

Operationalisation of Open Access in Power Sector – MoP Letter dated 30.11.11



S K Chatterjee, DC (RA), CERC 16.12.11



Commercial Issues

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- Freedom to negotiate tariff & terms with existing supplier or switch to alternate supplier
- Percentage of such consumers switch to alternate supplier
- Impact under various scenarios of sale of such surplus power to:
 - Existing consumers
 - Only to existing subsidized consumer categories
 - Other licensees and OA consumers
 - Reduction in schedule of power to that extent

Commercial Issues





Wheeling Agreement v/s Supply Agreement

• Existing agreement to be replaced by Wheeling Agreement by considering following aspects:

Particulars	As per Supply /Contract Agreement	Anticipated Modification
Requirement of demand	KVA basis (deemed consideration as 24 hrs)	Time interval basis with corresponding quantum
Commencement of Supply	Three months after intimation from Discom	Choice may be given to intending consumer
Charges of Supply	Applicable as per Standard Tariff Schedule	To be negotiated based on mutual agreement
Period of Agreement	Minimum two years from date of commencement	Lock in period of two years to be relaxed
Interruption of Supply	Consumer is liable to pay fixed charges	Consumer may be compensated for fixed charges
Exceeding Contract demand	Additional Charges No compensation on reduction of drawal	Charges may be defined by Commission for deviation on both sides
Power Factor	Power factor is to be maintained as 85%	The additional charges may be introduced by Commission

Commercial Issues

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Billing, Collection and Disbarment

- SERCs may work out billing and collection procedures based on the FOR Model Regulations on
 - Terms and Conditions of Intra-State Open Access
 Regulations

Operational Issues

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Scheduling and Energy Accounting

- SERCs may work out operational model for Scheduling and Energy Accounting at two stages,
 - Distribution companies and
 - SLDC level:
- As per FOR Model regulation Scheduling requirement can be introduced for 10 MW and above OA consumers
- Intra State ABT may be introduced to enhance efficiency of dispatch function so as to enable smooth operation of large number of transaction

Other Issues

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Performance Standards & Grievance Redressal System

- Performance standard for utility for such deemed open access consumers
 - Only Wheeling related parameters to be considered
 - Reliability Indices
 - SAIDI
 - SAIFI
- Existing grievances redressal mechanism Forum of Ombudsman may continue to entertain such deemed open access consumers

IMPACT ANALYSIS- GUJARAT CASE STUDIES



Potential Consumers - MGVCL

Potential Consumers of Open Access

		MGVCL
Total Consumers	Nos	2731559
Total Connected load	MW	7235
Total HT Consumers	Nos	1387
Total Connected load of HT Consumers	MW	1022
Consumers of 1 MW and Above	Nos	144
@ 1 MW and Above	MW	685
% of load of 1 MW and Above cons.	%	9.5%
HT Express Feeder	Nos.	84
EHT Express Feeder	Nos.	41
Total HT+EHT Express Feeder	Nos	125
% of Potential Consumer (1 MW & above)	%	86% (595 MW

(Source: www.gercin.org, MGVCL)



Gujarat Case Study: MGVCL 2011-12

Scenario IA

All ≥1 MW
consumers
source
power from
out side and
Discom sells
surplus
power to its
existing
consumers
on pro-rata
basis

Scenario IB

All ≥1 MW
consumers
source power
from out side
and Discom
sells surplus
power to its
subsidized
consumers
on pro-rata
basis

Scenario IIA

All ≥1 MW consumers source power from out side and Discom sells surplus power outside

Scenario IIB

All ≥1 MW
consumers
source
power from
out side
and Discom
doesn't
schedule
such
surplus
power
(avoids
power
purchase)

Scenario IIIA

All ≥1 MW
consumers
source
power from
local Discom
& Discom
sells the
power at the
same retail
tariff to such
OA
consumers

