

पावर ग्रिड कारपोरेशन ऑफ इंडिया लिमिटेड

(भारत सरकार का उद्यम)

POWER GRID CORPORATION OF INDIA LIMITED

(A Government of India Enterprise)



पावरग्रिड

केन्द्रीय कार्यालय : "सौदामिनी" प्लॉट सं. 2, सैक्टर-29, गुडगांव-122 001, हरियाणा

फोन : 2571700 - 719 फैक्स : 2571760, 2571761 तार 'नेटग्रिड'

Corporate office : "Saudamini" Plot No. 2, Sector-29, Gurgaon-122 001 Haryana

Tel. : 2571700 - 719, Fax : 2571760, 2571761 Gram : 'NATGRID'

संदर्भ संख्या / Ref. Number

: CSO/

Dated: 16th October, 2009

The Secretary,
Central Electricity Regulatory Commission,
3rd & 4th Floor, Chanderlok Building,
36, Janpath, New Delhi- 110001

Sub: **Proposal for a National UI Pool Account**
Sir,

The system of Pool Account is simple and efficient way of settlement of UI charges as it involves lesser number of transactions and less complicated. Settlement of UI charges through Pool Account to be operated by RLDCs on behalf of REBs was approved by the Hon'ble Commission vide order dated 06.05.2003.

As per Regulation 9 of Central Electricity Regulatory Commission (Unscheduled Interchange charges and related matters) Regulations, 2009 "All payments on account of Unscheduled Interchange charges including the Additional Unscheduled Interchange Charges levied under these regulations and interest received on late payment thereof shall be credited to a Fund called the "Unscheduled Interchange Pool Account Fund", which shall be maintained and operated in accordance with provisions of the Grid Code." As per provisions of IEGC, RLDCs are maintaining regional UI pool accounts.

The system of pool account has been operating successfully at regional level for the past 6-7 years. With rapid development of National Grid, there are inter-regional power transactions and UI pool of each region either pays UI charges to / receives UI charges from pool accounts of neighbouring regions. One to one settlement is done between the pool accounts of different regions.

Meanwhile, the National Load Despatch Centre has become operational and one of the functions of NLDC as per IEGC is "coordination with Regional Load Despatch Centres for the energy accounting of inter-regional exchange of power."

It is proposed that a national UI pool account may be maintained by NLDC. Regions having UI charges payable would pay to the National UI pool whereas other regions having UI charges receivable would be paid out of the national pool. Payment to national pool should have highest priority. Difference in UI charges payable and receivable due to economy interchange may be kept in a separate account and may be utilized as decided by CERC.

The above proposal would require amendment of Central Electricity Regulatory Commission (Unscheduled Interchange charges and related matters) Regulations, 2009 and Indian Electricity Grid Code. A detailed proposal in this regard is enclosed.

Thanking you,

Yours faithfully,

Encl : As above

(S.K. Soonee)
Executive Director (SO & NLDC)

Copy to: Heads of all RLDCs - This has reference to the deliberation in the video conference held on 14.10.2009 on the above subject

Proposal for National UI Pool Account

Background

In the sixties, the country was demarcated into five electrical regions and Regional Electricity Boards were formed. In order to facilitate inter-state power transactions and for 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 has now shifted to formation of a strong National Grid.

ABT was implemented in stages, starting with Western Region in July 2002. With implementation of ABT, the concept of UI pool came up and all RLDCs started operating regional UI pool accounts. Based on deviations from schedule, utilities pay UI charges to or receive UI charges from the regional UI pool account.

Present scenario

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 UI / VAR account. The RPC secretariats issue UI accounts based on which different utilities pay / receive UI charges to / from UI pool account. The regional UI pools are being operated satisfactorily for the last 5-6 years.

Due to difference in estimated loss and actual loss as well as metering errors, total UI charges payable does not match with total UI 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.

