

## **2<sup>nd</sup> Regulatory Research Camp**

# **Regulatory Framework for Distribution ARR and Tariff Determination**

**Date: June 26<sup>th</sup> – 30<sup>th</sup>, 2019**

# **Evolution of Distribution Tariff across Different Indian States**

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# States considered for comparison

1. **Maharashtra**
2. **Gujarat**
3. **Andhra Pradesh**
4. **Kerala**
5. **Rajasthan**
6. **Uttarakhand**
7. **Uttar Pradesh**
8. **Punjab**
9. **Assam**
10. **Chhattisgarh**
11. **Delhi**

# Agenda

1. **MYT Framework**
2. **Cost of Supply**
3. **Cross-subsidy Reduction**
4. **Determination of Wheeling Charges**
5. **Tariff Categories**
6. **Residential Tariff Slabs**
7. **Regulatory Asset**
8. **Cross-Subsidy Surcharge**

# Multi-Year Tariff – Legal Provisions

- S 61. of the EA 2003 stipulates as under:
  - *“61. The Appropriate Commission shall, subject to the provisions of this Act, specify the terms and conditions for the determination of tariff, and in doing so, shall be guided by the following, namely:-*
  - *...;*
  - *(f) Multi year tariff principles;...”*
  
- The Tariff Policy notified on January 28, 2016 stipulates as under:
  - *“h) Multi Year Tariff*
  - *1) Section 61 of the Act states that the Appropriate Commission for determining the terms and conditions for the determination of tariff shall be guided, inter-alia, by Multi-Year Tariff (MYT) principles. The framework should feature a five-year control period. The initial control period may, however, be of 3 year duration for transmission and distribution if deemed necessary by the Regulatory Commission on account of data uncertainties and other practical considerations...”*

# Multi-Year Tariff – Objectives

- (a) Provide **regulatory certainty** to the Utilities, investors and consumers by promoting **transparency, consistency and predictability of regulatory approach**, thereby minimizing the perception of regulatory risk;
- (b) Address the risk sharing mechanism between Utilities and consumers based on **controllable and uncontrollable factors**;
- (c) Ensure **financial viability** of the sector to attract investment, **ensure growth and safeguard the interest of the consumers**;
- (d) Establish **operational norms** for Generation, Transmission, and Distribution businesses;
- (e) Promote **operational efficiency**.

# Control Period for MYT

1	Maharashtra	FY 2006-2011 (5), FY 2011-2016 (5), FY 2016-2020 (4)
2	Gujarat	FY 2008-2011 (3), FY 2011-2016 (5), FY 2016-2021 (5)
3	Andhra Pradesh	FY 2009-2014 (5), FY 2014-2019(5), FY 2019-2024 (5)
4	Kerala	FY 2015-2018(3), FY 2018-2022(4)
5	Rajasthan	FY 2009-2014 (5), FY 2014-2019(5)
6	Uttarakhand	FY 2013-2016(3), FY 2016-2019(3), FY 2019-2022(3)
7	Uttar Pradesh	FY 2015-2020(5)
8	Punjab	FY 2017-2020(3)
9	Assam	FY 2013-2016(3), FY 2016-2019(3), FY 2019-2022(3)
10	Chhattisgarh	FY 2010-2013(3), FY 2013-2016(5), FY 2016-2021(5)
11	Delhi	FY 2007-2012(5), FY 2012-2017(4), FY 2017-2020(3)

Most SERCs have adopted 3 or 5-year Control Period

# Requirement to File Business Plan

1	Maharashtra	2011 MYT Regulations mandated filing of Business Plan. This requirement has been removed in subsequent Regulations.
2	Gujarat	2011 MYT Regulations mandated filing of Business Plan. This requirement has been removed in subsequent Regulations.
3	Andhra Pradesh	Resource Plan and Business Plan is to be filed with the first year MYT filing of ARR in 2019 Regulations
4	Kerala	Business Plan is optional in the latest Regulations
5	Rajasthan	Business plan is optional in the latest Regulations
6	Uttarakhand	2018 Regulations mandates submission of Business Plan.
7	Uttar Pradesh	In 2006 Regulations Business Plan is optional, 2014 Regulations mandate the submission of Business Plan.
8	Punjab	2014 Regulations mandates Business Plan submission.
9	Assam	2015 Regulations mandated Business Plan for entire control period; No mention in the subsequent Regulations
10	Chhattisgarh	Business Plan is not mentioned.
11	Delhi	2017 Regulations mandates Business Plan for each Control Period, same as 2012 Regulations.

Most SERCs have deleted the requirement for filing of Business Plan before/along with MYT Petition

# Annual ARR vs. Multi-Year ARR/Tariff

1	Maharashtra	Multi-Year ARR & Tariff for Control Period
2	Gujarat	Multi-Year ARR for Control Period
3	Andhra Pradesh	Multi-Year ARR for Control Period
4	Kerala	Multi-Year ARR for Control Period
5	Rajasthan	Multi-Year ARR for Control Period, excluding power purchase expenses
6	Uttarakhand	Multi-Year ARR for Control Period, excluding Power Purchase expenses
7	Uttar Pradesh	Multi-Year ARR for Control Period
8	Punjab	Multi-Year ARR for Control Period
9	Assam	Multi-Year ARR for Control Period
10	Chhattisgarh	Multi-Year ARR for Control Period
11	Delhi	Multi-Year ARR for Control Period

1. Some SERCs are revising the ARR while approving the tariff
2. Apart from MERC, all SERCs are determining Retail Tariff annually



# Mid-Term Review

1	Maharashtra	Along with process for 3rd year of Control Period; ARR and Tariff for remaining 2 years of Control Period revised
2	Gujarat	Along with tariff determination for 4th year of Control Period; ARR for remaining 2 years of Control Period may be revised depending on option exercised by Utility
3	Andhra Pradesh	Not Applicable
4	Kerala	Along with process for 3rd year of Control Period; ARR and Tariff for remaining 2 years of Control Period may be revised depending on DISCOM Petition
5	Rajasthan	Not Applicable
6	Uttarakhand	Not Applicable
7	Uttar Pradesh	Not Applicable
8	Punjab	Not Applicable
9	Assam	Not Applicable
10	Chhattisgarh	Provision for review of operational parameters, before tariff determination for 4th year of Control Period - not exercised
11	Delhi	Not Applicable

1. MTR is required in the specific cases because the ARR is not revised annually

# Suo-Motu Tariff Revision

1	Maharashtra	Not done till date
2	Gujarat	Not done till date
3	Andhra Pradesh	Not done till date
4	Kerala	Done - combined for FY 2016-17 & FY 2017-18; provision removed from latest MYT Regulations
5	Rajasthan	Not done till date for DISCOMs
6	Uttarakhand	Not done till date
7	Uttar Pradesh	Done - FY 2018-19
8	Punjab	Not done till date
9	Assam	Not done till date
10	Chhattisgarh	Not done till date
11	Delhi	Not done till date

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# Cost of Supply - Options

1. Average Cost of Supply - total cost divided by total units
2. Voltage-wise Cost of Supply - at each voltage level
3. Category-wise cost to serve - cost incurred to serve each consumer category - used in AP, Telangana & Haryana
  - › demand related costs
  - › energy related costs
  - › consumer related costs

# Cost to Serve - Methodology...1/2

All expenses are classified under:

- Demand Related Cost
  - Fixed charges in power purchase cost and substantial portion of interest, depreciation and employee expenses
  - *allocated to different consumer categories on the basis of share in total coincident demand*
  
- Energy Related Cost
  - variable cost of power purchase
  - *allocated on the basis of share in total energy input*
  
- Consumer Related Cost
  - Remaining portion of employee, depreciation and interest expenses
  - *allocated on the basis of share of number of consumers.*

# Cost to Serve - Methodology..2/2

## ▪ Apportionment of Distribution losses

- classified under demand related losses and energy related losses.
- Demand Related losses (coincident & non-coincident demand losses) allocated to consumer categories on the basis of their coincident demand.
- Total coincident demand is summation of demand with allocated demand losses.
- Energy Related Losses allocated to various consumer categories on the basis of share in energy input.
- Total category-wise energy input is summation of energy input plus allocated energy losses.

