Chhattisgarh State Electricity Regulatory Commission
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Petition No. 03/2006(M)

In the matter of determination of transmission charge, wheeling charge, cross-subsidy surcharge and other charges under Open Access.

O R D E R
(Passed on 15/02/2006)

Introduction:

Pursuant to Sections 39,40 and 42 and all other enabling provisions of the Electricity Act 2003, (Act, for short), the Commission issued CSERC (Intra-State Open Access in Chhattisgarh) Regulations, 2005, which has been notified in the Chhattisgarh Rajpatra on 30th July 05. In these Regulations, the Commission has introduced open access in phases and has made provision for the users requiring 10 MW or above to be able to avail open access in the first phase commencing from 1st April 2006. Customers requiring open access below 10 MW to 1 MW will be able to avail open access in the second, third and fourth phases, the last phase commencing from 1st April 2008. However, this time limit has not been made applicable to non-conventional energy generators and users. They may be provided open access for 1 MW or above at voltage level not below 33 KV with immediate effect. The captive generating plants have also been provided open access for 1 MW and above for carrying electricity from their plants to the destination of their own use with immediate effect. Clause 11 of the said Regulations provides that the charges for open access shall be determined by the Commission from time to time. This order is passed in pursuance of the above provision to lay down the various open access charges.

Procedure followed:

The procedure followed in the determination of the open access charges is that the Commission first issued a concept paper on the subject on 24/11/05 inviting comments/ suggestions from the stakeholders, generating units, associations and general public. The concept paper was put on the website of the Commission and due publicity was also given through newspapers. In response, the Commission received comments/suggestions/views in writing from eight individuals/ organizations including the Chhattisgarh State Electricity Board (Board or CSEB, for short). Thereupon, the Commission held public hearing on this issue on 24th Dec' 05 and 7th Jan' 06. Detailed discussion took place in the public hearings. The salient points of the discussions on the various changes proposed and the Commission's orders thereon are given in the following paras. The order covers the following charges:

(i) Transmission charge

(ii) Wheeling charge

(iii) Operating charge

(iv) Reactive energy charge

(v) Cross-subsidy surcharge

(vi) Unscheduled mismatch charge

(vii) Inter connection charge and connectivity charge

(viii) Additional surcharge

1. Determination of Transmission Charges:

Transmission charges are payable by the open access customer in two forms, i.e. in cash and also in kind.

1.1. Transmission Charges in cash

In the concept paper, it was proposed to calculate transmission charges in cash on postage stamp basis.

In response to this, M/s KSK Energy commented that the transmission capacity based on maximum demand may not be the correct indicator and the Commission may consider the contracted generation capacity for determination of transmission charges. M/s KVK Bio-Energy and Sudha Agro stated that as per clause 11(1) (b) of the concept paper, transmission charges have been worked out at Rs.704 per MW per day which should be Rs. 695 per MW per day as per their calculations. Mr. Rajendra Kumar Goenka, Consultant of Chhattisgarh Udyog Mahasangh represented that the transmission cost is already recovered through tariff and no extra expenditure is required for transmitting energy and hence there should not be any transmission charge in cash for wheeling of power. The CSEB favoured the postage stamp method for computing the transmission charges.

The National Tariff Policy (NTP) in clause 7.1 (3) states as follows:

"Transmission charges, under this framework, can be determined on MW per circuit kilometer basis, zonal postage stamp basis, or some other pragmatic variant, the ultimate objective being to get the transmission system users to share the total transmission cost in proportion to their respective utilization of the transmission system. The overall tariff framework should be such as not to inhibit planned development/augmentation of the transmission system, but should discourage non-optimal transmission investment."

