CENTRAL ELECTRICITY REGULATORY COMMISSION

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PUBLIC NOTICE

Sub : Staff Paper on Amendment to Regulations on Open Access in Inter-State Transmission

In exercise of powers conferred under Electricity Act, 2003 (the Act), the Commission had published draft regulations to amend the Central Electricity Regulatory Commission (Open Access in Inter-State Transmission) on 16th August, 2004.

The staff of the Commission has examined the suggestions and feedback received from the stakeholders on the draft amendments. Consequently few important issues have emerged on which the stakeholders need to be further consulted.

The staff of the Commission has prepared a Paper on amendment to Regulations on Open Access in Inter-State Transmission which is enclosed herewith.

Comments of the stakeholders are invited on the above Staff Paper latest by 31.12.2004.

It may be noted that Staff Paper does not necessarily represent the views of the Commission. The Commission would take a view after receiving the suggestions of the stakeholders and holding a public hearing.

Sd/-

(A.K.SACHAN)
SECRETARY

10th Dec.2004

CERC Staff Paper

Amendment to Regulations on Open Access in inter-State Transmission

1.0 Background

1.1 In pursuance of the Electricity Act, 2003, the regulations for open access in inter-state transmission were finalised by the CERC after wide consultations and public hearing. The regulations were notified on 6th February 2004 and were operationalised from 6th May, 2004. Since the open access was introduced for the first time in the country, the Commission was aware that there would be teething troubles, and therefore had the intent of reviewing the regulations after a short period so that they could be further fine-tuned. Based on the experience gained and feed back received, the Commission had posted draft amendments on its web site in August 2004 for consultation with the stakeholders.

2.0 Issues for consideration in the draft amendment (August 2004)

2.1 Before the draft amendments were prepared, a number of issues faced by various stakeholders in availing of Open Access in inter state transmission had been brought to the notice of the Commission. These are briefly listed below:

- Processing time for short-term open access should be reduced and holidays should be counted in the processing time.
- Applications for short-term open access are not being accepted unless demand draft for the application fee is enclosed.
- There is no provision to surrender the reserved transmission capacity and full charges for the complete period of reservation are forfeited.

- There is no flexibility to shift the source of generation even when there is a forced shut down of generating plant, and another generating plant is in a position to replace it.
- Sometimes due to sudden change of weather there is a load crash in the buying state and it is not in a position to draw power. There is no flexibility to shift the drawal point to another state, which is in need of power. In such a case, a new reservation has to be done by the needy state and full charges for the earlier reservation have also to be paid for the entire period.
- Congestion management is done in an ad-hoc manner i.e. bidding for congestion is carried out as and when required at a short notice. This results in blocking of transmission capacity by dominant players virtually on first-come-first-served basis. There is no regular timetable for reservation so that all those interested in availing of short term open access could have equal opportunity for reservation.
- The short-term rate should be on per hour basis instead of per day basis.
- Commercial procedure should be simplified, triple payment security mechanism viz. advances payment, LC and Bank Guarantee are not necessary.
- Short terms transmission charges should be refunded in case open access is not provided due to transmission constraint.
- There should be flexibility to revise the schedules on reasonable grounds.
- The scheduling and system operation charges should be reduced.

- Handling and service charges need not be levied.
- The beneficiaries within the region may be allowed to exchange energy without payment of short term open access charges, because it could be viewed as a re-division of central allocation.

3.0 Changes proposed in the draft amendment

3.1 The issues listed above were taken into consideration while preparing the draft amendments. The modifications proposed in the draft amendment of August 2004 summarized below were related to short-term open access:

- Holidays were to be counted as working days for processing time.
- Long term customers/beneficiaries who were sharing the transmission charges of the Inter- Regional link were given the first right to use transmission capacity of such link *pro- rata* to their payment obligation.
- A timetable for reservation was proposed. All applications for advance reservation for the next months (starting in the next three months and ending not beyond the sixth month) were to be submitted by 19th of the month. All such applications were to be considered together as per the laid out procedure. Bidding for congested corridors would be conducted, if required on 26th of the month.
- The RLDCs were to issue detailed procedures after prior approval of the Commission.
- The basic rate for short terms access i.e. corresponding to 25% of the previous year's transmission charges was retained. However the rate was to be applied in Rs./MW/Hour instead of Rs./MW/Day.
- Exit option was given to short term customers subject to payment of minimum charges.

