



सत्यमेव जयते

भारत सरकार

Government of India

विद्युत मंत्रालय

Ministry of Power

उत्तर क्षेत्रीय विद्युत समिति

Northern Regional Power Committee

सं.: उ.क्षे.वि.स./प्रचालन/109/04/2017/12132-12164

दिनांक: 30.10.2017

सेवा में,

संलग्न सूची के अनुसार / As per list.

**Subject:-Second Meeting of "Sub-Group" under Technical Committee for Implementation of Framework on Renewable at the State level (IFRSL)-Reg.**

Sir,

First meeting of the Sub-group under technical committee for Implementation of Framework on Renewable at State Level was held on 16.08.2017 at NRPC, New Delhi. The minutes of the same was also issued vide our letter of even no. dated 18.08.2017 (available on our website-www.nrpc.gov.in)

2. In the first meeting held on 16.08.2017, a draft overarching commercial agreement, in line with that discussed in SRPC, for short-term transactions of electricity among NR utilities was discussed and comment from all concerned was invited to finalise the agreement. The agreement has now been signed by SR constituents. A copy of the same is available on our website.

3. Subsequently, a meeting of the Heads / Representatives of the Sub-Groups was convened under the Chairmanship of Shri A.S.Bakshi, Member, CERC on 18.8.2017 in CERC, New Delhi to review the progress on framework for regional co-operation. In this meeting various options, other than overarching agreement, for handling intra-day load / generation variation due to RE or otherwise were also discussed. A copy of the same is available on our website. During the meeting, it was decided to share these options with all RPCs and seek feedback.

4. It is requested to send your suggestion(s)/comments, if any, on the over overarching agreement and various options other than overarching agreement, copies available on our website, latest by 06.11.2017 at sec-nrpc@nic.in.

5. The 2<sup>nd</sup> meeting of the Sub-Group is scheduled on 13.11.2017 at 11:00 hrs. at NRPC Conference Hall, Katwaria Sarai, New Delhi.

6. Further, it may be noted that nominations for the Sub-Group members were sought vide our letter of even no. dated 14.06.2017 and subsequent reminders thereof. SERCs (list enclosed) who have not yet nominated their members of respective SERC and SLDC are requested to nominate and advise the official concerned to attend the meeting.

7. Kindly make it convenient to attend the meeting.

8. Members from SLDCs are requested to co-ordinate with the concerned department e.g. power purchase department of the respective state for attending the meeting.

 20/11/17

(एम.ए.के.पी. सिंह)  
(M.A.K.P. Singh)  
सदस्य सचिव  
Member Secretary

## Fax List

### Nominated Members of the Sub-Group

S.N.	NAME	DESIGNATION	ORGANISATION	TELE(O)	FAX.NO
1.	Sh. Kaushik Dey	Manager	NLDC		011-26536901
2.	Sh.R.K.Porwal	DGM	NRLDC	011-26537351	011-26852747
3.	Sh. Abhishek Moza	Deputy Secretary	DERC/Delhi	011-41601674	011-41080417
4.	Sh. Bharti Sambhyal	Executive Director	HPERC/ HP	0177-2627978	177-2627162
5.	Sh. P.K.Dimri	Director (Technical)	UERC/ Uttarakhand	0135-2641115	0135-2641314
6.	Sh. Ghan Shyam Verma	Deputy Director (Technical)	RERC, Rajasthan	9414455214	0141-2741018
7.	Sh.N.K.Makkar	Executive Engineer	HVPLN		0172-2560622
8.	Sh.Rajesh Kapoor	Chief Engineer	HP SLDC	98164-68662	0177-2837649
9.	Sh. Anupam Sharma	SE	PTCUL		
10.	Sh. S.K.Gupta	SE (REMC)	RVPLN	0141-2740067	0141-2251601
11.	Sh. S. C. Saini	Executive Engineer	Elect. (O), Chandigarh	0172-267905 0172-2655531	0172-2637880
12.	Sh.Rajeev Mohan	SE(OA&Sch)	UP SLDC		
13.	Sh. Vikas Chandra Agarwal	Director(Dist.)	UPERC	0522-2720426	0522-2720423
14.	Sh. Vikas Kadian	Joint Director(Dist.)	HERC	0172-2582531	0172-2572359
15.	Sh.Rajesh Dangi	Director Engineering	JERC	8725011401	
16.	Sh. Manjit Singh Saini	SE	SLDC/PSTCL	0175-2366074,9646 118004	0175-2365340,0175-2367490

