

# **RInfra–Distribution (RInfra-D)**

Executive Summary:

Multi Year Tariff (MYT) Petition for the  
Control Period:- FY 2012-13 to FY 2015-16

Filed with

Maharashtra Electricity Regulatory Commission

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## **1.1. Introduction**

The Hon'ble Maharashtra Electricity Regulatory Commission (hereinafter referred to as Hon'ble Commission / MERC) issued the Maharashtra Electricity Regulatory Commission (Multi Year Tariff) Regulations, 2011 (hereinafter referred to as MYT Regulations) on February 4, 2011. These Regulations have been made effective for RInfra-D from FY 12-13 onwards, vide an Order of the Hon'ble Commission in Case No. 45 of 2011.

MERC MYT Regulations, 2011 specify the principles to be employed by the Hon'ble Commission for determination of tariff under the said Regulations. The said MYT Regulations require the licensees to submit their Multi-Year Business Plans for the Second Control Period FY 11-12 to FY 15-16. Reliance Infrastructure Limited – Distribution Business (hereinafter referred to as RInfra-D) had submitted under Case No. 158 of 2011.

The Hon'ble Commission has already issued the order Case No. 158 of 2011 on November 23, 2012.

Regulation 8 of the MYT Regulations provides for submission of forecast of ARR and expected revenue from tariff based on the Business Plan. MERC has directed RInfra-D in its order in Case No. 158 of 2011 to submit MYT petition. Based on the above, RInfra-D is filing the present MYT petition.

## **1.2. Overview of RInfra-D**

Reliance Infrastructure Limited (hereafter referred to as RInfra) is an integrated Utility engaged in Generation, Transmission and Distribution of electricity in and around suburban areas of Mumbai. RInfra-D is a Distribution Licensee under the License granted to it by the Hon'ble Commission under Section 15 of the Electricity Act 2003.

The distribution system of RInfra-D is currently catering to the electricity needs of around 2.8 million consumers in its licensed area (in and around suburbs of Mumbai as given in the Distribution License) with annual energy input requirement of about 9 billion units and coincident maximum demand of about 1650 MVA. As on 31st March 2012, the distribution system of RInfra-D included 5775 Nos of 11kV Substations, HT cable length of 4519 Kms & LT Cable length of 4202 Kms, etc.

### **1.3. Aggregate Revenue Requirement**

#### **1.3.1. Sales**

Due to migration of consumers from RInfra-D to TPC-D, historical figures for RInfra-D include consumption of changeover consumers. Due to effect of the Order in case 151 of 2011, the changeover of consumers is currently limited to Residential 0-300 categories only. Hence the effect of changeover sales on RInfra-D own sales would be different in the future compared to the historical trends

To accurately consider the effect of migration and hence the effect of changeover sales on RInfra-D own sales, the following approach has been used for estimation of RInfra-D own sales in the second control period

- Step 1: Estimation of Total sales in the RInfra-D area of distribution including common area of supply with TPC-D (including sales attributable to migration/changeover consumers) for each consumer category
- Step 2: Estimation of Changeover sales consumer category-wise considering the impact of order Case 151 of 2011 issued by Hon'ble Commission
- Step 3: Estimation of RInfra-D own sales which is difference of Step 1 and 2 above

Total sales has been estimated considering the past growth trends. Five year CAGR of respective consumer category sales has been used to estimate sales. Changeover sales have been estimated by considering the effect of 1) Sales of existing changeover consumers 2) Sales from additional changeover of consumers 3) Sales from pending applications for changeover as on 22nd august 2012 4) Impact of Case 151 of 2011, whereby it is assumed that TPC-D will serve the Changeover customers in the 11 identified clusters/wards on its own network

RInfra-D own sales is then determined by taking the difference between the Total sales and changeover sales. Additional sales from new railways category from Mumbai Metro one project and sales to upcoming Rinfra-T EHV substations has been included in RInfra-D own sales

RInfra-D has continued its efforts to reduce the system demand and energy consumption through DSM initiatives. During the MYT Period, RInfra-D plans to continue and conclude already on-going schemes, in addition to initiating new schemes, which have been approved by the Hon'ble Commission. The effect of such DSM measures have been considered in estimation of RInfra- D own sales.

The summary of the RInfra-D own sales and Changeover sales has been provided below

**Table 1: Summary of RInfra-D own sales and Changeover sales (MUs)**

Particulars	FY 12-13	FY 13-14	FY 14-15	FY 15-16
RInfra-D Own sales	6346.36	6593.68	6790.34	7020.09
Changeover sales	3076.30	1566.50	526.07	548.76
<b>Total sales</b>	<b>9422.66</b>	<b>8160.17</b>	<b>7316.40</b>	<b>7568.84</b>

### **1.3.2. Distribution Loss and Energy balance**

The loss level considered for FY 11-12 in the Business Plan was 9.05%, which was a provisional number based on the actuals of FY 10-11. However, for reasons stated in the true-up petition of FY 10-11 and FY 11-12 (Case No. 124 of 2012), the actual distribution loss for FY 11-12 is 9.46%. The same has been used as base loss level for the MYT Period – FY 12-13 to FY 15-16.

For the purpose of estimation of Annual Revenue Requirement and Tariff for the second MYT control period, no reduction in base losses of 9.46% is anticipated till FY 13-14. It is assumed that losses shall reduce by 0.05% in the last two years to reach 9.36% in FY 15-16.

Hence, RInfra-D proposes the following distribution loss trajectory for the second control period in this MYT petition

**Table 2: Distribution Loss Trajectory (%)**

Loss Levels	FY 12-13	FY 13-14	FY 14-15	FY 15-16
Distribution Loss	9.46%	9.46%	9.41%	9.36%

RInfra-D has considered the above distribution loss trajectory estimate and transmission losses of 4.85%, to estimate the power purchase requirement for the period FY 12-13 to FY 15 -16.