# Cost of Supply considered for Tariff determination

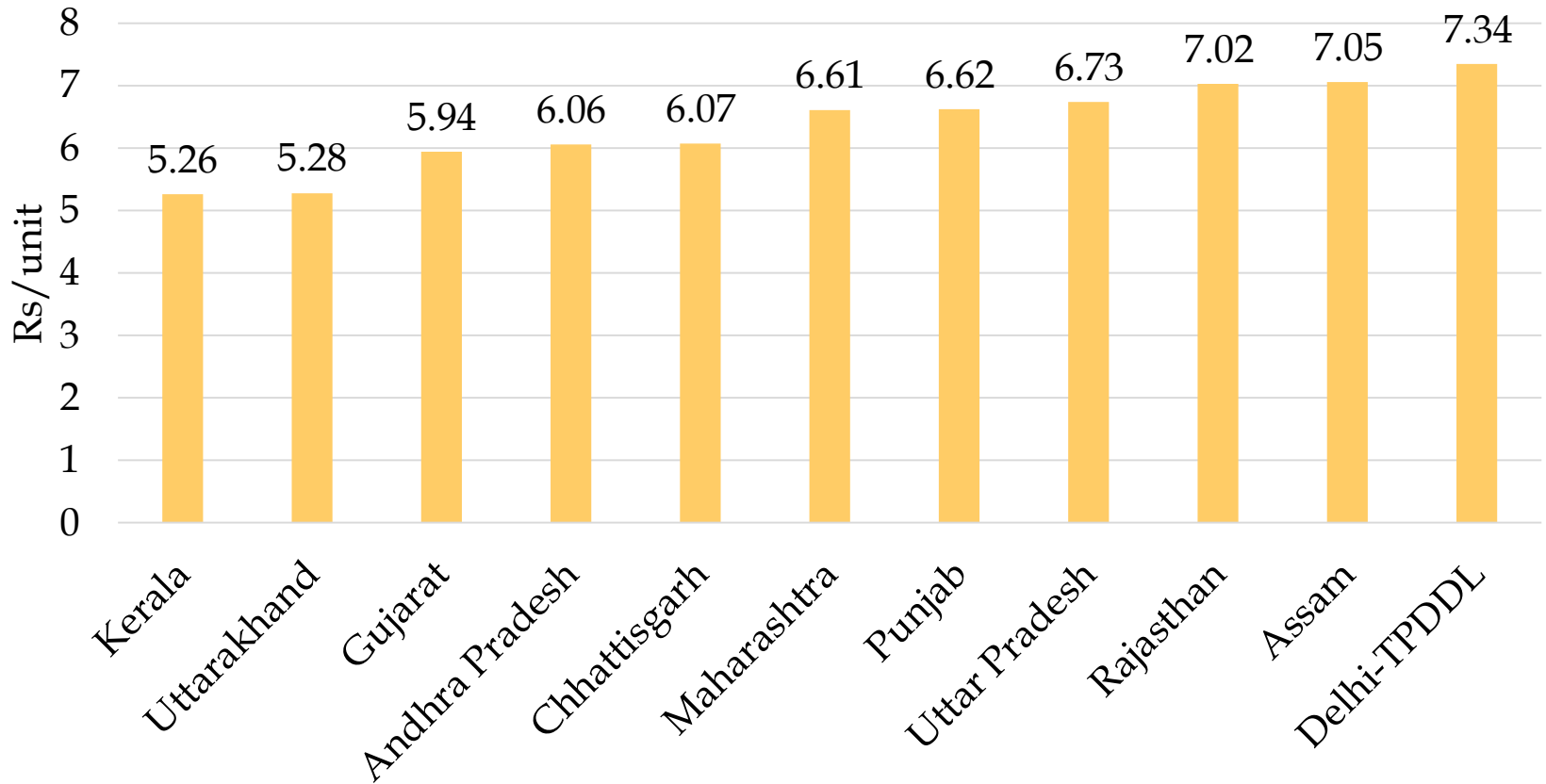
Cost of Supply		
1	Andhra Pradesh	Category wise Cost of supply approach since beginning
2	Gujarat	Average cost of supply approach since beginning
3	Kerala	Average cost of supply approach since beginning
4	Rajasthan	Average cost of supply approach since beginning
5	Uttar Pradesh	Average cost of supply approach since beginning
6	Maharashtra	Average cost of supply approach since beginning
7	Assam	Average cost of supply approach since beginning
8	Chhattisgarh	Average cost of supply approach since beginning
9	Uttarakhand	Average cost of supply approach since beginning
10	Punjab	Average cost of supply approach since beginning
11	Delhi-TPDDL	Average cost of supply approach since beginning

Some SERCs are calculating VCOS but determining tariffs and cross-subsidy w.r.t. ACOS

Some SERCs have specified in MYT Regulations accordingly

# Average Cost of Supply

ACoS (based on latest Tariff Orders)





# Agenda

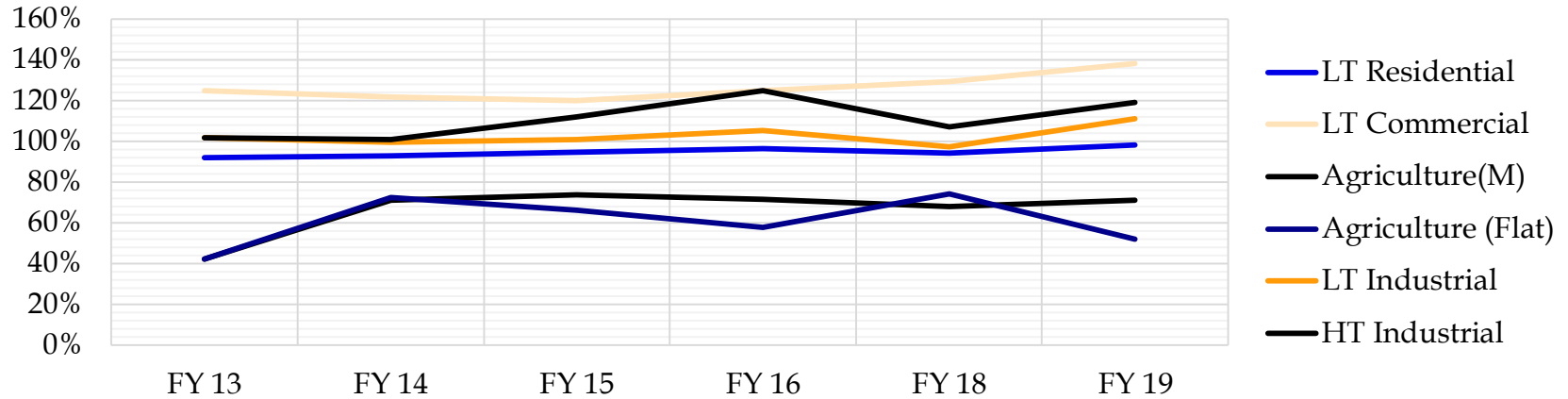
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# Cross Subsidy Methodology

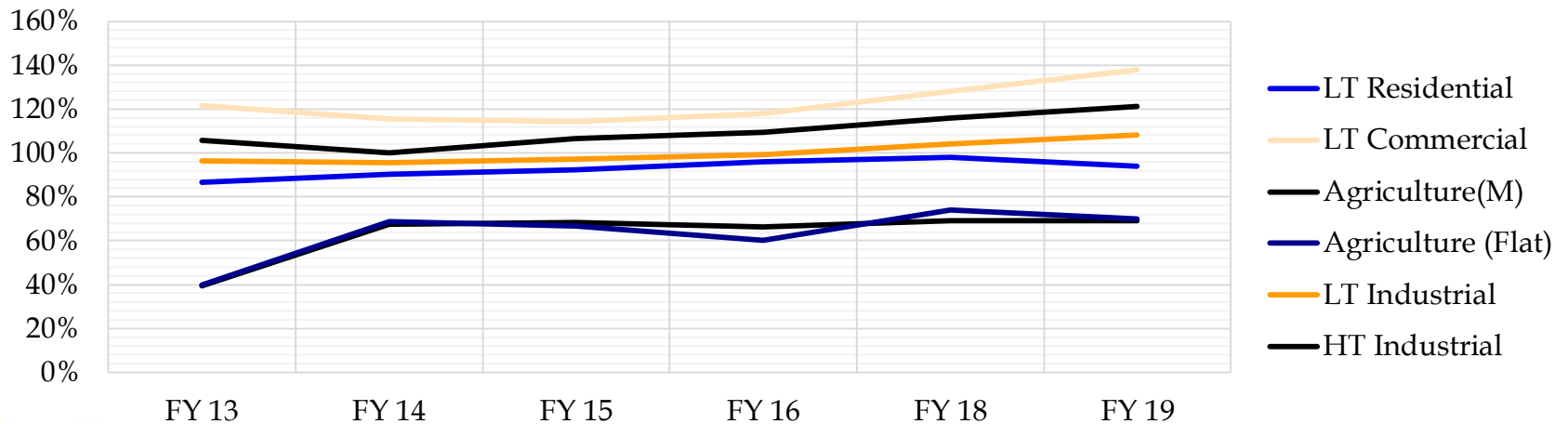
Cross Subsidy		
1	Andhra Pradesh	Ratio of ABR to ACoS (in %)
2	Gujarat	Cross subsidy level is not given in the Tariff Order
3	Kerala	Cross subsidy level is not given in the Tariff Order (except 1 year)
4	Rajasthan	Ratio of ABR to ACoS ( <b>for each Discom</b> ) (in %)
5	Uttar Pradesh	Ratio of ABR to ACoS (consolidated) (in %)
6	Maharashtra	Ratio of ABR to ACoS (in %)
7	Assam	Ratio of ABR to ACoS (in %)
8	Chhattisgarh	Ratio of ABR to ACoS (in %)
9	Uttarakhand	Ratio of ABR to ACoS (in %)
10	Punjab	Ratio of ABR to ACoS (in %)
11	Delhi-TPDDL	Ratio of ABR to ACoS ( <b>for each Discom</b> ) (in %)