- Change in point of injection was allowed in the event of contingency.
- Handling and service charges were abolished.
- Application fee was abolished.
- Terms of payment were made easy.
- Payment through cheque was made acceptable.
- Processing time was reduced.
- Provision for refund of transmission charges was made in the event of curtailment beyond 50%.

4.0 Issues requiring further deliberation

4.1 One of the important features of the draft amendment to apply transmission charges for short-term customers on per hour basis instead of per day basis, has not been supported by RLDCs and Central Transmission Utility and some other stakeholders on the ground that it will cause avoidable increase in complexities and work load of RLDCs. Therefore, for the present, short-term customers may continue to be charged transmission charges on per day basis.

4.2 Some stakeholders have expressed a view that the proposal in the draft amendment regarding flexibility of change in injection point(s) may lead to blocking of transmission capacity by few dominant players. However, flexibility of change in not only injection point(s) as suggested in the draft amendment but also of change in drawal point(s) has been advocated by some stakeholders. Central Transmission Utility, on the other hand, has opined against any kind of flexibility for change in point(s) of injection/drawal as it may lead to misuse by traders to capture transmission corridors. In the bidding procedure suggested in this Paper, the maximum period of reservation at a time is one month and the customer will have to reapply for further reservation of transmission capacity. This alone will take care of any apprehension regarding blocking of transmission capacity. Further, with the proposal of allowing surrender of reserved transmission capacity subject to payment of minimum charges, there is no need left for flexibility of change in injection/drawal point(s). Thus, in case of any unforeseen condition, causing

disruption of the contracted power flow, reserved transmission capacity may be surrendered.

4.3 Based on the response received from various stakeholders, the following key issues have emerged which require further deliberations:

i) Transmission charges for short term use within the region (inter-state intra-regional)

ii) Sharing of transmission charges for use of inter-regional links by short term and long term customers including those having inter-regional allocations from central generating stations.

iii) Alternative ways of congestion management as against the existing provision of bidding.

4.4 Transmission charges for short term use within the region (inter-state intra-regional)

4.4.1 At present, the transmission charges for the network of CTU/Powergrid in a region are shared by the beneficiaries/long term customers *pro rata* to their share in central generation and contracted power evacuated by the CTU/Powergrid network for that region. The regional transmission service charges calculated in accordance with CERC orders/regulations are fully payable by the beneficiaries/long term customers. The revenue realized from short term customers is adjusted in accordance with the regulations of the Commission from the total transmission charges payable by the beneficiaries/long term customers. The short-term customers are charged a minimum rate corresponding to 25% of the regional transmission charges of the previous year calculated in terms of Rs./MW/day. The logic being that (a) the short term customers are served only to the extent of available margins in the existing transmission network built for the beneficiaries who have the obligation to pay full transmission charges and (b) the short-term customers are to be curtailed first in case of transmission constraint.

The economic rationale was to have some charges corresponding to usage to avoid conflict of interest between those using the network frequently for short-term transactions and others. The transmission charges for short-term customers come to a few paise per kWh for each region. These charges applicable to short-term customers are also applicable for long-term customers if they enter into a transaction of short-term nature. In the event of congestion, the RLDCs conduct electronic bidding to decide who will be given the short term reservation. Some of the stakeholders feel that existing beneficiaries/ long-term customers should not be required to pay transmission charges within the region for short-term use. As far as Powergrid is concerned, they are any way assured of full recovery of their transmission service charges including incentive even if no charges are levied for short-term use. It has been contended by some of the existing beneficiaries (SEBs and their successors) that short-term use is incidental depending on spare margins and curtailable in the first instance, and therefore beneficiaries/ long term customers who have obligation to pay full transmission charges of the region, should have the flexibility to make free use of spare margins for short -term purposes.

