IMMEDIATE

No-23/40/2005-R&R
Government of India
Ministry of Power

Shram Shakti Bhawan, Rafi Marg,
New Delhi, 24th August, 2017

To,

1. The Chairperson, Central Electricity Authority, SewaBhavan, R.K. Puram, New Delhi
2. The Secretary, Central Electricity Regulatory Commission (CERC)/FOR, Janpath,New Delhi
3. Principal Secretaries/Secretaries (Power/Energy) of all State Governments/UTs
4. Secretaries of All State Electricity Regulatory Commissions/JERCs.
5. Chairman/CMDs of all PSUs under administrative control of Ministry of Power
6. CEO, POSOCO, New Delhi
7. CMDs/MDs of Discoms of all State Governments

Subject: Consultation paper on issues related to Open Access-Reg

Sir/Madam,

Electricity Act, 2003 provides Non-Discriminatory Open Access to the customers for the use of transmission lines or distribution system or associated facilities with such lines or system. Ministry of Power has received many representations raising some issues in connection with the Open Access.

2. In view of the above, a "Consultation Paper on issues pertaining to Open Access" is forwarded herewith with request to furnish comments/suggestions on the consultation paper, if any, to this Ministry by 08/09/2017. The consultation paper is also uploaded on the website of the Ministry i.e. www.powermin.nic.in. The comments may be mailed at raj.singh66@nic.in and sandeep.naik68@gov.in.

Encl: as above

Yours faithfully

(D. Guha)
Under Secretary to Govt. of India

Copy to- with request to furnish comments/suggestions, if any

1. Director General, Association of Power Producers, New Delhi
2. President, FICCI, House No. 1, Tansen Marg New Delhi
3. Member, PRAYAS Energy Group, Pune

Copy also to:

All JSs of Ministry of Power/JS&FA & Economic Adviser, Ministry of Power

Copy to: Technical Director, NIC Cell for uploading on MOP's website under "Current Notices " with the heading of **"Consultation Paper on issues pertaining to Open Access"**

CONSULTATION PAPER

ON

ISSUES PERTAINING TO

OPEN ACCESS

AUGUST 2017

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1. BACKGROUND

1.1 The Electricity Act 2003 envisaged competition in the retail supply of electricity by introducing the concept of "Open Access" in a phased manner. The Electricity Act 2003 specifies that:

> *"Definition (47) " open access" means the non-discriminatory provision for the use of transmission lines or distribution system or associated facilities with such lines or system by any licensee or consumer or a person engaged in generation in accordance with the regulations specified by the Appropriate Commission;"*
>
> *"Clause 42 (2) The State Commission shall introduce open access in such phases and subject to such conditions, (including the cross subsidies, and other operational constraints) as may be specified within one year of the appointed date by it and in specifying the extent of open access in successive phases and in determining the charges for wheeling, it shall have due regard to all relevant factors including such cross subsidies, and other operational constraints:*
>
> - *Provided that such open access may be allowed before the cross subsidies are eliminated on payment of a surcharge in addition to the charges for wheeling as may be determined by the State Commission :*
> - *Provided further that such surcharge shall be utilised to meet the requirements of current level of cross subsidy within the area of supply of the distribution licensee :*
> - *Provided also that such surcharge and cross subsidies shall be progressively reduced and eliminated in the manner as may be specified by the State Commission:*
> - *Provided also that such surcharge shall not be leviable in case open access is provided to a person who has established a captive generating plant for carrying the electricity to the destination of his own use."*

1.2 Subsequently the Central Electricity Regulatory Commission (CERC) and the State Electricity Regulatory Commissions (SERCs) notified Open Access Regulations which facilitated procurement of power through the Open Access route. Such Regulations have been developed in line with the prevailing Legislative and Policy provisions as well as considering the operational challenges faced by all stakeholders.