# Cross Subsidy Trajectory...1/7

## Rajasthan JVVNL

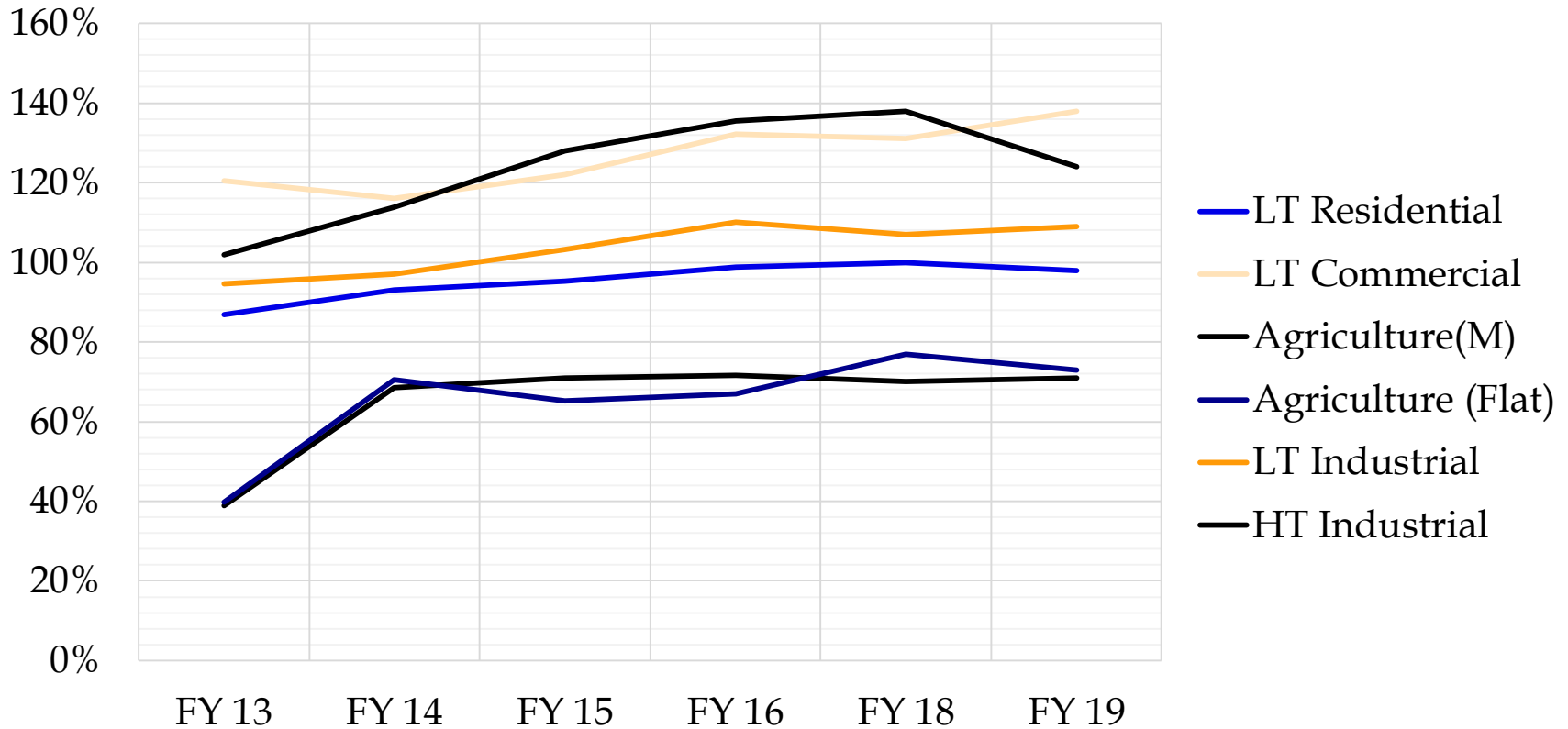


## Rajasthan- AVVNL



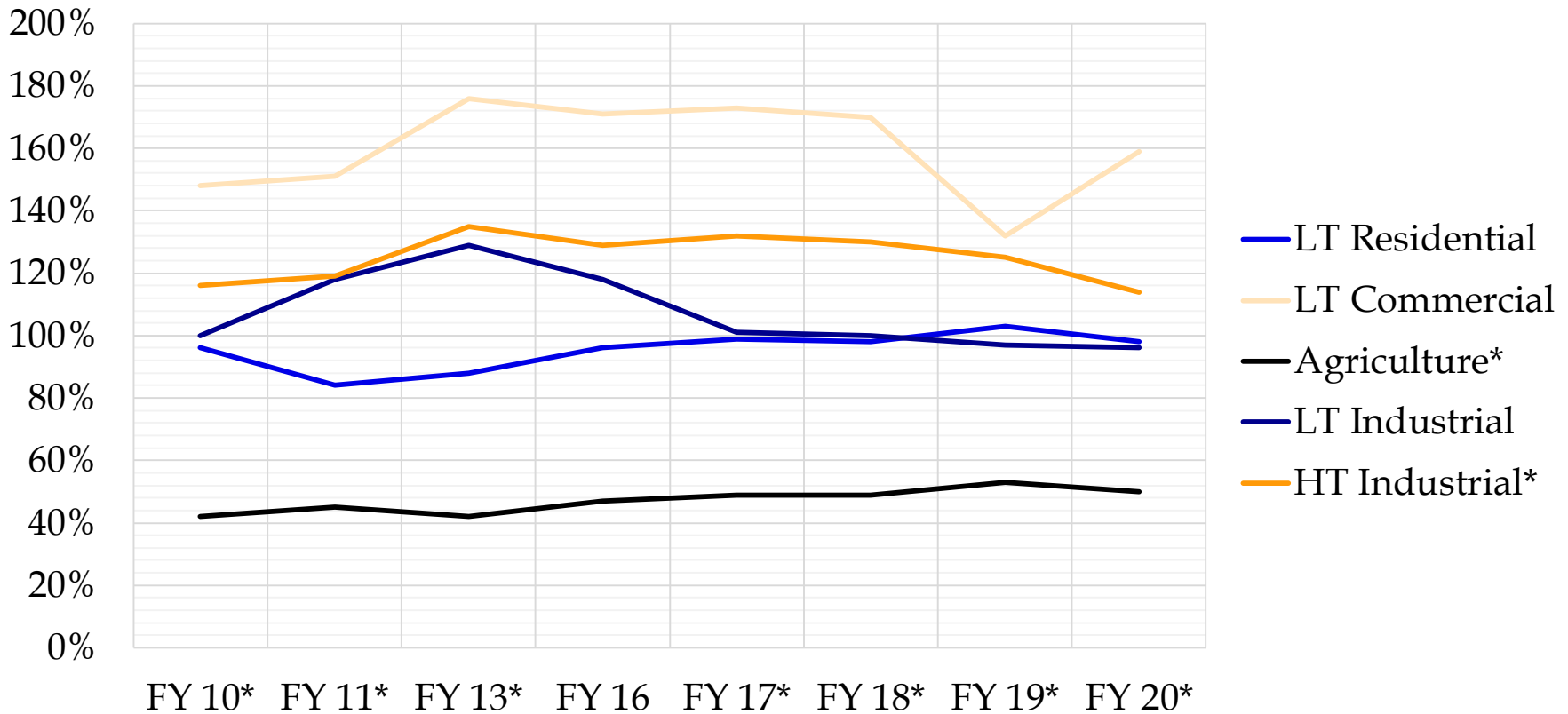
# Cross Subsidy Trajectory...2/7

Rajasthan- JDVNL



# Cross Subsidy Trajectory...3/7

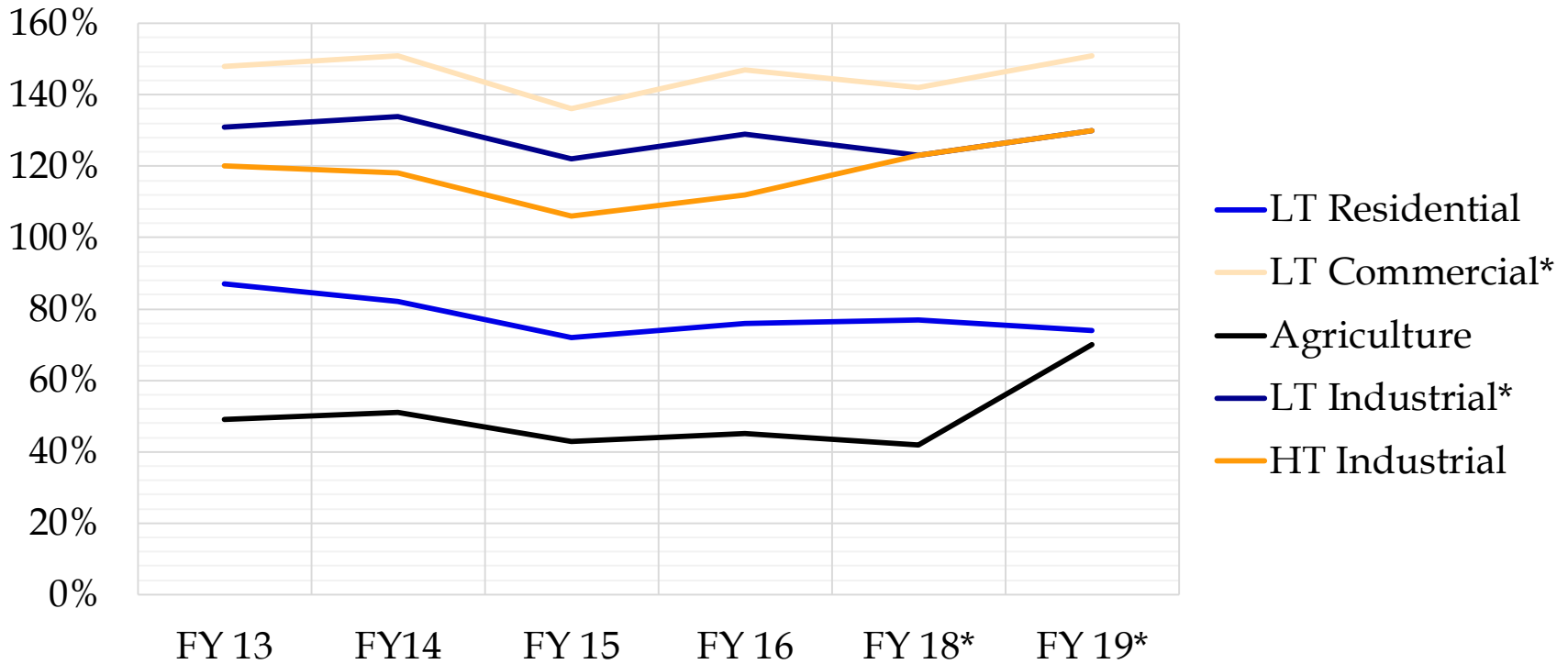
## Maharashtra- MSEDCL



\* Minimum cross subsidy considered among Agri-Metered and Flat; Industry- Express, Non-Express, Seasonal

# Cross Subsidy Trajectory...4/7

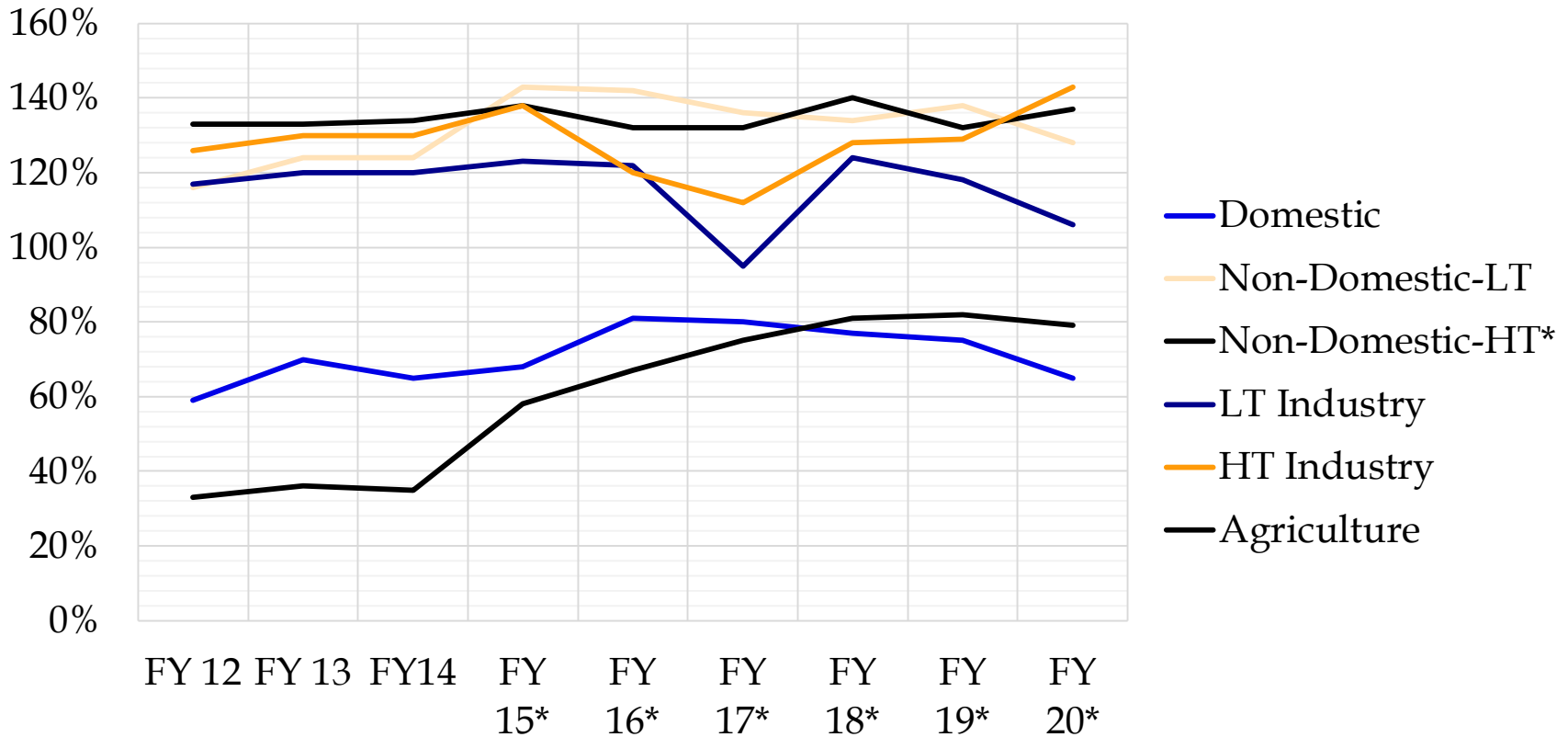