4.4.2 In case short-term transmission charges are to be made free for beneficiaries/ long-term customers, the question of charges to be levied on embedded entities such as Independent Power Producers (IPPs), Captive Power Plants (CPPs) would naturally arise. IPPs, CPPs would argue that they might also be allowed free open access to the Powergrid network in the region so that they can trade their power on equal footing. If IPPs and CPPs are asked to pay short term transmission charges, while SEBs and their successors do not have to pay the same, then IPPs and CPPs would be forced to sell their surplus generation to the SEBs in which they are located, who in turn would be able to trade it to another State by availing open access without payment of transmission charges. In this manner, the market for short term trading in power would be monopolized by the SEBs/ Discoms. Another concern could be that if transmission charges for open access within the region are made free even for long-term customers, 'early birds' would take advantage and others would not get access due to congestion. Thus, it may result in 'heart-burning' among long-term customers due to disproportionate usage of network. However, the more serious concern could be that free usage

might result in what is referred as 'tragedy of the commons'*. No one values and cares for a service, which is available free of charge, which may ultimately result in lack of investment in transmission sector.

4.4.3 It has also to be kept in view that if CERC decides to make short term open access free for the use of inter-state intra-regional network of Powergrid, on the same footing, any embedded customer while availing of such inter-State open access would also not be required to pay for using the network of SEBs/STU in which it is embedded. Further, if inter-State open access charges were made free for short-term use, similar treatment would be expected for intra-state transactions also. More so because as per the Electricity Act, 2003, the procedure and methodology adopted by Central Commission, serves as guideline for the State Commissions.

4.4.4 If it is decided to do away with transmission charges for short-term access in inter-state intra-regional system, the existing methodology for treatment of transmission losses may also need to be reviewed simultaneously. At present, average losses are being apportioned in kind to the short term open access customers irrespective of the fact that whether they are causing or relieving congestion. It will be fair if short term customers are apportioned incremental transmission losses only if they are causing congestion and are not apportioned any transmission losses in case they are relieving congestion. Such a differential treatment of transmission losses will also help in optimal utilisation of the transmission network by creating incentive for relieving congestion.

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* "The Tragedy of the Commons", Garrett Hardin, Science, 162(1968):1243-1248.
Hardin's fable involves a grazing land "open to all." He asks us to imagine the grazing of animals on a common ground. Individuals are motivated to add to their flocks to increase personal wealth. Yet, every animal added to the total degrades the commons (grazing land) by a small amount. Although the degradation for each additional animal is small relative to the gain in wealth for the owner, if all owners follow this pattern the commons will ultimately be destroyed. And, being rational actors, each owner ads to their flock:

> "*Therein is the tragedy. Each man is locked into a system that compels him to increase his herd without limit - in a world that is limited. Ruin is the destination toward which all men rush, each pursuing his own interest in a society that believes in the freedom of the commons*. "(Hardin, 1968)

4.4.5 Even if it were decided not to levy transmission charges for short-term access, all other charges such as scheduling charges, reactive energy charges, UI charges would remain. Further, a suitable methodology would still have to be adopted for dealing with transmission congestion. The issue of congestion management is common to any transmission-pricing scheme and has been discussed separately. RLDCs would have to gear up to deal with the concept of incremental transmission losses. The customers would naturally have to be told in advance about the losses to be levied on their transaction. The proposal would need further detailing to bring it to the operational stage.

4.5 Sharing of charges for inter-regional assets

4.5.1 The inter-regional links were basically envisaged for bi-directional use. Each regional grid was supposed to extend reliability support to connected regional grid as and when required. With this type of usage in mind, it was thought of that transmission charges for such links should be shared equally by both the connected regions. The provisions for sharing of charges for inter regional transmission of power as contained in Government of India, Ministry of Power's Notification dated 16th December, 1997 as amended vide Notification dated 3rd March, 1998 provided for sharing of 1/3rd charges by beneficiaries of one region, 1/3rd charges by beneficiaries of other region and remaining 1/3rd by the beneficiaries of the importing region which have received power as per the commitment in case of firm power exchange. In case of non-firm power exchange, the notification stipulated sharing of monthly transmission charges in the ratio of 50:50 between the contiguous regions.