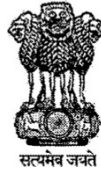
### Nominations awaited

S.N.	DESIGNATION	ORGANISATION	TELE(O)	FAX.NO
1.	Secretary	CERC	11-23353503, 23753915	11-23753923
2.	Secretary	DERC/Delhi	011-41601640	41080416 (Fax)
3.	Secretary	PSERC/Punjab	0172-2648321	(0172) 2664758, 2645163, 2602435
4.	Secretary	JKSERC/J&K	0191-2470160, 2470183	0191-2470163, 01912546188, 01942506133

### Special Invitee

S.N.	DESIGNATION	ORGANISATION	FAX.NO
1.	E.D.	DTL, Delhi	Harjiwan.vyas@gmail.com
2.	CEO	Urja Vikas, Rajasthan	ceorvun@gmail.com
3.	Director (Corporate Planning)	UPPCL, U.P.	0522-2287787
4.	Chief Engineer (C&S)	PDD, J&K	cecnsjmu@gmail.com
5.	Chief Engineer	HPPC, Haryana	0172-2586836
6.	Chief Engineer (PPr)	PSPCL, Punjab	0175-2308698
7.	Chief Engineer (Comml)	UPCL, Uttarakhand	0135-2763820

8.	DESIGNATION	ORGANISATION	FAX.NO/e-mail ID
9.	CEO	BYPL	011-39999765
10.	CEO	BRPL	satinder.sondhi@relianceada.com
11.	CEO	TPDDL	cn.singh@vedanta.co.in/ amit.mittal@vedanta.co.in
12.	Chairman	NDMC	011-23743579



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Government of India  
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उत्तर क्षेत्रीय विद्युत समिति  
Northern Regional Power Committee

सं.: उ.क्षे.वि.स./प्रचालन10/9/04/2017/9518

दिनांक: 18/08/2017

सेवा में / To,

संलग्न सूचीनुसार  
As per List

विषय: राज्य स्तर पर नवीकरणीय ऊर्जा पर फ्रेमवर्क के कार्यान्वयन के लिए तकनीकी समिति के अंतर्गत "उप-समूह" की पहली बैठक की बैठक का कार्यवृत्त।

**Subject: Minutes of the meeting of First Meeting of "Sub-Group" under Technical Committee for Implementation of Framework on Renewable at the State level (IFRSL)-Reg..**

महोदय ,  
Sir,

उपरोक्त विषय पर उत्तर क्षेत्रीय विद्युत समिति, सम्मेलन कक्ष, कटवारिया सराय, नई दिल्ली में दिनांक 18.08.2017 को आयोजित की गयी बैठक का कार्यवृत्त आपकी सूचना व आवश्यक कार्यवाही हेतु इस पत्र के साथ संलग्न है।

Minutes of the meetings held on 18.08.2017 at NRPC Conference Hall, Katwaria Sarai, New Delhi on the above subject is enclosed herewith for favour of information and necessary action.

भवदीय  
Yours faithfully,

-sd-

(एम.ए.के.पी. सिंह)  
(M.A.K.P. Singh)

सदस्य सचिव  
Member Secretary

**Minutes of the 1<sup>st</sup> Meeting of the Sub-group of Northern Region under Technical Committee for Implementation of Framework on Renewables at State Level (IFRSL)**

1<sup>st</sup> Meeting of the Sub-group of Northern Region under technical committee for Implementation of Framework on Renewable at State Level was held on 16.08.2017 at NRPC, New Delhi. List of Participants is attached as **Annexure-I**.

