Roadmap for Reduction of Cross Subsidy in Maharashtra

September, 2011

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Cross Subsidy

It is a mechanism wherein some consumers pay higher tariff than the Cost of Supply (CoS) which covers up for the shortfall of revenue from other consumer groups who are charged tariffs less than the Cost of Supply

- The categories like Below Poverty Line (BPL), Domestic, Agriculture are the major Cross Subsidized categories across various states.

Background

- Due to cross subsidy, tariffs are not reflective of marginal cost. This affects economic efficiency. Tariff may be subsidized when poverty is a factor.
- Subsidy results in increased demand, which is undesirable in the context of demand side management.
- Due to cross subsidy, tariff of the subsidizing consumer groups approaches the cost of alternate supply. This may lead to a shift to captive generation or purchase of power from other sources. It results in economic and technical inefficiencies, and can significantly erode the revenue base of the incumbent licensee. Very high cross-subsidies (high tariffs) can lead to theft of electricity by the subsidizing consumers.
- ATE rulings mention that…
  a) The tariffs for consumer categories can be differentiated only on the basis of the factors listed in Section 62(3) of the Act.
  b) There has to be a roadmap for gradual reduction of the cross subsidies. The tariff of subsidized category has to be increased (as % of ACoS) without giving tariff shocks to consumers.

Progress so far

August 28, 2009: GoM issued directives to MERC u/s 108 of EA

- To articulate the policy to reduce cross subsidies under different provisions of law.

August 31, 2009: 11th SAC Meeting

- Suggestion: separate roadmap for every licensees as their consumer mix is different

October 9, 2009: MERC appointed MERCADOS

- To formulate Regulations for reduction of cross subsidy

April 8, 2010: GoM issued letter to MERC

- MERC was asked to consult the State Government before finalizing the roadmap

December 31, 2010: 16th SAC Meeting

- MSEDCL emphasized to discuss with the State Government. It highlighted that restricted supply of electricity should be kept in mind.

March 25, 2011: 17th SAC meeting

- Principal Secretary (Energy), GoM suggested for an engagement between GoM-MERC-Utilities.PwC appointed as a consultant.

Jun 24, 2011: 18th SAC meeting

- MERC decided to finalize a report on CS reduction roadmap after defining CS surcharge for open access consumers.

Summary of the past study

- The amount of cross subsidy is dependent on the way the Cost of Supply (CoS) is defined.
  a) Average Cost of Supply (ACoS)
  b) Cost of supply voltage wise
  c) Cost of supply to various consumer categories
- Utilities to segregate their accounts in a time bound fashion to capture network and supply related costs accurately.
- Develop guideline for computing CoS.
- Utilities to submit computation of CoS along with the ARR filing
- Cross subsidy may be based on ACoS till such time.
- Prescribe principles to identify poor and marginal category of consumers and determine lifeline consumption.

Objective of this study

- ✓ **To lay down a roadmap for reduction of cross subsidy for various utilities as per Electricity Act 2003 and Tariff Policy.**

- ✓ **Tariff deviations of consumer categories to be within ± 20 % of the average cost of supply in next five years.**

Key Principles of the Roadmap *... 1*

- Each licensee has different level of cross subsidy, hence the roadmaps would be different for each of them.
- ACoS of a licensee is used to assess the level of cross subsidy across consumer categories.
- Intra-consumer category cross-subsidization is not considered.
- Classification of consumer categories:

  - Categories with FY11 cross subsidy level of more than +/- 20% of ACoS
  - They are made to reach the desired band of cross subsidy by FY16

  - Categories with FY11 cross subsidy level within +/- 20% of ACoS
  - They are progressively reduced further

Key Principles of the Roadmap ... 2

- The study defines Average Billing Rate (ABR) of a category on an aggregate basis as the ratio of the total amount billed (tariff income) and sales to the category.
- ABR as % of ACoS of various categories are changed on yearly basis to reach the target level of cross subsidization without any Tariff Shock.

Tariff Shock:

Tariff increase equivalent to rise in ACoS is considered normal. If tariff is increased beyond that by more than 10% to reduce cross subsidy, it is considered as a Tariff Shock.

Tariff Shock: $(ABR_{new} \div ABR_{old}) - (ACoS_{new} \div ACoS_{old}) > 10\%$

- The roadmap brings ABR closer to ACoS of the licensee. Hence,

Cross Subsidy amount as a % of Total Revenue of the licensee reflects effectiveness of the roadmap

Approach for the Roadmap

Increase in ABR as % of ACoS for subsidized categories without tariff shock

↓

Reduction in ABR as % ACoS for subsidizing categories

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Revenue balancing of the licensee for the year

- ABR as % of ACoS is kept unchanged for LT-Temp, LT-Advertisement, and HT-Temp categories

Major assumptions

- Growth numbers are based on past CAGR or macro factors.
- Unmetered consumers are not increased beyond present level

This study has forecasted consumer count and energy sales for future years considering various assumptions. However, the approved business plan of a licensee shall be the basis for implementing cross subsidy reduction roadmap.

