consumer who wishes to migrate to the Chosen Distribution Licensee's network.
- (b) Utilisation of the network already existing.

39. In light of the principles set out hereinabove, the ward wise Network Rollout planned in Yellow Field Areas in Mumbai City Area is provided in Table No. 13 below:

Table No. 13: Ward-wise Network Rollout - Yellow Field Areas - Mumbai City Area

Ward	Estimated Additional Load on Tata Power's Network	Existing Network as on 30th June, 2015		Network Planned				
		DSS Capacity (MVA)	CSS Capacity (MVA)	DSS Capacity (MVA)	33 kV Cable (km)	11 kV Cable (km)	CSS Capacity (MVA)	LT Cable (km)
A Ward	10	0	0	20	10	16	13	9
B Ward	2	0	1	0	0	0	2	1
C Ward	-	0	0	0	0	0	1	1
G North Ward	11	0	8	0	0	0	11	8
Mumbai City	23	0	9	20	10	16	27	19

Re: Brown field Areas

40. As regards the Brown Field Areas are concerned in Mumbai City area, Tata Power has submitted its Rollout Plan based on the following:

- (a) Network development would be needed in these areas where backbone network needs to be developed by either utility.
- (b) Network would be added in areas where the existing network of other Distribution Licensee is overloaded and needs strengthening.
- (c) These areas would be experiencing a substantial load growth.
- (d) Utilisation of the network already existing would be considered as first choice.
- (e) Backbone development is required to cater to the redevelopment load.

41. In light of the principles set out hereinabove, the ward wise Network Rollout planned in Brown Field Areas in Mumbai City Area is provided in Table No.14 below:

Table No. 14: Ward-wise Network Rollout - Brown Field Areas - Mumbai City area

Ward	Estimated Additional Load on Tata Power's Network	Existing Network as on 30th June, 2015		Network Planned				
		DSS Capacity (MVA)	CSS Capacity (MVA)	DSS Capacity (MVA)	33 kV Cable (km)	11 kV Cable (km)	CSS Capacity (MVA)	LT Cable (km)
D Ward	10	0	0	20	10	16	14	10
E Ward	44	0	10	80	40	64	53	36
F North Ward	20	0	2	0	0	0	26	18
F South Ward	33	0	12	0	0	0	39	27
G North Ward	11	0	8	0	0	0	11	8
Mumbai City	119	0	31	100	50	80	143	98

Re: Green field Areas

42. As regards the Green Field Areas are concerned in Mumbai City area, Tata Power has submitted its Rollout Plan based on the following:

- (a) Development of backbone network to be prepared to cater to additional growth which may come in 5-7 years.
- (b) Network development to serve load booked.

43. In light of the principles set out hereinabove, the ward wise Network Rollout planned in Green Field Areas in Mumbai City Area is provided in Table No.15 below:

Table No. 15: Ward-wise Network Rollout – Green Field Areas Mumbai City area

Ward	Estimated Additional Load on Tata Power's Network	Existing Network as on 30th June, 2015		Network Planned				
		DSS Capacity (MVA)	CSS Capacity (MVA)	DSS Capacity (MVA)	33 kV Cable (km)	11 kV Cable (km)	CSS Capacity (MVA)	LT Cable (km)
B Ward	2	0	1	0	0	0	2	1
E Ward	44	0	10	80	40	64	53	36
F North Ward	20	0	2	0	0	0	26	18
F South Ward	33	0	12	0	0	0	39	27
Mumbai City	99	0	25	80	40	64	120	82

44. The GIS map showing the ward wise network proposed for Mumbai City area is annexed hereto and marked as Annexure-7.

III. Comprehensive Network Rollout plan for entire Tata Power Licence area

45. In terms of the principles set out hereinabove, the comprehensive load growth for entire Licence area is provided in Table No. 16 below:

Table No. 16: Comprehensive load growth for the entire License area

Ward	Area details	Migration to Tata Power In Yellow field area	Potential Load Assessment of Tata Power	Potential Load Assessment of Tata Power In	Estimated Additional Load on Tata Power's Network
		a	b	c	d=a+b+c
A Ward	Marine Lines, Colaba	10	-	-	10
B Ward	J J Hospital	-	-	2	2
C Ward	Chandanwadi	-	-	-	0
D Ward	Nana Chowk	-	10	-	10
E Ward	Byculla	6	30	9	44
F North Ward	Matunga	5	4	10	20
F South Ward	Parel	7	14	11	33
G North Ward	Mahalaxmi	6	5	-	11
G South Ward	Dadar	5	3	-	8
Mumbai City		38	68	32	139
H East Ward	Santacruz	8	16	-	24
H West Ward	Bandra to Santacruz	1	4	-	5
K East Ward	Andheri (E)	15	81	-	96
K West Ward	Andheri (W)	14	69	-	83
L Ward	Kurla	5	25	-	30
M East Ward	Chembur (E)	2	15	-	17
M West Ward	Chembur (W)	1	6	-	7
Mira Bhayander Municipal	Mira Bhayander	14	40	22	76
N Ward	Ghatkopar	6	67	-	73
P North Ward	Malad	7	34	-	41
P South Ward	Goregaon	3	34	-	42
R Central Ward	Borivali	5	23	-	28
R North Ward	Dahisar	3	14	-	17
R South Ward	Kandivli	11	13	-	23
S Ward	Vikhroli-Kanjurmarg	2	5	34	41
Mumbai Suburbs		102	446	56	605
Total		141	514	89	744

As per the reassessment of the ward-wise load projection figures as mentioned above, it has been observed that although the current load projection of 744 MW (605 MW of Mumbai Suburbs + 139 MW of Mumbai City) is similar to the load projection submitted in the petition, there has been changes on ward-wise projections.

46. As computed above about 744 MW of load is estimated to be additionally catered through Tata Power-D's network. Out of this 744 MW, part of the load will be met through spare capacity available in existing network already developed by Tata Power and the balance shall be catered through the network developed as shown below.