1.3 The introduction has been largely successful in promoting competition with the incumbent distribution licensees by providing consumers access to alternate sources of power. However, a number of issues have come up in the operationalization of Open Access. These issues impact all stakeholders - Open Access Consumers, Power Sellers, Distribution Licensees and non-open access retail supply consumers of distribution licensees. To examine these issues along with issues relating to amendments in provisions relating to captive Generating plants in the Electricity Rules, 2005, a committee was constituted by CEA on the advice of Ministry of Power. The Committee was headed by Member (E&C), CEA with members drawn from CERC, POSOCO, MSEDCL, GUVNL, PFFCL and Chief Engineers from relevant Divisions of CEA. This consultation paper is based on the report of the above mentioned Committee and decision held in a meeting taken by Secretary (Power), GoI on 31.03.2017 wherein recommendations of this Committee were deliberated.

1.4 There are primarily five issues that are impacting a fair play between consumers and utilities on open access/group captive -

(a) **Frequent shifting of Open Access Consumers:**

DISCOMs are unable to manage power procurement efficiently due to the high frequency of shifting of Open Access consumers between DISCOM and other source of power

(b) **Cross Subsidy Surcharge:**

The Cross Subsidy Surcharge calculated by State Electricity Regulatory Commissions (SERCs) and recovered from Open Access consumers is often insufficient to recover

the entire loss of cross subsidy on account of consumers procuring power through the Open Access route.

(c) **Additional Surcharge:**

Majority of power procurement by DISCOMs is long term in nature. Additional surcharge to recover stranded cost on account of stranded Power Purchase Agreements (PPAs) and stranded assets due to consumers procuring power through Open Access have in most cases not been calculated appropriately. This has led to under recovery of power procurement expenses incurred by DISCOMs.

(d) **Stand-By charges:**

The methodology adopted by DISCOMs for calculation and structuring of Stand-By charges is inconsistent across States. Further, lack of periodic review of these charges can lead to revenue loss for DISCOMs.

(e) **Tariff design and rationalisation:**

Although two part tariff has been introduced in most States, the structuring of fixed and variable components of tariff is not reflective of the actual proportion of fixed and variable cost liability of the DISCOMs.

1.5 The ensuing sub-sections of the Consultation Paper analyses each of the above issues along with existing practices and contains proposals to mitigate these issues.

2. ISSUE I - FREQUENT SWITCHING BY OPEN ACCESS CONSUMERS

Issues:

2.1 Grid frequency is an important indicator of the health of the grid. Progressive tightening of the frequency band, enforcing limits on volume of deviation along with other deterrents and enforcement of Central Electricity Regulatory Commission (CERC) Deviation Settlement Mechanism (DSM) Regulations have contributed to maintain a stable frequency profile and secure system operation.

2.2 As per the prevailing regulatory framework, the DISCOMs are required to provide their energy drawal schedule at their periphery on the day ahead basis to the SLDC of its state in order to facilitate latter to maintain secure grid operations.

2.3 Many DISCOMs regularly deviate from their schedule, primarily due to uncertain load forecasts as the scheduling is undertaken on the basis of DISCOMs forecast for energy requirement for the following day. With open access consumers revising / deviating from schedule, it becomes more difficult for the DISCOMs to accurately predict the requirement for the following day.

2.4 Particularly for short term open access consumers who procure energy from collective market or power exchanges, there is high degree of uncertainty in their power procurement from Power Exchange and DISCOMs. Considerable variation in schedule and actual energy drawl is observed on regular basis for short term open access consumers. Also, based on the market clearing price determined in exchanges for each block, the energy drawal of open access consumer fluctuates significantly within a day. Despite of such uneven drawl throughout the day, the Open Access consumers continue to enjoy the freedom of rescheduling their energy drawal on the basis of their daily load requirement and the price at which energy is available in the power exchange markets. Such variations in energy drawal makes it difficult for the DISCOM to forecast time block wise energy requirement for the following day.

2.5 DISCOMs incur heavy penalties for deviation from their schedule in the form of applicable DSM charges.

2.6 SERCs also disallow a large share of short term power procurement costs incurred by DISCOMs for meeting demand variation by capping purchase price.

