

## ADDITIONAL AGENDA-1

### FOR

### 38<sup>th</sup> MEETING OF COMMERCIAL SUB-COMMITTEE

#### ITEM-5. Default in payment of outstanding dues and surcharge by beneficiaries

5.2 The details of outstanding dues as on 09.12.2018 in respect of defaulting beneficiaries of NHPC are as under

Utility	Beneficiary	Total Dues including Surcharge (in Rs Cr.)	Remarks
NHPC	PDD, J&K	1111.66	Due to non-payment by above defaulting beneficiaries, NHPC is finding it very difficult to meet the debt service obligations and O&M of its power stations
	UPPCL, UP	906.79	
	PSPCL, Punjab	201.73	
	JdVVNL (Wind Power), Jodhpur	15.33	

#### ITEM-6. Opening of Letter of Credit (LC)

6.2 The following beneficiaries are yet to submit the requisite Letter of Credit for the FY 2018-19.

Utility	Beneficiary	Remarks
NHPC	PDD, J&K	In spite of regular follow up, PDD (J&K) and BRPL(Delhi) have not provided LC till now.
	BRPL, Delhi	

#### ITEM-40. Incorrect BTPS billing methodology for relief on account of Change in Law for BTPS Stage-II (2 x 210 MW) (14/MP/2017) during the period 07.11.2016 to 14.03.2017 (Agenda by BYPL)

- 40.1 DPCC directed NTPC to shutdown stage-II of BTPS in light of severe ambient air pollution levels in Delhi from 07.11.2016
- 40.2 NTPC filed Petition before CERC for relief on account of Change in Law for BTPS Stage-II (2 x 210 MW) due to suspension of Consent to Operate of Stage-II from **07.11.2016 to 14.03.2017**
- 40.3 NTPC requested Delhi SLDC to consider DC of Stage-II while certifying monthly energy account. Delhi SLDC informed NTPC that BTPS is not in a

position to demonstrate its capacity and therefore, the DC of the generating station would be zero from **7.11.2016 onwards**.

40.4 Commission vide its order dt 21.08.2018 decided as under.

**Quote**

*"In terms of the above proviso, the generating station which is under shutdown due to R & M is permitted to recover part of annual fixed charges which shall include O & M expenses and interest on loan only. In the present case, the shutdown of Stage-II units is in terms of the directions of DPCC and the same was beyond the control of the Petitioner. In our view, since the generating station is allowed to claim part of the capacity charges in the form of O & M expenses and interest on loan during the period of R & M which is a planned shutdown, we find no reason as to why the Petitioner should be disallowed similar treatment for the shutdown of the plant on account of DPCC directions which was beyond the control of the Petitioner. Therefore, in relaxation of the above provision, we direct that the petitioner shall be entitled part annual fixed charges in the form of O & M."& interest on loan from 07.11.2016 to 14.03.2017.*

*Further, CERC issues the corrigendum to order dt 21.08.2018 dt 06.09.2018 directed to Delhi SLDC to certify the "DC" as declared by BTPS for the period 07.11.2016 to 14.03.2017 and published the same in the periodical energy accounts for the purpose of billing the respondents."*

**Un-Quote**

40.5 In this context, BYPL issues are as under:

- i As per Hon'ble CERC order dt 06.09.2018, Delhi SLDC has not certified the "DC" of the said period in the periodical energy account.
- ii NTPC cannot raise the fixed cost bill to beneficiary without DC being certified by Delhi SLDC.
- iii Hon'ble CERC order dt 21.08.2018 directed to recover the part of capacity charges like O&M and interest on loan, whereas NTPC has raised the full fixed cost bill.
- iv Hon'ble CERC has not mentioned in the order to recover interest charges on recoverable amount, but NTPC has levied the interest charges which is not in line with order.
- v Details of energy bill submitted by NTPC to BYPL dt 06.12.2018 is as under.