4.5.2 The Commission, while passing the order dated 08.12.2000 for the terms and conditions of tariff for the period 2001-04, decided to apply 50:50 sharing among two regions irrespective of nature of exchange and discontinued the sharing formula on 1/3:1/3:1/3 basis. This was done mainly because the transmission tariff for firm transactions were getting loaded on the importing utilities thereby limiting the total power flow on these lines resulting in higher transmission charges per unit for such transactions.

4.5.3 It has been observed that since around mid nineties, Eastern Region is having surplus power almost on consistent basis, whereas Northern, Western and Southern Regions are facing shortage conditions for significant periods of the year. With the result, the links connecting Eastern Region with Northern, Western and Southern Regions are having unidirectional flows out of the Eastern Region. Continuation of this situation for past several years has lead Eastern Regional beneficiaries to raise issue of fairness of the arrangement of equal sharing of inter-regional links. The main arguments in favour of the continuation of equal sharing by the connected regions has been that Eastern Regional beneficiaries have also benefited from export of power to other regions as, in the absence of these links, the power would have been bottled up in Eastern Region and its beneficiaries would have to bear capacity charges without having actually used the power. It has also been argued that these links have been conceived and implemented on the basis of equal sharing of charges and it would be unfair to change this arrangement now. It is also a fact that some of the beneficiaries of Northern, Western and Southern Regions may not be using these inter-regional links at all or may be using it occasionally. However, the sharing of charges is based on a set formula irrespective of actual use. The fact remains that this debate has started affecting the development of new inter-regional links. Recently, Powergrid has filed a petition with a prayer to direct BSEB to participate in the Jeypore-Gazuwaka link (2^{nd} Ckt) and inter-regional assets of Tala transmission system.

4.5.4 According to the existing regulations on open access in inter-State transmission notified by the Commission, short-term customers pay about 25% of the effective rate for long-term customers in an uncongested corridor. In case of congestion, reservation of transmission capacity for short-term customers during the period of congestion is done through bidding, which is likely to result in higher effective rate. However, some of the long-term customers of the inter-regional links, which are not very active in trading, feel that the recovery from short-term customers does not offer adequate relief to them. It is therefore advocated that short-term customers should pay charges proportionate to their usage. On the other hand, it has been argued by long-term customers, which are active in trading

that they should not be required to pay short-term charges as they are already sharing charges for inter-regional links as long-term customers.

4.5.5 To address the issue raised by long-term customers active in trading, it was proposed in the draft amendment that long-term customers of the inter-regional links shall get transmission rights *pro rata* to their payment obligations. The long-term customers were not to pay additional charges for short-term transactions, if power flow on account of all the transactions is within their transmission right. One option to take care of viewpoint of long-term customers, which are not active in trading, is to make these transmission rights over inter-regional links as tradable. This way, non-users of the link may sell their transmission rights at negotiated rate, to parties, which are engaged in trading. However, one possible consequence of such an arrangement could be that precious time might be wasted not only in bargaining the price but also contacting the person with full authority to take decision in this regard on behalf of a long-term customer. Another fallout of the sale and resale of the transmission rights could be that the transmission capacity of the link may either get fragmented under numerous players or may get consolidated with one or two big players. Both these situations are not desirable. Further, in this process, the concept of non-discriminatory open access would be compromised. Another difficulty would be that the payment obligations and hence the transmission rights of long-term customers would keep on changing with change in allocation from the Central Generating stations. Powergrid has pointed out that in some cases, the allocation from Central Generating Stations across the region is more than transmission right. Thus, there are practical difficulties in implementing the concept of transmission rights.