Delhi- TPDDL



\* For Commercial and Industrial, separate cross subsidy not given for HT and LT in FY 18 and FY 19; For LT Commercial and Industry minimum cross subsidy considered among subcategories since average is not available

# Cross Subsidy Trajectory...5/7

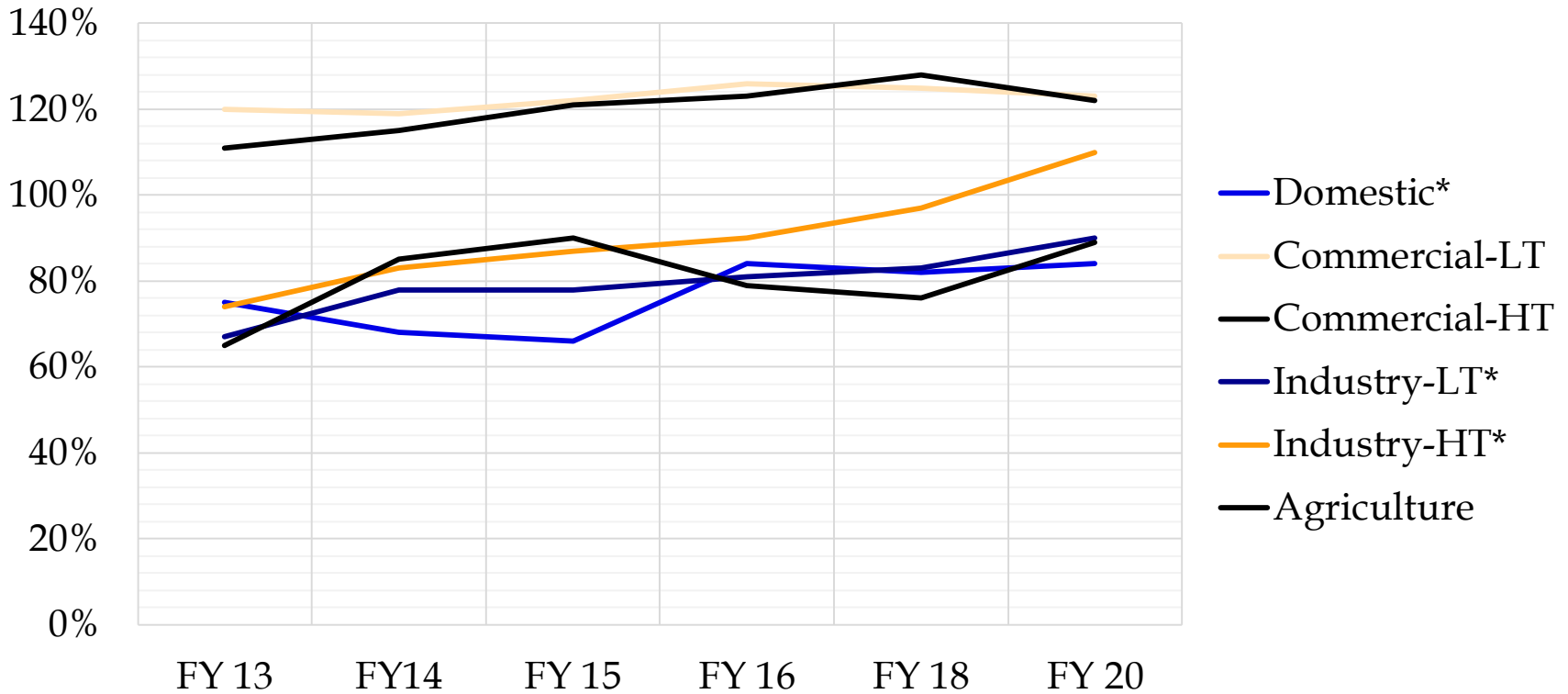
## Chhattisgarh



\* From FY 15, HT Non domestic represent mines and cement industries apart from non-industrial loads

