

Agenda of the 2nd Meeting of the Sub-group of Northern Region under Technical Committee for Implementation of Framework on Renewables at State Level (IFRSL)

1. Follow up of the First Meeting

Sl. No.	Points of discussion	Decision taken in the 1st meeting	Current Status	Action required
1.1	Actual Installed Capacity and Generation	Details of RE installed capacity based on NRLDC daily report and as updated by representatives from states are enclosed as Annexure-I .	Updated status enclosed as Annexure-I .	Members may update the status.
1.2	Variability of Demand and Generation	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.	No information received till date.	Members may submit the information.
1.3	Availability of Metering, Telemetry & Forecasting Facility for Renewable Energy (RE) Generation	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.	No information received till date.	Members may update the status.
1.4	Availability of reserves (On-line & Off-line)	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.	No information received till date.	Members may update the status.

2. Commercial arrangement among states for import/export of balancing power

In the first meeting held on 16.08.2017, all Northern Region (NR) constituents were requested to enter into mutual agreements with each other to avail surplus power available with other states of NR. 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 enclosed as **Annexure-II**. Members are requested to examine the proposal agreed in SR and send their comments to finalise the modalities.

Members, especially from SERCs are also requested to suggest any alternate commercial mechanism to facilitate optimum utilisation of RE.

This matter was also discussed in last TCC & NRPC meeting held on 27th & 28th October, 2017, wherein, there was in principle agreement on signing the overarching agreement.

Members may deliberate and finalise the overarching agreement.

3. Commercial arrangements among states other than overarching agreement

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.

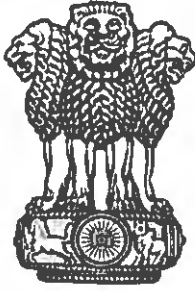
A copy of the same is enclosed as **Annexure-III**. During the meeting, it was decided to share these options with all RPCs and seek feedback. This matter was also discussed in last TCC & NRPC meeting held on 27th & 28th October, 2017, wherein, it was opined that option 5 may be considered for implementation by CERC.

Members may discuss.

Actual Installed Capacity and Generation

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.



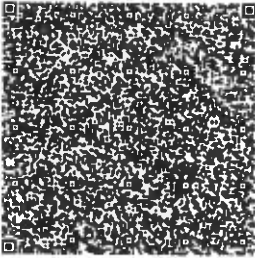
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Authorised Signatories

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OVERARCHING AGREEMENT

THIS AGREEMENT is entered into on this the 17th day of August 2017






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Statutory Alert:

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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 27th 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.

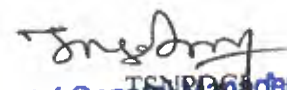
- 9.2 All the Entities shall bilaterally reconcile the accounts of energy exchanged and payments made and received on a monthly basis.
- 9.3 All efforts shall be made by Importing and Exporting Entities to sort out any disputes bilaterally in an amicable manner. Any unresolved differences thereafter 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.