47. A Comprehensive Network Rollout Plan for the entire Licence Area including all considerations, as set out hereinabove, is set out in Table No. 17 below:

Table No. 17: Comprehensive Network Rollout Plan for the entire licence area

Ward	Estimated Additional Load on Tata Power's Network (MW)	Network Planned				
		DSS Capacity (MVA)	33 kV Cable (km)	11 kV Cable (km)	CSS Capacity (MVA)	LT Cable (km)
A Ward	10	20	10	16	13	9
B Ward	2	0	0	0	2	1
C Ward	-	0	0	0	1	1
D Ward	10	20	10	16	14	10
E Ward	44	80	40	64	58	36
F North Ward	20	0	0	0	26	18
F South Ward	33	0	0	0	39	27
G North Ward	11	0	0	0	11	8
G South Ward	8	20	10	16	0	0
Mumbai City	139	140	70	112	159	109
H East Ward	24	20	10	16	13	9
H West Ward	5	0	0	0	7	5
K East Ward	96	40	20	32	89	61
K West Ward	83	100	50	80	89	61
L Ward	30	0	0	0	9	6
M East Ward	17	20	10	16	16	11
M West Ward	7	0	0	0	11	8
Mira Bhayander Municipal	76	40	10	32	98	67
N Ward	73	90	30	72	88	60
P North Ward	41	0	0	0	41	28
P South Ward	42	10	0	8	27	19
R Central Ward	28	40	10	32	13	9
R North Ward	17	0	0	0	21	14
R South Ward	23	0	0	0	19	13
S Ward	41	40	10	32	40	27
Mumbai Suburbs	605	400	150	320	581	399
Total Licence Area	744	540	220	432	740	509

D. PHASING OF NETWORK ROLLOUT PLAN FOR ENTIRE LICENCE AREA

48. Considering the network phasing and the capex requirement to implement the network rollout the estimated capex for Network Rollout Period has been presented in the Table No. 18:

Table No. 18: Network Rollout Plan Phasing

Particulars		FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	Total
Distribution Substation (DSS) -40 MVA	Nos.	0	1	0	2	1	0	1	5
Distribution Substation (DSS) -20 MVA	Nos.	0	2	4	1	3	4	3	17
Consumer Substation (CSS) - 0.5 MVA	Nos.	2	89	77	93	22	22	25	330
Consumer Substation (CSS) - 1 MVA	Nos.	10	67	60	60	27	52	7	283
Additional CSS	Nos.	0	58	61	67	48	56	3	291
33 kV Cable Network	kms	0	30	40	20	50	40	40	220
11 kV Cable Network	kms	0	64	64	32	96	64	112	432
LT Cable Network	kms	102	124	87	60	61	61	34	509

*FY 2014-15 includes only the capex expected in March, 2015

Table No. 19: Capex Phasing - Network Rollout Plan

Particulars	CAPEX of Network Rollout Plan Mumbai (Rs. Crs)							Total
	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	
No. of Substations / Cables								
Distribution Substation (DSS) - 40 MVA	0	25	0	51	25	0	25	127
Distribution Substation (DSS) - 20 MVA	0	25	51	13	38	51	33	216
Consumer Substation (CSS) - 0.5 MVA	1	35	30	37	9	9	10	130
Consumer Substation (CSS) - 1 MVA or more	6	40	35	35	16	31	4	167
Additional CSS	0	7	7	8	6	6	0	35
33 kV Cable Network	0	22	30	15	37	30	30	163
11 kV Cable Network	0	33	53	26	79	53	92	356
LT Cable Network	37	45	32	22	15	22	12	186
Total CAPEX	44	253	238	207	225	201	212	1360

*FY 2014-15 includes only the capex expected in March, 2015

49. It is submitted that the Network Rollout Plan submitted by Tata Power is in compliance with all statutory provisions and the principles set out in various judgments and Orders of this Hon'ble Commission and the Hon'ble Tribunal.

50. It is also submitted that in the absence of available data regarding the existing network developed and planned by other Distribution Licensees and data on reliability parameters of the network of other Licensees it becomes difficult to arrive at a foolproof realistic network plan. It is submitted that Hon'ble Commission may like to direct all the Distribution Licensees to design their network in GIS maps and upload the same on their websites along with details of network performance & reliability parameters.