2.7 A part of this deviation is attributed to the variation in energy drawal by open access consumer purchasing power from sources other than DISCOM, which results in underdrawl/over-drawal in particular time blocks.

2.8 Whereas open access consumers are allowed to re-schedule their energy drawal based on the daily energy requirement, DISCOMs irrespective of the drawal pattern of the open access consumers, under universal service obligation is required to keep its entire generation and transmission capacity available for the consumers. In such a scenario forecasting demand for the ensuing day becomes challenging for the DISCOMs.

2.9 Considering the immense growth in number of open access consumers and the fluctuation in the energy drawal from open access, it is now imperative that frequency of switching is modulated in such a way that DISCOMs are not unduly burdened by their obligation to provide supply.

2.10 Taking into account the difficulties faced by DISCOMs and to ensure that the provision of open access granted under the Electricity Act, 2003 to promote efficiencies and competition does not unduly burden DISCOMs, few SERCs have restricted frequency of switching of consumers from open access to distribution licensee in various ways.

- RERC, HERC, MERC, etc. have adopted measures such as:
  - Mandatory to schedule power from open access for the entire duration of 24 hours in a day,
  - Maintain uniform energy drawal for at least a period of continuous 8 hours,
  - Restriction on variation in drawal to maximum of 25% of maximum schedule, penalizing variation in drawal, etc.
- GERC Regulations provide that Quantum of drawl from DISCOM during any time of the day should not exceed the drawl of electricity from the DISCOM in such time block wherein Open Access drawal is the maximum.

2.11 It has been brought out that DISCOMs are incurring costs to run specific thermal generation unit(s) on technical minimum so that capacity of such unit is available to meet unforeseen increase in demand. DISCOMs have also pointed out that frequent shifting during a day by short term open access consumers is one of the reasons due to which such thermal capacity needs to maintained at technical minimum. Some of the short term Open Access consumers', based on cost of power from other sources (mostly from day ahead market of power exchange), provide schedule of drawl of power from DISCOMs. This is one of the reason, due to which DISCOMs are facing difficulties in making accurate demand projections, and needs to be discouraged.

2.12 **Proposal:**

Open access customers should be required to schedule power for at least 24 hours whenever they seek open access.

3. ISSUE II - DETERMINATION OF CROSS SUBSIDY SURCHARGE

Issues & Prevailing Practices:

3.1 Section 8.3 (2) of the Tariff Policy 2016 specifies that:

"For achieving the objective that the tariff progressively reflects the cost of supply of electricity, the Appropriate Commission would notify a roadmap such that ***tariffs are brought within ±20% of the average cost of supply.*** *The road map would also have intermediate milestones, based on the approach of a gradual reduction in cross subsidy"*

The Tariff Policy provides that SERCs should notify a roadmap such that tariffs are in ±20% of ACoS. The First proviso to para 8.5.1 of Tariff Policy 2016 also specifies that Cross Subsidy Surcharge (CSS) should be capped at 20% of the tariff applicable to the category of the consumers.

3.2 It has been observed that some SERCs have implemented only the second point, which can result in lower recovery of CSS by DISCOMs.

Table 1: Existing Practices for levy of CSS

Cost coverage in tariff order	Within ±20%	Outside ±20%
Basis ACoS	4 states	9 states
Basis Cos	2 states	1 state
Do not publish	-	13 states

3.3 Further the methodology and formulae adopted by SERCs for determination of CSS over the years is also inconsistent.

The formulas used for calculation of CSS by various SERCs:

CSS = T-[C(1-L/100)+D +R]

CSS = (ABR - CoS) * Factor

CSS = (ABR - ACoS) * Factor

CSS = T - (avoided PPC + Wheeling Charge)

T - applicable Tariff
C - Weighted average cost of power purchase by the Licensee, including meeting the Renewable Purchase Obligation renewable power
L - System losses D - Wheeling Charge R -Cost of carrying Regulatory Assets

3.4 Some SERCs use Average Cost of Supply (ACoS) for calculation of CSS instead of category wise Cost of Supply (CoS). For high voltage consumers like industrial consumers, where CoS is less than ACoS, using ACoS would result in lower CSS. This will also promote economic inefficiency as availing power from other than DISCOM at a rate higher than CoS of DISCOM but lower than ACoS will still be beneficial for Open Access consumers.