Thus the NTP permits various methods for determination of transmission charges. It is noted by the Commission that the CERC and most of the SERCs have opted for postage stamp method for determination of the transmission charges. This Commission, therefore, is also inclined to follow the same method. Following this method the transmission charges have been worked out as follow:

The transmission cost determined by the Commission on the tariff petition filed by the CSEB for FY 2005-06 is Rs.202.96 Cr. Since the CSEB system met maximum demand of 2000 MW, its capacity is taken as 2000 MW for the purpose of determination of transmission charges.

The transmission charges hence are:

(a) For Long-term customers -

$$\text{Transmission Charges} = \frac{\text{Total transmission cost approved for FY 05-06}}{\text{Average capacity of transmission system}}$$

$$= \frac{\text{Rs. 202.96cr.}}{\text{2000 MW X 12 month}}$$

$$= \text{Rs.84566/MW/month}$$

(b) For Short-term customers

$$\text{Transmission Charges} = 0.25 \times \frac{\text{Total transmission cost approved for FY 05-06}}{\text{Average capacity of transmission system X 365}}$$

$$= \text{Rs. 695/MW/Day}$$

As per CSERC's regulation on open access, short-term customers are required to pay only 25% of the transmission charge payable by long-term customers.

1.2. Transmission Charge in kind

These charges are levied to cover the technical losses in the system. The concept paper provided that the 4% technical losses may be made good to the licensee towards the transmission charge in kind for using the transmission system of the licensee.

M/s KSK Energy, M/s KVK Bio-Energy and M/s Sudha agro have represented that in the tariff order FY 2005-06 transmission loss has been shown as 3.71% and the same should be taken as transmission system charge in kind. The Commission is in agreement.

The Commission decides that the transmission charges in cash will be Rs. 84566 per MW per month for the long-term open access customers and Rs. 695 per MW per day or part thereof for the short-term customers and the technical losses will be reckoned as 3.71% for calculating transmission charges in kind which will be deducted from the energy input at the point of injection i.e. out of the energy injected at the point of injection 3.71% will be deducted at the point of delivery.

2. Wheeling charges.

Wheeling charges are also payable by the open access customers, in both cash and in kind.

2.1. Wheeling charge in cash

According to the concept paper, the wheeling charge is to be calculated taking the total distribution cost and total energy sales.

M/s KSK energy, M/s KVK Bio-Energy and M/s Sudha Agro represented that it would not be appropriate to consider the total distribution network cost in computing wheeling charges. They suggested that the distribution network cost at particular voltage level may be considered for calculating the wheeling charges. Mr. Goenka suggested that the wheeling charges should not be based on the sale of energy but on the energy input and energy wheeled. M/s Power Sole Engineers and consultant in their written submission has also pointed out that the distribution network cost pertaining to 11 KV must not be loaded while calculating wheeling charge at 33 KV.

The Commission feels that the total energy input to the distribution system should be taken for calculating the wheeling charges but the distribution cost at 33 KV should only be reckoned in the computation of cost. Accordingly, the wheeling charge in cash has been worked out as follows:

(i)	Total Energy input to transmission system	14158 MU
(ii)	EHV sale (40% of total input)	5663 MU
(iii)	Inter state sales	648 MU
(iv)	Losses in transmission (taking 3.71% as declared by CSEB)	525 MU
(v)	Energy input to 33 KV system [i-(ii+iii+iv)]	7322 MU
(vi)	Total Distribution cost as per approved ARR	Rs. 452.58 Cr.
(vii)	Distribution Cost for 33 KV voltage level (assuming it to be 35% of total distribution cost)*	Rs. 158.40 Cr.
(viii)	Wheeling Charge Rs./unit (viix10/v)	Re. 0.216 per unit Rounded to Re.0.22 per unit

* ***The distribution cost at 33 KV voltage has been worked out in proportion to the cost of assets at that voltage level.***

2.2. Wheeling charge in kind

In the concept paper, wheeling charges @ 8% of energy injected has been proposed in kind for usage of distribution network at 33 KV voltage level.