Regional UI pool accounts has become a non-zero sum game since 7th January 2008 with introduction of UI rate cap for generating stations with coal or lignite firing and stations burning only APM gas. UI rate cap has been retained in the UI regulations, 2009. Further, as per the UI regulations, 2009, additional UI charge of 40% is payable by over-drawing utilities at or below 49.2 Hz. Thus a surplus is generated in the UI 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:

1. No adjustment is done in UI charges payable to / receivable from other regions (otherwise this may lead to an iterative process)
2. 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.
3. SR is connected to ER and WR asynchronously through HVDC links. Thus UI rate in NER, ER, WR and NR remains same whereas SR has a different UI rate. Difference in UI charges payable / receivable by adjacent regions goes to a separate account called IRE account and credit for 50% of the amount collected in IRE account is given to each of the connected 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. 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, while preparing schedules, neighbouring regions are treated as control areas connected through set of tie lines i.e. neighbouring regions are treated similar to states within the region. RPCs of each region prepare and issue UI accounts considering neighbouring region as control areas.

Settlement of UI charges is done between the regions on one to one basis. For example UI pool of ER has to pay to or receive from 4 different UI pools (NER, NR, SR, WR).

The above methodology is gradually losing its relevance with four out of five regions connected synchronously. After commissioning of 765 kV Agra-Gwalior 2xS/C line (now at 400 kV), a loop has been formed. Power can flow from one region to another via another region.

Mandate of NLDC

As per Section 26 of Electricity Act, 2003, “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 dispatch 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.....”

Subsequently vide notification dated 2nd March 2005, the Central Government has notified National Load Despatch Centre Rules 2004, which prescribes functions of NLDC. The functions include:

- (b) 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.
- (c) coordination with Regional Load Despatch Centres for achieving maximum economy and efficiency in the operation of National Grid.
- (e) supervision and control over the inter-regional links as may be required for ensuring stability of the power system under its control
- (g) coordination with Regional Load Despatch Centres for the energy accounting of inter-regional exchange of power
- (i) coordination for trans-national exchange of power

NLDC has to gradually assume more responsibility so far as scheduling of inter-regional transactions and settlement are concerned.

Power exchange (s)

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.

Suggested methodology of scheduling

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 (especially ER-NR-WR). Even in case of bilateral, some transactions may be scheduled on WR-ER-NR path in case of congestion in WR-NR path, whereas actual power flow would be as per laws of physics.

It is suggested that net exchange schedule of each region may be found out by algebraically adding all inter-regional long term, medium term, short term bilateral and power exchange transactions. While accepting the transactions for scheduling, corridor-wise TTC/ ATC/ available margin etc. may be taken care of. Inter-regional corridor-wise schedules may also be continued as the same is useful for checking discrepancies.

Suggested methodology for UI Account

It is suggested that the RPCs may issue UI accounts in respect of states / regional entities / ISGS within the region. Other regions taken together may be considered as single entity and sum of boundary meter readings of the region may be compared with net drawl / injection schedule of the region to find out net UI charges payable/ receivable. Additional UI charge would not be applicable on inter-regional UI charges payable / receivable. The RLDCs may also simultaneously forward meter readings of inter-regional links to NLDC for cross-checking. However NLDC would not issue separate UI accounts and the same would continue to be done by RPCs only.

For the time being scheduling /metering /settlement of import from Bhutan may continue with ER. However, in future, this responsibility may have to be taken by NLDC.

NLDC would maintain a national UI pool account. Regions having UI charges payable would pay to the National UI pool whereas other regions having UI charges receivable would be paid out of the national pool. Payment to national pool should have highest priority. Difference in UI charges payable and receivable due to economy interchange may be kept in a separate account and may be utilized as decided by CERC.

There would be the following advantages:

- No need of one to one settlement between regions
- Separate IRE accounts need not be maintained by RLDCs one for NEW grid and other for SR
- Total volume of transaction would come down (payable and receivable would cancel out each other)
- Due to default/ delay on part of one region, utilities of a neighbouring region only need not suffer
- Sometimes to relieve congestion on ER-WR link, power is wheeled through SR. Such transactions would not cause financial loss to any region.

The suggested changes would require modifications in the IEGC, UI Regulations and suitable orders from CERC.