S.No	Bill No	Particulars	Amount (Crs).
1	NTPC/Coml/Energy Bill/12 2018	AFC_SD adj of BTPS	102789712
2	601419083	Interest Charges on recoverable amount	20503880
Total			<b>123293592</b>

- 40.6 In view of the above, it is requested that the house may discuss the above issues of BTPS charges and accordingly issue directions to the concern party(s) to amend the issued bills accordingly

**ITEM-41. Issuance of Compensation statement by NRPC for NR plants as per CERC order (Agenda by BYPL)**

- 41.1 CERC vide order dt 05.05.2017 has issued mechanism for compensation for degradation of Heat rate, Aux power and secondary fuel consumption due to part load operation and multiple start/stop of units. Clause-6 of order regarding issuance of compensation statement is stated below

*RPC secretariat will issue the compensation statement along with final REA for the month.*

*In case any anomaly or discrepancy is noticed by any utility, the same may be brought to the notice of Member Secretary of the concerned RPC within 15 days of issuance of compensation Statement”*

- 41.2 Gencos like NTPC and APCPL have been billing compensation charges since May'2017 as per their own calculation. However, NRPC has not been issuing monthly compensation statement of NR stations whereas other RPC like ERPC are issuing the same on their website for respective generator liable for compensation. Copy of ERPC statement is enclosed as Annexure 41.1.
- 41.3 NRPC is requested to prepare and issue the compensation statement similar to other RPC and accordingly Delhi SLDC should follow the bifurcation for Delhi Discom compensation amount and Gencos should prepare their bill according to NRPC/SLDC compensation statement.

**ITEM-42. National Energy Accounting and National Deviation Pool Account**

- 42.1 The proposal of preparation and issuance of National Energy Account (NEA) for inter-regional and inter-national energy transactions by NPC Secretariat was discussed in the 8<sup>th</sup> NPC meeting held on 30<sup>th</sup> November 2018.
- 42.2 In the meeting it was decided that before bringing such proposal at NPC level, the proposal should be discussed in the RPC forum in each region.

- 42.3 Accordingly, agenda note presented by NLDC with regards to National Energy Accounting and National Deviation Pool Account in the 8<sup>th</sup> NPC meeting is enclosed at Annexure 42.1
- 42.4 Members may discuss.

**EASTERN REGIONAL POWER COMMITTEE**  
**14, Golf Club Road, Kolkata -700 033**

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web: [www.erpc.gov.in](http://www.erpc.gov.in)  
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No. ERPC/COM-I/REA/2018/ 634-6352

Date: 05.12.2018

To: As per distribution list.

Sub: **Compensation statement of Eastern Region for the month of October -18**

Ref:

(1) JEGC (4th Amendment) Regulations dated 06.04.2016 &amp; approval of detailed procedure by CERC dated 05.05.2017.

(2) Regional Energy Accounting for the month of October-18 dated 02.11.2018.

Sir,

With reference to the above, Compensation Statement for the month of **October-18** in respect of NTPC stations of ER has been prepared and issued as per data furnished by NTPC and REA data.

Constituents are requested to intimate any discrepancy / error within two months from the date of issue of this provisional compensation statement. In case of any discrepancy/error, the provisional compensation statement would be revised based on re-examination, final decision and confirmation. In case no communication is received from any of the constituents indicating mistakes / discrepancy, the provisional Compensation statement as issued, would be treated as final.

Encl.: As above.

Yours faithfully,

  
 Member Secretary

**DISTRIBUTION LIST :**

1. CHIEF ENGINEER, TRANSMISSION (O&M), Bihar State Power Holding Company Ltd., Vidyut Bhavan, Bailey Road, Patna-800021 (FAX:0612 2227557).
2. CHIEF ENGINEER (COMML.), Damodar Valley Corporation, DVC Tower, VIP Road, Kolkata-700054 ( FAX: 033 23552129 )
3. CHIEF ENGINEER (COMML. & REVENUE ), Jharkhand Urja Vitaran Nigam Limited, HEC Engineering Building, Dhurva, Ranchi-834002 (FAX : 0651 2400799 / 2490486 ).
4. Addl. Chief Engineer (SLDC/EHV), Deptt. of Power, Govt. of Sikkim, Kazi Road, Gangtok-737101 (FAX:03592 202927/209199)
5. CHIEF ENGINEER (PTR), West Bengal State Electricity Distribution Company Limited, Bidyut Bhavan, 8th Floor, Bidhannagar, Kolkata-700091 (FAX : 033 2334 5862)
6. General Manager (Commercial), NTPC Ltd., Loknayak Jaiprakash Bhawan, Dakbungalow Chowk, Patna- 800001(FAX: 0612 2230035 / 2224287 )
7. Sr. General Manager (PP), GRIDCO, 4th Floor, Vidyut Bhavan, Sateed Nagar, Bhubaneswar-751007
8. Executive Director, ERLDC, 14 Golf Club Road, Kolkata-700033 (FAX: 033 2423 3648)
9. Member Secretary, WRPC, MIDC Area, Marol, Andheri(E), Mumbai-400093 (FAX : 022 2837 0193 ).
10. Member Secretary, NRPC, Katwaria Sarai, 18A SISS Marg, New Delhi-16 (FAX 01126865206 ).
11. Member Secretary, SRPC, 29, Race Course Road, Bangalore-560009 (FAX : 080 2259343 ).
12. Member Secretary, NERPC, NERPC Complex, Dong Parmaw, Lapalang, Shillong-793006, Meghalaya