4.5.6 To recap, the inter-regional links, which were basically developed for supporting the regional grid of adjoining regions, have increasingly come into use for trading of power. Unlike the case of regional transmission system, the inter-regional links generally have very little committed power flows based on the central allocation because central allocations across the region are far and few. So the predominant use of inter-regional links accordingly is for power trading. It is, therefore, reasonable that whoever uses the inter-regional link for conveyance of allocation from Central Generating Stations or for any long-term use should pay

charges *pro rata* to the capacity used vis-à-vis rated capacity of the link. Further, there is a case for increasing the short-term rate so that long-term customer not using the link gets reasonable compensation for their commitment. If this principle were adopted, the revenue recovery from actual usage of link would increase significantly, resulting in simultaneous decrease in the liability of regional beneficiaries of two regions. In the present circumstances, the above methodology for recovery of transmission service charges would be more equitable and relevant.

4.5.7 Based on the above principle, one possible solution could be as under:

(i) The beneficiaries having allocation from Central Generating stations across the region and customers having long-term bilateral contract should pay transmission charges proportionate to their allocation plus contracted capacity vis-à-vis capacity of the inter-regional link.

Thus, monthly transmission Charges for inter-regional asset payable by a customer having allocation from the Central Generating Station located in the other region and/or having long-term contract for power in the other region may be shown as:

$$TL = \frac{TSC}{12} \times \frac{CC}{CIR}$$

Where

TSC = Annual Transmission Charges for the inter-regional asset
CC = Capacity in MW of the inter-regional asset required for transferring allocated and/or contracted power
CIR = Capacity of the inter-regional asset

(ii) Out of the balance capacity of the link, the Regional Load Despatch Centres may decide to keep certain capacity as reserve margin. The capacity of the link

after accounting for allocation from central generating Stations, long-term contracts and reserve margin should be made available for short-term open access. Regional Load Despatch Centre shall declare the capacity available for short-term use for the next month, for which short-term customers can submit their application. In the uncongested corridor, it is proposed that the short-term customers shall pay transmission charges @ 50% of the last year's effective rate for long-term use as calculated below:

ST_Rate = 0.5 * TSC/(CIR*365)

Where

ST_Rate = Short-term rate in Rupees/MW/day

(iii) The remaining transmission charges for the inter-regional asset shall be shared in the ratio of 50:50 by the two regions for reliability support available due to this asset. Within a region, these charges should be shared in the ratio of Allotted Transmission Capacities in the regional transmission system.

Thus, transmission charges for reliability support payable by long-term customers of the regional transmission system of the two regions connected by the inter-regional asset would be:

$$T_r = 0.5 \times \{ (TSC/12) - \sum TL - TRSC \} \times (CL/SCL)$$

Where

T_r = Reliability support charges payable for the month for inter-regional asset by long-term customer of a regional transmission system connected to the inter-regional asset

TSC = Annual transmission charges for the inter-regional asset

$\sum$ TL = Total transmission charges payable for the month for use of the inter-regional asset for transfer of allocated power from Central generating Station or power available consequent to a long-term agreement

TRSC = Total recovery from customers for short-term use of the asset during the month (no amount to be retained by the transmission licensee in case of inter-regional assets)

CL = Allotted Transmission capacity to the long-term customer in the regional transmission system in which it is located

SCL = Sum of the Allotted Transmission Capacities of all long-term customers of the regional transmission system in which it is located

Since, reliability support is a separate sub-set of transmission service, distinct from the usage of the asset for short-term/long-term transactions, all long-term customers of the two regional systems connected by the asset should pay reliability support charges in addition to usage based charges.

4.6 Procedure for reservation of transmission capacity and Congestion management

4.6.1 The existing regulations stipulate that if capacity sought by the short-term customers is more than available transmission capacity at that point of time, the RLDC concerned shall carry out bidding. The RLDCs, in the procedure formulated by them, had prescribed that applications received on the same day shall be construed to have arrived simultaneously. Thus, practically, only applications received on the same day were subjected to bidding. It was, therefore, suggested that a regular timetable for reservation and bidding of the transmission capacity should be prescribed so that the same can be carried out in a more organised manner. Accordingly, in the draft amendment, a timetable for monthly bidding was suggested. Another concern has been expressed that bidding may push up the transmission prices, thereby increasing the price of total transaction. If one considers the fact that out of the several regional systems and inter-regional assets, bidding, if required, may have to be carried out for one inter-regional asset and that for a fraction of the contract duration, the increase in transmission charges for the entire transaction may not be much. Still, this apprehension can be taken care of by applying a suitable price cap (say 200 to 500% of the floor price) and reservation *pro rata* to transmission capacity sought in case of equal bid price. However, there is one school of thought according to which the complications of bidding can be avoided by introducing rationing to take care of congestion. This immediately brings us to the issue as to what shall be criteria for rationing. If the rationing is in the ratio of the capacity sought, the applicants will