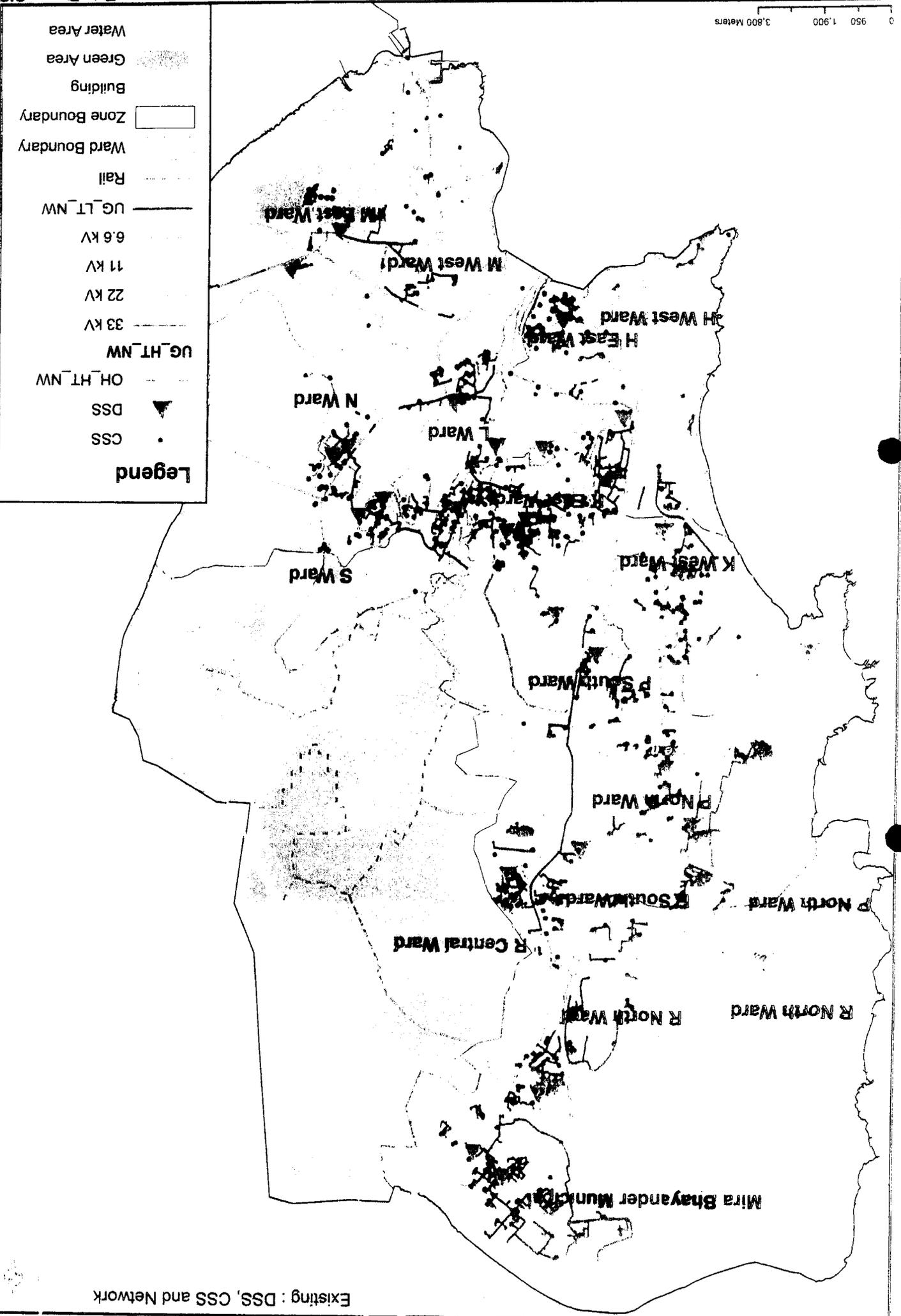
51. Also due to non-availability of such detailed Network Rollout Plan from any of the existing Distribution Licensees in Mumbai it becomes extremely difficult to understand the standards of expectation & evaluation of such Network Rollout Plans. It is submitted that Hon'ble Commission may like to direct all other Distribution Licensees to also submit such network Rollout plans on a commonly accepted structure.

52. It is submitted that this Network Rollout Plan is based on the assumptions as explained in earlier paragraphs. The actual network rollout may get modified based on various factors like consumer demand and preference, transmission outlet availability, triggers for opening up of Green Field areas, etc.

53. All relevant information, as sought by R-Infra in its Affidavit in Reply dated 29.07.2015, in terms of Annexure-2, has been provided for in the present submissions in formats as applicable.

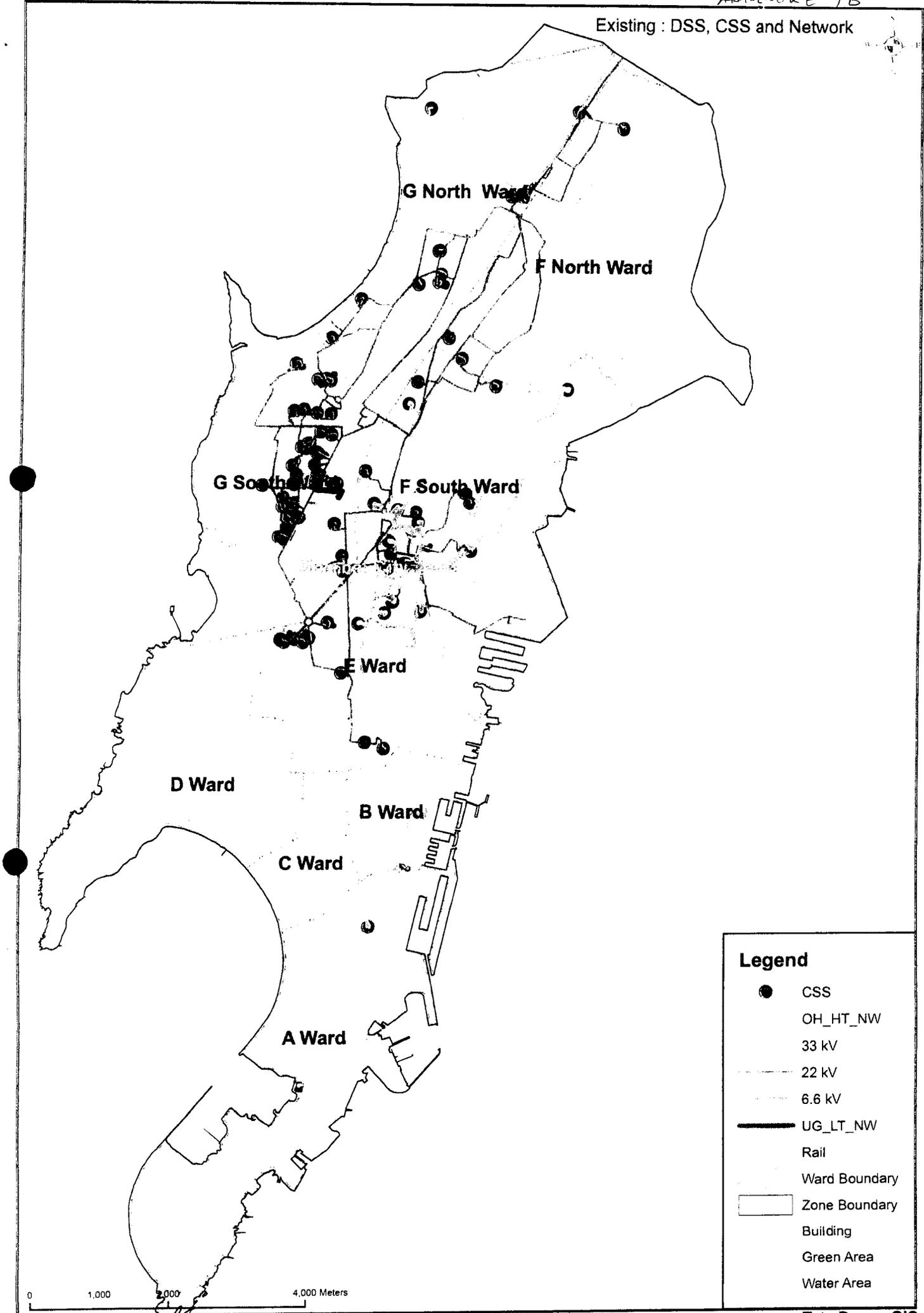
54. The observations stated by BEST in its submission dated 29.07.2015 have been responded in this submission in further detail. The principles of network development based on the estimated load growth across all wards have been covered in this submission.