EASTERN REGIONAL POWER COMMITTEE :: KOLKATA

Compensation Calculation for the month of October-18

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Station	1	2	3	4	5	6	7	8	9	10	11	12
	IC	AUX (Norm), in %	GHR (Norm), Kcal/kWh	Run. Hrs.	SG (MU)	MU	SG (MU)	DC On Bar(MU)	DC Res. S/D(MW H)	LPPF_Cum, Rs./Kg	CVPF_Cum, Kcal/Kg	
BARH-II	1320	5.75	2247.80	4851.83	5484.36	56.80	5427.56	5453.91	5777.35	3,418.57	3,797.07	
FSTPS-I&II	1,600.00	6.47	2403.13	4451.84	5878.49	80.57	5797.92	5815.56	6208.77	3,195.24	3,732.15	
FSTPS-III	500.00	5.75	2436.62	4952.63	2029.62	43.89	1985.73	1990.67	2199.94	3,226.14	3,740.95	
KhSTPS-I	840	9	2450.00	4876.20	3223.36	103.37	3119.98	3196.31	3556.11	2,695.13	3,245.54	
KhSTPS-II	1,500.00	5.75	2425.00	4400.12	5531.64	154.86	5376.79	5504.76	6074.28	2,709.88	3,248.04	
TSPTS	1,000.00	5.25	2375.00	4938.93	4086.58	5.30	4081.27	4106.12	4117.09	1,946.96	2,900.92	
MTPS-II	390	9	2500.84	4217.84	1156.34	0.00	1156.34	1108.72	1316.04	3,638.74	3,821.00	

Station	13	14	15	16	17	18	19	20	21	22	23	24
	CVSF_Cum,Kcal/L	LPSF_Cum, Rs/ml	AUX_Act_Cum	GHR_Act_Cum	AUL (SG/ACT)	COMP	%GHR dr(AUL SG)	%AUX dr(AUL SG)	GHR dr(AUL SG)	AUX dr(AUL SG)	AUL (DC)	%GHR dr(AUL DC)
BARH-II	9,535.38	0.0490	5.00000	2260.00	90.35	NO	0	0	0.00	0.00	0.00	0
FSTPS-I&II	9,774.40	0.0315	6.95000	2497.02	87.29	NO	0.00	0	0.00	0	0.00	0
FSTPS-III	9,772.82	0.0315	6.28	2539.64	85.29	NO	0.00	0	0.00	0	0.00	0
KhSTPS-I	9,888.01	0.0359	9.28000	2447.95	85.75	NO	0	0	0.00	0	0.00	0
KhSTPS-II	9,872.27	0.0368	6.01000	2409.41	88.49	NO	0	0	0.00	0	0.00	0
TSPTS	9,990.78	0.0367	7.90000	2400.97	87.74	NO	0	0	0.00	0	0.00	0
MTPS-II	9,548.00	0.0536	10.95	2634.50	77.25	YES	2.25	0.35	2557.1089	9.35	87.92	0

Station	25	26	27	28	29	30	31	32	33	34	35	36
	%AUX dr(AUL DC)	GHR dr(AUL DC)	AUX dr(AUL DC)	ECR nor	ECR act	ECR sg/se	ECR dc	ECR COMP. AUL	ECR COMP. ACT	ECR TO BE USED	Compensation	Compensation
BARH-II	0	0	0	0.000	0	0	0	0.00	0.00	0.00	Rs.	Rs.
FSTPS-I&II	0	0.00	0	0.000	0	0	0	0	0.000	0.000	0.00	0
FSTPS-III	0	0	0	0.000	0	0	0	0	0.000	0.000	0.00	0
KhSTPS-I	0	0	0	0.000	0	0	0	0	0.000	0.000	0.00	0
KhSTPS-II	0	0	0	0.000	0	0	0	0	0.000	0.000	0.00	0
TSPTS	0	0	0	0.000	0	0	0	0	0.000	0.000	0.00	0
MTPS-II	0	2501	9	2.642	2.843	2.711	2.642	0.069	0.201	0.069	7.98	79787182