**Table 3: Summary of Power purchase requirement**

<b>Particulars</b>	<b>FY 12-13</b>	<b>FY 13-14</b>	<b>FY 14-15</b>	<b>FY 15-16</b>
Total Sales (including Changeover sales) (MU)	9422.66	8160.17	7316.40	7568.84
Distribution Loss (%)	9.46%	9.46%	9.41%	9.36%
Energy Input to the Distribution System (MU)	10,407.18	9,012.78	8,076.39	8,350.45
Input attributable to changeover consumers (MU)	3,312.65	1,684.97	562.21	586.83
In STS Losses (%)	4.85%	4.85%	4.85%	4.85%
<b>Power Purchase requirement of RInfra-D (MU)</b>	<b>7,456.15</b>	<b>7,701.33</b>	<b>7,897.19</b>	<b>8,159.34</b>

### **1.3.3. Power Procurement Plan**

RInfra-D has forecasted Base Load and Peak Load in MW on the basis of its sales forecast and power purchase requirement at the G<>T boundary.

RInfra-D has performed an analysis of the surplus and shortfall based on the generation capacity for various levels to meet the requirement for the second control period. It was observed that base demand considered equivalent to average demand was optimal. Hence RInfra-D has considered base load as average demand for estimation during the second control period. The following table provides the Base demand and peak demand for RInfra-D estimates for the second control period

**Table 4: Summary of Peak and Base demand**

<b>Particulars</b>	<b>FY 12-13</b>	<b>FY 13-14</b>	<b>FY 14-15</b>	<b>FY 15-16</b>
Power Purchase requirement (MU)	7456.15	7701.33	7897.19	8159.34
Peak Demand (MW)	1251.70	1292.86	1325.74	1369.75
Average Demand (MW)	851.16	879.15	901.51	931.43

The Power procurement for meeting base load as arrived from the analysis above would be done through a mix of long term contracts, and medium term contracts. RInfra-G's Dahanu Thermal Power Station would cater to the base load requirement of RInfra-D. For the period FY 13-14, rest of the Base demand would be met through existing medium term contracts with Wardha Power Company Limited, Abhijeet MADC & VIPL's Butibori plant. These medium term contracts are in force currently and are valid till FY 13-14.

From FY 14-15 onwards, RInfra-D has entered into a long term contract with VIPL for procurement of 600 MW power, for which a petition for capital cost, tariff and PPA approval has already been filed with the Hon'ble Commission. The plant is located at Butibori, Nagpur. After subtracting auxiliary consumption, the net availability from VIPL would be approximately 540 MW. The additional requirement of power after the expiry of Medium Term contracts in FY 14-15 is about 530 MW, which will be met through the said Regulated PPA with VIPL, subject to approval of the Hon'ble Commission.

**Table 5: Summary of power purchase cost from Long term/medium term arrangements (Rs. Cr.)**

<b>Cost of Power Procurement</b>	<b>FY 12-13</b>	<b>FY 13-14</b>	<b>FY 14-15</b>	<b>FY 15-16</b>
Dahanu	1,303.67	1,525.02	1,437.90	1,478.55
Existing Medium term contracts				
Wardha	986.45	793.68	-	-
Abhijeet	197.07	177.94	-	-
VIPL	497.78	511.75	-	-
Proposed long term PPA with VIPL	0.00	0.00	1,384.87	1,404.58
<b>Total Long /medium term sources</b>	<b>2,984.97</b>	<b>3,008.40</b>	<b>2,822.77</b>	<b>2,883.13</b>

To meet its Solar Renewable Purchase Obligations, RInfra-D has signed an Energy Purchase Agreement (EPA), dated 28th March 2011, for purchase of 40 MW solar power (PV), with Dahanu Solar Power Private Limited (DSPPL).

RInfra-D has entered into various power procurement contracts to meet the Non Solar RPO compliance. Any shortfall in meeting the non-solar power purchase requirement obligation of RInfra-D after considering the existing contracts is estimated to be met through purchase of Renewable Energy Certificates (REC).

**Table 6: Renewables purchase Summary**

<b>Particulars</b>	<b>FY 12-13</b>	<b>FY 13-14</b>	<b>FY 14-15</b>	<b>FY 15-16</b>
Solar Obligation (incl previous shortfall) in MU	58.22	38.51	39.49	40.80
Solar Purchase (MU)	60.00	60.00	60.00	60.00
Non Solar Obligation (MU)	577.85	654.61	671.26	693.54
Non solar existing contracts (MU)	186.93	226.35	226.35	226.95
Non Solar REC purchase (MU)	460.93	428.26	444.91	466.59
<b>Total Cost of renewable purchase (Rs Cr.)</b>	<b>274.99</b>	<b>293.22</b>	<b>298.24</b>	<b>304.79</b>

The requirement over and above the base load i.e. the peaking requirements of power would be met through short-term purchases from the external market as well as separate contracts with traders, Energy Exchanges, merchant & captive power plants as well as inter-utility transfer through the state imbalance pool. Renewable energy will also be procured to meet RPO targets as specified by the Hon'ble Commission, while also adding to purchases made to meet base and peak load requirements. Renewable energy from Solar, being available during day time only, has been considered towards meeting peak load requirement.

RInfra-D will ensure that the peak purchase contracts are entered into optimally and at market reflective rates. Any surplus energy leftover after catering to the consumer demand is assumed to be available for sale outside the license area at market reflective rates.

The SLDC charges for FY 12-13 have been considered as considered by Hon'ble Commission in its order Case No.181 of 2011 Annual escalation of 5% has been considered to estimate the charges for rest of the period.