Scenario IIIB

All ≥1 MW consumers source power from local Discom & Discom sells the power at 10% higher retail tariff

Scenario IV A

50 %

consumer of ≥1 MW consumers source power from outside and Discom sells the surplus power to the remaining consumers on Pro rata

basis

Scenario IV B

50% of all ≥1 MW consumer/ (having express feeder) source power from local Discom & Discom sells the surplus power in open market @ 4.74 Rs/Unit



Total Revenue with Subsidy

•Tariff Income

Other Income

Average Revenue Realization

Average cost of Supply

B)

Tariff Income with FPPPA

Total Annual Revenue Requirement

Total Revenue Realization (Revised) Consumption of Consumers ≥1 MW

Average revenue realization ≥1 MW

categories on pro-rata basis

Total Revenue Realization

Average Revenue Realization

Gap (+ve Losses & -ve Gain)

Subsidy Amount

•FPPPA Charges @61 Paise /kWh

Average revenue Reliasation (Tariff Income)

Total Revenue Realization in Rs. Cr. ≥1 MW

Loss of revenue due to such OA consumers

Consumers ≥1 MW source power from out side

Revenue from wheeling charges (Paisa 11/kWh)

Revenue from such OA consumers by levy of CSS (Paisa 39

/kWh) Revenue from sale of such surplus power to all consumer

Scenario - I A All ≥1 MW consumers source power from out side and Discom sells surplus power to its

W

X

Υ

Ζ

0

S=X*10/W

Α B=A*10/W

C

D=C*10/W

Ε

G=F*10/E

H=E

I=F

J=H*0.39/10

Κ L=(H*0.11(1+

10%))/10

M=L+K+J+C-I N=M/W

Q=C-M

3317

2746

76

436

59

4.64

3404.3

4.76

3182

4.45

820

2842

3.97

340

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	exist	existing consumers on pro-rata basis										
	Consumer categories	Unit	HT Consumers	Railways	Other categories	All Categories	Formulae					
۸١	Total Davanua Basination (Evistina)											

Rs. Cr.

Rs. Cr.

Rs. Cr.

Rs. Cr.

Rs. Cr.

Rs. /kWh

Rs. Cr.

Rs./kWh

Rs. Cr.

Rs. /kWh

MUs

Rs. Cr.

Rs. /kWh

MUs

Rs. Cr.

Rs.Cr.

Rs.Cr.

Rs. Cr.

Rs. Cr

Rs./ kWh

Rs. Cr

1390.613

5.49

1642

1043

6.35

1642

1043

64

198

20

629

221

5.67

388

221

5.67

388

221

15

0

20

1570

3.71

622

2193

	Consumer categories	Unit	HT Consumers	Railways	Other categories	All Categorie
A)	Total Revenue Realization (Existing)					
	Total Sales	MU	2533	388	4233	7154



Scenario – IB

	All ≥1 MW consumers source power from out side and Discom sells surplus power to its subsidized									
		consumers on pro-rata basis HT Other All								
	Consumer categories	Unit	HT Consumers	Railways	Other categories	All Categories	Formulae			
A)	Total Revenue Realization (Existing)									
	Total Sales	MU	2533	388	4233	7154	W			
	Total Revenue with Subsidy	Rs. Cr.				3317	X			
	•Tariff Income	Rs. Cr.				2746	Υ			
	•Subsidy Amount	Rs. Cr.				76	Z			
	FPPPA Charges @61 Paise /kWh	Rs. Cr.				436	0			
	•Other Income	Rs. Cr.				59	Р			
	Average Revenue Realization	Rs. /kWh				4.64	S=X*10/W			
	Total Annual Revenue Requirement	Rs. Cr.				3404.3	Α			
	Average cost of Supply	Rs./kWh				4.76	B=A*10/W			
	Tariff Income with FPPPA	Rs. Cr.	1390.613	221	1570	3182	С			
	Average revenue Realization (Tariff Income)	Rs. /kWh	5.49	5.67	3.71	4.45	D=C*10/W			
B)	Total Revenue Realization (Revised)									
	Consumption of Consumers ≥1 MW	MUs	1642	388			E			
	Total Revenue Realization in Rs. Cr. ≥1 MW	Rs. Cr.	1043	221			F			
	Average revenue Realization ≥I MW	Rs./kWh	6.35	5.67			G=F*10/E			
	Consumers ≥1 MW source power from out side	MUs	1642	388			H=E			
	Loss of revenue due to such OA consumers	Rs. Cr.	1043	221			I=F			
	Revenue from such OA consumers by levy of CSS	Rs.Cr.	64	15			J=H*0.39/10			