# Cross Subsidy Trajectory...6/7

## Assam

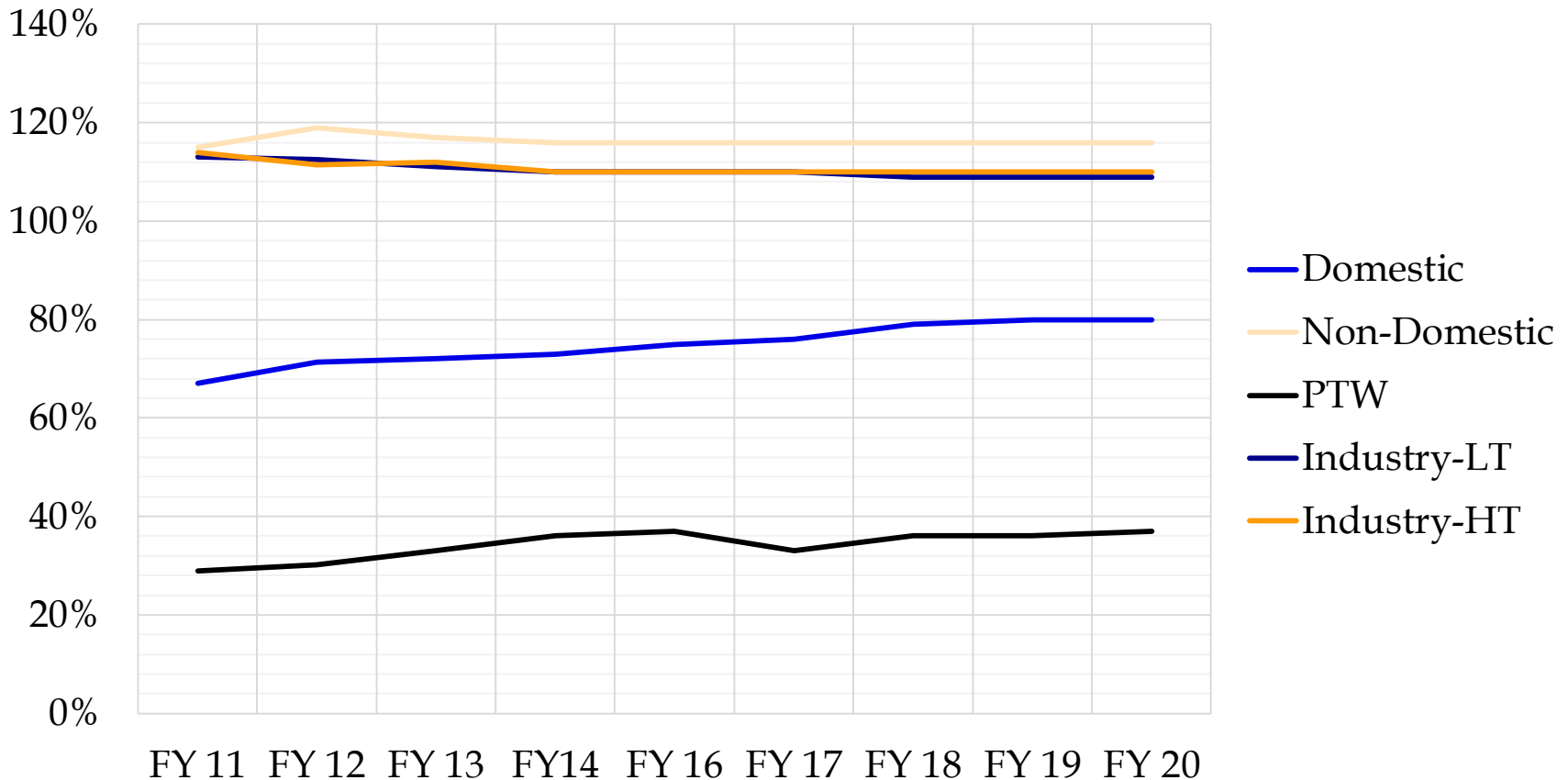


\* Minimum value of subcategories taken since average not available



# Cross Subsidy Trajectory...7/7

## Uttarakhand



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# ARR of Wires Business

ARR Segregation		
1	Andhra Pradesh	ARR determined separately for Wheeling and Retail Supply
2	Gujarat	ARR segregated into wires and supply as per Allocation Matrix <b>specified in Regulations</b>
3	Uttar Pradesh	ARR segregated into wires and supply based on Allocation Matrix
4	Maharashtra	ARR segregated into wires and supply as per Allocation Matrix <b>specified in Regulations</b>
5	Assam	ARR segregated into wires and supply based on Allocation Matrix
6	Delhi-TPDDL	ARR segregated into wheeling and Retail supply as per Allocation ratio ( <b>Regulations</b> )
7	Punjab	ARR not Segregated
8	Kerala	ARR not Segregated
9	Rajasthan	ARR not Segregated
10	Chhattisgarh	ARR not Segregated
11	Uttarakhand	ARR not Segregated

Allocation Matrix

Particulars	Wires Business (%)	Retail Supply Business (%)
Power Purchase Expenses	0%	100%
Intra-State Transmission Charges	0%	100%
Employee Expenses	60%	40%
Administration & General Expenses	50%	50%
Repair & Maintenance Expenses	90%	10%
Depreciation	90%	10%
Interest on Long-term Loan Capital	90%	10%
Interest on Working Capital and on consumer security deposits	10%	90%
Bad Debts Written off	0%	100%
Income Tax	90%	10%
Contribution to contingency reserves, if any	100%	0%
Return on Equity	90%	10%
Non-Tariff Income	10%	90%

# Wheeling Charge computation approach

Wheeling Charges	
Andhra Pradesh	Dividing wires ARR apportioned at voltage level by the contract demand at the respective voltage level; in Rs/kVA/month; Voltage wise wheeling charge- 33 kV, 11 kV, LT (FY 20)
Gujarat	Dividing wires ARR apportioned at voltage level by energy input at the respective voltage level; in Rs/unit Voltage wise wheeling charges- 11 kV(HT) & 400V(LT) (FY 20)
Kerala	Dividing ARR at HT level (25% of distribution ARR) by energy handled at HT level; in Rs/unit (FY 18)
Rajasthan	Dividing Operational cost by notional energy input at appropriate voltage level; in Rs/unit; Voltage wise wheeling charges- 33 kV, 11 kV & LT (FY19)
Uttar Pradesh	Dividing the Wires ARR by Retail sales; in Rs/unit; Voltage wise wheeling charges- 11kV and above 11 kV (FY 20)
Maharashtra	Dividing Network cost apportioned at voltage level by Average CPD and NCPD at respective voltage level (in Rs/kW/month) and @66% Load factor (in Rs/kWh); <b>Voltage wise (33kV/22kV/11kV/LT) and Category wise (FY 20)</b>
Assam	Dividing ARR at 33kV level (35% of wires ARR) by energy input; in Rs/unit (FY 18)
Chhattisgarh	Dividing 35% of the total ARR (excluding the power purchase expenses and the interest on security deposit) by energy input at 33 kV level; in Rs/unit
Uttarakhand	Dividing ARR (excluding the power purchase expenses and transmission charge) by total peak load served in previous year; in Rs./ MW/Day
Punjab	Dividing ARR (excluding Power purchase cost and transmission charge) by i) distribution capacity (in Rs/MW/month) ii) Input energy at distribution periphery (Rs/unit)
Delhi, TPDDL	Dividing wires ARR apportioned at voltage level by energy sales at the respective voltage level; Rs/unit; Voltage wise wheeling charge; Above 66kV, 33/66 kV, 11 kV, LT level (FY19)



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# Category & Slab Rationalization

- Section 62 (3) of EA 2003 allows tariff to be differentiated on following parameters
  - load factor
  - power factor
  - total consumption of energy during any period
  - time of supply
  - geographical position in any area
  - nature of supply
  - purpose of supply
- Historically, categories/sub-categories have been created based on specific requests from time to time
- The rationalization of the tariff structure is very important - however, one should ensure that there is no tariff shock to any consumer category