The Commission has determined the Standby charges as 143.70 Crore in its Order dated 23 November, 2012 in Case 158 of 2011 for the second control period. After adjusting for actual payment made till date and past period adjustments, the year-wise standby charges is provided below:

**Table 7: Standby Charges (Rs. Cr.)**

<b>Particulars</b>	<b>FY 12-13</b>	<b>FY 13-14</b>	<b>FY 14-15</b>	<b>FY 15-16</b>
Standby charges (Business Plan Order)	143.70	143.70	143.70	143.70
Actual Paid	221.06			
Past Period adjustment for excess payment in FY 13		8.61		
Past Period adjustment for excess payment in FY 13		68.75		
<b>Standby Charges</b>	<b>221.06</b>	<b>66.34</b>	<b>143.70</b>	<b>143.70</b>

Based on the above discussion, the summary of power purchase quantum is provided below



**Table 8: Summary of power purchase (MUs)**

MU	FY 12-13	FY 13-14	FY 14-15	FY 15-16
Energy Requirement	7,456.15	7,701.33	7,897.19	8,159.34
<b>Long Term</b>				
<i>DTPS</i>	3,997.37	3,787.60	3,787.60	3,798.13
<i>VIPL (Long Term)</i>	0.00	0.00	4,047.82	4,058.91
<b>Medium Term</b>				
<i>Wardha Power</i>	1,935.96	1,935.96	-	-
<i>Abhijeet MADC</i>	409.53	409.53	-	-
<i>VIPL</i>	997.76	997.76	-	-
<b>Renewables</b>	246.93	286.35	286.35	287.12
<b>Short term purchase</b>	514.53	746.44	493.34	631.09
<b>Total</b>	8,102.09	8,163.65	8,615.12	8,775.26
<b>Surplus/(Deficit)</b>	(645.94)	(462.32)	(717.93)	(615.91)

The summary of the power procurement costs is reproduced below

**Table 9: Summary of Power purchase cost (Rs. Cr.)**

Particulars	FY 12-13	FY 13-14	FY 14-15	FY 15-16
<b>Long Term</b>				
<i>DTPS</i>	1,303.67	1,525.02	1,437.90	1,478.55
<i>VIPL (Long Term)</i>	-	-	1,384.87	1,404.58
<b>Medium Term</b>				
<i>Wardha Power</i>	986.45	793.68	-	-
<i>Abhijeet MADC</i>	197.07	177.94	-	-
<i>VIPL</i>	497.78	511.75	-	-
Renewables	274.99	293.22	298.24	304.79
Short term purchase	236.90	353.98	240.97	317.51
Realization from surplus sale	(195.60)	(144.20)	(230.64)	(203.81)
SLDC Charges	1.05	1.10	1.16	1.22
Standby Charges	221.06	66.34	143.70	143.70
<b>Total power purchase cost without Transmission Charges</b>	<b>3,523.37</b>	<b>3,578.84</b>	<b>3,276.20</b>	<b>3,446.53</b>
Transmission Charges	265.39	278.66	292.59	307.22
<b>Total power purchase cost with Transmission Charges</b>	<b>3,788.76</b>	<b>3,857.50</b>	<b>3,568.79</b>	<b>3,753.75</b>

### 1.3.4. Capital expenditure and Capitalization

RInfra-D has prepared its capital expenditure plan for FY 12-13 to FY 15-16 based on the forecast of system maximum demand, with the anticipated developments in the area of supply relating to new load, replacement of existing assets, strengthening and modernization in response to new load, etc. The capital expenditure plan also interacts with the developments at transmission level and forecasts the development of downstream infrastructure required for connectivity to transmission delivery points and evacuation of power thereon.

RInfra-D has used the demand projections arrived at based on a study conducted by IIT Bombay (IITB) as base for the formulation of the MYT Capex plan. The IITB study used statistical tools and parameters such as historical demand of RInfra-D, Gross District Domestic Product growth (GDDP for Mumbai) and other parameters, based on 17 years historical data to arrive at the Maximum demand and associated capital investments required.

Further, the Business Plan submitted by RInfra-D had forecasted capital expenditure for FY 11-12 (based on actuals upto December 2011). However, at the time of the present petition, the actual capital expenditure against various schemes in FY 11-12 is known and therefore delays, slippages, over-runs, etc. for various uncontrollable reasons are also known. There is a slight underspend during FY 11-12, which will spill-over into the period going forward from FY 12-13. Accordingly, the capital expenditure plan submitted under this petition is slightly different from what was presented in the Business Plan petition.

The proposed capital expenditure for Wires & Retail business put together is summarized below:

**Table 10: Summary of Proposed Capital Expenditure (Rs. Cr.)**

<b>Particulars</b>	<b>FY12-13</b>	<b>FY13-14</b>	<b>FY14-15</b>	<b>FY15-16</b>
Capital Expenditure – Distribution Wires Business	300.38	468.26	412.37	409.30
Capital Expenditure – Retail Supply Business	34.24	37.93	38.57	40.03
<b>Total Capital Expenditure</b>	<b>334.62</b>	<b>506.18</b>	<b>450.94</b>	<b>449.32</b>

Similarly, the capitalization plan for the Retail and Wires business is given in the below table:

**Table 11: Summary of Proposed Capitalization (Rs. Cr.)**

Particulars	FY12-13	FY13-14	FY14-15	FY15-16
Capitalisation – Distribution Wires Business	330.61	355.59	452.21	457.27
Capitalisation – Retail Supply Business	34.51	36.43	41.45	40.41
<b>Total Capitalisation</b>	<b>365.12</b>	<b>392.03</b>	<b>493.66</b>	<b>497.68</b>

### 1.3.5. Depreciation

To account for differential depreciation rates for assets once depreciation reaches 70% of value of the asset and also to consider the salvage value effect, the computation of depreciation in this MYT petition of RInfra-D for the second control period, is divided into two parts as follows:

- The assets comprising the Opening GFA as on 1st April 2012 and their corresponding accumulated depreciation were considered. Depreciation has been calculated based on query run in the SAP system on the asset database with the conditions which are in line with MYT Regulations 2011
- Depreciation for new capitalized asset during the period FY 12-13 to FY 15-16: In the case of assets capitalized during the period FY 12-13 to FY 15-16, the depreciation is calculated on straight line basis, as per the rates & the useful life as specified in the MYT Regulations, 2011, applying the same principles as above. No asset from this category will reach 70% of its value during the MYT Period.