Rs.Cr.

Rs. Cr.

Rs. Cr

Rs./kWh

Rs.Cr.

0

20

431

Revenue from sale of such surplus power to subsidized

Revenue from wheeling charges (Paisa 11/kWh)

consumer categories on pro-rata basis

Total Revenue Realization

Average Revenue Realization

Gap (+ve Losses & -ve Gain)

Κ

L=(H*0.11(1+

10%))/10

M=L+K+J+C-I

N=M/W

Q=C-M

610

2180

5

20

610

2631

3.68

551



Subsidy Amount

Other Income

Average Revenue Realization

Average cost of Supply

Tariff Income with FPPPA

Total Annual Revenue Requirement

Total Revenue Realization (Revised) Consumption of Consumers ≥1 MW

Average revenue Realization ≥I MW

Total Revenue Realization

Average Revenue Realization

Gap (+ve Losses & -ve Gain)

•FPPPA Charges @61 Paise /kWh

Average revenue Realization (Tariff Income)

Total Revenue Realization in Rs. Cr. ≥1 MW

Consumers ≥1 MW source power from out side

Revenue from such OA consumers by levy of CSS

Revenue from wheeling charges (Paisa 11/kWh)

Revenue from sale of such surplus power to out side

Loss of revenue due to such OA consumers

Scenario – IIA

All ≥1 MW consumers source power from out side and Discom sells surplus

nower outside

1000 TO	power outside											
	Consumer categories	Unit	HT consumers	Railways	Other categories	All Categories						
A)	Total Revenue Realization (Existing)											
	Total Sales	MU	2533	388	4233	7154	W					
	Total Revenue with Subsidy	Rs. Cr.				3317	Х					
	•Tariff Income	Rs. Cr.				2746	Υ					

Rs. Cr.

Rs. Cr.

Rs. Cr.

Rs./kWh

Rs. Cr.

Rs./kWh

Rs. Cr.

Rs./kWh

MUs

Rs. Cr.

Rs./kWh

MUs

Rs. Cr.

Rs.Cr.

Rs.Cr.

Rs. Cr.

Rs. Cr

Rs./kWh

Rs. Cr.

1390.613

5.49

1642

1043

6.35

1642

1043

64

0

20

431

221

5.67

388

221

5.67

388

221

15

0

20

1570

3.71

1059

2629

76

436

59

4.64

3404.3

4.76

3182

4.45

1059

3080

4.31

102

Ζ

O

S=X*10/W

Α

B=A*10/W

D=C*10/W

Ε

G=F*10/E

H=E

I=F

J=H*0.39/10

Κ

L=(H*0.11(1+

10%))/10

M=L+K+J+C-I

N=M/W Q=C-M 18



Subsidy Amount

•Other Income

Average Revenue Realization

Average cost of Supply

B)

Tariff Income with FPPPA

Total Annual Revenue Requirement

Total Revenue Realization (Revised) Consumption of Consumers ≥1 MW

Total Revenue Realization in Rs. Cr. ≥1 MW

Loss of revenue due to such OA consumers

Revenue from such OA consumers by levy of CSS

Revenue from wheeling charges (Paisa 11/kWh)