# TARIFF CATEGORISATION

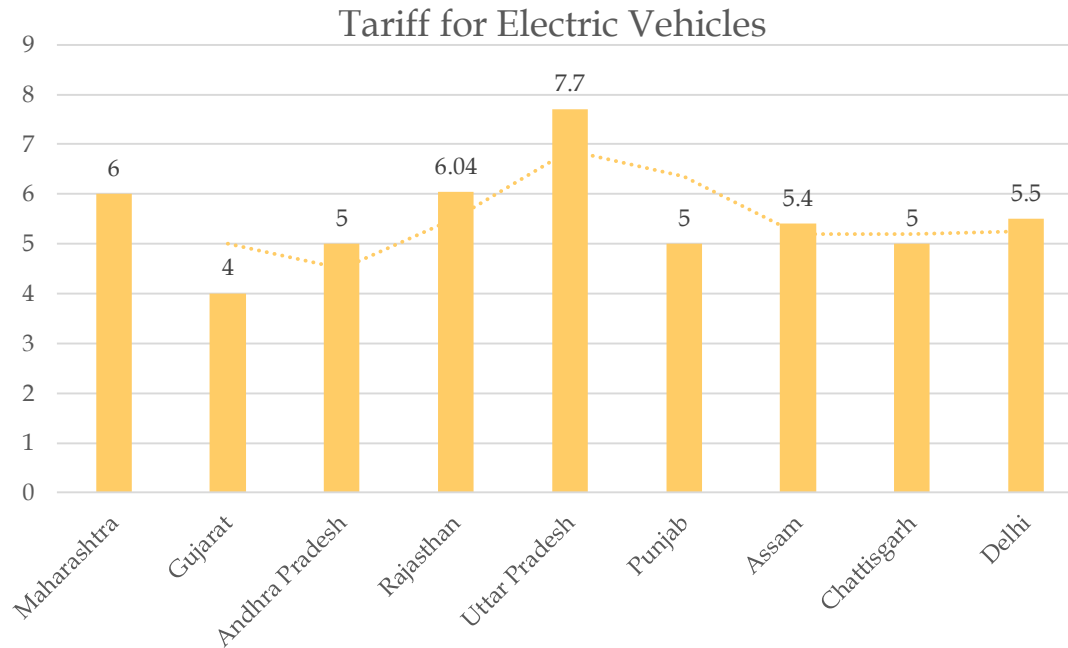
Sl no	Category	Years										
		2009	10	11	12	13	14	15	16	17	18	2019
1	Domestic/ Residential	RJ, GJ, MH, AP, KL, UK, AS, PB, CG, UP, DL										
2	Non-Domestic/ Commercial	RJ, GJ, MH, AP, KL, UK, AS, PB, CG, UP, DL										
3	Public Street Light	RJ, GJ, MH, AP, KL, UK, AS, PB, CG, UP, DL										
4	Agriculture Metered / Flat	RJ, GJ, MH, AP, KL, UK, AS, PB, CG, UP, DL										
5	Industrial Small/Medium/Large	RJ, GJ, MH, AP, KL, UK, AS, PB, CG, UP, DL										
6	PWW & S. Pumping-Small/Medium/Large	RJ, GJ, MH, AP, KL, UK, AS, PB, CG, UP, DL										
7	Mixed Load/Bulk Supply	RJ, MH, AP, KL, UK, AS, PB, CG, UP						RJ, MH, KL, UK, AS, PB, CG, UP				
8	Electric Traction/ Rail/ Metro	RJ, GJ, MH, AP, KL, UK, AS, PB, CG, UP, DL						RJ, GJ, MH, KL, UK, AS, PB, CG, UP, DL				
9	Educational	GJ, AS, DL										
10	Temporary	MH, AP, AS, DL										
11	Port / Aviation / EV	MH, AP, DL										
12	RESCO	AP										
13	Tea Cofee	AS										
14	Mines	AS,CG										

RJ= Rajasthan, GJ= Gujarat, MH= Maharashtra, AP= Andhra Pradesh, KL= Kerala, UK= Uttarakhand, AS= Assam, PB= Punjab, CG= Chattisgarh, UP= Uttar Pradesh, DL= Delhi

- 1) Domestic, 2) Non-Domestic, 3) Public Lighting, 4) Agricultural, 5) Industrial both HT and LT, 6) Public water works along with irrigation are categories that are present in all the States from 2009-2019.
- 7) Mixed load or bulk supply category is not available in the tariff categorization for Gujarat and Delhi for 2009-19, while for Andhra Pradesh it is not available only for 2015-19
- 8) Electrical traction / Rail / Metro is not available for Andhra Pradesh from 2015-19 and is available for the all other states over 2009-19.
- 9) Educational category is only in Delhi, Assam and Gujarat tariff over the years. 10) RESCO category is only available in Andhra Pradesh and 11) Tea coffee category is in Assam, 12) Mines is only present in Assam and Chhattisgarh.
- 13) Port/ Aviation is only present in Delhi, Andhra Pradesh and Maharashtra over the years, 14) Temporary Supply category is present in Maharashtra, Andhra Pradesh, Assam and Delhi

# Tariff for Electric Vehicles

States	Years			States	Tariff (Rs./KWh)	Type
	17-18	18-19	19-20			
Maharashtra				Maharashtra	6	Two Part Tariff
Gujarat				Gujarat	4	Two Part Tariff
Andhra Pradesh				Andhra Pradesh	5	Flat Rate Single part Tariff
Rajasthan				Rajasthan	6.04	Two Part Tariff (Similar as domestic tariff)
Uttar Pradesh				Uttar Pradesh	7.7	Flat Rate Single part Tariff for public charging
Punjab				Punjab	5	Flat Rate Single part Tariff
Assam				Assam	5.4	Two Part Tariff
Chhattisgarh				Chhattisgarh	5	Flat Rate Single part Tariff
Delhi				Delhi	5.5	Flat Rate Single part Tariff





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# DOMESTIC TARIFF

State	Years											
	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	
Maharashtra	Telescopic										--	
Gujarat	Telescopic										--	
Andhra Pradesh	Telescopic										--	
Kerala	--	--	Telescopic	Telescopic & Non -Telescopic								
Rajasthan	--	Telescopic										
Uttarakhand	--	Telescopic										
Uttar Pradesh	--	Telescopic										
Punjab	--	Telescopic										
Assam	--	Telescopic										
Chhattisgarh	--	Non -Telescopic		Telescopic								
Delhi	--	Non -Telescopic		Telescopic						--		

13-14	14-15 to 18-19
<b>Telescopic</b>	<b>Telescopic</b>
0-40 units	0-50 units
41-80 units	51-100 units
81-120 units	--
121-150 units	101-150 units
151-200 units	151-200 units
201-300 units	201-250 units
<b>Non-Telescopic</b>	<b>Non-Telescopic</b>
--	0-300 units
0-350 units	0-350 units
0-400 units	0-400 units
0-500 units	0-500 units
Above 500 units	Above 500 units

# Number of Consumption Slabs in Residential Category

SLABS/ FY	Uttarakhand				Assam	Punjab		Chhattisgarh				Uttar Pradesh				Delhi			Rajasthan			Gujarat			Maharashtra		Andhra Pradesh				Kerala			
	10-12	13-14	15-17	18-19	10-19	10-16	17-19	10-12	13	14	15-19	10-12	13	14-16	17-19	10-12	13	14-18	9	10-12	13-18	9	10-14	15-18	9	10-18	9-10	11-12	13-15	16-18	12	13	14-17	
0-50	1	1	1	1	1	1	1				1										1	1	1			1	1	1	1	1	1	1		
50-100	1	1	1	1	1	1	1		1				1	1			1				2	2	2	2	2	1	1	2	2	2	2	2	2	2
100-150	2	2	2	2	2	2	2	1	2	1	2	1	1	2	1	1	1				2	2	3	3	3	2	2	3	3	3	3	3	3	3
150-200	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2				3	3	4	4	4	2	2	4	4	4	4	4	4	4
200-250	3	3	3	3	3	3	3	3	3	3	3	3	3	4	3	3	3	2	2	2	4	4	5	5	5	3	3	5	5	5	5	5	5	5
250-300	3	3	3	3	3	3	3	3	3	3	3	3	3	5	3	3	3	2	2	2	5	5	6	6	6	4	4	6	6	6	6	6	6	6
300-400	3	3	3	3	3	3	3	3	3	3	3	3	3	6	3	3	3	2	2	2	6	6	7	7	7	3	3	7	7	7	7	7	7	7
400-500	3	3	3	3	3	3	3	3	3	3	3	3	3	7	3	3	3	2	2	2	7	7	8	8	8	4	4	8	8	8	8	8	8	8
500-600	3	3	3	3	3	3	3	3	3	3	3	3	3	8	3	3	3	2	2	2	8	8	9	9	9	4	4	9	9	9	9	9	9	9
600-700	3	3	3	3	3	3	3	3	3	3	3	3	3	9	3	3	3	2	2	2	9	9	10	10	10	4	4	10	10	10	10	10	10	10
700-800	3	3	3	3	3	3	3	3	3	3	3	3	3	10	3	3	3	2	2	2	10	10	11	11	11	4	4	11	11	11	11	11	11	11
800-900	3	3	3	3	3	3	3	3	3	3	3	3	3	11	3	3	3	2	2	2	11	11	12	12	12	4	4	12	12	12	12	12	12	12
900-100	3	3	3	3	3	3	3	3	3	3	3	3	3	12	3	3	3	2	2	2	12	12	13	13	13	4	4	13	13	13	13	13	13	13
1000-1200	3	3	3	3	3	3	3	3	3	3	3	3	3	13	3	3	3	2	2	2	13	13	14	14	14	4	4	14	14	14	14	14	14	14
>1200	3	3	3	3	3	3	3	3	3	3	3	3	3	14	3	3	3	2	2	2	14	14	15	15	15	4	4	15	15	15	15	15	15	15

- **Uttarakhand** and **Gujarat** in the middle years increased the number of slabs but again decreased to the previous level
- **Assam** and **Maharashtra** did not change the slabs over the years
- **Punjab, Delhi** and **Uttar Pradesh** increased the number of slabs in the recent years
- **Chhattisgarh** kept the number of slabs constant but varied the ceilings
- **Rajasthan** increased the slabs gradually over the years (2 to 5)
- **Andhra Pradesh** and **Kerala** changed the slabs drastically, keeping the first 3 slabs constant



# Agenda

1. MYT Framework
2. Cost of Supply
3. Cross-subsidy Reduction
4. Determination of Wheeling Charges
5. Tariff Categories
6. Residential Tariff Slabs
7. **Regulatory Asset**
8. **Cross-Subsidy Surcharge**