The summary of the depreciation considered by RInfra-D is provided below

**Table 12: Summary of Depreciation (Rs. Cr.)**

Particulars	FY12-13	FY13-14	FY14-15	FY15-16
Depreciation- Wires	166.12	182.48	202.71	224.75
Depreciation - Retail Supply	16.69	18.52	20.45	22.42
<b>Total Depreciation</b>	<b>182.81</b>	<b>201.00</b>	<b>223.16</b>	<b>247.17</b>

### 1.3.6. Interest on long term capital

From FY 11-12, RInfra-D has looked beyond its conventional practice of funding all capital expenditure through its own equity pool and has tied up loans from financial institutions and commercial banks. RInfra-D has raised Rs. 1000 crores by the way of Non-Convertible Debentures (NCD) during FY 11-12. RInfra-D has also taken a loan of Rs. 350 crores from Central Bank of India, for which RInfra-D has offered for security, the assets already created and capitalized before the disbursement of the loan.

For computation of Interest from long term capital, RInfra-D has considered interest rates for existing loans at applicable term rates. For new loans, interest rate has been considered at 11.5% as directed by the Hon'ble Commission in the Business Plan order. The repayment has been considered equivalent to the depreciation for the particular as per MYT Regulations, 2011.

The summary of Interest expenses is provided below

**Table 13: Summary of Interest (Rs. Cr.)**

Particulars	FY12-13	FY13-14	FY14-15	FY15-16
Interest- Wires	143.88	152.21	163.33	176.10
Interest - Retail Supply	16.54	17.46	18.44	19.35
<b>Total Interest</b>	<b>160.43</b>	<b>169.67</b>	<b>181.77</b>	<b>195.45</b>

### 1.3.7. Operation and Maintenance Expenses

In the MYT Regulations, 2011, the Hon'ble Commission has specified norms for each year of the control period for the purpose of recovery of Operations & Maintenance (O&M) expenditure for the Distribution Wires and the Retail Supply business. RInfra-D had filed a petition with the Hon'ble Commission on 25th March 2011 in relation to the final notified MYT Regulations, 2011, on several grounds. In the above mentioned petition (decided by the Hon'ble Commission under Case 45 of 2011) RInfra-D had highlighted the operational difficulties it would face due to the norms as specified in the final notified MYT Regulations, 2011. RInfra-D had clearly highlighted that the norms specified in the final MYT Regulations gave rise to a level of expenses which was much lower than the actual expenses incurred by RInfra-D and approved by the Hon'ble Commission in the previous year.

However, in its Order on the Business Plan petition (Case No. 158 of 2011), the Hon'ble Commission, while quoting the entire submissions of RInfra-D, did not provide any specific ruling on such submissions and only computed O&M expenses for each year of the MYT Period as per the MYT Regulations, 2011. RInfra-D submits that the Hon'ble Commission may kindly review its decision under Regulation 100 (Power to Remove Difficulties) of the MYT Regulations, 2011 so as to provide a more representative allowance of O&M expenses for the MYT Period, which is relatable to past expenses.

The summary of O&M expenses projected by RInfra-D is provided below:

**Table 14: Summary of O&M expenses (Rs. Cr.)**

Particulars	FY12-13	FY13-14	FY14-15	FY15-16
Employee Expenses	537.26	543.40	593.83	648.94
A&G expenses	171.54	185.78	201.22	217.94
R&M expenses	229.79	213.82	228.83	244.89
<b>Total O&amp;M expenses</b>	<b>938.59</b>	<b>943.00</b>	<b>1023.87</b>	<b>1111.77</b>

### **1.3.8. Return on Equity**

For FY 12-13 to FY 15-16, the RoE has been computed based on Regulation 32.2 of the MYT Tariff Regulations, 2011 i.e. rate of 15.5% (for Retail business, rate =17.5%) on the equity capital at the beginning of the year plus 50% of the equity portion for the assets capitalized during the year. The summary of ROE considered is provided below

**Table 15: Summary of ROE (Rs. Cr.)**

Particulars	FY12-13	FY13-14	FY14-15	FY15-16
ROE- Wires	227.32	242.05	259.52	279.25
ROE - Retail Supply	28.09	29.62	31.34	33.17
<b>Total ROE</b>	<b>255.41</b>	<b>271.67</b>	<b>290.87</b>	<b>312.42</b>

### **1.3.9. Interest on Working Capital**

For FY 12-13 to FY 15-16, working capital requirement has been calculated as per Regulation 35.2 of the MYT Tariff Regulations 2011.

### **1.3.10. Contribution to Contingency Reserve**

MYT Regulations, 2011 provide for Contributions to Contingency Reserve (CR) at 0.25% of Opening GFA. The same is considered for each year of the Plan Period.

### **1.3.11. Income tax**

In its previous petitions, including the Business Plan petition, RInfra-D has made detailed submissions regarding the interpretation of various judgments of the Hon'ble ATE, including Appeal No. 90 of 2007 and 173 and 174 of 2009. However, the Hon'ble Commission, in its Order in Case No. 158 of 2011 on the Business Plan petition of RInfra-D for the second control period, did not consider the said submissions and approved the Income Tax for the MYT Period at the same level as the Income Tax approved for FY 10-11 in its Order in Case No. 180 of 2011.

RInfra-D, being aggrieved by the approach adopted by the Hon'ble Commission, with respect to the Income Tax, preferred an appeal with Hon'ble ATE and the outcome of such Appeal would influence the treatment of the Income Tax when actuals for any year of the MYT Period are considered by the Hon'ble Commission.