0 950 1,900 3,800 Meters



Existing : DSS, CSS and Network

Existing : DSS, CSS and Network



Legend

- CSS
- OH_HT_NW
- 33 kV
- 22 kV
- 6.6 kV
- UG_LT_NW
- Rail
- Ward Boundary
- Zone Boundary
- Building
- Green Area
- Water Area

0 1,000 2,000 4,000 Meters



Mira Bhayander Municipal

R North Ward **R' North Ward**

R Central Ward

P North Ward **R South Ward**

P North Ward

P South Ward

K West Ward

S Ward

K East Ward

L Ward

N Ward

H East Ward
t Ward

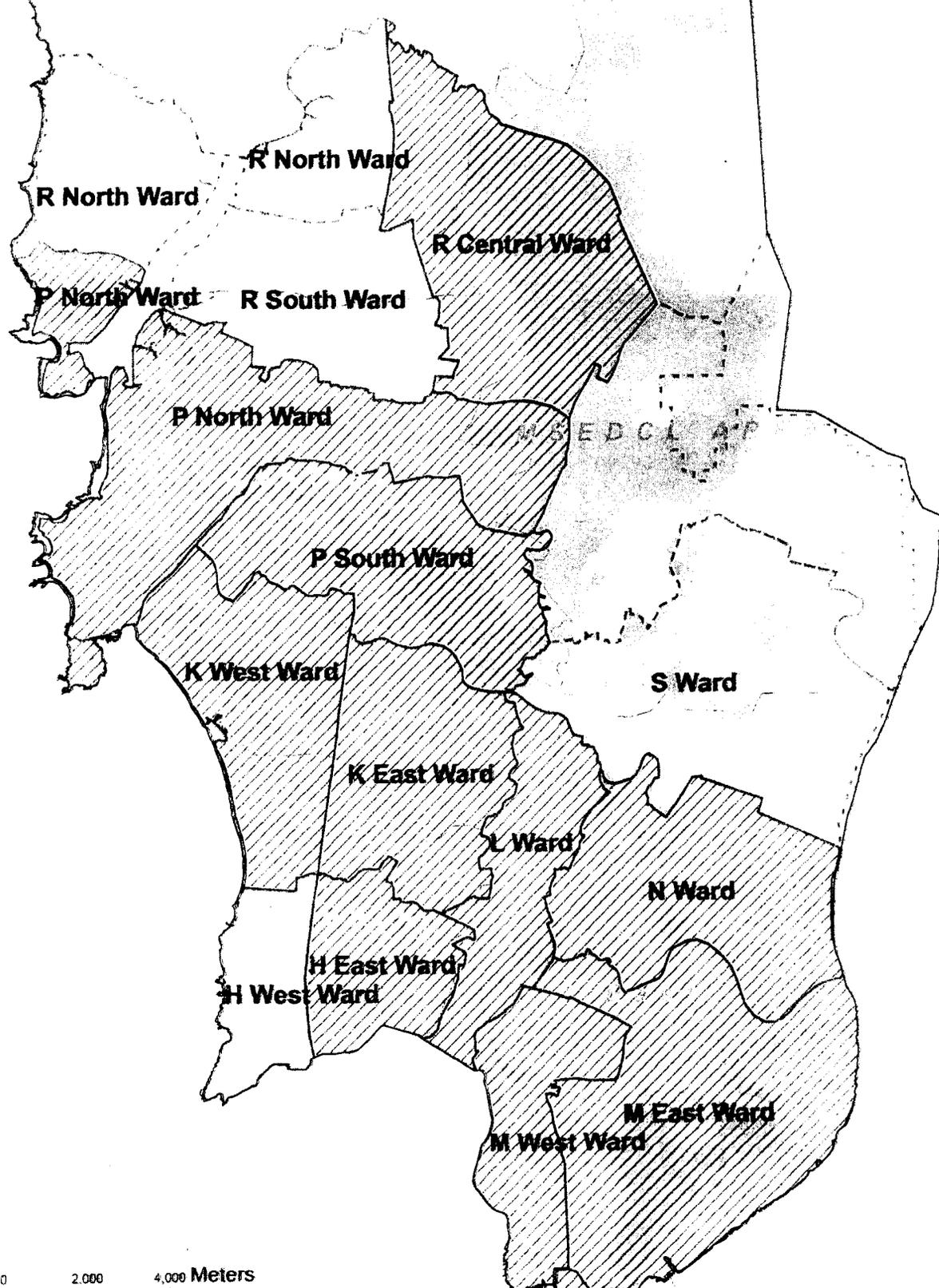
M East Ward

M West Ward

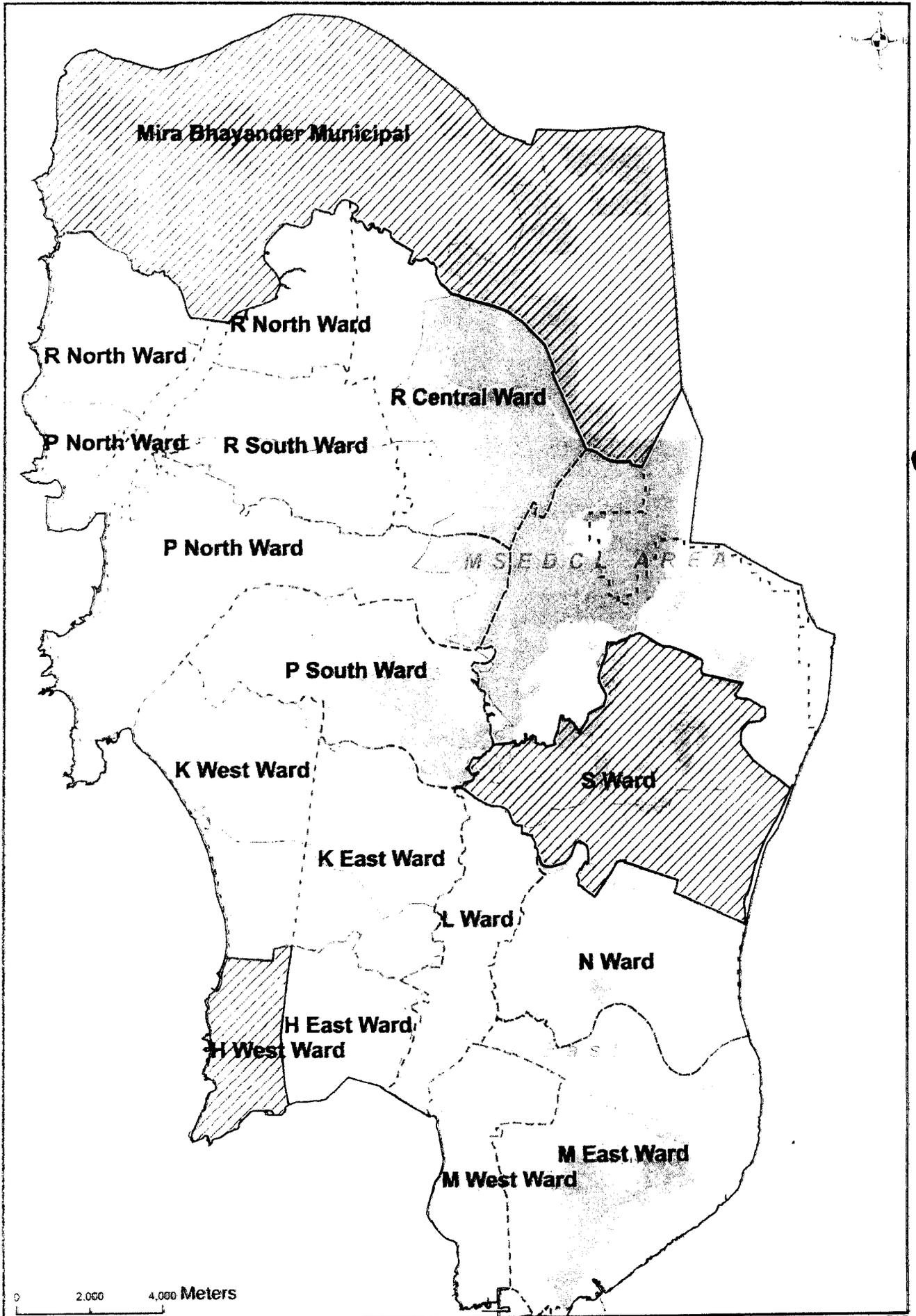
0 2,000 4,000 Meters



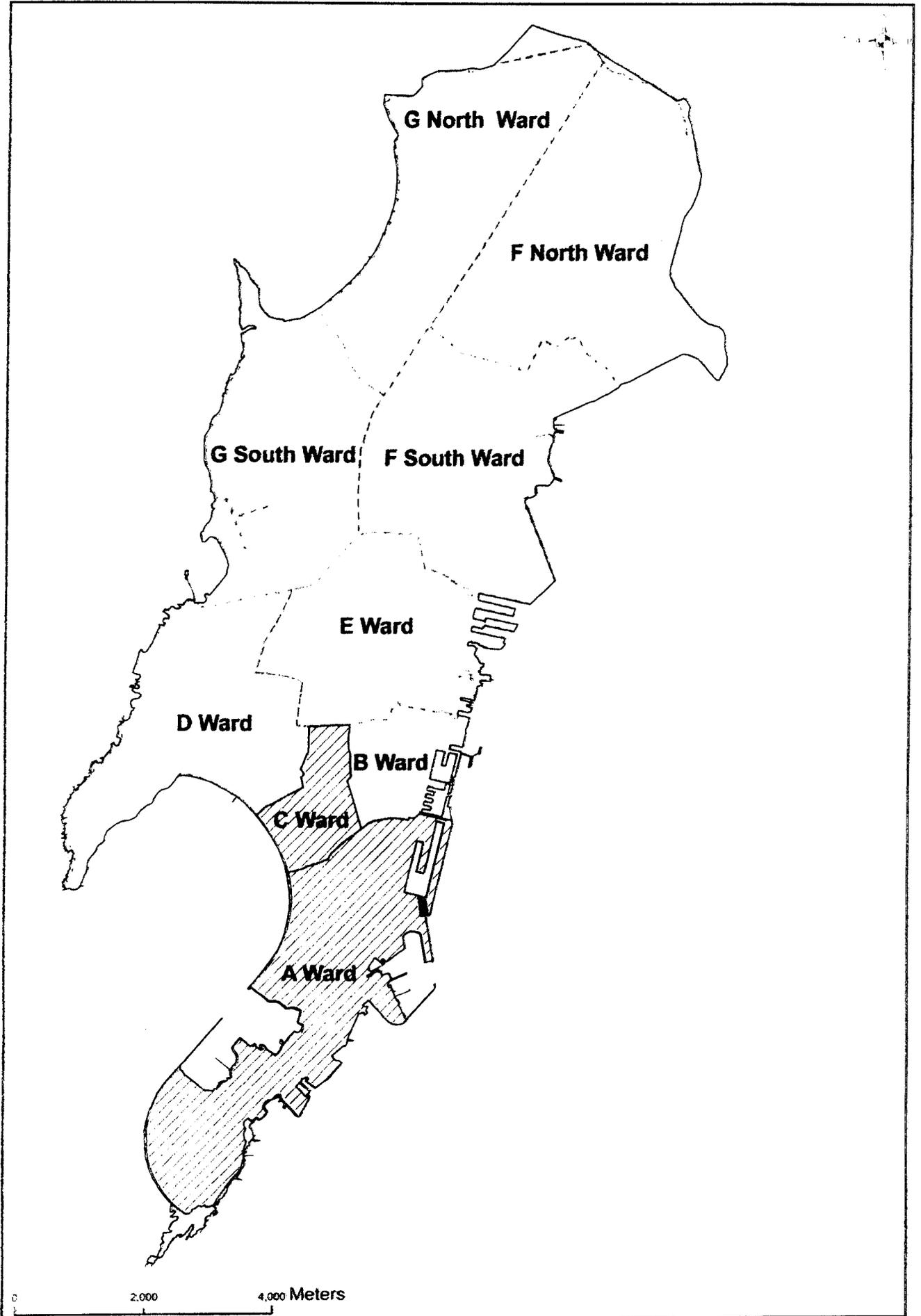
Mira Bhayander Municipal

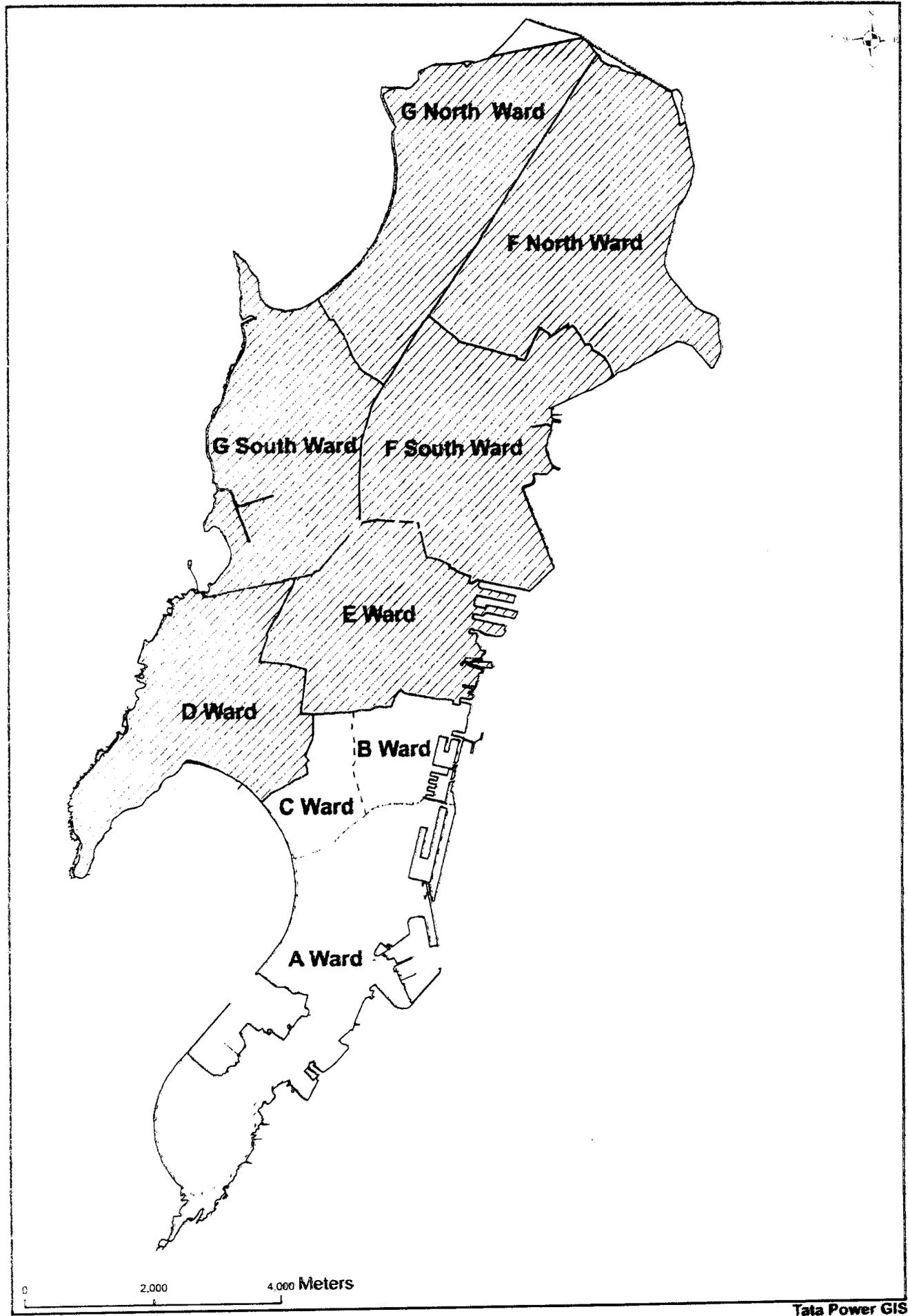


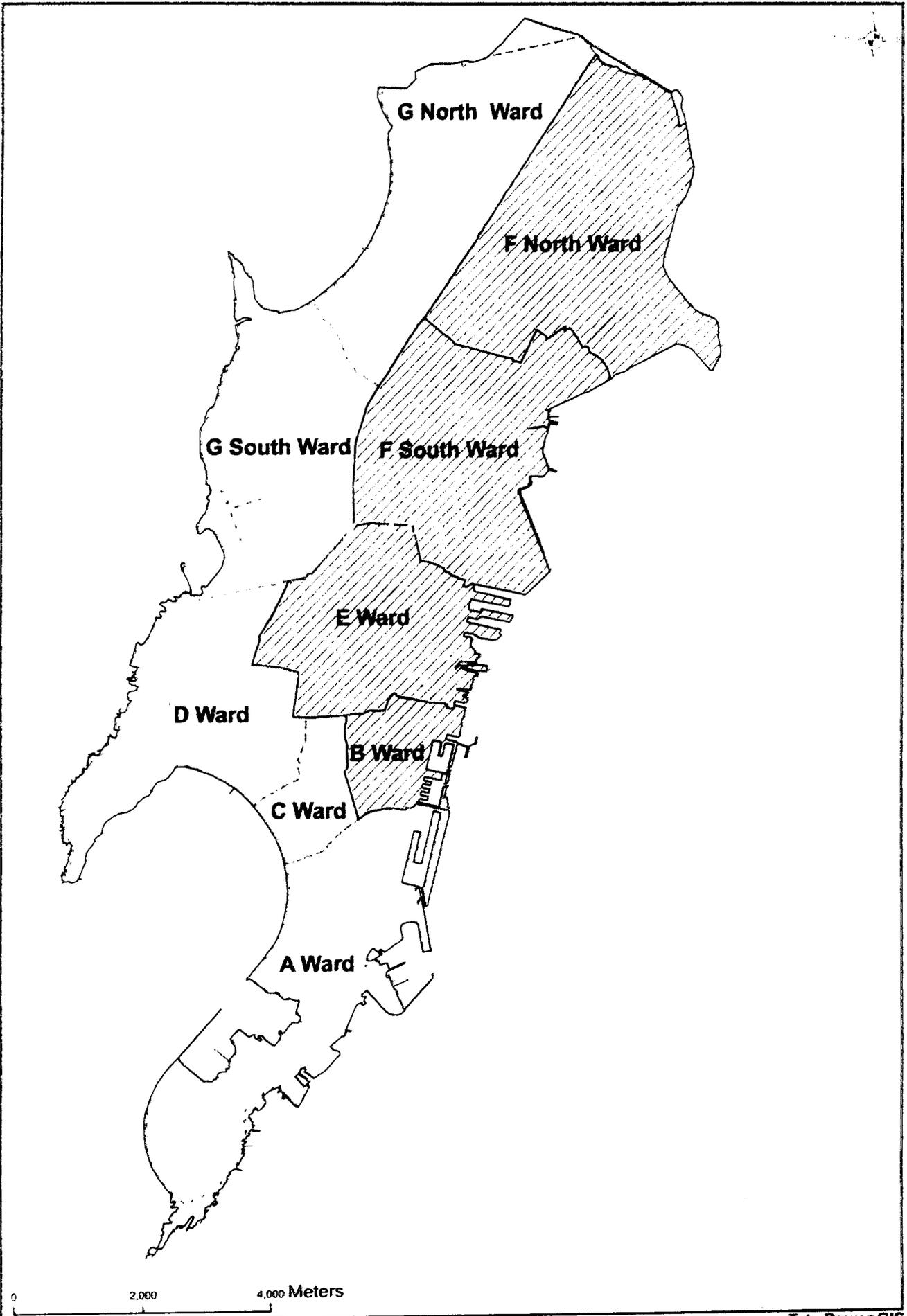
0 2,000 4,000 Meters



0 2,000 4,000 Meters







ANNEXURE-4

Sample calculation of ward wise growth projections

Ward Name	Zone	Area Sq KM	Builtup Area (Sq ft)	Connected Load (MW)	Residential Area	Commercial area	Industrial Area	Slum Area	Future Load Growth (MW)					Potential Load Assessment of Taba Power - Yellow Field	