3.5 SERCs do not consider impact of Time of Day (TOD) tariff while calculating CSS. In case where ToD tariff is in vogue, Open Access consumers end up paying lower CSS if Open Access system is used during peak time when the retail tariffs are higher.

3.6 **Proposal:**

(a) The Tariff Policy 2016 mandates SERCs to determine roadmap for reduction of cross subsidy and bring tariff at +/- 20% Average Cost of Supply, however it restricts Cross Subsidy Surcharge at 20% of the consumer tariff. In case the consumer tariff is more than 120% of Average Cost of Supply, DISCOM will not be able to recover losses through cross subsidy surcharge in case consumer opts for open access. It is essential for SERCs to implement both Para 8.3 -2 and First proviso to para 8.5.1 of the Tariff Policy 2016 simultaneously. If one of the provision could not be implemented due to some reason, the second provision should also not be implanted to that extent.

(b) SERCs should determine Cross Subsidy Surcharge (CSS) based on category wise cost of supply, thus identifying real cross subsidy. SERCs may initially determine CSS on Voltage wise Cost of Supply and later based on Category wise Cost of Supply. As a first step SERCs should develop guidelines for DISCOMs to calculate Voltage wise cost of supply. DISCOMs should capture and maintain details of voltage wise and consumer category wise details of assets and costs. In the next phase SERCs should develop guidelines and for DISCOMs to calculate category wise cost of supply.

(c) SERCs should introduce differential Cross Subsidy Surcharge - for peak, normal and off peak hours based on the ToD tariff. Time of the day sensitive pricing can

also help address the issue of uneven scheduling by Open Access consumers during the day.

4. ISSUE III - DETERMINATION OF ADDITIONAL SURCHARGE

Issues & Prevailing Practices:

4.1 Under the sub section (4) of the Electricity Act 2003, DISCOMs have a universal supply obligation and are required to supply power as and when required by the consumers in its area of supply.

4.2 Considering the sales forecast approved by the State Commission while determining Annual Revenue Requirement, the DISCOM enter into long term Power Purchase Agreements (PPA) with sellers (generators/ traders etc.) so as to ensure supply of power for the envisaged increase in the load.

4.3 While contracting energy through such long term PPAs, the tariff payable to the generators usually consists of two part i.e. capacity charges and energy charges. Therefore, the DISCOMs have to bear the fixed cost even when there is no off take of energy through such source.

4.4 Whenever any consumer opts for open access and takes intermittent supply through open access, the DISCOMs continue to pay fixed charges in lieu of its contracted capacity with generation stations. However, DISCOMs are unable to sufficiently recover such fixed cost obligation from the open access consumers.

4.5 The cost recovered from fixed charges in the tariff schedule is less than the fixed cost incurred by the DISCOM for supplying energy. This leads to the situation where the DISCOM is saddled with the stranded cost on account of its universal supply obligation.

4.6 Also, the DISCOMs, in a number of cases, establish assets for supplying power to certain specific consumers. There may be certain cases wherein such assets become redundant. In such cases, fixed charges for such stranded assets should be borne by the customers as part of additional surcharge.

4.7 In view of the adverse financial situation caused by arrangements made for complying with the obligation to supply, Section 42(4) of the Electricity Act, 2003 provides as under:

"Where the State Commission permits a consumer or class of consumers to receive supply of electricity from a person other than the distribution licensee of his area of supply, such consumer shall be liable to pay an additional surcharge on the charges of wheeling, as may be specified by the State Commission, to meet the fixed cost of such distribution licensee arising out of his obligation to supply."