For the purposes of the present petition, however, as only a forecast of Income Tax is being made, RInfra-D has, considered the Income Tax for each year of MYT Period same as approved by the Hon'ble Commission in the Business Plan Order in Case No. 158 of 2011

### **1.3.12. Non-Tariff Income**

The Hon'ble Commission in its order of Case 158 of 2011 approved a Non-Tariff Income of 156.45 Crores for FY 11-12. The actual Non-Tariff Income for FY 11-12 was 198.20 Crores. RInfra-D has reconciled the difference in the Non-Tariff Income in True up Petition for FY 11-12 for RInfra-D (Case 124 of 2012). The approach followed for forecasting non-tariff income is given below:

- (A) For items such as miscellaneous receipts from consumers (except for any one time arrears), burnt meter charges, connection, reconnection fee, etc., which are effected by Schedule of Charges are forecast with a 10% escalation over FY 11-12 value, considering the fact that the Hon'ble Commission has revised the Schedule of Charges.
- (B) For items such as delayed payment charges, interest on delayed payment etc. similar approach of applying escalation factor of 10% is applied over the FY 11-12 value, to arrive at the projections from FY 12-13 onwards.
- (C) Recovery from theft of power, is not forecast with any escalation, but considered at the same level as per actuals of FY 11-12.
- (D) For items such as rebate on power purchase and interest on contingency reserve investments, a specific approach has been adopted which is explained in the relevant section of this petition.

#### **1.3.13. Income from other business**

RInfra-D has considered recovery of costs presently being borne by it pertaining to certain common assets being used by RInfra, including Rent of Devidas Lane Office and Land usage charges

#### **1.3.14. Interest on Security Deposit from Retail Supply Consumers**

The current bank rate of 9% has been considered for the purpose of the forecast of Interest of Security deposit from Retail Supply consumers

#### **1.3.15. Past Under recovery pertaining to TPC-G**

As directed by Hon'ble Commission in Case 55 of 2012, RInfra-D has considered the past under recovery of Rs. 84.50 Crores, pertaining to RInfra-D, as a cost in its MYT petition, in FY 13-14.

### 1.3.16. Annual Revenue Requirement

The following table gives the summary of the ARR for the Distribution Wires business for RInfra-D for the second control period:

**Table 16: ARR for Distribution Wires Business (Rs. Cr.)**

Particulars	FY 12-13	FY 13-14	FY 14-15	FY 15-16
Operation & Maintenance Expenses	633.75	631.38	684.23	741.59
Depreciation	166.12	182.48	202.71	224.75
Interest on Long-term Loan Capital	143.88	152.21	163.33	176.10
Interest on Working Capital and on consumer security deposits	21.03	20.92	18.86	20.24
Income Tax	7.70	7.70	7.70	7.70
Contribution to contingency reserves	9.11	9.92	10.79	11.91
Total Revenue Expenditure	981.59	1004.61	1087.62	1182.29
Return on Equity Capital	227.32	242.05	259.52	279.25
<b>Aggregate Revenue Requirement</b>	<b>1208.91</b>	<b>1246.66</b>	<b>1347.14</b>	<b>1461.55</b>
Less: Non-Tariff Income	13.76	15.44	17.29	19.32
Less: Income from Other Business	5.03	5.28	5.72	6.16
<b>Aggregate Revenue Requirement from Wires Business</b>	<b>1190.12</b>	<b>1225.93</b>	<b>1324.14</b>	<b>1436.07</b>

The following table gives the summary of the ARR for the Retail Supply business of RInfra-D for the second control period:

**Table 17: ARR for Retail Supply business (Rs. Cr.)**

Particulars	FY 12-13	FY 13-14	FY 14-15	FY 15-16
Power Purchase Expenses	3523.37	3578.84	3276.20	3446.53
Operation & Maintenance Expenses	304.84	311.62	339.64	370.19
Depreciation	16.69	18.52	20.45	22.42
Interest on Long-term Loan Capital	16.54	17.46	18.44	19.35
Interest on Working Capital and on consumer security deposits	70.26	84.93	84.92	91.14
Income Tax	46.17	46.17	46.17	46.17
Transmission Charges - intra-State	265.39	278.66	292.59	307.22
Contribution to contingency reserves	1.27	1.34	1.41	1.50
Total Revenue Expenditure	4244.53	4337.54	4079.82	4304.52
Return on Equity Capital	28.09	29.62	31.34	33.17



Particulars	FY 12-13	FY 13-14	FY 14-15	FY 15-16
<b>Aggregate Revenue Requirement</b>	<b>4272.62</b>	<b>4367.16</b>	<b>4111.16</b>	<b>4337.69</b>
Less: Non-Tariff Income	155.08	164.47	174.45	189.30
Add: TPC-G Charge	0	84.50	0	0
<b>Aggregate Revenue Requirement from Retail Supply Business</b>	<b>4117.54</b>	<b>4287.19</b>	<b>3936.71</b>	<b>4148.39</b>

The following table gives the summary of the ARR for the combined business of Retail Supply and Distribution Wires business of RInfra-D for the second control period:

