



GUJARAT ENERGY TRANSMISSION CORPORATION LIMITED

Registered office: Vidyut Bhavan, Race Course, Vadodara

STATE LOAD DESPATCH CENTER

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Letter No: GETCO/SLDC/3157

Date: 25/5/2009

By Fax:

From: Chief Engineer (SLDC), Gotri

To: (i) The Executive Director, TPL-Sugen, 1147.50 MW CCPP, Kamrej
(ii) The General Manager, Comm, GUVNL, Vadodara
(iii) The General Manager(Commercial), TPSECL, Tilak Medan, Surat
(iv) The Executive Director, TPAECL, Torrent House, Ahemedabad
(v) The Chief Engineer, DGVCL, Nana Varacha Road, Surat
(vi) The Chief Engineer, UGVCL, Visnagar Road, Mehsana
(vii) The Additional Chief Engineer, R&C, Corporate Office, Vadodara

Subject: Meeting for finalization of "*Scheduling and Accounting Treatment of TPL-Sugen and associated beneficiaries* to be held on **28th May'2009**

TPL-Sugen has intimated vide letter dated 22nd May'2009 that Unit 10 is likely to be put under commercial operation after completion of performance guarantee test.

In view of above, a meeting is held on **28th May'2009** at conference hall of SLDC at **10:00** hrs for finalization of "*Scheduling and accounting of TPL-Sugen and associated beneficiaries*" and other energy accounting aspects.

During meeting following points will be discussed and finalized:

- (i) *Finalization of scheduling and energy accounting: Proposed treatment for scheduling and energy accounting is enclosed herewith.*
- (ii) *Confirmation of Energy Accounting: Energy Accounting of TPL-Sugen and its associated beneficiaries is completed till 30th April'09 and issued to concerned members..*

Kindly make it convenient to attend the meeting.

Encl : (i) Proposed Treatment
(ii) Letter of TPL-Sugen

(N.H.Suthar)
Chief Engineer



1147.5 MW SUGEN CCPP

Tal. Kamrej
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May 22, 2009.

To :
Chief Engineer
State Load Dispatch Centre
132 kV Gotri Substation Compound
Near T. B. Hospital
Vadodara.

Kind Attn : Shri N. H. Suthar

Sub : Commercial Operation of our Unit 10, 382.5 MW capacity
of our Sugem 1147.5 MW Sugem CCPP.

Dear Sir,

At the outset, we would like to thank SLDC for all the support and co-operation extended to us during the phase of commissioning of our Sugem 1147.5 MW CCPP.


With immense pleasure we would like to inform you that our Unit 10 having capacity of 382.5 MW will be under Performance Guarantee Test from 23.5.2009, for demonstrating Maximum Continuous Rating (MCR) and our Unit 10 is likely to be put under commercial operation soon thereafter. The exact date of COD and accounting for TPL-Surat and TPL-Ahmedabad shall be intimated shortly.

This is submitted for the advance information and necessary action to be taken at your end.

We would like to reiterate our thanks for all the guidance provided to us.

Thanking you once again,

Yours sincerely,
For Torrent Power Ltd.


Deepak Dalal
Executive Director

D.E. (Comm)
D.P.
23/5/09



A) METERING ARRANGEMENT:

Stage 1:

Sr	Location	Meter Type	Quantity
1	400KV Sugan-Vapi at Sugan	Main & Check	2
2	400KV Sugan-Zanor at Sugan	Main & Check	2
3	400KV Sugan-Vapi at Vapi	Stand by	1
4	400KV Sugan-Zanor at Zanor	Stand by	1
5	400KV GT-1, GT-2 & GT-3 at Sugan	Stand by	3
6	400/220KV , 3x315 MVA ICT at Sugan	Main & Check	6
7	220KV D/C Sugan-Kim at Sugan	Main & Check	4
8	220KV D/C Sugan-FGTS at Sugan	Main & Check	4
9	220KV D/C Sugan-Puna at Sugan	Main & Check	4
10	220KV D/C Sugan-Bhatar at Sugan	Main & Check	4
11	220KV D/C Kim-Sugan at Kim	Stand by	2
12	220KV D/C FGTS-Sugan at FGTS	Stand by	2
13	220KV D/C Puna-Sugan at Puna	Stand by	2
14	220KV D/C Bhatar-Sugan at Bhatar	Stand by	2
	Total		39

Stage 2 :

Sr	Location	Meter Type	Quantity
1	400KV D/C Sugan-Pirana at Sugan	Main & Check	4
2	400KV D/C Sugan-Pirana at Pirana	Standby	2
	Total		6

Note:

- i) Meters should be compatible with prevailing CEA standard and regulation issued by GERC. It is to be installed by GETCO as per directive of Hon'ble GERC. If meters are installed by TPL, it is to be confirmed from GETCO in order to ensure accounting.
- ii) Meter numbers allocated for above meters GJ-2251-A/B...GJ-2294-A/B. Last digit would be 'A' if meter CT is 1 Ampere whereas 'B' if meter CT is having 5 Ampere. TPL has to ensure that meter shall be calibrated and tested jointly between GETCO, DGVCL and TPL.
- iii) Specification of meter installed shall be compatible with existing software and data downloading devices.