# Regulatory Asset...1/2

- A mechanism to carry forward that portion of the revenue requirement for a year that have, voluntarily or otherwise, not been included and effectively removed from the tariff request for the year.
- Instances when Regulatory Asset is created
  - Natural Calamity
  - Funding terminal liabilities
  - Delayed implementation of tariff revision
  - Contractual Obligations
  - To avoid tariff shock to consumers when revenue gap is too high
- Regulatory Asset is to be amortized along with interest in future years

# Regulatory Asset...2/2

- Amount of RA amortised each year and interest on outstanding amount should be added to revenue requirement
- Period of Amortisation and amount to be amortised is contingent upon the revenue gap for the year including the ensuing year
- Period for Amortisation of RA should not exceed 3-5 years depending upon the revenue gap during each year

# Regulatory Asset

Regulatory Asset		
1	Andhra Pradesh	Not created till date
2	Gujarat	Not created till date
3	Kerala	Unmet Revenue Gap of Rs. 5,200 crore approved; recovery of balance revenue gap to be considered in subsequent years
4	Rajasthan	Unfunded Revenue Gap approved is Rs. 39,573 Crs after loans taken over under UDAY in FY 2016-17; Interest liability on unfunded gap allowed as part of ARR
5	Uttar Pradesh	Outstanding RA is around Rs. 40,500 crore; Regulatory Surcharge allowed @4.28% of Fixed Charges plus Energy Charges; Plans for amortisation of RA in future years
6	Maharashtra	Created last year to avoid tariff shock; balance amount of Rs. 12,000 crore to be recovered from FY 2019-20 onwards; Mechanism to recover Regulatory asset not specified
7	Assam	Created in past to avoid tariff shock; amortised fully now
8	Chhattisgarh	Created in past to avoid tariff shock; amortised fully now
9	Uttarakhand	Not created till date
10	Punjab	Created in past to avoid tariff shock and amortised in three years
11	Delhi-TPDDL	Outstanding RA is around Rs. 4,200 crore; Regulatory surcharge allowed @8% over revised tariff for liquidating RA in 6-8 years

# Agenda

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8. **Cross-Subsidy Surcharge**



# Cross Subsidy Surcharge

States	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20
Andhra Pradesh	As per Tariff Policy formula			NIL			As per revised tariff policy formula limited to 20% tariff			
Gujarat		As per Tariff Policy Formula					As per revised tariff policy formula limited to 20% tariff			
Kerala			As per Tariff Policy/OA Regulations, 2013			NIL		As per Revised Tariff Policy formula		
Rajasthan	20% of the CSS determined as per Tariff Policy Formula (prevailing till FY 10)						As per Revised Tariff Policy formula			
Uttar Pradesh			NIL		As per Tariff Policy formula		OA Regulations, $S = T - [C / (1 - (L / 100)) + D]$			
Maharashtra	NIL	As per Tariff Policy formula/OA Regulations				75% of diff between ABR (category) & ACoS)	As per Revised Tariff Policy limited to 20% tariff			
Assam		As per Tariff Policy formula					Difference between ABR (Category) & ACoS			
Chhattisgarh		As per OA Regulations, 2011 i.e. 90% of difference between ABR(Category) & ACoS								
Uttarakhand				Category ABR - ACoS				As per OA Regulations, 2015-Difference between ABR (category) & ACoS		
Punjab			As per OA Regulations, 2011 i.e. difference between ABR(category & ACoS							
Delhi- TPDDL				As per Tariff Policy formula				As per Revised Tariff Policy formula limited to 20% tariff		



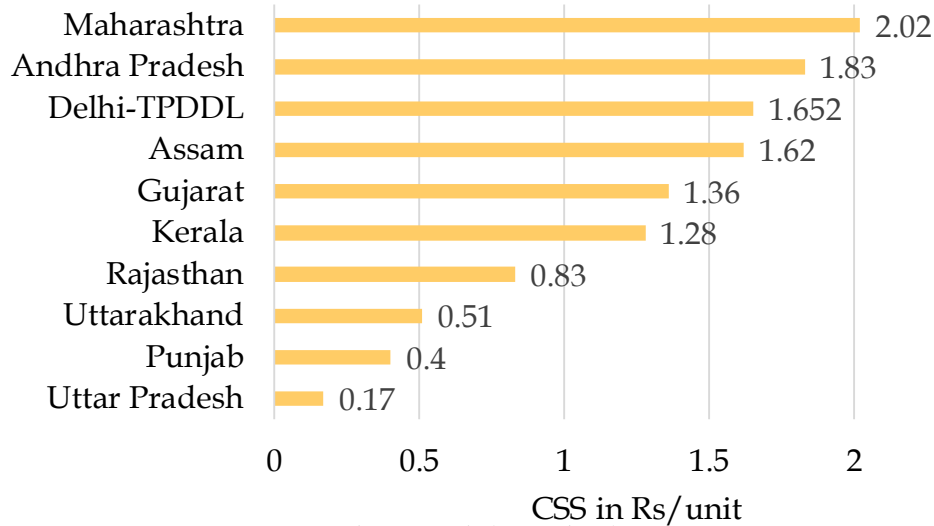
# Cross Subsidy Surcharge...1/2

States	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20
Andhra Pradesh	As per Tariff Policy formula			NIL			As per revised tariff policy formula limited to 20% tariff			
Gujarat		As per Tariff Policy Formula					As per revised tariff policy formula limited to 20% tariff			
Kerala			As per Tariff Policy/OA Regulations,2013			NIL		As per Revised Tariff Policy formula		
Rajasthan	20% of the CSS determined as per Tariff Policy Formula (prevailing till FY 10)						As per Revised Tariff Policy formula			
Uttar Pradesh			NIL		As per Tariff Policy formula		OA Regulations, $S = T - [C / (1 - (L / 100)) + D]$			
Maharashtra	NIL	As per Tariff Policy formula/OA Regulations				75% of diff between ABR (category) & ACoS)	As per Revised Tariff Policy limited to 20% tariff			
Assam		As per Tariff Policy formula					Difference between ABR (Category) & ACoS			
Chhattisgarh		As per OA Regulations, 2011 i.e. 90% of difference between ABR(Category) & ACoS								
Uttarakhand				Category ABR - ACoS				As per OA Regulations, 2015-Difference between ABR (category) & ACoS		
Punjab			As per OA Regulations, 2011 i.e. difference between ABR(category & ACoS							
Delhi- TPDDL				As per Tariff Policy formula				As per Revised Tariff Policy formula limited to 20% tariff		

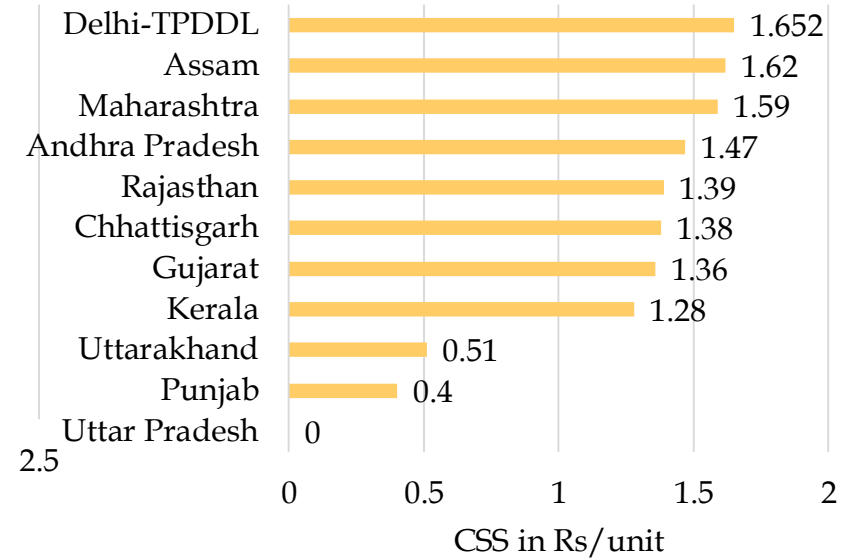


# Cross Subsidy Surcharge...2/2

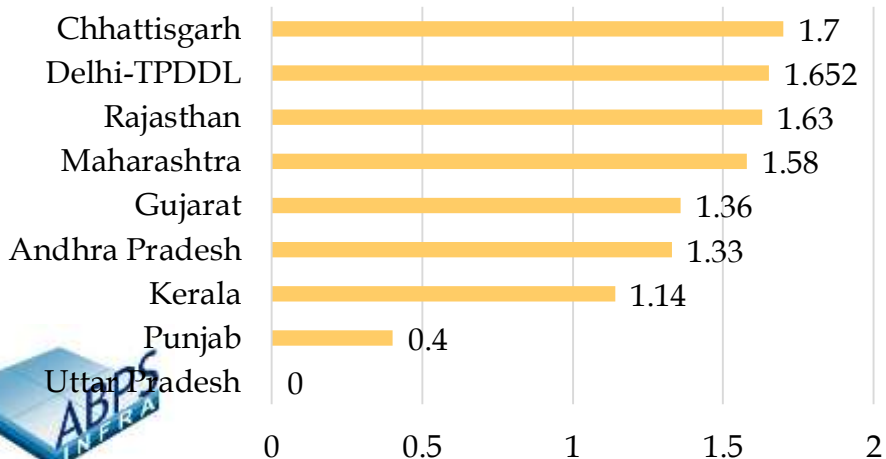
HT Industrial (11 kV)