The CSEB has stated that the proposed 8% loss is on the lower side and at least 10% loss should be considered. Mr. Goenka suggested 2% wheeling charges for injection of power at 132 KV and above and 4% for injection of power below 132 KV.

The Commission has noted that in a sample study of losses recently carried out by the CSEB, it was observed that the losses at 33 KV system work out to around 6%. Hence, the Commission is inclined to take this for calculation of wheeling charges in kind.

In view of the above, the Commission decides to fix wheeling charge @ Re. 0.22 per unit in cash and 6% losses for calculation of wheeling charges in kind.

The open access customers who are availing both EHV and HV system i.e. for injecting power at EHV and drawing power at HV or vice-versa, shall be required to pay both the charges i.e. transmission and wheeling charges both in cash and kind.

3. Operating charges

As per the concept paper a composite charge at the rate of Rs.1000/- per day or part of the day is payable by a short-term open access customer for each transaction, to the State Load Despatch Centre. This charge includes fee for scheduling and system operation, fee for affecting revisions in schedule on bonafide grounds and for accounting of energy etc.

Mr. Goenka was of the view that this charge should not be levied on small generating companies who are injecting power less than 10 MW. The CSEB on the other hand wanted these charges to be Rs.3000 per day or part of the day in line with the charges fixed by the CERC. This is not factually as correct as CERC has also levied Rs.1000 towards the operating charges.

In view of the above, ***the Commission decides to levy composite operating charge at the rate of Rs.1000/- per day or part of the day by a short-term customer payable to SLDC for each transaction.***

4. Reactive Energy Charges: The open access customers should pay a reactive energy charge to the CSEB/licensee for drawal / injection of reactive energy. The Central Grid Code also provides for payment of reactive energy charges. The Commission feels that a reactive energy charge is leviable but the rate at which this charge should be levied has to have some basis. In the PPAs entered between the open access customers and the CSEB a charge of 27 paise per KVARH has been levied. The CSEB should conduct a study to establish the reasonableness of a reactive charge and come up with a proposal in the next tariff application. **Till then the Commission decides to levy reactive energy charge as follows:**

If the voltage at the point of drawal is below 97% of the normal voltage, the open access customer shall pay @ 27 paise per KVARH to the CSEB/licensee for the drawal of reactive energy at the drawal point. If at the injection point the voltage is higher than 103% of normal voltage, the open access customer shall pay at the rate of 27 paise per KVARH to the CSEB/licensee for injection of reactive energy at the point of injection. Both drawal and injection of reactive energy shall be measured at 15 minutes time block along with voltage after Special Energy Meters are installed. Till then the present system of metering of KVARH on monthly basis shall continue.

5. Cross Subsidy Surcharge

Of the various methods discussed in the concept paper for computation of cross subsidy surcharge, it has been proposed to adopt the "average cost method". The petitioners have favoured the avoided cost approach in computation of the cross subsidy surcharge. In their written submission as also during hearing they agreed that the embedded cost method or the marginal cost method is neither fair nor reasonable.

M/s KVK Bio-Energy Ltd. and M/s Sudha Agro have represented that Section 39(2)(d)(ii) contemplates the use by a consumer of the transmission system under open access on payment of transmission charges and a surcharge thereon specified by the State Commission. The said sub-section contemplates only that the Commission would specify surcharge in addition to the transmission charges for availing open access to the transmission system. They further added that nothing in the sub-section suggests or requires that the amount of surcharge should have relationship with any cross-subsidy in the system. It was averred in this connection that the term 'thereon' makes it clear that the quantum of surcharge is to be relatable to the transmission charge. They have further submitted that it would not be correct to assume or interpret the Act as requiring that the cross subsidy surcharge is to be to the extent of or equal to the cross subsidy being provided by a subsidizing consumer. The Act merely requires that a surcharge may be specified for availing of open access and the amount so collected are to be utilized for meeting the current level of cross subsidy.