4.8 Section 8.5 of the Tariff Policy 2016 also provides;

"The additional surcharge for obligation to supply as per section 42(4) of the Act should become applicable only if it is conclusively demonstrated that the obligation of a licensee, in terms of existing power purchase commitments, has been and continues to be stranded, or there is an unavoidable obligation and incidence to bear fixed costs consequent to such a contract. The fixed costs related to network assets would be recovered through wheeling charges"

4.9 Further, clause 5.8.3 of the National Electricity Policy notified by the Ministry of Power, Govt. of India, reads as under.

"5.8.3...
An additional surcharge may also be levied under sub-section (4) of Section 42 for meeting the fixed cost of the distribution licensee arising out of his obligation to supply in cases where consumers are allowed open access.

..."

4.10 In spite of clear provisions allowing levy of additional surcharge on consumers opting for open access, only few SERCs have notified additional surcharge to be recovered. This is primarily due to the Tariff Policy and regulations putting the onus on DISCOMs to conclusively demonstrate that the power purchase commitments have been and will continue to remain stranded. However, with consumers frequently switching their mode of supply between DISCOM and open access, it becomes difficult for the DISCOM assess the quantum of power that will continue to remain stranded. Moreover, the quantum of stranded power does not remain constant throughout the year or a month or a week or even a day.

4.11 In an energy deficit scenario, determining additional surcharge may have held lesser importance. However, with India progressing towards an energy surplus scenario, denial of additional surcharge to DISCOMs may severely impact their financial viability.

4.12 Many SERCs have directed that Additional Surcharge shall be calculated on case to case basis. However, computation of additional surcharge on case to case basis is practically impossible.

4.13 Considering the adverse financial impact, some SERCs have developed methodologies to assess the quantum of additional surcharge to be levied on consumers opting for open access.

- **DERC** considers the difference between UI rate and average long term PPA tariff as additional surcharge. As UI rate varies from time to time, there is seasonal additional surcharge which varies substantially from Rs. 0.3 per unit to Rs. 3 per unit.
- **GERC** computes the average capacity remaining stranded on account of open access. To compute the capacity remaining stranded on account of open access
    - The hourly data of surplus capacity vis-à-vis scheduled capacity of OA consumers is determined.
    - The lower of the surplus capacity and capacity scheduled by OA consumers is considered as stranded capacity for the hour.
    - Accordingly, the GERC has worked out the average stranded capacity due to open access. Average fixed charges per MW of available power multiplied with the average stranded capacity due to open access forms the basis of total additional surcharge to be recovered from open access consumers.
    - The demand charges paid by the open access consumers are adjusted after deducting the transmission and wheeling charges related to energy drawn by Open access consumers from the Distribution Licensees.
    - The per unit additional surcharge recoverable from open access consumers was computed by deducting net demand charges from the fixed charges on account of stranded capacity divided by energy scheduled through open access.
- HERC and RERC have used data of backed down energy and open access scheduled energy for every 15 minute time block and considered the minimum of two as energy backed down due to open access.
- HERC and RERC utilized the source wise details of backed down energy to compute weighted average cost of energy backed down and effective fixed cost per unit of stranded power.

4.14 DISCOMs may also surrender power due to other reasons like seasonal variations, purchases from Power Exchange, RTC short term power purchases of DISCOMs etc. In some cases, additional renewable capacity may have been added to ensure compliance to RPO and not to meet demand. The burden of surrender of power to that extent should be shared by all consumers.

4.15 To ensure only power surrendered due to open access is considered for computation of additional surcharge, only minimum of power backed down/ surrendered and open access quantum should be considered.

4.16 One of the changes in the formula for surcharge calculation made in the revised Tariff Policy issued in January 2016 is explicit inclusion of cost of Regulatory Asset in the cost of supply. This has been done presumably to ensure that CSS reflects only prevailing level of cross subsidy and nothing else. However, this bring us to another issue that Regulatory Asset was created when open access customer was part of the system. Such customers had enjoyed the benefit of suppressed tariff when Regulatory Asset was being created. Thus, when such customers leave the tariff base of the DISCOM, part of Regulatory Assets become stranded. Therefore, one of the component of additional surcharge should cover for Regulatory Asset.