Summary:

Sr.No.	Location	Type of Meter	Quantity
1	Sugan	Main	15
		Check	15
		Standby	3
2	TPSECL	Main	--
		Check	--
		Standby	6
3	Zanor & Vapi	Main	--
		Check	--
		Standby	2
4	Kim	Main	--
		Check	--
		Standby	2
5	Pirana	Standby	2
	Total		45



B) SCHEDULING AND ACCOUNTING ARRANGEMENT: Scheduling and Accounting arrangement is prepared by considering following aspects:

- 1) Unscheduled interchange across Gujarat periphery is net summation of deviation of Sugden and its associated beneficiaries (TPAECL, TPSECL), other STOA user and other generator/distribution licensee purchasing power through GUVNL.
- 2) UI charges applicable as per CERC norms at Gujarat periphery are to be balanced back-to-back with intra State entities. Thereby UI charges accumulated across Gujarat periphery shall have to be shared among intra state entities affecting inter state drawl.
- 3) Intra State ABT has effective mechanism to share such UI Charges. Hence proposed mechanism of quasi pool account is prepared in line with Intra State ABT as intermediate arrangement.

In view of above, the scheduling and accounting scheme for Sugden and its associated beneficiaries is proposed as below:

STAGE-1:

(i) Till Sugden Units are commercialized:

- 1) *Till all units of Sugden are not commercialized, Energy Sent Out (ESO) from Sugden Units shall be treated as infirm power or commissioning power.*
- 2) *Scheduling, charges on deviation and Gaming is not applicable during infirm power. However for operational expediency, Sugden has to submit tentative output to SLDC in line with declaration for each day and same will be indicated to respective schedule of beneficiaries.*
- 3) *Auxiliary power is being consumed from generation of Sugden only, and meters are installed at each Unit Auxiliary Transformer (UAT). Allocation of generation is to be done by adjustment (setoff) of energy to TPSECL against their total drawl. Remaining quantum will be adjusted against drawl of TPAECL. After set off of TPSECL & TPAECL, balance energy will be setoff to GUVNL's account at the rate as mutually decided by GUVNL & Sugden.*
- 4) *It is assumed that each UAT is supplying power to auxiliaries of respective units. Inter unit exchanges of auxiliary connection is open. However, in case of shutdown of one or more units, treatment would be different.*
- 5) *When Sugden plant is not generating power, the auxiliary power drawn by Sugden will be accounted against contract demand with respective distribution licensee (DGVCL) which is to be accounted and settled by distribution licensee (DGVCL).*



A) During export of power from Sugen:

ESO of Sugen generating station:

$$\begin{aligned} \text{ESO(Sugen)} &= \text{OG1(kim1)} + \text{OG2(kim2)} + \text{OG3(FGTS1)} + \text{OG4(FGTS2)} + \text{OG5(Puna1)} + \\ &\text{OG6(Puna2)} + \text{OG7(Bhatar1)} + \text{OG8(Bhatar2)} + \text{OG9(Zanor)} + \text{OG10(Vapi)} \\ &= \sum X ; \text{Sum of all outgoing lines from Sugen} \end{aligned}$$

$$\begin{aligned} \text{Total Energy drawl by AEC}o \text{ (TEDaeco)} &= \text{AIN1 (Nicol1)} + \text{AIN2 (Nicol2)} + \\ &\text{AIN3(Sbmti1)} + \text{AIN4(Sbmti2)} + \text{AIN5 (Randheja)} \end{aligned}$$

$$\begin{aligned} \text{Total Energy drawl by SECo (TEDseco)} &= \text{SIN1} + \text{SIN2} + \text{SIN3} + \dots + \text{SIN12} + \\ &\text{OG3(FGTS1)} + \text{OG4(FGTS2)} + \text{OG5(Puna1)} + \\ &\text{OG6(Puna2)} + \text{OG7(Bhatar1)} + \text{OG8(Bhatar2)} \end{aligned}$$