This is an interesting argument. But the provisions of Section 39 and 40 should not be read in isolation. Section 39 (2)(d)(ii) refers to open access being availed by a consumer who has to use the distribution network and not only the transmission network. Since there are no differential rates in transmission charges, there is no cross-subsidy involved in transmission. A harmonious reading of the provisions of Sections 39, 40 and 42 will clearly reveal that the surcharge referred to in Section 39 and 40 is the cross-subsidy surcharge, although these provisions are not very clearly worded.

Para 8.5.1 of the NTP states: *"National Electricity Policy lays down that the amount of cross-subsidy surcharge and the additional surcharge to be levied from consumers who are permitted open access should not be so onerous that it eliminates competition which is intended to be fostered in generation and supply of power directly to the consumers through open access."* The NTP further states: "*A consumer who is permitted open access will have to make payment to the generator, the transmission licensee whose transmission systems are used, distribution utility for the wheeling charges and in addition, the cross-subsidy surcharge. The computation of cross-subsidy surcharge, therefore, needs to be done in a manner that while it compensates the distribution licensee, it does not constrain introduction of computation through open access".*

As a principle this is unexceptionable, but the problem is in the actual computation. When open access is allowed the surcharge for the purpose of Sections 38,39, 40 and sub-section (2) of Section 42 would generally have to be computed as the difference between (i) the tariff applicable to the relevant category of consumers and (ii) the cost of the distribution licensee to supply electricity to the consumers of the applicable class.

The NTP in para 8.5.1 has suggested a formula for computation of the cross-subsidy surcharge payable under sec. 42(2) (as also section 38, 39 & 40) of the Act, by a consumer who avails of open access. This formula is based on the "avoided cost method" of calculation of cost of supply (COS). This methodology is based on the presumption that as a consumer opts for open access, the distribution licensee would be in a position to discontinue to an extent purchase of power at the margin in the merit order. It has been suggested that the cost of supply of the consumer for this purpose may be computed as the aggregate of the weighted average of power

purchase cost of top 5% power in the margin in the merit order approved by the SERC. This method does not appear to be feasible for application in this State for the following reasons:

(i) Generally the top 5% of the power purchased at the margin is from the traders. There is, therefore, no difference between the avoided cost and marginal cost methods. The marginal cost method of computation of COS is not revenue neutral.

(ii) In a power shortage situation, as in this State generally power purchase will not be avoided when a consumer(s) go out of the distribution licensee's fold; what is avoided to an extent is load-shedding. But load-shedding normally is of the subsidized consumers, i.e. irrigation, domestic etc. Therefore, avoidance of load-shedding to the extent of consumers going out of the distribution licensee's fold only adds to number of the subsidized consumers while the cost of power purchase remains the same. Thus in a shortage situation it has the opposite effect of adding more subsidized consumption and not avoiding high cost power purchase. Power purchase at the margin will be avoided only when consumers of substantial quantum of power opt for open access which is not likely in the near future.

(iii) In a new State like Chhattisgarh where so far only one tariff order has been passed, rationalization of tariff is likely to take time and unless tariff is rationalized fully and losses at various voltage levels have been worked out with some degree of accuracy, it would not be feasible to apply the methodology suggested for computation of cross-subsidy.

(iv) We have the additional constraint in this State of non-availability of data regarding COS at different voltage levels. There are a large number of even industrial consumers who are in the subsidized category, their tariff being below the average cost of supply. It will take time before tariffs are rationalized. If loss to the licensee is to be avoided, we have to compute cross-subsidy surcharge on the basis of the average cost of supply, as the difference between the tariff of the consumer opting for open access and the average cost of supply.

(v) The NTP in para 8.5 suggests a balance between the interest of the distribution licensee and competition through open access in the interest of the consumer. At this stage of development of electricity industry in the country, with distribution mostly in the hands of Government companies and the continuing prevalence of cross-subsidy, any loss to the licensee in the interest of competition, may not be equitable and may only hurt its commercial interests and ultimately the interests of the average consumer. It has to be noted that only large subsidizing consumers may avail open access. The loss of such consumers to the licensee, if not fully compensated, will cast an additional burden of cross-subsidy on a smaller base of subsidizing consumers. Reduction and elimination of cross-subsidy will take a long time given the present levels of disparities in tariff.