Major assumptions ... 1

- Average Cost of Supply (ACoS)

Baseline Year

Average Cost of Supply	FY 09-10	FY 10-11	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16
MSEDCL	4.20	4.60	4.83	5.07	5.32	5.59	5.87
BEST	6.34	5.73	5.84	5.96	6.08	6.20	6.32
TPC-D	4.41	5.20	5.46	5.73	6.02	6.32	6.64
R-Infra-D	7.77	6.47	6.47	6.47	6.27	6.09	6.09

- MSEDCL: Historical CAGR @ 4.42%. ACoS increased @ 5% per annum
- BEST: Historical CAGR is negative. ACoS increased @ 2% per annum
- TPC-D: Historical CAGR @ 1.21%. ACoS increased @ 5% per annum
- R-infra D: Historical CAGR @ 9.1%. Considering efforts by licensee, and present bilateral market, ACoS is unchanged till FY 13, then it reduces @ 3% per annum till FY 15, and thereafter no change in FY 16.

Any change in ACoS is a pass through to all consumers without resulting in a Tariff Shock. Therefore, cross subsidy reduction roadmap is less dependent on accuracy of ACoS estimates.

Roadmap for Cross Subsidy Reduction

MSEDCL

MSEDCL Current status

- Cross subsidy: Rs. 4,973 Crore (16.21% of revenue)

MSEDCL C/S Reduction Roadmap ...1

MSEDCL C/S Reduction Roadmap ...2

MSEDCL C/S Reduction Roadmap ...3

Energy % (FY11)	Revenue % (FY11)	ABR as % of ACoS	FY11	FY12	FY13	FY14	FY15	FY16
				1	2	3	4	5
		LT CATEGORY						
0%	0%	BPL	20%	21%	23%	25%	27%	29%
19%	16%	LT I-Domestic	83%	83%	83%	83%	83%	83%
6%	9%	LT-II Non Domestic	149%	135%	135%	130%	120%	120%
1%	0%	LT III-Public Water Works	49%	53%	58%	63%	69%	75%
11%	5%	LT IV-Agriculture unmetered	51%	56%	61%	66%	72%	78%
10%	4%	LT Agriculture Metered	37%	40%	43%	47%	51%	55%
7%	8%	LT V Industrial	117%	117%	117%	116%	112%	100%
1%	1%	LT VI- Street Lighting	79%	86%	94%	100%	100%	100%
0%	1%	LT VII Temporary (Religious+Others)	262%	262%	262%	262%	262%	262%
0%	0%	LT VIII Adv & Hoardings	395%	395%	395%	395%	395%	395%
0%	0%	LT IX Crematorium & Burial Grounds	60%	65%	71%	77%	84%	92%
		HT CATEGORY						
38%	46%	HT-I Industrial	124%	124%	121%	119%	119%	118%
2%	4%	HT II- Commercial	184%	155%	144%	140%	120%	120%
2%	3%	HT-III Railways	131%	131%	131%	123%	120%	118%
2%	2%	HT-IV-Public Water Works	91%	99%	100%	100%	100%	100%
1%	0%	HT-V- Agriculture	54%	58%	63%	69%	75%	80%
1%	1%	HT-VI-Bulk Supply-Residential	94%	94%	94%	94%	94%	94%
		HT-Temporary Supply	0%					

FY11 Subsidized Category | FY11 Subsidizing Category | Permissible level of Cross Subsidy

Roadmap for Cross Subsidy Reduction

Brihan-Mumbai Electric Supply and Transport undertaking (BEST)

BEST Current status

- Cross subsidy: Rs. 366 Crore (14.55% of revenue)

BEST C/S Reduction Roadmap ...1

BEST C/S Reduction Roadmap ...2

BEST C/S Reduction Roadmap ...3

Energy % (FY11)	Revenue % (FY11)	ABR as % of ACoS	FY11	FY12	FY13	FY14	FY15	FY16
				1	2	3	4	5
		LT CATEGORY						
0%	0%	BPL	8%	8%	8%	8%	8%	8%
40%	25%	LT Domestic	64%	70%	76%	83%	83%	83%
42%	55%	LT Non Domestic/ Commercial	132%	126%	121%	114%	114%	114%
		LT Public Water Works						
		LT Agriculture unmetered						
		LT Agriculture Metered						
4%	4%	LT Industrial	111%	109%	102%	102%	102%	100%
1%	1%	LT Street Lighting	103%	103%	100%	100%	100%	100%
1%	1%	LT Temporary (Religious+Others)	154%	154%	154%	154%	154%	154%
0%	0%	LT Adv & Hoardings	246%	246%	246%	246%	246%	246%
0%	0%	LT Crematorium & Burial Grounds	58%	63%	69%	75%	82%	90%
		HT CATEGORY						
3%	3%	HT Industrial	102%	102%	102%	102%	102%	102%
9%	9%	HT Commercial	102%	102%	102%	102%	102%	102%
		HT Railways						
		HT Public Water Works						
		HT Agriculture						
1%	0%	HT Group Housing	63%	68%	74%	81%	88%	88%
		HT Bulk Supply-Commercial						
		HT Temporary Supply						