Where SIN1...SIN12 represents exchanges between SECo & STU.

$$\begin{aligned} \text{Net eligible energy of Sugen for Setoff against contract demand with GUVNL} &= \\ \text{ESO (Sugenelegible)} &= \text{ESO (Sugen)} - (\text{OG3 (FGTS1)} + \text{OG4 (FGTS2)} \\ &+ \text{OG5(Puna1)} + \text{OG6(Puna2)} + \text{OG7(Bhatar1)} + \\ &\text{OG8(Bhatar2)}) \end{aligned}$$

Calculation of Net Drawl and Set off of infirm energy: (To be done by Discom)

First Setoff:

$$\text{Net drawl by SECo from GUVNL: (NEDseco)} = (\text{TEDseco} - (\text{ESO(Sugen)} \times 0.9591))$$

Second Setoff:

If NEDseco is negative,

$$\text{Net drawl by AEC}o \text{ from GUVNL: (NEDaeco)} = (\text{TEDaeco} - (-\text{TEDseco} + \text{ESO(Sugen)} \times 0.9591))$$

Third Setoff :

If NEDaeco is negative,

$$\text{Net drawl by GUVNL from TPL-Sugen: (NEDguvnl)} = (\text{ESO(Sugen)} - \text{TEDaeco} - \text{TEDseco})$$

Note:

- (i) Above treatment will be applicable till all generating units generate infirm power. If one or more units commercialized and remaining units generating infirm power, above treatment shall not be applicable as rate of infirm and firm power is different.
- (ii) If connectivity of TPSECL & STU connection not exist i.e. all connected lines are switch off, flow of that lines will be zero and so TEDseco represent total drawl by TPSECL from Sugen only.
- (iii) During infirm power generation, deviation is allowed and will have to absorb into grid under normal condition, hence there is no any implication over such deviation. Such accounting can be done in 15 minutes or half hourly basis.



- (ii) **Till commercialized and non commercialized units are exist simultaneously:** When one or more unit is commercialized and remaining unit inject infirm power , their scheduling and accounting is proposed as under :

Prerequisite:

1. TPL-Sugen has to submit allocation to TPAECL and TPSECL from those generators declared as commercial.
2. TPL-Sugen has to obtain open access approval for firm allocation of TPAECL for the period till their own dedicated network is completed (under LTOA or STOA)
3. TPL-Sugen has to further obtain open access approval for firm allocation of TPSECL for the quantum of drawl to be scheduled through 220KV dedicated network system. This open access will have to obtain for the period till 66KV line with GETCO network is connected.
4. TPL-Sugen has to obtain open access for injecting infirm generation as their dedicated network is not connected.
5. Sugen has to furnish target availability factor approved by appropriate regulatory commission. TPL-Sugen has to obtain approval of tariff for the commercially declared generator.
6. Infirm generation is to be setoff to the beneficiaries i.e. TPAECL, TPSECL and MSSEDCL in proportion to their share allocation. .
7. UI charges will be applicable as per GERC Open Access Regulation 2008 i.e. 105% for under generation or over drawl and 95% for over generation or under drawl
8. Entire firm generation allocated to TPSECL is to be transmitted through dedicated network. In case firm allocation of TPSECL (through dedicated network) is lesser than schedule, separate open access is to be obtained by TPSECL for such generation.
9. Energy injection from TPL-Sugen to TPAECL is to be transmitted by TPL-Sugen obtaining separate open access approval from SLDC (if STOA) for the period till their own dedicated network is completed.
10. Generating unit declared under commercial operation has to follow scheduling procedure as per prevailing GERC regulation.

(A) Accounting Treatment of TPL-Sugen:

ESO of Sugen generating station:

$$ESO(Sugen) = \sum X = OG1(kim1) + OG2(kim2) + OG3(FGTS1) + OG4(FGTS2) + OG5(Puna1) + OG6(Puna2) + OG7(Bhatar1) + OG8(Bhatar2) + OG9(Zanor) + OG10(Vapi)$$

$$EGENSugen = EGT1 + EGT2 + EGT3 + \dots$$

ESO of Non-commercial units:

$$\begin{aligned} ESOU\#1 &= EGT1 \\ ESOU\#2 &= EGT2 \\ ESOU\#3 &= EGT3 \end{aligned}$$



$$ESO(\text{infirm}) = ESOU\#1 + ESOU\#2 + ESOU\#3 + \dots$$

Allocation of infirm generation:

$$\text{Allocation to TPSECL } (X_{\text{seco}}) = ESO(\text{infirm}) \times (A\%) / 100$$

$$\text{Allocation to TPAECL } (Y_{\text{aeco}}) = ESO(\text{infirm}) \times (B\%) / 100$$

$$\text{Allocation to MSEDCL } (Z_{\text{wr}}) = ESO(\text{infirm}) \times (C\%) / 100 \text{ (PPA is under process)}$$