4.17 **Proposal**:

(a) Additional Surcharge could have three components to cover for (i) stranded power under long-terms PPAs, (ii) stranded physical assets and (iii) cost of carrying regulatory assets or amortization of regulatory assets, as the case may be.

(b) A number of SERCs have started taking steps to develop methodology for calculation of additional surcharge. However, in order to bring about certainty and uniformity in the approach, a suggested detailed methodology for stranded long-term PPAs has been developed, which is enclosed at Annex. This methodology envisages determination of additional surcharge for peak and off-peak hours of each season. The method calculates fixe charges of stranded PPAs for immediate past and applies the same as additional surcharge for the same season next year. To ensure only power stranded due to open access is considered for computation of

additional surcharge, only minimum of un-requisitioned power and open access quantum should be considered

(c) There is also a need to define the criteria for classifying an asset as "Stranded" and the methodology for calculation of additional surcharge on account of such assets. It is also important to remove the cost of stranded assets from the ARR of the DISCOM to prevent socialization of stranded asset cost and avoid any double charging to consumers.

(d) Cost of carrying Regulatory Assets or amortization of Regulatory Assets, as the case may be, should be one of the component of additional surcharge. SERCs should calculate Regulatory Asset and surcharge to recover the same for each year separately. Surcharge for Regulatory Assets should be payable by Open Access consumers also based on year till they had availed supply from DISCOM. DISCOMs should maintain accounts against Regulatory Assets for each year separately. Further, SERCs should ensure that Open Access consumer should not be required to pay for Regulatory Assets for a particular year, if the same has been paid earlier as part of cross subsidy surcharge.

5. ISSUE IV - STANDBY CHARGES

Issues:

5.1 Standby arrangements could be required by Open Access consumers to tide over deficits in cases of situations such as outages of generator, transmission assets etc. In such situations the Open Access consumer has to take power from an alternate source e.g. from the DISCOM. The charges for maintaining standby arrangements for such consumers should be reflective of the costs incurred by DISCOMs for providing these support services.

5.2 Standby charges for long term open access consumers is as per contract signed with distribution licensees whereas standby charges for short term open access consumers are generally defined from time to time by the SERCs.

5.3 In case of determination of stand by charges, there are inherent issues which have been highlighted below:

(a) No uniform approach for determination of stand by charges

(b) Standby charges are not necessarily linked to the actual cost incurred by the DISCOMs to maintain capacity for standby power

(c) Charges determined by SERCs are not revisited in a periodic manner resulting in inefficient recovery of the costs incurred to maintain capacity for standby power and socialization of costs through the ARR

5.4 Clause 8.5.6 of the Tariff Policy 2016 specifies that:

> *"In case of outages of generator supplying to a consumer on open access, standby arrangements should be provided by the licensee on the payment of tariff for temporary connection to that consumer category as specified by the Appropriate Commission. Provided that such charges shall not be more than 125 percent of the normal tariff of that category."*

Prevailing Practices - Determination of Stand by charges

1. **Two Part Structure -**

Fixed and Energy charges are determined separately by adopting various approaches

Fixed Charges

- Rate defined by SERC (Rs/kVA)
- Applicable fixed charges as per tariff schedule (with cap of Minimum no. of day in a year of applicability)

Energy Charges

- Applicable variable charges as per tariff schedule
- Applicable temporary tariff

2. ***Factor x ABR category*** - SERC notifies Standby Charges through separate Orders

3. ***Negotiated/ agreed standby charges*** between the Open Access Consumer and the provider of alternate source of power to the Open Access consumer.

5.5 **Proposal**:

(a) Standby charges should be designed to reflect the actual fixed cost and variable cost liability incurred by the DISCOMs to supply back up power to Open Access consumer.

(b) SERCs should design two- part standby charges with fixed charge and variable charge components. In line with the provisions specified under Para 8.5.6 of the Tariff Policy 2016 the limit of 125% should be applied separately on the rate for fixed charge and variable charge.