HT Industrial (33 kV)



HT Industrial (132 kV)



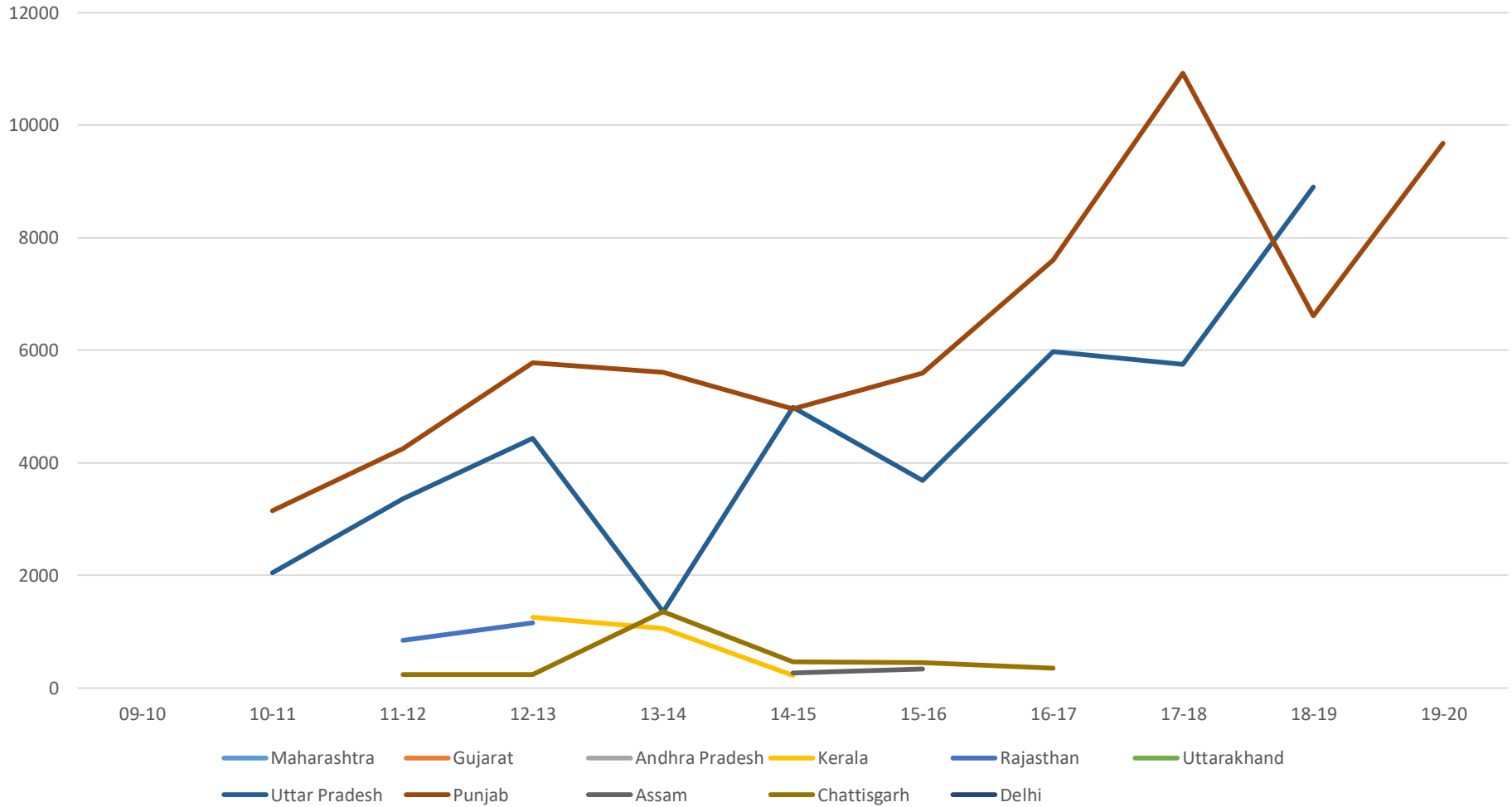
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# Thank you

# Government Subsidy Provided

State	Years										
	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20
Maharashtra	Category subsidy	Agriculture and powerloom consumer at time of trueup	--	--	Tariff subsidy to agricultural consumer			Tax on sale of electricity is collected on behalf of government		Tariff subsidy to agricultural consumer	
Gujarat	Agricultural Subsidy adjusted against revenue gap						Agri subsidy at the time of MTR adjusted with ARR	Agriculture subsidy; not paid in advance			
Andhra Pradesh	Full cost recovery in tariff schedule via subsidy before tariff order in advance			Similar to previous years with special subsidy to agri & domestic			Similar to previous years with special subsidy to agri				
Kerala		Subsidy through restricting payment of Fuel surcharge by domestic consumer	--	Revenue gap adjusted through gov subsidy	--	Subsidy through various schemes	--	--	--	--	--
Rajasthan	Revenue subsidy to reduce deficit; FRP Scheme		Transitional support and category subsidy		Tariff subsidy loan adjustment	Loan against interest adjusted; Agricultural subsidy			Tariff Subsidy	--	
Uttarakhand	--	--	--	--	--	--	Through restriction of tariff hike			Category wise focus on domestic and BPL	
Uttar Pradesh	Subsidy to cover the revenue gap provided as grant to reduce regulatory surcharge										
Punjab	--	Revenue gap mitigation			Category wise subsidy						
Assam	--	--	--	--	--	--	--	--	--	Reduction of revenue gap	Through UDAY scheme
Chattisgarh	Category wise subsidy				Revenue Gap reduction not affecting ARR						

# Government Subsidy Provided



# Voltage-wise Wheeling Charges

Voltage	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20
66 kV & Above*	RJ, PB	RJ, PB	RJ, PB	RJ, PB	RJ, PB	RJ, PB	RJ, PB	RJ, PB	RJ, PB	RJ, PB
66kV	DL, PB, UK, UP	DL, PB, UK, UP	DL, PB, UK, UP	DL, PB, UK, UP	DL, PB, UK, UP	DL, PB, UK, UP	DL, PB, UK, UP	DL, PB, UK, UP	DL, PB, UK, UP	DL, PB, UK, UP
33 kV	RJ, MH, AP, KL, DL, AS, PB, UK, CG, UP	RJ, MH, AP, KL, DL, AS, PB, UK, CG, UP	RJ, MH, AP, KL, DL, AS, PB, UK, CG, UP	RJ, MH, AP, KL, DL, AS, PB, UK, CG, UP	RJ, MH, AP, KL, DL, AS, PB, UK, CG, UP	RJ, MH, AP, KL, DL, AS, PB, UK, CG, UP	RJ, MH, AP, KL, DL, AS, PB, UK, CG, UP	RJ, MH, AP, KL, DL, AS, PB, UK, CG, UP	RJ, MH, AP, KL, DL, AS, PB, UK, CG, UP	RJ, MH, AP, KL, DL, AS, PB, UK, CG, UP
22 kV	MH, KL	MH, KL	MH, KL	MH, KL	MH, KL	MH, KL	MH, KL	MH, KL	MH, KL	MH, KL
11 kV	RJ, GJ, MH, AP, KL, DL, AS, PB, UK, CG, UP	RJ, GJ, MH, AP, KL, DL, AS, PB, UK, CG, UP	RJ, GJ, MH, AP, KL, DL, AS, PB, UK, CG, UP	RJ, GJ, MH, AP, KL, DL, AS, PB, UK, CG, UP	RJ, GJ, MH, AP, KL, DL, AS, PB, UK, CG, UP	RJ, GJ, MH, AP, KL, DL, AS, PB, UK, CG, UP	RJ, GJ, MH, AP, KL, DL, AS, PB, UK, CG, UP	RJ, GJ, MH, AP, KL, DL, AS, PB, UK, CG, UP	RJ, GJ, MH, AP, KL, DL, AS, PB, UK, CG, UP	RJ, GJ, MH, AP, KL, DL, AS, PB, UK, CG, UP
LT	RJ, GJ, MH, AP, DL, AS	RJ, GJ, MH, AP, DL	RJ, GJ, MH, AP, DL	RJ, GJ, MH, AP, DL	RJ, GJ, MH, AP, DL	RJ, GJ, MH, AP, DL	RJ, GJ, MH, AP, DL	RJ, GJ, MH, AP, DL	RJ, GJ, MH, AP, DL	RJ, GJ, MH, AP, DL

i) AP- Andhra Pradesh, GJ- Gujarat, KL- Kerala, RJ- Rajasthan, UP- Uttar Pradesh, MH- Maharashtra, AS- Assam, CG- Chhattisgarh, UK- Uttarakhand, PJ- Punjab, DL- Delhi-TPDDL

ii) \*- Includes EHV/ EHT

iii) From FY 2016-17, wheeling charge and energy charge have been shown separately while computing the category wise tariff with exception of Residential- BPL category in Maharashtra. From FY 2018-19, separate wheeling charges for consumers at 22 kV & 11 kV determined in Maharashtra.

iv) Separate wheeling charges not determined for each voltage level in Kerala, Assam, Punjab (except FY 13), Uttarakhand and Uttar Pradesh (except for 11 kV)