Shri M.A.K.P. Singh, Member Secretary, NRPC and the Chairman of the sub-group welcomed all the participants. He informed participants about the background of the formation of this sub-group and briefed about the agenda of the meeting. He stated that the main mandate of this sub-group is to examine the feasibility and modality of cooperation among states in region for ensuring optimum utilization of generation resources with least cost options for balancing across the region. He added that ABT compliant metering, telemetry and forecasting is must for all generating units, without which proper scheduling and imbalance management is not possible.

A presentation on various issues related to balancing, international experience and enabling regulatory provisions in India was made by NRPC Secretariat. It was informed that already there are success stories of cooperation among states in USA in form of Energy Imbalance Market (EIM). Citing example of USA benefits of cooperation among ISOs, large balancing area and shorter settlement period (e.g. 5 minutes in ERCOT) was highlighted. It was emphasised that cooperation among states in NR would facilitate in dealing with issues related to large penetration of Renewable Energy (RE), especially in managing load-generation balance.

Gist of discussions on various issues are as under:

- 1. Actual Installed Capacity and Generation:** Details of RE installed capacity based on NRLDC daily report and as updated by representatives from states are as under :

State	Small Hydro IC(MW)	Wind IC(MW)	Biomass IC(MW)	Solar IC(MW)
Punjab	-	0	303	859
Haryana	10.8	0	106.3	49.8
Rajasthan	-	4292	102	1995
Uttar Pradesh*	-	0	26	102
Uttarakhand*	180	0	127	100
Delhi	-	0	52	5.13
Himachal Pradesh*	486	0	0	0
Jammu and Kashmir*	98	0	0	0
Chandigarh	-	-	-	13.04

\*Representatives from UP, Uttarakhand and HP stated that they would send details shortly. J&K representative was not present in the meeting.

**( Action: SLDCs of UP, Uttarakhand, HP, J&K; Time line: 25.08.2017)**

- 2. Variability of Demand and Generation:** RE generation and demand pattern for few months, as per data provided by NRLDC was discussed. It was noted that during Apr-

Sep. The wind generation is normally high. It was also noted that generally during night hours, the wind generation is more in Rajasthan. Thus, to some extent the wind generation complements the solar generation. MS, NRPC stated that the generation and demand pattern in each state should be analysed in more details to know ramping up/down of generation from wind /solar. NRLDC representative stated that from past experience, it can be generally deduced that wind generation does not come down abruptly. MS, NRPC expressed that SLDCs and concerned state agencies may carry out exercises to study the variability of generation from wind and solar to facilitate assessment of quantum and nature of balancing requirement in each state.

Members from SLDCs in the sub-group were requested to provide Demand and Generation (Conventional and RE) pattern of states for assessing balancing requirements during different seasons/months in a year. Members were requested to submit the information to NRPC Sectt. within two weeks.

**(Action: SLDCs ; Time line : 31.08.2017)**

### **3. Availability of Metering, Telemetry & Forecasting Facility for Renewable Energy (RE) Generation.**

SE, NRPC stated that implementation of the recommendations in Scheduling Accounting Metering and Settlement of Transactions in Electricity (SAMAST) report by FOLD are essential to ensure optimum utilization of generation resources. He requested the members to furnish the status of implementation of the recommendations of the SAMAST report.

Representative from Rajasthan stated that Order for ABT meter installation and software development for implementation of DSM had been placed. Out of total requirement of 594 ABT meters 110 have been installed. By November,17, DSM would be implemented. She further added that order for OPGW/OFC as communication backbone, is under finalization. She informed that the load forecast is done using day before actual load with inputs of weather, holiday, festival, etc. being factored into it. DPR for getting load forecasting through software is under submission to higher authorities. Out of 4292 MW installed capacity of wind generators, forecasting of 3340 MW is being done on a pilot project basis by RE CONNECT. Another agency i.e. NIWE has proposed for taking up pilot project for wind forecasting and scheduling in Rajasthan.

Representative from Uttar Pradesh stated that they have ABT system for conventional intra state generating stations but as of now RE generators are not in ABT regime.

Representative from Uttarakhand stated that they have notified the intra state DSM regulation and will be implemented by 01-04-2018. Presently, RE generators are excluded from ABT but scheduling of RE generators is mandatory.