In the light of the above, it would not be feasible to adopt the "avoided cost method" of computation of cost of supply, as recommended in the NTP, in this State at present.

As to the other methods, the Commission feels that the "embedded cost method" reflects the actual cost incurred to supply electricity to the consumer. It provides better economic signals and balances the interest of utility and consumers. However, it is data-intensive and requires a greater level of data accuracy than is generally available with the utilities. A representative sample study is needed for arriving at the cost to serve in this method. Since, the CSEB has not been able to prepare data of required accuracy, it may not be possible at present to adopt the "embedded cost method". As regards the "marginal cost method", this is not favoured by the stakeholders.

In view of the discussion above and also keeping in view the gap in availability of data, there is no other option before the Commission except to adopt "average cost method" for computing the cross-subsidy surcharge. According to this method, the cross-subsidy surcharge may be worked out as detailed below:

	Consumer availing supply at 132 KV and above Rs/Unit	Consumer availing supply at 33 KV Rs/Unit
(a) Average Tariff for the consumers of cross-subsiding category availing electricity at 132 and/or 33 kv	3.91	4.25
(b) Average Cost of Supply	3.45	3.45
(c) Cross Subsidy Surcharge (a-b)	0.46	0.80

The Commission decides to fix Re. 0.46 per unit as cross-subsidy surcharge for open access consumers seeking supply at 132 KV and above and Re. 0.80 per unit for consumers seeking open access at 33 KV.

6. Unscheduled mismatch charges in drawal/injecting energy:

The Commission in its concept paper has preferred the UI charges for deviations from the schedule as per CERC guidelines.

M/s KSK Energy Ventures Ltd. and others stressed the need for outlining basic principle for energy and demand, balancing and settlement. They suggested that this principle have to be elaborated before levy of such surcharges. Till such time, it was suggested that a monthly energy balancing may be adopted for open access transactions. The CSEB has favoured introduction of unscheduled mismatch charges and has given illustrations in its submission.

The Commission feels that for the present, day to day monitoring may not be possible as CSEB has not been able to introduce ABT regime. Such a regime requires provision of ABT compatible special energy meters as well as necessary software for billing. The SLDC may not be equipped with SCADA or other systems to do billing as required under the ABT regime. Intra-State ABT must cover not only the captive and non-captive consumers of the CPPs but also

all open access customers. It is because of the lack of preparedness of the Board that the Commission is not in favour of UI mechanism linked with frequency for the present. As such, the Commission decides that till ABT regime is fully implemented the existing practice of accounting and billing may be continued.

7. Inter-connection charges and Connectivity Charges

The open access customers seeking inter connection for their generators and loads with the grid are required to pay inter-connection charges.

The Commission decides that one time connectivity charge may be payable by the open access customer for getting connectivity with the grid on actual basis.

As to the rate of the charge, the Commission it its order dated 06/02/06 passed in petition No. 17 of 2005 (M) (in the matter of power purchase and related dispensation in respect of captive generating plants) has already fixed the parallel operation charges. **This charge is Rs. 10 per KVA per month on the total installed capacity of CPP as parallel operation charge for taking grid support. CPP holders shall be required to pay parallel operation charge as per aforesaid order till this rate is reviewed and revised, if necessary, in the next tariff order.**

8. Additional surcharge:

For the present, the Commission is not in favour of the levy of additional surcharge, in the absence of necessary data.

Validity:

The charges determined above are payable during the FY 2005-06 and will remain in force till the same are revised. These may be revised on the basis of the tariff order for the year 2006-07 and subsequent years.

Sd/- **Sd/-**
Member **Chairman**