ESO for Commercial units:

$$ESO\ U\#1 = ESO(\text{Sugen}) - (ESO\ U\#2 + ESOU\#3)$$

$$ESO\ U\#1, 2 = ESO(\text{Sugen}) - (ESO\ U\#3) \dots \dots \dots \text{And so on}$$

$$\begin{aligned} \text{Deviation for Sugem Plant} &= SGT\#1 - ESOU\#1 \dots \text{If } U\#1 \text{ is in commercial operation} \\ &= (SGT\#1 - ESOU\#1) + (SGT\#2 - ESOU\#2) + \dots \text{If } U\#1 \ \& \ U\#2 \text{ comm.} \end{aligned}$$

(B) Accounting Treatment of TPSECL :

$$\text{Deviation for TPSECL: } (\Delta_{\text{seco}}) = (SDL_{\text{seco}} + X_{\text{seco}}) - TED_{\text{seco}}$$

; Where $SDL_{\text{seco}} = SDL_{\text{sugen}}$ (for commercial unit)

$TED_{\text{seco}} =$ Total drawl by TPSECL,

$X_{\text{seco}} =$ Energy setoff from non-commercial units

; If (Δ_{seco}) is negative, equivalent energy will be compensated through Unscheduled Interchange charges as per CERC

; If (Δ_{aeco}) is positive, equivalent energy will be accounted as drawl against contract demand with GUVNL to the extent of contract demand. Drawl more than contract demand will be accounted by GUVNL as excess demand charges.

$$\text{Deviation for TPAECL: } (\Delta_{\text{aeco}}) = (SDL_{\text{aeco}} + Y_{\text{aeco}}) - TED_{\text{aeco}}$$

; Where $SDL_{\text{aeco}} = SDL_{\text{sugen}}$ (Proportionate energy from commercial unit)

$TED_{\text{aeco}} =$ Total drawl by TPAECL,

$Y_{\text{aeco}} =$ Energy setoff from non commercial units

; If (Δ_{aeco}) is negative, equivalent energy will be compensated through Unscheduled Interchange charges as per CERC

; If (Δ_{aeco}) is positive, equivalent energy will be accounted as drawl against contract demand with GUVNL to the extent of contract demand. Drawl more than contract demand will be accounted by GUVNL as excess demand charges.



(B) During import of Power by Sugen:

$$\text{If ESO (Sugen)} = \sum X = (-Ve)$$

The summation of all such blocks is to be considered as drawl against contract demand of TPL-Sugen.

(iii) After all three units of Sugen are declared as commercials :

Prerequisites/Assumption:

- (i) Power supplied to TPSECL from Sugen through dedicated network only. No 66KV radial lines are connected with TPSECL.
- (ii) TPL-Sugen has to obtain open access for supplying power to TPAECL from Sugen (under LTOA/STOA) till completion of their own dedicated lines to Pirana S/s.
- (iii) TPL-Sugen has to furnish allocation of entire capacity of TPL-Sugen within the approval of open access/agreement signed with beneficiaries.

$$\text{ESO (Sugen)} = \sum Xi = \text{Sum of all outgoing lines from Sugen}$$

$$\text{SDL (Sugen)} = \sum \mathbf{SDsugen} = \text{SDU\#1+SDU\#2+SDU\#3 ... (based on ex-bus DC)} \\ \text{.....for all commercial units}$$

$$\text{Deviation of Sugen} = \sum Xi - \sum SDsugen$$

$$\text{Deviation for TPAECL} = \text{SDLaeco- TEDaeco}$$

$$\text{Where, SDLaeco} = \text{SDLguvnl+SDLsugen}$$

; SDLguvnl = Schedule of AECO from power station allocated by GUVNL

; SDLsugen = Schedule of AECO from Sugen generating station as per allocation furnished by TPL

; TEDaeco = Total energy drawl of TPAECL ...

$$\text{Deviation for TPSECL} = \text{SDLseco- TEDseco}$$

$$\text{Where, SDLseco} = \text{SDLguvnl+SDLsugen}$$

; SDLguvnl = Schedule of SECo from power station allocated by GUVNL

; SDLsugen = Schedule of SECo from Sugen generating station as per allocation furnished by TPL

; TEDseco = Total energy drawl of TPSECL ...