Representative from Himachal Pradesh stated that presently they haven't implemented intra state ABT system. MS, NRPC insisted that HP should improvise in forecasting since they are Hydro rich state and power variability issue is common for them.

Delhi representative informed that 100% telemetry from RE generators.

Haryana representative informed that out of 49.8 MW solar telemetry for 35 MW is available.

Representative from Chandigarh stated that since they haven't any Load Despatch Centre, they face problem in real time operation of their power system. He requested help of NRPC for facilitating setting up SLDC. It was deliberated that till the permanent SLDC setup is established, as an interim arrangement, SLDC setup for UT of Chandigarh may be made at SLDC BBMB. The modalities would be discussed with concerned agencies at appropriate forum.

MS, NRPC suggested that in absence of proper telemetry of their RE generation, manual data collection may be started initially by e-mail data for short intervals ( say every 10 minute) may be collected in excel format, so that some idea of generation may be obtained as it is always better to have some data rather than having nothing.

All the members from SLDCs were requested to send the status of metering , telemetry and forecast of RE generation to RPC Sectt..Members from SERCs were requested to provide status of intra-state ABT and RE scheduling & forecasting regulations by respective SERCs.

**( Action: Members from SLDCs & SERCs; Time line: 31.08.2017)**

- 4. Availability of reserves (On-line & Off-line):** It was deliberated that each region is required to maintain secondary reserves corresponding to the largest unit size in the region and tertiary reserves are also to be maintained in a de-centralized fashion by each state control area for at least 50% of the largest generating unit available in the state control area.

It was also deliberated that maintaining reserves at the State level would complement cooperation amongst the States of NR, for ensuring optimum utilization of generation resources. Representative of NRLDC stated that for balancing of RE, utilities must maintain adequate reserves. He emphasised that information regarding real time reserves availability and ramping & cycling capability of different type of generators should be available with SLDCs.

Rajasthan representative informed that they does not have much reserve in hydro and gas due to irrigation requirement and gas availability issues ,respectively.

Members were requested to explore the possible reserves in respective state control areas and may provide the details to sub-group for further discussion in order to facilitate optimum utilisation of the same.

**( Action: All SLDC members; Time line: 31.08.2017)**

- 5. Commercial arrangement among states for import/export of balancing power:** SE NRPC stated that all Northern Region (NR) constituents may enter into mutual agreements with each other to avail surplus power available with other states of NR. Sample Overarching agreement in line with that decided in SR may be signed. It was emphasised that in NR, the banking arrangement with the provision of yearly settlement would be suitable keeping in view the diversity of demand and generation in NR states. Members were requested to examine the proposal agreed in SR and send their comments within a week to finalise the modalities. Members, especially from SERCs were also requested to suggest any alternate commercial mechanism to facilitate optimum utilisation of RE.

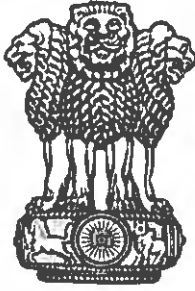
**( Action: All members; Time line : 31.08.2017)**