f *[Signature]*  
05/10/18  
Member Secretary

Compensation calculation for the month of October-18

MTPS STAGE-II			
Compensation Amount: Rs. 79787182			
Beneficiaries	Cumulative Schedule below 85% of the entitlement(in MWH)	*Ratio	Compensation Amount(In Rs.)
BIHAR	0	0	0
JHARKHAND	0	0	0
DVC	0	0	0
ODISHA	84511.406	93.858	74886764
West Bengal	5530.233	6.142	4900418
SIKKIM	0	0	0
SR:			
TELENGANA	0	0	0
TOTAL	90041.639	100	79787182

(\*)Rounded off values are shown in ratio column ;however, actual values are considered for computation of compensation payable by beneficiaries

*[Signature]*  
05/12/18  
Member Secretary



पावर सिस्टम ऑपरेशन कॉर्पोरेशन लिमिटेड  
(भारत सरकार का उद्यम)  
**POWER SYSTEM OPERATION CORPORATION LIMITED**  
(A Govt. of India Enterprise)



पंजीकृत एवं केन्द्रीय कार्यालय : प्रथम तल, बी-9, कुतुब इंस्टीट्यूशनल एरिया, कटवारिया सराय, नई दिल्ली-110016  
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संदर्भ संख्या: पोसोको/एनएलडीसी/2018/

दिनांक: 09<sup>th</sup> November, 2018

सेवा मे,

Director,  
National Power Committee,  
NRPC Building,  
3<sup>rd</sup> Floor, Katwaria Sarai,  
New Delhi-110016

(Kind Attn: Sh. Irfan Ahmad)

विषय: Agenda Note on National Energy Account & National Deviation Pool Account  
for 8<sup>th</sup> Meeting of National Power Committee.

संदर्भ: NPC letter no: 4/MTGS/NPC/CEA/2018/1122-1123 dtd. 01<sup>st</sup> Nov, 2018

महोदय,

With reference to the above mentioned NPC communication dated 01<sup>st</sup> November 2018, an Agenda note on National Energy Account & National Deviation Pool Account for the forthcoming 8<sup>th</sup> Meeting of National Power Committee is enclosed.

सादर धन्यवाद,

भवदीय,

समीर सक्सेना  
09/11/18.

(एस. सी. सक्सेना)

उप महाप्रबंधक (एन एल डी सी)

Encl: As above

**Copy to:** Chief Engineer, National Power Committee, NRPC Building, 3<sup>rd</sup> Floor,  
Katwaria Sarai, New Delhi-110016



**National Energy Account & National Deviation Pool Account**  
*Agenda Note for 8<sup>th</sup> Meeting of the National Power Committee (NPC)*  
*30<sup>th</sup> November 2018, Guwahati*

**1. Establishment of National Grid**

In the sixties, the country's electricity grid was demarcated into five electrical regions and Regional Electricity Boards were formed. In order to facilitate inter-state power transactions and the development of regional grids, Govt. of India funded construction of a number of inter-state lines. Subsequently multi-beneficiary Central Sector generating stations were developed by utilities like NTPC, NHPC etc. along with associated transmission system for evacuation of power. The concept of regional energy accounting (earlier known as global accounting) was developed with boundary metering of all control areas.

Till late nineties, power system was planned on regional self-sufficiency basis and there were very few inter-regional links. With more and more inter-regional inter-connections coming up, the focus now shifted to formation of a strong National Grid. Initially, HVDC was used to interconnect two regions, e.g., NR-WR, NR-ER, WR-SR, etc. Gradually, AC interconnections also came up and by August 2006, all regional grids except SR were interconnected synchronously into two synchronous systems known as NEW and SR Grids. The strong HVDC links connecting the NEW grid to Southern region are extensively used for optimizing power flows in the NEW grid. With strong AC connections between the regions constituting the NEW grid as well as extensive use of HVDC links in real time operation, inter-regional schedules lost any physical relevance. All the five regional grids in the country were progressively interconnected using AC links and these are now operating as one synchronism system since December 2013. The situation has become more complicated with direct HVDC connections between NER and NR.