seek higher capacity in order to get desired capacity. One way to tackle this problem would be to cap the transmission capacity sought in terms of their share as per payment obligation or their projected shortage. Besides arbitrariness, the problem with such as criteria is that it can only be applied only for long-term customers (SEBs and their successors) and not for IPPs, CPPs or eligible consumers. Besides, the rationing of corridors may invite criticism on the ground that it is a step in backward direction i.e. moving from market mechanism to quota/allocation regime.

4.6.2 On the issues of reservation of transmission capacity, Central Transmission Utility has put forward two important suggestions - application fee should be retained to discourage non-serious applicants and reservation of the transmission capacity should be limited to one month at a time as the RLDCs can not foresee situations developing in any longer time span. In the following paragraph, a structured procedure for reservation of transmission capacity including bidding is suggested. This procedure is a refinement of procedure contained in the draft amendment.

4.6.3 The processing of application for the access commencing in the month of application shall be done on first-come-first-served basis depending on availability of the transmission capacity. Applications received till the nineteenth day of the month for access for the period falling in the next month shall be considered together on the twentieth day of that month and shall be processed in the manner given hereunder, namely:

(a) Applications shall be analysed to check for congestion on any of the transmission corridors to be used for short-term access.

(b) In case the nodal Regional Load Despatch Centre does not anticipate congestion on any of the transmission corridors, the applicants shall be granted short-term access by twenty-fifth day of the month for the quantum and duration of the short-term access sought.

(c) If in the opinion of the nodal Regional Load Despatch Centre, grant of short-term access to all applicants is likely to lead to congestion in one or more transmission corridors to be used for short-term access for any

duration, it shall accordingly inform the applicants of its opinion and the reasons therefor on or before twenty-third day of the month.

(d) An applicant may reduce its requirement of transmission capacity during the period of congestion or may opt for access only for the duration when no congestion is anticipated and in such a situation shall inform the nodal Regional Load Despatch Centre accordingly by twenty-fifth day of the month.

(e) If nodal Regional Load Despatch Centre anticipates congestion in one or more transmission corridors to be used for short-term access, it shall invite bids for reservation of transmission capacity of the congested transmission corridor on twenty-sixth day of the month.

(f) The floor price for the bidding shall be equal to ST-Rate.

(g) Non participation of an applicant in the bidding process shall be construed as if he is no longer interested in access and his application shall not be processed.

4.6.4 Irrespective of method of congestion management, the basic procedure for reservation of transmission capacity shall remain the same, which *inter-alia* facilitates reservation of transmission capacity for a maximum duration of one month at a time. In case rationing is to be the criteria for congestion management, rationing shall be done in step (c) of para 4.6.3 itself.

5.0 Issues for discussion

5.1 The stakeholders are requested to submit their views on the issues discussed above with specific observations on the following:

(i) Preference (along with reasons thereof) of the stakeholders between;

(a) the existing provision of charging short-term customers at 25% of the effective rate for long-term customers during the previous financial year and applying average transmission losses, and

(b) the proposal of levying no transmission charges on short-term inter state intra-regional transactions and applying incremental transmission losses.

(ii) The proposal of sharing of transmission charges for inter-regional assets in para 4.5.7 of this Paper.

(iii) Preference of the stakeholders (along with reasons thereof) between the two methods of handling congestion namely;

(a) rationing and criteria to be applied for rationing of transmission capacity, if it is the preferred option and

(b) bidding and price cap for bidding if any, in case it is the preferred option.-

(iv) The basic procedure for reservation of transmission capacity as proposed in para 4.6.3 of this Paper.

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