Saving from Energy Charge by not purchasing power @

Average revenue Realization ≥I MW

Variable cost o: Rs. I.82/kWh

Total Revenue Realization

Average Revenue Realization

Gap (+ve Losses & -ve Gain)

•FPPPA Charges @61 Paise /kWh

Average revenue reliasation (Tariff Income)

Consumers ≥1 MW source power from out side @Rs.4.74

Scenario – IIB

W X Υ

Z

0

S=X*10/W

B=A*10/W

C D=C*10/W

Ε

G=F*10/E

H=E

I=F J=H*0.39/1

Κ

L=(H*0.11(1

+10%))/10 M=L+K+J+C-

N=M/W

Q=C-M|9|

76

436

59

4.64

3404.3

4.76

3182

4.45

2391

3.34

791

	All ≥1 MW consumers so					na Discon	n doesi	Ιt	
schedule such surplus power									
								$\overline{}$	

	sche	edule such	surplus po	ower			
	Consumer categories	Unit	HT Consumers	Railways	Other categories	All Categories	
A)	Total Revenue Realization (Existing)						
	Total Sales	MU	2533	388	4233	7154	١
	Total Revenue with Subsidy	Rs. Cr.				3317	
	•Tariff Income	Rs. Cr.				2746	

Rs. Cr.

Rs. Cr.

Rs. Cr.

Rs./kWh

Rs. Cr.

Rs./kWh

Rs. Cr.

Rs./kWh

MUs

Rs. Cr.

Rs./kWh

MUs

Rs. Cr.

Rs.Cr.

Rs.Cr.

Rs. Cr.

Rs. Cr

Rs/kWh

Rs Cr.

1390.613

5.49

1642

1043

6.35

1642

1043

64

299

20

730

221

5.67

388

221

5.67

388

221

15

71

5

91

1570

3.71

1570



Scenario – IIIA

All ≥1 MW consumers source power from local Discom & Discom sells the power at the same retail tariff

	Consumer categories	Unit	HT Consumers	Railways	Other categories	All Categories	
A)	Total Revenue Realization (Existing)						
	Total Sales	MU	2533	388	4233	7154	w
	Total Revenue with Subsidy	Rs. Cr.				3317	Х
	•Tariff Income	Rs. Cr.				2746	Υ
	•Subsidy Amount	Rs. Cr.				76	Z
	•FPPPA Charges @61 Paise /kWh	Rs. Cr.				436	0
	•Other Income	Rs. Cr.				59	Р
	Average Revenue Realization	Rs. /kWh				4.64	S=X*10/W
	Total Annual Revenue Requirement	Rs. Cr.				3404.3	Α
	Average cost of Supply	Rs./kWh				4.76	B=A*10/W
	Tariff Income with FPPPA	Rs. Cr.	1390.613	221	1570	3182	С
	Average revenue reliasation (Tariff Income)	Rs. /kWh	5.49	5.67	3.71	4.45	D=C*10/W
В)	Total Revenue Realization (Revised)						
	Consumption of Consumers ≥1 MW	MUs	1642	388			E
	Total Revenue Realization in Rs. Cr. ≥1 MW	Rs. Cr.	1043	221			F
	Average revenue realization ≥1 MW	Rs. /kWh	6.35	5.67			G=F*10/E
	Consumers ≥1 MW source power from Discom	MUs	1642	388			H=E
	Revenue from such OA consumers by selling power at same retail tariff	Rs. Cr.	1043	221			I=F
	Revenue from such OA consumers by levy of CSS	Rs.Cr.	0	0			J
	Revenue from wheeling charges (Paisa 11/kWh)	Rs. Cr.	20	3			K=(H*0.11(1 +10%))/10
	Total Revenue Realization	Rs.Cr	1410	225	1570	3206	L=K+C+J
	Average Revenue Realization	Rs/kWh				4.48	M=L/W
C)	Gap (+ve Losses & -ve Gain)	Rs.Cr				- 24	N=C-M