**Annexure-I**

<b>S. No.</b>	<b>Name of Officer</b>	<b>Designation</b>	<b>Organisation</b>	<b>E-mail</b>
1.	Abhishek Moza	Dy.Secty.	DERC	abhishekmoza@gmail.com, ds@derc.gov.in
2.	Vikas Kadian	Joint Director	HERC	kadianvikas@yahoo.co.in
3.	Rajesh Gupta	Dy.Director	PSERC	Rgupta512@rediffmail.com
4.	Bharti Sambyal	Ex.Dir(Tech.)	HPERC	bhartiankees@gmail.com
5.	Vikas Chandra Agarwal	Director	UPERC	vikas@uperc.org
6.	Prabhat K Dimri	Director(Tech.)	UERC	Prabhat.dimri@gmail.com
7.	Rajesh Dangi	Director(Eng.)	JERC	Direngg.jerc@nic.in
8.	Rajiv Porwal	DGM	POSOCO, NRLDC	rk.porwal@posoco.in
9.	Alok Kumar	Chief Manager	POSOCO, NRLDC	alok.kumar@posoco.in
10.	Kaushik Dey	Manager	POSOCO, NLDC	kaushikdey@posoco.in
11.	Naveen Goel	Manager	Delhi SLDC	
12.	Archana Garg	XEN	RVPN	se.remc@rvpn.co.in
13.	N.K.Makkar	PC	SLDC HVPNL	crssldcc2@gmail.com
14.	Manjit Singh Saini	SE/OP	SLDC, Punjab	se-sldcop@gmail.com
15.	Rajesh Kapoor	C.E.	SLDC,HPLDS	rajeshkapoor18@gamil.com
16.	Er. Rajeev Mohan	SE	SLDC Lukhnow	rajeev.mohanrps@gmail.com
17.	Anupan Sharma	SE	SLDC Dehradun, Uttarakhand	anupam_sharma@ptcul.org
18.	Subhash C Saini	XEN-PC	PowerController, Chandigarh	subhash_chand13@yahoo.co.in
19.	MAKP Singh	Member Secretary	NRPC	ms-nrpc@nic.in
20.	Upendra kumar	SE	NRPC	seo-nrpc@nic.in
21.	Hemant Kumar Pandey	SE	NRPC	sec-nrpc@nic.in
22.	Ratnesh kumar	EE	NRPC	sec-nrpc@nic.in
23.	Vikrant S.Dhillon	AEE	NRPC	vikrant.dhillon@gov.in

24.	Manish Maurya	AE	NRPC	sec-nrpc@nic.in
25.	Subodh Verma	Ex.Eng.(PP)	RUVNL Jaipur	seppruvn@gmail.com
26.	Somes Bandyopadhyay	AGM	NTPC Ltd.	somesbanerjee@gmail.com
27.	Vinod Kotra	Manger	Secure Meters Ltd.	vinod.kotra@securetogether.com
28.	Paras Jain	Manager	Secure Method Ltd.	paras.jain@securemeters.com



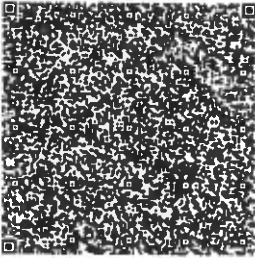
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**Government of Karnataka**

**e-Stamp**

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Unique Doc. Reference : SUBIN-KAKAKSFCL0825000286205039P  
Purchased by : SRPC  
Description of Document : Article 12 Bond  
Description : AGREEMENT  
Consideration Price (Rs.) : 0  
(Zero)  
First Party : PCKL  
Second Party : SRPC  
Stamp Duty Paid By : SRPC  
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For Shri Saraswathi Credit Sowharda Sahakari Ltd.  
Seshadripuram Branch



  
Authorised Signatories

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**OVERARCHING AGREEMENT**

THIS AGREEMENT is entered into on this the 17<sup>th</sup> day of August 2017





  
1



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## 1. AMONG

- 1.1. The **Andhra Pradesh Power Co-ordination Committee (APPCC)** represented by its Chief Engineer / Commercial / APPCC and having its principal office at Vidyut Soudha, Gunadala, Vijayawada - 520008 (hereafter referred to as the “**APTRANSCO**” which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors and assigns) of One part;
- 1.2. The **Power Company of Karnataka Limited (PCKL)** represented by its Additional Director (Projects) and having its principal office at Kaveri Bhavan, Bangalore 560009 (hereafter referred to as the “**PCKL**” which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors and assigns) of One part;
- 1.3. The **Kerala State Electricity Board Limited (KSEBL)** represented by its Chief Engineer Commercial & Tariff and having its principal office at Vydyuthi Bhavanam, Pattom, Thiruvananthapuram-695 004 (hereafter referred to as the “**KSEBL**” which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors and assigns) of One part;
- 1.4. The **Northern Power Distribution Company of Telangana Limited (TSNPDCL)** represented by its Chief General Manager/ IPC & RAC and having its principal office at Vidyut Bhavan , Nakkalgutta , Hanamkonda, Warangal-506001, Telangana State (hereafter referred to as the “**TSNPDCL**” which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors and assigns) of One part;
- 1.5. The **Southern Power Distribution Company of Telangana Limited (TSSPDCL)** represented by its Chief General Manager/ IPC & RAC and having its principal office at TSSPDCL Corporate Office, 6-1-50, Mint Compound, Hyderabad - 500063, Telangana State (hereafter referred to as the “**TSSPDCL**” which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors and assigns) of One part;



2  
Handwritten signature in blue ink



All the above parties are herein after called as 'Entities'.