**2. Existing Scheduling, Metering, Accounting and Settlement Systems**

Availability Based Tariff (ABT) was implemented in stages, starting with Western Region in July 2002. With implementation of ABT, the concept of Unscheduled Interchange (UI) pool came up and all RLDCs started operating regional UI pool accounts, which were subsequently known as the "Regional Deviation Accounts". Deviations from the schedules are computed using the net injection/drawal for using boundary metering for each control area. Based on deviations from schedule, utilities pay UI charges to or receive UI charges from the regional UI pool account.

Short-term open access in inter-state transmission was introduced in May 2006 and with this, scheduling of market-based trades/transactions also commenced. Further, in 2008, multiple Power Exchanges were also implemented. Corridor wise margin declaration for market-based transactions was carried out along with net import/export capability for regions for administering the short-term open access transactions. Later from 2009 onwards, long-term and medium-term transactions also commenced within one region and between different regions. Corresponding scheduling on the inter-regional links was carried out for these transactions on a corridor-wise basis e.g., WR-NR, ER-SR, etc. Presently, while corridor wise TTC/ATC are being declared, net import/export margins for the region are being used for administration of short-term transactions.

Special energy meters have been installed at both ends of inter-regional / inter-state tie lines and all inter-connections of CTU system with ISGS as well as states / other entities whose accounting is done at regional level. As specified in the IEGC, meter readings are sent to respective RLDCs by different sub-stations of CTU / ISGS / states. The meter readings are processed at RLDCs and forwarded to respective RPC secretariat for preparation of weekly deviation account. The RPC secretariats issue deviation accounts based on which different utilities pay /receive deviation charges to / from deviation pool account. These also included settlement of inter-regional deviations between neighboring regions. The regional UI pools are being operated satisfactorily and have successfully served the purpose for the last many years.

The deviation rate vector is declared upfront by the CERC from time to time. Prior to 2008, with uniform rates for deviation, the total payable and receivables were supposed to be equal making it a zero-sum game. However, due to difference in estimated loss and actual loss as well as metering errors, total UI/deviation charges payable did not match with total UI/deviation charges receivable. Based on methodology decided in RPC forum, suitable adjustment is done to make total UI charges payable equal to the UI charges receivable. Thus, the UI pool accounts had been zero balance accounts traditionally since introduction of ABT up to 2008.

Regional UI pool accounts became a non-zero sum game since 7<sup>th</sup> January 2008 with introduction of UI rate cap for Central generating stations with coal or lignite firing and stations burning only APM gas. UI rate cap was retained in the UI regulations, 2009. Further, as per the UI regulations, 2009, additional UI charge is payable by over-drawing or under-injecting utilities based on specified volume limits and frequency bands. Thus a surplus is generated in the UI/deviation pool.

An important feature of the UI accounts issued by RPCs is treatment of inter-regional transactions. The following methodology is followed by the RPCs in this regard:

- No adjustment is done in UI charges payable to / receivable from other regions (otherwise this may lead to an iterative process)
- UI charges payable to other regions has highest priority i.e. UI charges received in UI pool account is used first to clear dues to other regions.

Schedules are reconciled between RLDCs and thereafter final schedules are issued. Moreover, same meter readings are used by both connected regions for computation of UI/deviations. Hence it is expected that normally there should not be any mismatch between UI charges payable / receivable by adjacent regions connected through AC links.

At present, RPCs of each region prepare and issue UI/deviation accounts considering neighboring region as control areas (similar to states within the region). Sometimes, there are cases of mismatch between UI/deviation payable/receivable as per accounts issued by two RPCs of adjacent Regions and reconciliation of accounts by RPCs prior to issuance is required to be done.

Settlement of UI/deviation charges is done between the regions on one to one basis. For example, UI/deviation pool of ER has to pay to or receive from 4 different UI pools (NER, NR, SR, WR). This leads to multiple financial transactions in terms of money flow between regions. There are

instances of circular flows of funds between regions which needs to be avoided. An example of such circular flow of funds between the regions is illustrated in Annex – 1.

The above methodology is gradually losing its relevance with the five regions connected synchronously as power can flow from one region to another via a third region leading to circular and multiple fund transactions. These ‘tandem’ money transactions between the regions at times also leads to issues in disbursal within the regions.