Discom

B)

Average revenue reliasation (Tariff Income)

Total Revenue Realization in Rs. Cr. ≥1 MW

Consumers ≥1 MW source power from local

Revenue from such OA consumers by selling power

Revenue from such OA consumers by levy of CSS

Revenue from wheeling charges (Paisa 11/kWh)

Total Revenue Realization (Revised) Consumption of Consumers ≥1 MW

Average revenue Realization ≥I MW

at 10% higher retail tariff

Total Revenue Realization

Average Revenue Realization

Gap (+ve Losses & -ve Gain)

Scenario – IIIB

All ≥1 MW consumers source power from local Discom & Discom sells the

	powe	er at 10	% higher	retail tar	riff		
	Consumer categories	Unit	HT Consumers	Railways	Other categories	All Categories	
A)	Total Revenue Realization (Existing)						
	Total Sales	MU	2533	388	4233	7154	W
	Total Revenue with Subsidy	Rs. Cr.				3317	Х
	•Tariff Income	Rs. Cr.				2746	Υ
	•Subsidy Amount	Rs. Cr.				76	Z
	•FPPPA Charges @61 Paise /kWh	Rs. Cr.				436	0
	•Other Income	Rs. Cr.				59	P
	Average Revenue Realization	Rs./kWh				4.64	S=X*10/W
	Total Annual Revenue Requirement	Rs. Cr.				3404.3	Α
	Average cost of Supply	Rs./kWh				4.76	B=A*10/W
	Tariff Income with FPPPA	Rs. Cr.	1390.613	221	1570	3182	С

Rs./kWh

MUs

Rs. Cr.

Rs./kWh

MUs

Rs. Cr.

Rs.Cr.

Rs. Cr.

Rs. Cr

Rs./kWh

Rs.Cr

5.49

1642

1043

6.35

1642

1043

0

20

1515

5.67

388

221

5.67

388

221

0

248

3.71

1570

4.45

3333

4.66

- 151

D=C*10/W

Ε

G=F*10/E

H=E

I=F

K=(H*0.11(1+

10%))/10 L=C+I+J+K-F

M=L/W

N=C-M^{2|}

power at 10% higher retail tariff										
Consumer categories	Unit	HT Consumers	Railways	Other categories	All Categories					
						Г				



Total Annual Revenue Requirement

Total Revenue Realization (Revised)

Consumption of Consumers ≥1 MW

Average revenue Realization ≥I MW

Average revenue Realization (Tariff Income)

Total Revenue Realization in Rs. Cr. ≥1 MW

Revenue from 50 % Consumers ≥1 MW source power

Revenue from such OA consumers by levy of CSS

Revenue from wheeling charges (Paisa 11/kWh)

Revenue from sale of surplus power to other categories on

Average cost of Supply

from local discom

Total Revenue Realization

Average Revenue Realization

Gap (+ve Losses & -ve Gain)

pro rata basis.

B)

Tariff Income with FPPPA

Scenario - IV A

50% of all ≥1 MW consumers source pov

	the surplus power to the remaining consumers on Pro rata basis						
	Consumer categories	Unit	HT Consumers	Railways	Other categories	All Categories	
A)	Total Revenue Realization (Existing)						
	Total Sales	MU	2533	388	4233	7154	W
	Total Revenue with Subsidy	Rs. Cr.				3317	X
	•Tariff Income	Rs. Cr.				2746	Υ
	•Subsidy Amount	Rs. Cr.				76	Z
	•FPPPA Charges @61 Paise /kWh	Rs. Cr.				436	0
	•Other Income	Rs. Cr.				59	Р
	Average Revenue Realization	Rs./kWh				4.64	S=X*10/W

Rs. Cr.

Rs./kWh

Rs. Cr.

Rs./kWh

MUs

Rs. Cr.

Rs./kWh

Rs. Cr

Rs. Cr.

Rs. Cr.

Rs. Cr.