## 2. BACKGROUND

- 2.1. Government of India (GoI) has set up a target of harnessing 175 GW of Renewable Energy by 2022. In line with this, Southern Region has so far achieved nearly 24 GW of Renewable Capacity as on 31/03/2017. During high injection of RE, some states are having to back down large amount of State Thermal Generation and high quantum of ISGS power and also imports under LTA/MTOA in order to maintain Load-Generation balance and whereas other states are willing to absorb excess generation. Such concept of Regional co-operation can be extended during other periods also as deemed fit.
- 2.2. In the 27<sup>th</sup> Southern Regional Zonal Council meeting held on 28.12.16 at Thiruvananthapuram under the aegis of Hon'ble Home Minister of Union of India, the matter regarding Optimum harnessing of RE generation without endangering Grid security was discussed. With a view not to lose this "Real time-opportunity" by empowering entities to exchange power, as required, and to cut short the time required for entering into power purchase agreements, it was suggested that a generalised Over-arching Agreement be entered among the SR states.
- 2.3. Subsequently a meeting of SR states was held on 10.02.17 in Ministry of Power, New Delhi, wherein it was agreed that such power exchanges would start on an experimental basis and sample agreements would be signed among the States.
- 2.4. A Sub Group had been formed with participation from SERCs/ SLDCs/ RLDC/ NLDC/ RPCs to examine feasibility and modality of cooperation among states in the respective region for ensuring optimum utilisation of generation resources with least cost options for balancing across the region. Issue of regional cooperation for better harnessing of renewable energy facilitating optimum harnessing of renewable integration, without endangering grid security, within the frame work of regulations, was deliberated.

- 2.5. It was opined that SR constituents could enter into mutual agreements with each other to avail the surplus power available with other SR states. The agreement could be open ended and if no transactions are made through this scheme there would not be any commercial liability to any of the constituents. Possibility of implementing overarching agreements and working out sample rate contract on experimental basis was to be explored.
- 2.6. All states agreed that entering into overarching agreements which could be used judiciously through the SLDCs in the shortest possible time within the regulatory framework may be beneficial to them.
- 2.7. Power may be delegated to entities to decide on the quantum of MW to be exported or imported and also the duration of time.
- 2.8. Constituents could enter into swapping agreements also and the balance unreturned power could be settled at mutually agreed rate.

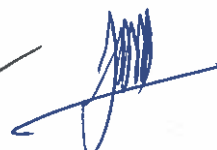
NOW, THEREFORE, in pursuance of the above proceedings, the entities have agreed to enter into this Overarching agreement on the terms and conditions set forth hereinafter.

### 3. TERMS OF AGREEMENT

- 3.1. This Agreement shall come into effect from the date it is executed and delivered by the last of all the Entities and such date shall be referred to as the Effective Date.
- 3.2. There shall be no defined expiry date for this agreement, which shall be valid from the Effective Date.

### 4. MODE OF TRANSACTIONS

- 4.1 All the Entities shall carry out Load Forecasting and ensure RE forecasting by the concerned Generators on a Day Ahead basis. The same shall be reviewed and revised in real time basis also.



4.2 Entities would assess the position of Renewable Generation vis-à-vis the Electricity Demand in advance on a Month ahead or Day Ahead or on real time basis. In case surplus generation is anticipated or experienced in any state and power requirement exists in any other state, the surplus state(s) may intimate the deficit or prospective buyer state. Both Entities may agree upon the quantum and duration of power supply and mode of transaction i.e. Option-1 or Option-2.