### 3. Mandate for NLDC

Section 26 of Electricity Act, 2003 mandates the following:

*“Section 26. (National Load Despatch Centre): --- (1) The Central Government may establish a centre at the national level, to be known as the National Load Despatch Centre for optimum scheduling and despatch of electricity among the Regional Load Despatch Centres.*

*(2) The constitution and functions of the National Load Despatch Centre shall be such as may be prescribed by the Central Government:*

*Provided that the National Load Despatch Centre shall not engage in the business of trading in electricity.*

*(3) The National Load Despatch Centre shall be operated by a Government company or any authority or corporation established or constituted by or under any Central Act, as may be notified by the Central Government.”*

Subsequently vide notification dated 2<sup>nd</sup> March 2005, the Central Government has notified National Load Despatch Centre Rules 2004, which prescribes functions of NLDC. The functions include following (relevant extracts):

- *Scheduling and dispatch of electricity over inter-regional links in accordance with grid standards specified by the Authority and Grid Code specified by the Central Commission in coordination with Regional Load Despatch Centres.*
- *Coordination with Regional Load Despatch Centres for achieving maximum economy and efficiency in the operation of National Grid.*
- *Supervision and control over the inter-regional links as may be required for ensuring stability of the power system under its control*
- *Coordination with Regional Load Despatch Centres for the energy accounting of inter-regional exchange of power*
- *Coordination for trans-national exchange of power*

From the above mandate it is evident that just as the RLDCs/RPCs are responsible for scheduling, metering, accounting and settlement at the Regional level, NLDC has been made responsible at the inter-regional and trans-national levels. The corresponding roles pertaining to inter-regional and trans-national transactions accounting and settlement need to be taken up at the National level by the NLDC and NPC.

### 4. Trans-National/Cross-Border Interconnections

At present, India has cross-border interconnections with Nepal, Bhutan, Bangladesh and Myanmar. Briefly, the connectivity of these countries with various regional grids in India is as follows:

- Nepal: With Northern region and Eastern Region
- Bhutan: With Eastern region
- Bangladesh: With Eastern region and North-Eastern region
- Myanmar: With North-Eastern region

In future, other neighboring SAARC countries like Bangladesh and Pakistan may have connectivity with two different regions of India. For the purpose of cross-border interconnections, the country needs to be treated as a single control area for the purpose of transnational exchanges and transactions have to be reconciled on National basis. Further, in line with the mandate provided, NLDC is responsible for all trans-national exchanges.

## 5. Changing Scenario & Increasing Complexities

A vibrant electricity market is functioning in the country and many regulatory changes have been implemented to address new challenges from the changing scenario which is also leading to increased complexities. Some of the significant changes that have already been implemented at the National level and some future challenges are briefly discussed below.

- Collective Transactions through Power Exchanges:** Open Access Regulations, 2008 issued by CERC paved the way for functioning of power exchanges. As per the Regulations and procedures issued pursuant to the Regulations, collective (i.e. power exchange) transactions are coordinated by NLDC. Two Power Exchanges are functioning at present and another is in the offing. NLDC accepts scheduling request for collective transactions after checking for congestions, and forwards the same to RLDCs for scheduling. Curtailment, if any, has to be done by NLDC in coordination with RLDCs. Accounting and settlement of the Collective Transactions is carried out by NLDC.
- Ancillary Services (RRAS):** The Regulatory Framework for implementation of Ancillary Services has been provided by the Hon'ble CERC in August 2015 and these have been implemented from April 2016. As per the present framework for ancillary services, available generation (thermal) reserves are dispatched by NLDC across regions on a pan-India basis. In the scheduling process, a virtual entity has been created in each regional pool to act as a counterparty to the ancillary schedules (beneficiaries schedules are not disturbed in the ancillary despatch process). Settlement of ancillary transactions is carried out on a regional basis from the DSM Pool. There are times, when the regional DSM pool faces shortfall and NLDC facilitates transfer of funds from a surplus regional pool to the deficit regional pool as per the provisions of the relevant CERC regulations. Again, this involves multiple fund transfers at times.
- Fast Response Ancillary Services (FRAS):** CERC vide suo-motu order dated 16<sup>th</sup> July 2018 has directed the implementation of FRAS and pilot project for 5-minute metering. The framework for FRAS provides for fast response ancillary services using the flexibility of hydro generation. The dispatch under FRAS is with the primary objective of obtaining regulation services from hydro while at the same time honoring all the hydro constraints. Scheduling, accounting and settlement of FRAS is to be carried out by NLDC across multiple regions (NR, ER and NER).