Rs. Cr

Rs./KWh

Rs. Cr

1390.613

5.49

1642

1043

6.35

574

159

32

20

1132

er to the remaining consumers on Pro rata basis						
Unit	HT Consumers	Railways	Other categories	All Categories		

221

5.67

388

221

5.67

121

18

08

5

152

- I V A	
wer from local Discom & Discom sells	
ng consumers on Pro rata basis	
	۱

1570

3.71

260

1570

3404.3

4.76

3182

4.45

2854

3.99

328

Α

B=A*10/W

C

D=C*10/W

Ε

G=F*10/E

H=E

I=F

K=(H*0.11(1

+10%))/10 L=C+H+I+J+K

M=L/W

 $N=C-M^{22}$



Scenario – IV B

50% of all ≥1 MW consumers source power from local Discom & Discom sells the surplus power in open market @ 4,74 Rs/Unit

	ponor in a		NOT (5 4)	,	•		
	Consumer categories	Unit	HT	Railways	Other	All	
Λ)	Total Revenue Realization (Existing)		Consumers		categories	Categories	
A)	Total Sales	MU	2533	388	4233	7154	W
	Total Revenue with Subsidy	Rs. Cr.	2555	300	4233	3317	X
	•Tariff Income	Rs. Cr.				2746	Y
	•Subsidy Amount	Rs. Cr.				76	Z
	•FPPPA Charges @61 Paise /kWh	Rs. Cr.				436	0
	•Other Income	Rs. Cr.				59	P
	Average Revenue Realization	Rs./kWh				4.64	S=X*10/W
	Total Annual Revenue Requirement					3404.3	3-X 10/ VV
		Rs. Cr. Rs./kWh				4.76	B=A*10/W
	Average cost of Supply Tariff Income with FPPPA		1200 (12	221	1570	3182	C C
		Rs. Cr.	1390.613		1570		
	Average Revenue Realization (Tariff Income)	Rs./kWh	5.49	5.67	3.71	4.45	D=C*10/W
В)	Total Revenue Realization (Revised)	NAL I	4642	200			
	Consumption of Consumers ≥ I MW	MUs	1642	388			E -
	Total Revenue Realization in Rs. Cr. ≥1 MW	Rs. Cr.	1043	221			F
	Average Revenue Realization ≥I MW	Rs./kWh	6.35	5.67			G=F*10/E
	Revenue from 50 % Consumers ≥1 MW source power	D 0					H=E
	from local discom.	Rs. Cr	574	121			
	Revenue from sale of surplus power in open market @	D C	200	00			
	4.74/unit	Rs. Cr.	389	92			I=F
	Revenue from such OA consumers by levy of CSS	Rs. Cr.	32	8			J
	Revenue from wheeling charges (Paisa 11/kWh)	Rs. Cr.	20	5			K=(H*0.11(1 +10%))/10
	Total Revenue Realization	Rs. Cr.	1362	226	1570	3159	L=
	Average Revenue Realization	Rs./kWh				4.42	M=L/W
C)	Gap (+ve Losses & -ve Gain)	Rs. Cr				23	N=C-M

Open Access Consumer ≥ I MW

Particulars	Long term			
r ai ticulai s	Case I	Case II		
Power Purchase cost assumed	4.00	3.00		
HT Industry Tariff ≥ I MW : MGVCL	5.74	5.74		
Intra State Open Access				
Open Access Charges Payable including Losses	1.25	1.09		
Net Cost payable by intra-State OA Consumers (including cost of procurement)	5.25	4.09		
Difference (Rs/ kWh)-Intra State	-0.49	-1.65		
Inter State Open Access within the region (WR)				
Open Access Charges Payable including Losses	2.36	1.97		
Net Cost payable by inter-State OA Consumers (including cost of procurement	6.36	4.97		
Difference (Rs/ kWh)-Inter State	0.62	-0.77		

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Thank You!

15-05-2012 25