4.3 The exchange of power may be transacted in two options i.e. Option-1: as a standalone export, Option-2: Swapping.

4.4 In either option, the transaction shall be through Short Term Open Access mode. The importing entity would punch the Short Term Open Access (STOA) application to SRLDC as Advance/ First Come First Serve/ Day Ahead/ Contingency application in the Web based Open Access portal of SRLDC, with copy of consent from the SLDC of the state from which Power is being exported and the SLDC of the state to which the power is being imported.

4.5 SRLDC, on receipt of the Short Term Open Access (STOA) application from Entities, shall process the application, within the timelines specified in the prevailing Regulations.

4.6 The Importing state shall pay the STOA charges, as applicable as per the extant regulations, to SRLDC for each application. The same shall be considered for disbursement to CTU/STU/SLDC on post-facto basis.

#### 4.7 Option 1 Standalone Export

In this mode, the power may be exported from surplus state to deficit state on a standalone mode.

#### 4.8 Option 2 Swapping

In this mode, the power may be exported from surplus state to deficit state on a 'Give-and Take mode'. The power may be returned in instalments at a mutually agreed Quantum, duration and time.

Balance energy yet to be returned after the end of the month may be shown in the REA and would be carried forward in the forthcoming months. At the end of financial year, the residual energy, if any, would be settled fully.

4.9 In all the above options, the rate of energy is as per item 7 of this agreement

#### 5. Scheduling and Despatch

5.1 The quantum of MW would be indicated at Regional periphery. The quantum, as approved, shall be scheduled from time block as per extant regulations.

5.2 Loss treatment shall be as per the provisions of the extant Regulations. The Exporting Entity shall bear the PoC Injection loss and the importing Entity shall bear the PoC withdrawal loss.

5.3 Any errors in Real time Scheduling or implemented Schedules may be brought to the notice of SRLDC immediately.

#### 6. Metering and Energy Accounting

6.1 Metering is as per the existing interface meters with ISTS and the power scheduled under this agreement is deemed to have been delivered or drawn on first charge basis.



The approval-wise schedules of these transactions would be shown in the monthly Regional Energy Account (REA) issued by SRPC.

## 7. Energy charge Rate of power exchanged

7.1 The price for settlement at Regional periphery shall be based on:

- Option-1 (Item No.4.7) –MCP Market Clearing Price (Unconstrained) of IEX on the particular day for the particular time block.
- Option-2 (Item No.4.8) - The residual energy during swap at the end of the financial year would be settled at the average MCP of IEX (Indian Energy Exchange) of the financial year.

## 8. Settlement

8.1 The Energy scheduled for all such transactions over the month, shall be shown as a part of Monthly Regional Energy Account, issued by SRPC.

8.2 The STOA charges collected by SRLDC shall be borne by the importing entity. The energy charges shall be settled among the Exporting and Importing entities bilaterally

8.3 The energy would be settled at:

For Option-1: The Exporting Entity shall raise the bills on a monthly basis. The Importing Entity shall settle the energy charges for the energy scheduled at the Regional periphery at the rates agreed in Section 7 within 30 days of presenting bill.

For Option-2 : The net exporting entity shall raise the bill after the end of the financial year for the residual energy. The Importing Entity shall settle the residual energy at the rates agreed in Section 7 within 30 days of presenting bill.

## 9. Dispute Resolution

9.1 SRLDC / SRPC Secretariat shall be indemnified harmless from all disputes of the issues mentioned above. SRLDC shall be responsible only for scheduling the STOA

transactions as per the prevalent Regulations. SRPC Secretariat shall be responsible for issuing weekly DSM accounts and monthly REA.

9.2 All the Entities shall bilaterally reconcile the accounts of energy exchanged and payments made and received on a monthly basis.

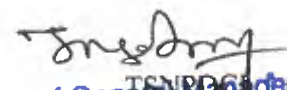
9.3 All efforts shall be made by Importing and Exporting Entities to sort out any disputes bilaterally in an amicable manner. Any unresolved differences thereafter may be brought to the notice of SRPC Forum through Commercial Sub-committee/TCC.