**Table 18: ARR for Combined business (Wires + Retail) (Rs. Cr.)**

Particulars	FY 12-13	FY 13-14	FY 14-15	FY 15-16
Power Purchase Expenses	3523.37	3578.84	3276.20	3446.53
Operation & Maintenance Expenses	938.59	943.00	1023.87	1111.77
Depreciation	182.81	201.00	223.16	247.17
Interest on Long-term Loan Capital	160.43	169.67	181.77	195.45
Interest on Working Capital and on consumer security deposits	91.29	105.85	103.78	111.39
Income Tax	53.87	53.87	53.87	53.87
Transmission Charges - intra-State	265.39	278.66	292.59	307.22
Contribution to contingency reserves	10.38	11.26	12.21	13.41
Total Revenue Expenditure	5226.12	5342.15	5167.44	5486.81
Return on Equity Capital	255.41	271.67	290.87	312.42
<b>Aggregate Revenue Requirement</b>	<b>5481.53</b>	<b>5613.82</b>	<b>5458.31</b>	<b>5799.23</b>
Less: Non-Tariff Income	168.83	179.91	191.74	208.62
Less: Income from Other Business	5.03	5.28	5.72	6.16
Add: TPC-G Charge	0.00	84.50	0.00	0.00
<b>Aggregate Revenue Requirement from Combined (Wires + Retail) Business</b>	<b>5307.66</b>	<b>5513.13</b>	<b>5260.85</b>	<b>5584.46</b>

#### 1.4. Past revenue gap recovery

RInfra-D submits that the cumulative revenue gap upto FY 11-12 including revenue gaps is Rs 3674.42 Crore. The Hon'ble Commission has ruled the regulatory asset could be recovered from own consumers (Group 1) and change-over (Group II) consumers and not from switchover (Group III) consumers. RInfra-D has preferred an appeal with the Hon'ble ATE (Appeal No.140 of 2011) wherein it prayed that Regulatory Assets should also be recoverable from Group III consumers.

The decision of the Hon'ble ATE on the above appeal of RInfra-D is pending and the recovery if any from Group III (Switchover) consumers is accordingly dependant on the judgment of the Hon'ble ATE on the appeal of RInfra-D. Accordingly, in this MYT petition, though RInfra-D has presented recovery plan for the approved cumulative revenue gap from Group I and Group II consumers, the same is without prejudice to contentions expressed / would be expressed in existing and impending appeals in the ATE, as mentioned above.

RInfra- D proposes to apportion the cumulative revenue gap of Rs 3674.42 Crores till FY 11-12 between RInfra-D own consumer and changeover consumers based on ratio of sales to RInfra-D and changeover consumers. RInfra-D proposes the recovery of the said revenue gap over the period FY 13-14 to FY 18-19 i.e. over a period of six years from FY13-14 so as to prevent tariff shock to the consumers. Since the regulatory asset shall be recovered from RInfra-D's own consumers and consumers who have migrated to TPC-D, RInfra-D has, in this petition, proposed that regulatory assets are recovered as a separate line term and not merged with retail tariff.

The summary of Regulatory asset charge is provided below

**Table 19: Summary of Average Regulatory asset charges (Rs./unit)**

Particulars	FY13-14	FY14-15	FY15-16
RA Charge from RInfra-D own consumers (Rs per kwh)	1.09	1.06	1.02
RA Charge from Changeover consumers (Rs per kwh)	0.92	0.88	0.83

The above average charges would be converted to category-wise charges based on the “K” factor as available from the approved MYT Order. The “K” factor will be computed in the same manner as it is presently done for determining FAC charges for individual consumer categories i.e. the “K” factor of any category would be the approved ABR (Average Billing Rate) of such category divided by the approved Average CoS (Average Cost of Supply) for RInfra-D as a whole for any given year of the MYT Period.

### 1.5. Wheeling Charges

For purpose of the estimation of income from wheeling charges, RInfra-D has not considered any revision in wheeling charges for the period FY 12-13. For the remaining years of the second control period i.e. from FY 13-14 to FY 15-16, the projected wires revenue requirement is proposed to be recovered from consumers who are connected to the RInfra-D network including RInfra-D own consumers and changeover consumers. The recovery would be in the proportion of energy sales for the respective years as projected in this MYT petition and accordingly, the revised HT and LT wheeling charges per unit have been determined for the period from FY 13-14 to FY 15-16.

The wheeling charge determined by RInfra-D is provided below

**Table 20: Summary of Wheeling Charges (Rs./unit)**

Wheeling Charges applicable	FY 12-13	FY 13-14	FY 14-15	FY 15-16
HT (Rs per kwh)	0.46	0.83	1.00	1.04
LT (Rs per kwh)	0.88	1.58	1.89	1.99

### 1.6. Cross Subsidy Surcharge

RInfra-D has used the following formula to estimate the CSS for each year of the second control period.  $CSS = T - [C / (1-L \%) + D]$

- Where CSS is the cross subsidy surcharge for the relevant year, T is the Tariff payable by the relevant category of consumers for the relevant year; C is the Weighted average cost of power purchase of top 5% at the margin excluding liquid fuel based generation and renewable power for the relevant year, D is the Wheeling charge applicable for the relevant year, L is the system Losses for the applicable voltage level, expressed as a percentage

RInfra-D has preferred an appeal (under Appeal No. 140 of 2011) with the Hon'ble ATE on recovery of cross subsidy surcharge on all migrating consumers, including Group III consumers. However, in this MYT petition, recovery of CSS has been considered only on Group II (changeover) without prejudice to any of its submissions with the Hon'ble ATE or any other judicial authority.

Based on the above mentioned formula, Category wise CSS determined for the second control period is provided below.