FY11 Subsidized Category | FY11 Subsidizing Category | Permissible level of Cross Subsidy

Roadmap for Cross Subsidy Reduction

Reliance Infrastructure Ltd. Distribution Business (RInfra-D)

RInfra-D Current status

- Cross subsidy: Rs. 962 Crore (21.5% of revenue)

RInfra-D C/S Reduction Roadmap ...1

RInfra-D C/S Reduction Roadmap ...2

- Recovery of a regulatory asset of RInfra-D and representative carrying cost is mapped over a larger period. As an illustrative scenario, tariffs are increased by 8% across all categories in FY12. During later years, the tariff correction is reversed gradually.

RInfra-D C/S Reduction Roadmap ...3

Energy Revenue % (FY11)	Energy Revenue % (FY11)	Non Linear Cross Subsidy Reduction	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
				1	2	3	4	5	6	7	8	9	10
		LT CATEGORY											
0%	0%	BPL	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
60%	43%	LT Domestic	67%	67%	73%	75%	75%	75%	75%	75%	75%	75%	75%
26%	37%	LT Non Domestic/ Commercial	132%	132%	121%	120%	120%	120%	120%	120%	120%	120%	120%
		LT Public Water Works											
		LT Agriculture unmetered											
0%	0%	LT Agriculture Metered	8%	8%	9%	9%	10%	11%	12%	13%	14%	15%	16%
5%	7%	LT Industrial	114%	114%	107%	100%	100%	100%	100%	100%	100%	100%	100%
1%	1%	LT Street Lighting	133%	133%	120%	120%	120%	120%	120%	120%	120%	120%	120%
1%	3%	LT Temporary (Religious+Others)	225%	225%	225%	225%	225%	225%	225%	225%	225%	225%	225%
0%	0%	LT Adv & Hoardings	272%	272%	272%	272%	272%	272%	272%	272%	272%	272%	272%
0%	0%	LT Crematorium & Burial Grounds	56%	56%	61%	67%	74%	81%	81%	81%	81%	81%	81%
		HT CATEGORY											
3%	3%	HT Industrial	107%	107%	107%	100%	100%	100%	100%	100%	100%	100%	100%
4%	5%	HT Commercial	132%	132%	123%	120%	120%	120%	120%	120%	120%	120%	120%
		HT Railways											
		HT Public Water Works											
		HT Agriculture											
0%	0%	HT Group Housing	77%	78%	85%	85%	85%	85%	85%	85%	85%	85%	85%
		HT Bulk Supply-Commercial											
0%	0%	HT Temporary Supply	162%	162%	162%	162%	162%	162%	162%	162%	162%	162%	162%

FY11 Subsidized Category | FY11 Subsidizing Category | Permissible level of Cross Subsidy

Roadmap for Cross Subsidy Reduction

Tata Power Company Limited – Distribution Business (TPC-D)

TPC-D Current status

- Cross subsidy: Rs. 56 Crore (2.64% of revenue)

TPC-D C/S Reduction Roadmap ...1

TPC-D C/S Reduction Roadmap ...2

TPC-D C/S Reduction Roadmap ...3

Energy % (FY11)	Revenue % (FY11)	ABR as % of ACoS	FY11	FY12 1	FY13 2	FY14 3	FY15 4	FY16 5
		LT CATEGORY						
		BPL						
7%	5%	LT Domestic	76%	80%	80%	80%	80%	80%
16%	16%	LT Non-Domestic/ Commercial	103%	102%	102%	102%	102%	102%
		LT Public Water Works						
		LT Agriculture unmetered						
		LT Agriculture Metered						
11%	12%	LT Industrial	104%	102%	102%	102%	102%	102%
0%	0%	LT Street Lighting						
0%	0%	LT Temporary (Religious+Others)	216%	216%	216%	216%	216%	216%
		LT Adv & Hoardings						
		LT Crematorium & Burial Grounds						
		HT CATEGORY						
22%	22%	HT Industrial	100%	100%	100%	100%	100%	100%
23%	25%	HT Commercial	106%	103%	102%	102%	102%	102%
21%	20%	HT Railways	96%	100%	100%	100%	100%	100%
		HT Public Water Works						
		HT Agriculture						
0%	0%	HT Group Residential	77%	80%	80%	80%	80%	80%
		HT Bulk Supply Commercial						
0%	0%	HT-Temporary Supply	192%	192%	192%	192%	192%	192%

FY11 Subsidized Category | FY11 Subsidizing Category | Permissible level of Cross Subsidy

Cross Subsidy Reduction

Suggestions

- Segregate the accounting system to capture network and supply related costs accurately
- Develop a guideline for computing the cost of supply to various consumer categories
- Licensees should submit the computation of cost to supply to consumer categories along with the ARR filing each year backed up by appropriate load research.
- The roadmap should be made co-terminus with the control period of MYT regulations.

Thank You