- (d) **Secondary Frequency Control through Automatic Generation Control (AGC):** Based on the directions of CERC a pilot project for AGC has been implemented at Dadri – Stage II in January 2018. The AGC signals are being sent to the generating station from NLDC and the accounting and settlement for the AGC is being facilitated by NLDC. Based on the experience gained by this pilot project, AGC implementation is being taken up at one generating station in each of the other regions. A second pilot implementation of AGC is expected to be commissioned at Simhadri in November 2018. Implementations in other regions are also coming up progressively. Accounting and settlement of all such implementations have to be facilitated at the national level.
- (e) **Proposals under various stages of implementation/deliberations:** Some of the other proposals which are under various stages of deliberations or implementation are as follows:
- Replacement of thermal generation by RE generation (Ministry of Power, April 2018)
  - Real Time Markets (CERC, July 2018) for facilitating balancing closer to the time of delivery
  - Flexibility in scheduling of thermal generation (Ministry of Power, August 2018) to achieve economy in despatch at the national level
  - Security Constrained Economic Despatch (POSOCO, September 2018) to achieve economy in despatch at the national level

Almost all of the above-mentioned proposals are intended for scheduling, despatch, accounting and settlement at the national level. The complexity in settlement needs to be streamlined at the national level keeping in view the changing paradigm and new challenges.

## 6. National Energy Account and National Deviation Pool Account

In order to streamline the accounting and settlement at the national level there is a need for implementing a National Deviation Pool based on the National Energy Account. In this regard, the following methodology is proposed.

- (a) **Scheduling:** Corridor-wise (e.g., ER-NR, etc.) scheduling of inter-regional transactions is presently being carried out. However, actual power flows as per the laws of physics. In case of collective transactions, one to one correspondence of source and sink is not there and scheduling on a particular inter-regional corridor may at best be notional. Hence, there is a need to migrate to scheduling inter-regional transactions on a net basis for each region. However, while accepting the transactions for scheduling, corridor-wise TTC/ATC/available margin etc. may be duly taken care of. Inter-regional corridor-wise schedules may also be continued based on the physical power flow patterns as the same is useful for grid security monitoring and checking for any discrepancies. NLDC shall communicate the net inter-regional schedules to the NPC for the purpose of accounting.

Schedules for cross-border transactions shall also be prepared by NLDC on a net-basis to facilitate accounting of cross-border transactions by the NPC. However, individual schedules of

the concerned neighboring country with different region regions shall also be continued at RLDC level for the purpose of grid security monitoring and checking for discrepancies.

- (b) **Metering:** The existing practice for metering of the inter-regional points shall continue as per the IEGC and the SEM data shall be collected by the RLDCs, processed and made available to the RPCs. In addition, the processed meter data shall also be made available to the NPC through NLDC. A similar practice shall be adopted for the cross-border metering locations, where the processed meter data shall be provided by the respected RLDCs to the RPCs and NPC (through NLDC).
- (c) **Accounting & Settlement:** Based on the scheduling and meter data provided, NPC shall prepare the National Energy Account (NEA) including the National Deviation Account for the inter-regional and trans-national transactions. The NEA will reflect the payables/receivables for each region on a net-basis and this amount shall be payable/receivable to the National Deviation Pool Account which shall be operated by NLDC. The NEA shall also reflect the cross-border or trans-national transactions and the neighboring countries shall be paying/receiving to/from the National Deviation Pool Account operated by NLDC. Payment to the National DSM Pool shall have the highest priority.

In the future, multi-lateral transaction between neighboring countries are also envisaged under the SAARC framework e.g., Bangladesh may purchase power from Nepal or Bhutan through India. Neighboring countries may also participate in a designated Power Exchange for cross-border transactions in the future. For scheduling and settlement of such transactions, the all-India loss figures would need to be declared upfront by NLDC.

- (d) **Handling Surplus/Deficit in Regional Pool Accounts and transfer of residual to PSDF:** As has already been mentioned above, sometimes the regional DSM pool may face shortfalls on account of disbursements for reliability support such as RRAS, FRAS, AGC, etc. in accordance with the relevant regulations of CERC. Once the National DSM Pool becomes operational, all residual/surplus amount in the regional DSM pools shall be transferred to the National DSM pool account. The NPC accounts would also facilitate the transfer of funds from the surplus available in the National DSM pool to the deficit regional DSM pool accounts as a single transaction thereby simplifying the process. Once all liabilities have been met, any residual in National DSM Pool shall be transferred periodically to the PSDF in accordance with the extant CERC Regulations.