**Table 21: CSS (Rs. /Unit) consumer category wise - FY12-13 to FY15-16**

Particulars	Existing/ FY 12-13	FY 13-14	FY 14-15	FY 15-16
<b>LT</b>				
LT I - Below Poverty Line	0.00	0.00	0.00	0.00
LT -I Residential (Single Phase)				
0-100	0.00	0.00	0.00	0.00
101-300	0.00	0.00	0.00	0.00
301-500	0.00	3.54	2.24	1.96
500and above	0.03	5.23	3.97	3.69
<b>LT -I Residential Three phase</b>				
0-100	0.00	0.00	0.00	0.00
101-300	0.00	0.00	0.00	0.00
301-500	0.00	3.53	2.23	1.95
500and above	0.00	5.00	3.74	3.47
LT II (a) - 0-20 kW	0.00	2.51	1.97	1.97
LT II (b) - 20-50 kW	0.00	1.81	1.29	1.30
LT II (c) - above 50 kW	0.84	4.44	2.74	2.45
LT III - LT Industrial upto 20 kW	1.90	5.04	3.15	2.85
LT IV - LT Industrial above 20 kW	0.00	1.76	0.83	0.55
LT-V : LT- Advertisements and Hoardings	0.00	1.80	0.90	0.61
LT VI: LT -Street Lights	8.35	13.17	12.07	12.30
LT-VII (A): LT -Temporary Supply Religious	0.00	2.77	2.20	2.17
LT-VII (B): LT -Temporary Supply Others	0.00	0.54	0.00	0.00
LT VIII: LT - Crematorium & Burial Grounds	5.51	11.09	9.88	9.96
LT IX: LT –Agriculture	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00
<b>HT</b>				
HT I: HT-Industry	0.00	1.96	1.44	1.30
HTII : HT- Commercial	0.26	2.91	2.10	1.86

Particulars	Existing/ FY 12-13	FY 13-14	FY 14-15	FY 15-16
HT III: HT-Group Housing Society	0.00	0.39	0.32	0.52
HTIV : HT - Temporary Supply	2.22	6.43	5.88	5.92
HT - Railway (New Category)	0.00	0.00	0.00	0.00

The summarized table for income from recovery of CSS for the second control period, as considered in this MYT petition is given below for reference.

**Table 22: Cross Subsidy Surcharge recovery from Changeover Consumers (Rs. Cr.)**

Particulars	FY 12-13	FY 13-14	FY 14-15	FY 15-16
Income from Cross Subsidy Surcharge	98.67	468.29	115.46	107.29

### 1.7. Revenue gap for FY 12-13

RInfra-D is not proposing any change in tariff for the period FY 12-13. Revenue for the period April 2012 to September 2012 has been considered as per actuals. The revenue for the period October 2012 to March 2012 has been estimated based on the existing tariff applicable and revised FAC which is based on the FAC applicable for the month of October 2012.

### 1.8. Revenue gap/surplus from existing Tariffs

The summary of revenue gap/surplus from existing Tariff is provided below:

**Table 23: Revenue Gap from existing tariffs (Rs. Cr.)**

Revenue gap from existing tariffs	FY 12-13	FY 13-14	FY 14-15	FY 15-16
Net Revenue Requirement	4974.31	4831.89	5063.82	5387.41
Revenue Gap for FY13		340.79		
Total Revenue Requirement	4974.31	5172.68	5063.82	5387.41
Revenue from Existing Tariffs	4633.53	5244.68	5444.34	5675.19
Surplus / (Gap)	-340.78	72.00	380.52	287.78

### 1.9. Tariff Proposal

#### 1.9.1. Tariff Principles

RInfra-D has adopted the following tariff principles while making the Tariff proposal for the second control period

- Rationalization of Fixed charges across consumer categories
- To reduce the cross-subsidy between the consumer categories and rationalization of tariff in a manner reflecting of cost to serve the respective consumer category
- Staggered change in Tariffs across consumer categories to provide relief to consumer who are cross subsidising other consumer categories by a large extent
- Achieve a near parity in tariff for cross-subsidizing categories to the extent possible comparison with that of other Distribution Licensees so as to prevent loss of cross-subsidy and avoid impact of the same on low paying capacity consumers.
- Minimize the impact of tariff on the subsidized consumers in the Residential category

### 1.9.2. Proposed Tariffs

The summary of the proposed fixed charges for the second control period is provided below

**Table 24: Proposed Fixed and Demand charges**

Consumer Category	Existing		Proposed (FY 13-14 to FY 15-16)	
	Fixed Charge (Rs/consumer /month)	Demand Charge (Rs /kVA/month)	Fixed Charge (Rs/consumer /month)	Demand Charge (Rs /kVA/month)
LT I - Below Poverty Line	3		5	
LT -I Residential (Single Phase)				
0-100	30		40	
101-300	50		75	
301-500	50		75	
500and above	100		150	
LT -I Residential Three phase	0		0	
0-100	100		150	
101-300	100		150	
301-500	100		150	
500and above	100		150	
LT II (a) - 0-20 kW	200		205	
LT II (b) - 20-50 kW		150		210
LT II (c) - above 50 kW		150		210
LT III - LT Industrial upto 20 kW	200		205	
LT IV - LT Industrial above 20 kW		150		205

Consumer Category	Existing		Proposed (FY 13-14 to FY 15-16)	
	Fixed Charge (Rs/consumer /month)	Demand Charge (Rs /kVA/month)	Fixed Charge (Rs/consumer /month)	Demand Charge (Rs /kVA/month)
LT-V : LT- Advertisements and Hoardings	200		205	
LT VI: LT -Street Lights		150		205
LT-VII (A): LT -Temporary Supply Religious	200		205	
LT-VII (B): LT -Temporary Supply Others	200		205	
LT VIII: LT - Crematorium & Burial Grounds	200		205	
LT IX: LT –Agriculture		15		15
<b>HT</b>				
HT I: HT-Industry		150		210
HTII : HT- Commercial		150		210
HT III: HT-Group Housing Society		150		210
HTIV : HT - Temporary Supply	200		280	
HT Railways	NA	NA		210