									Total Demand (MW)	Residential	Commercial	Industrial	Slum Redevelopment Demand		Total Demand considering Growth
A Ward	South Best	9.57	71,058,621	711	55.00%	30.00%	0.00%	15.00%	$g=b \cdot [(c \cdot 15\%) + (d \cdot 20\%) + (e \cdot 30\%) + (f \cdot 10\%)]$	$h=b \cdot c \cdot 15\% + (d \cdot 20\%) \cdot (1+1.5\%)^7$	$i=b \cdot d \cdot 20\% + (1+1.5\%)^7$	$j=b \cdot e \cdot 30\% + (1+1.5\%)^7$	$k=b \cdot f \cdot 10\% + (1+1.5\%)^7$	$l=h+i+j+k$	$m=l-g$
			a	b=a/1005	c	d	e	f	112	65	54	0	12	131	19

Sarkar Bhaskar

From: Kapil.Sharma@relianceada.com
Sent: 01 August 2015 10:47
To: Sarkar Bhaskar
Cc: Chitnis Chintamani; 'Ghanashyam Patil'; Ghanashyam.Thakkar@relianceada.com; prafulla.varhade@merc.gov.in; secretary@merc.gov.in; Mehendale Swati R; Raje Vidyesh; Vivek.G.Mishra@relianceada.com; Kishor.Patil@relianceada.com
Subject: Re: Request for salient details of Network Reliability

Dear Mr. Bhaskar Sarkar,