**Authorised Signatories of**

  
APPCC  
(Chief Engineer) Commercial/APCC

  
Additional Director (Projects)  
Power Company of Karnataka Limited  
KPTCL Building, 5th Floor,  
Kaveri Bhavan, Bangalore-560 009.


  
CHIEF ENGINEER (ELE)  
KSEB COMMERCIAL & TARIFF  
K.S.E. Board Ltd., Vidyuthi Bhavanam  
Pattom, Thiruvananthapuram - 695 004


  
Chief General Manager  
IPC & RAC TSNPDCL,  
WARANGAL.

  
TSSPDCL  
CHIEF GENERAL MANAGER / IPC & RAC  
TSSPDCL, Corporate Office,  
6-1-50, Mint Compound,  
HYDERABAD-500 063.



Witnesses:

1.   
(G. ANBUNATHAN).

2.   
(S.R. BHAT)

**I. Options for Intra-Day / Hour Ahead transactions:**

Seven options have been proposed for Hour Ahead Transactions.

***Option-1: Banking***

- Pros: Voluntary; No price transaction; Easy to implement
- Cons: Still bilateral; Opaque to cheaper options; True marginal cost of meeting demand not known; Elements of Cost and Value missing; No knowledge of gain or loss

***Option-2: Day Ahead Market Price on Power Exchange as reference***

- Pros: Well accepted reference price; Dispute free
- Cons: Very remote chance of availability of generation sources with marginal cost equal to or less than Day Ahead Market (DAM) price; Liquidity will always be an issue

***Option-3: Pool, based on variable cost as approved by the Regulator and on payment of cost***

- Pros: Visibility of all options for purchase decision; Dispute free as regulator approved Variable Cost (VC); All resources get paid as per their cost or marginal cost; Improvement over option 2, liquidity
- Cons: Still based on cost and not on value; VC difficult to ascertain; Merchant plants cannot participate as their tariffs are not determined by regulator

***Option-4: Pool, based on variable cost as approved by the Regulator and on payment of marginal cost***

- Pros: Same as Option 3; Improvement over Option 3 – element of ‘value’ introduced because of marginal cost based payment
- Cons: VC difficult to ascertain; Merchant plants cannot participate as their tariffs are not determined by regulator; Payment based on marginal cost may lead to heart burn; still administered

***Option-5: Pool, based on auction (intra-day for the rest of the day)***

- Pros: Market Discovered Price; Dispute free; Not administered; Akin to DAM but closer to real time

- Cons:Preparedness of Power Exchange (PX); Discoms' decision making process; OA registry, a pre-requisite

**Option-6: Pool, based on auction (hourly)**

- Pros:Market Discovered Price; Dispute free; Not administered; Akin to DAM but closer to real time
- Cons:Preparedness of PX; Discoms decision making process; OA registry, a pre-requisite

**Option-7: Pool, based on auction (intra-hour i.e. 15 min. block)**

- Pros:Market Discovered Price; Dispute free; Not administered; Akin to DAM but closer to real time
- Cons:Preparedness of PX; Discoms' decision making process; OA registry, a pre-requisite

**II. Illustration:**

- a. Auction: 7.30 Hrs. – 8.00 Hrs. window, transaction for 'rest of the day' (Intra-day : Option 5) / 'for 9.00 – 10.00 Hrs.' (Hourly : Option 6) / 'for 9.00 – 9.15 Hrs.' (Intra-hour : Option 7), and so on
- b. Generators can participate for sale of surplus power (over and above already scheduled on day-ahead basis)
- c. Sellers (other than generators) and buyers can participate for surplus / deficit vis-à-vis their schedule on day-ahead basis
- d. After the trade materializes under Option 5, 6 or 7 as the case may be, net schedule for the buyers and sellers shall be prepared, which will serve as reference point for DSM / UI
- e. However, payment for 'Day-ahead' transaction and 'Intra-day' (Option 5) / 'Hourly' (Option 6) / 'Intra-hour' (Option 7) transactions shall be settled separately based on the schedules for the respective segments
- f. Open Access Registry and delegation of decision making authority to operating level at Discom are pre-conditions to success of this framework.