Similarly, the proposed energy charges are provided below

**Table 25: Proposed Energy Charges (incl FAC) for the second control period (Rs./unit)**

Consumer Category	Existing FY 12-13	FY 13-14	FY 14-15	FY 15-16
LT I - Below Poverty Line	0.47	0.47	0.47	0.55
LT -I Residential (Single Phase)				
0-100	3.50	3.50	3.50	3.74
101-300	6.57	6.57	6.57	6.83
301-500	10.83	10.51	9.25	9.25
500and above	12.54	12.23	11.01	11.01
LT -I Residential Three phase				
0-100	3.50	3.50	3.50	3.74
101-300	6.57	6.57	6.57	6.83
301-500	10.83	10.51	9.25	9.25
500and above	12.54	12.23	11.01	11.01
LT II (a) - 0-20 kW	9.40	9.30	8.81	9.09
LT II (b) - 20-50 kW	12.13	10.92	9.28	9.28
LT II (c) - above 50 kW	12.89	11.60	9.77	9.77
LT III - LT Industrial upto 20 kW	9.17	8.99	8.09	8.09

<b>Consumer Category</b>	<b>Existing FY 12-13</b>	<b>FY 13-14</b>	<b>FY 14-15</b>	<b>FY 15-16</b>
LT IV - LT Industrial above 20 kW	8.76	8.58	7.72	7.72
LT-V : LT- Advertisements and Hoardings	20.87	19.83	18.78	19.29
LT VI: LT -Street Lights	9.82	9.53	9.01	9.26
LT-VII (A): LT -Temporary Supply Religious	4.50	5.49	5.00	5.25
LT-VII (B): LT -Temporary Supply Others	18.69	18.49	17.31	17.67
LT VIII: LT - Crematorium & Burial Grounds	4.50	4.59	4.59	4.77
LT IX: LT –Agriculture	0.95	0.97	0.97	1.01
<b>HT Sales</b>				
HT I: HT-Industry	8.93	7.59	7.00	7.06
HTII : HT- Commercial	9.94	8.45	7.61	7.61
HT III: HT-Group Housing Society	6.10	6.25	6.10	6.50
HTIV : HT - Temporary Supply	13.00	12.75	12.11	12.35
HT Railways	5.00	5.00	5.00	5.25

### **1.9.3. Revenue from proposed Tariffs**

Based on the proposed tariff, the following table provides the revenue estimated for the second control period

**Table 26: Revenue Gap from Proposed tariffs (Rs. Cr.)**

<b>Revenue gap from proposed tariffs</b>	<b>FY 12-13</b>	<b>FY 13-14</b>	<b>FY 14-15</b>	<b>FY 15-16</b>
Net Revenue Requirement	4974.31	4831.89	5063.82	5387.41
Revenue Gap for FY13		340.79		
Total Revenue Requirement	4974.31	5172.68	5063.82	5387.41
Revenue from Proposed Tariffs	4633.53	5172.67	5063.83	5387.41
Surplus / (Gap)	-340.78	(0.00)	0.01	(0.00)

The below table gives a comparison of the proposed Average Billing Rate (ABR) as a percentage of the Average Cost of Supply (ACoS) for each year of the period FY 12-13 to FY 15-16.



**Table 27: ABR vs. ACoS (% terms) for the second control period**

<b>Consumer Categories</b>	<b>FY 12-13 (H2)</b>	<b>FY 13-14</b>	<b>FY 14-15</b>	<b>FY 15-16</b>
LT -I Residential (Single Phase)				
0-100	46.89%	47.21%	49.52%	51.11%
101-300	91.42%	94.18%	99.22%	99.98%
301-500	143.25%	140.84%	131.09%	127.23%
500and above	164.80%	162.36%	154.22%	149.66%
LT -I Residential Three phase				
0-100	47.90%	49.00%	51.31%	52.76%
101-300	88.00%	89.49%	93.95%	94.50%
301-500	142.96%	140.67%	130.94%	127.10%
500and above	162.46%	159.35%	151.18%	146.81%
LT II (a) - 0-20 kW	129.33%	127.61%	127.44%	127.27%
LT II (b) - 20-50 kW	164.61%	152.21%	137.78%	133.55%
LT II (c) - above 50 kW	173.65%	159.91%	143.23%	138.76%
LT III – LT Industrial upto 20 kW	120.53%	118.07%	112.06%	108.82%
LT IV - LT Industrial above 20 kW	118.91%	118.62%	113.01%	109.60%
LT-V : LT- Advertisements and Hoardings	276.83%	263.47%	262.85%	261.87%
LT VI: LT -Street Lights	131.88%	130.90%	130.52%	129.89%
LT-VII (A): LT -Temporary Supply Religious	131.97%	102.51%	100.60%	100.38%
LT-VII (B): LT -Temporary Supply Others	239.72%	236.95%	233.42%	231.49%
LT VIII: LT - Crematorium & Burial Grounds	58.10%	59.19%	62.28%	62.84%
LT IX: LT -Agriculture	12.12%	12.36%	13.01%	13.16%
HT I: HT-Industry	120.65%	105.60%	102.95%	100.78%
HTII : HT- Commercial	134.81%	117.78%	111.81%	108.10%
HT III: HT-Group Housing Society	82.41%	85.63%	87.94%	90.55%
HTIV : HT - Temporary Supply	165.91%	162.60%	162.46%	161.00%
HT railways	0.00%	71.63%	75.35%	75.95%

**TOD Tariffs:** RInfra-D is considering increasing the rebate applicable during off peak consumption (during 2200 Hrs to 0600 Hrs) to encourage shifting of load from peak to off peak hours. This will help in optimization both in utilization of contracted capacity and short term sourcing of power. Further it will also be beneficial for the consumers. RInfra-D is proposing to increase the TOD rebate applicable for all consumer categories for consumption during the off peak hours (2200 – 0600 hrs) to Rs 2.50 per kWh. The revised TOD tariffs proposed by RInfra-D is provided below

**Table 28: TOD (Rs./Kwh)**

<b>TOD Slot</b>	<b>Existing</b>	<b>Proposed</b>
0600 - 0900 Hrs	0.00	0.00
0900 - 1200 Hrs	0.50	0.50
1200 - 1800 Hrs	0.00	0.00
1800 - 2200 Hrs	1.00	1.00
2200 - 0600 Hrs	-0.75	-2.50