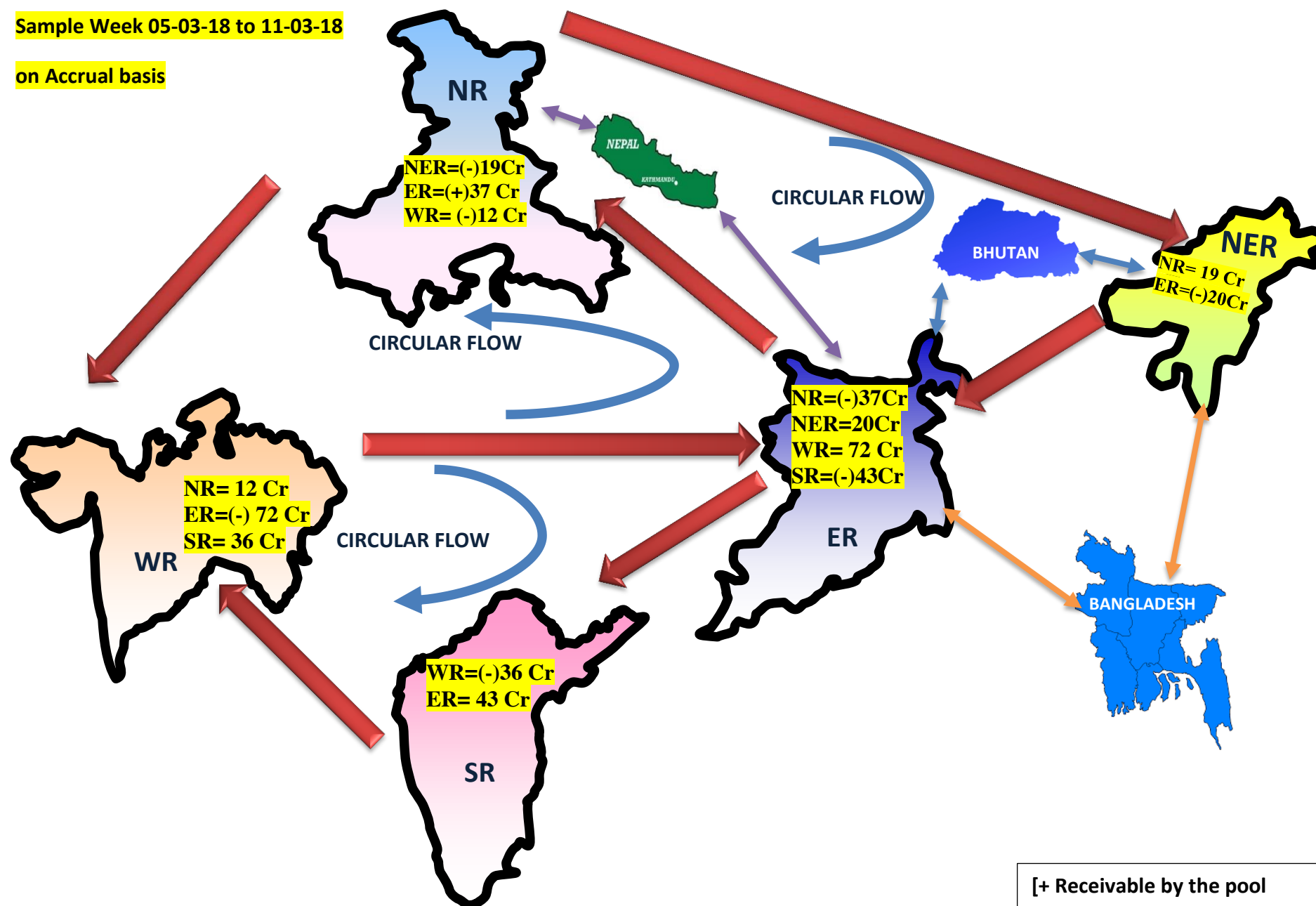
A sample illustration of the flow of funds between different regional DSM pool accounts to the national DSM pool account and that with the neighboring countries is shown at Annex – II.

Suitable changes/modifications are required to be carried out in the IEGC and DSM Regulations and the functions of NPC also need to be recognized in the regulatory framework.



Sample Week 05-03-18 to 11-03-18

on Accrual basis



[+ Receivable by the pool  
/(-) Payable by the pool]

## Annex - II

Sample Week 05-03-18 to 11-03-18

on Accrual basis