We refer to your trailing mail. We shall be compiling the data as stated on our behalf during the hearing on 30 July 2015 and shall be forwarding the same expeditiously in the applicable format. The format sent by you to us is inapplicable.

In the meantime, please send us a copy of the detailed roll-out plan along with geographical maps which, as stated by you during the hearing have been prepared by you and are ready with you.

Regards,

Kapil Sharma
 (कपिल शर्मा)

From: Sarkar Bhaskar <bhaskar.sarkar@tatapower.com>
To: "Kapil.Sharma@relianceada.com" <Kapil.Sharma@relianceada.com>
Cc: "Ghanashyam.Thakkar@relianceada.com" <Ghanashyam.Thakkar@relianceada.com>, "Vivek.G.Mishra@relianceada.com" <Vivek.G.Mishra@relianceada.com>, "Chitnis Chintamani" <chintamani@tatapower.com>, Raje Vidyesh <vidyesh.raje@tatapower.com>, Mehendale Swati R <srmehendale@tatapower.com>, "secretary@merc.gov.in" <secretary@merc.gov.in>, "prafulla.varhade@merc.gov.in" <prafulla.varhade@merc.gov.in>, "Ghanashyam Patil" <ghanashyam.patil@merc.gov.in>
Date: 30/07/2015 21:40
Subject: Request for salient details of Network Reliability

Dear Kapil,

Tata Power-D has submitted its Revised Network Rollout Plan in Case No. 182 of 2014 in accordance with the directions given by the Hon'ble Commission in its Order dated 14th August, 2014 in Case No. 90 of 2014 as also judgment of the Hon'ble ATE dated 28th November, 2014 in Appeal No. 246 of 2012 and Appeal No. 229 of 2012. As per our analysis of the reliability parameters of your network, it has been observed that the network in certain wards in our common area of License has high fault levels and comparatively higher network loading. Further it has been observed that your Company has filed DPRs for network augmentation and strengthening in these areas. This issue was also discussed in detail during the course of the hearing on the captioned petition held today where the Hon'ble Commission directed that the salient network details of such areas need to be also obtained. Hence, we request you to urgently provide the relevant data of your distribution network in these wards as per format as attached in Annexure 1.

Regards,
 Bhaskar Sarkar

Head -Business Strategy & Regulations,MO

The Tata Power Company Limited, Dharavi Receiving Station, Near Shalimar Industrial Estate, Matunga, Mumbai
400 019, Maharashtra, India

Tel: 022 6717 2628 extn 2628 Mobile: 9223512396

Email: bhaskar.sarkar@tatapower.com Website: www.tatapower.com

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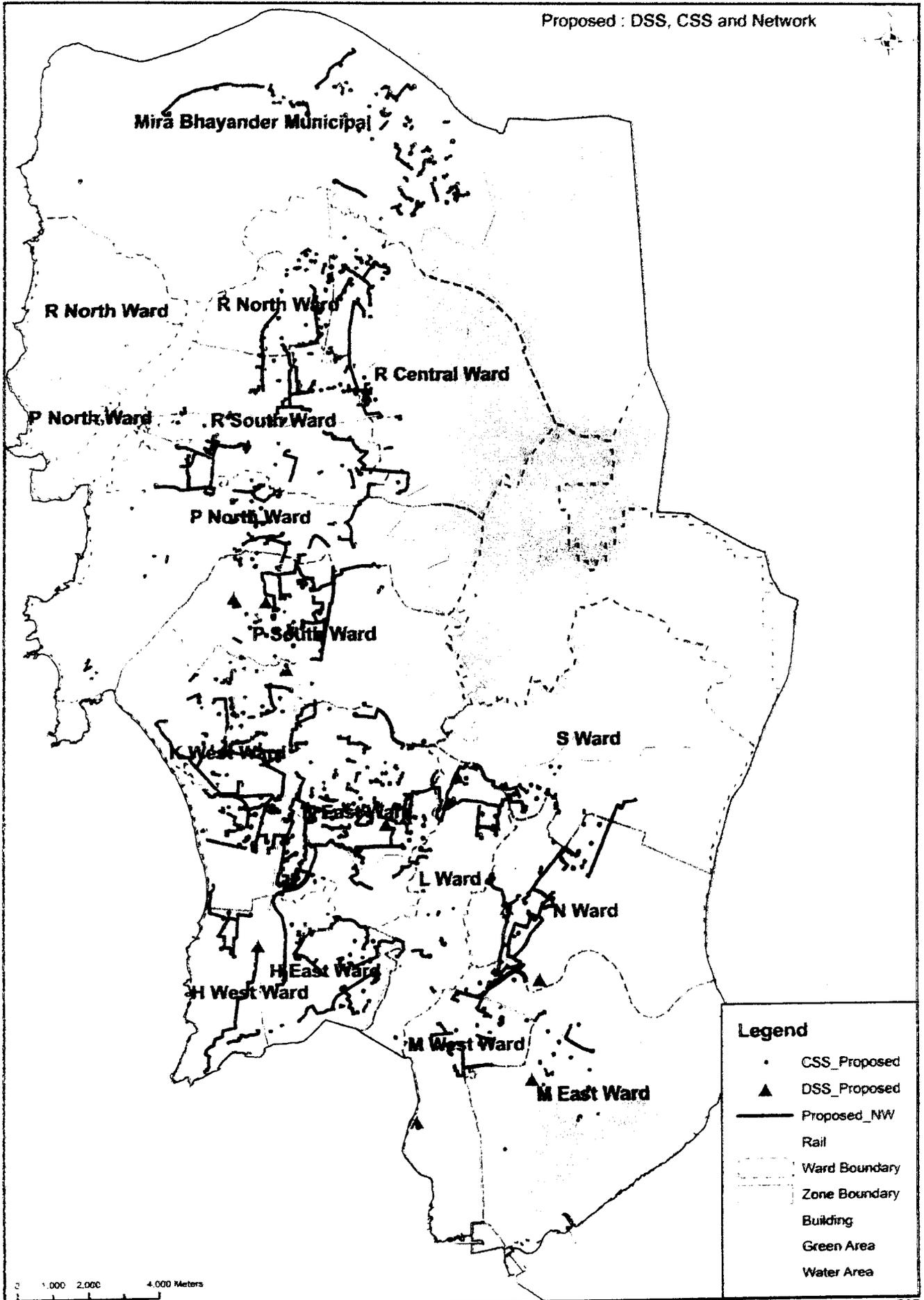
This email has been scanned by the Symantec Email Security.cloud service.
For more information please visit <http://www.symanteccloud.com>

DATA FOR ASCERTAINING THE RELIABILITY OF NETWORK

Sr. No.	Ward	Area	1	2	3	4	5	6	7	8	9	10	11	12
			Name of RSS	Installed Capacity of RSS (in MVA)	Loading of Power Transformer	N-1 Compliance at RSS	Loading of each Outgoing (OG) feeders	Spare Capacity on DG feeders	No. of faults on feeder	N-1 Compliance at DG Feeder level	No. of CSS on each OG Feeders	No. of Automated CSS	Loading on DT	N-1 Compliance at DTs
1	H. East	Kalima	RSS 1 RSS 2 RSS 3 RSS n											
2	H. East	Banera	RSS 1 RSS 2 RSS 3 RSS n											
3	H. East	MIRDA B/C												
4	H. West	Entire Ward Ambivali Andheri Chinchavali Andheri Vihar Road Chakala Vile Parle Meghwardi Juhu Boroli												
5	K. West													
6	M. East													
7	N													
8	P. South	Mahananda Aarey Poisar Borivali Shimpoli Dahisar Entire Ward												
9	R. Central													
10	R. North													
11	R. South													
12	Mira Bhayander Municipal Corporation	Entire Area												



Proposed : DSS, CSS and Network



Legend

- CSS_Proposed
- ▲ DSS_Proposed
- Proposed_NW
- - - Rail
- Ward Boundary
- - - Zone Boundary
- Building
- Green Area
- ~ Water Area

0 1,000 2,000 4,000 Meters