(c) Standby charge should be determined annually by SERCs to reflect the variation in costs over time or Auto- indexation mechanism may be designed for periodic (quarterly/annual) revision of standby charges.

6. ISSUE V - TARIFF RATIONALIZATION

Issues:

6.1 One of the critical aspects of tariff setting is to enable recovery of efficient and prudent costs incurred by regulated entities to ensure viability of the entire value chain while facilitating power supply at reasonable rates to consumers. In this regard, the National Tariff Policy 2016 in Paragraph 5.10 and Paragraph 8.3 specifies that:

> *"5.10 Consumer interest is best served in ensuring viability and sustainability of the entire value chain viz., generation, transmission and distribution of electricity, while at the same time facilitating power supply at reasonable rate to consumers. The financial turnaround/restructuring plans are approved by the Appropriate Government from time to time to achieve this objective. The Appropriate Government as well as the Appropriate Commission while implementing such plans shall ensure viability of the generation, transmission and distribution in terms of recovery of all prudent costs.*
>
> *"**8.3 Tariff design: Linkage of tariffs to cost of service***
>
> *It has been widely recognized that rational and economic pricing of electricity can be one of the major tools for energy conservation and sustainable use of ground water resources.*
>
> *In terms of the Section 61(g) of the Act, the Appropriate Commission shall be guided by the objective that the tariff progressively reflects the efficient and prudent cost of supply of electricity.*
>
> *....."*

6.2 Most State Electricity Regulatory Commissions (SERCs) have by now introduced two part tariff in order to make the tariff more reflective of the nature of costs incurred by the DISCOMs.

6.3 In the two-part tariff mechanism, the retail supply tariffs are divided into two components viz. fixed charge/demand charge and energy charge. Fixed charge/demand charge is designed to recover the costs of the DISCOM which are fixed in nature such as the capacity charges payable to power generators, transmission charges, operation & maintenance expenses, depreciation, Interest on loans, return on equity etc. This is generally recovered on the basis of connected load / contract demand or maximum demand of the consumer. Energy charge is designed to recover the costs of the DISCOMs which are variable in nature such as variable cost component of power purchase etc. These costs are recoverable on the basis of the actual consumption of the consumers during the billing period (per kWh or per kVAh basis).

6.4 Even though two-part tariff has been introduced by SERCs, mismatch between the actual fixed and variable cost liability incurred by DISCOMs to the proportion of cost recoverable through fixed charge and energy charge still exists. For example, in case of MSEDCL, the fixed cost was approximately 57% of total cost for the year 2015-16 (as approved in the Tariff Order), however the recovery through demand/ fixed charges were far lower at approximately 19% of the total revenue.

6.5 For a Short Term Open Access consumer who is moving to open access, DISCOM save only on the variable cost of power procurement whereas DISCOM still has to incur the fixed cost (capacity charges) which should in turn be recoverable from consumers. If the tariff designed is not reflective of the proportion of fixed and variable cost liability of DISCOMs, there will be insufficient recovery of the fixed charges by the DISCOM. However, DISCOMs in some states have attempted to address this issue through recovery of additional surcharge from Open Access consumers. Rationalization of tariff would also lead to transparent determination of cross subsidy surcharge and additional surcharge.

6.6 Some Open Access consumers maintain at least part of their contract demand with the DISCOM in order to save on the payment of standby charges. This practice tends to have an adverse impact on the DISCOM. However, if demand/fixed charges are reflective of actual fixed cost liability of DISCOM, Open Access consumer may be less inclined to maintain contracted demand with the DISCOM and for Open Access consumers

maintaining part of their contract demand, tariff shall be reflective of the prudent incurred cost.

6.7 In most of the states, fixed costs includes the cost of wheeling business of the DISCOMs, which will be recovered through fix/demand charges. Only few states, like Maharashtra, have specified a separate component in the retail tariff to recover the wheeling cost. As all the DISCOMs are recovering wheeling charges from the Open Access consumers as a separate charge, charging entire fixed cost including wheeling cost from Open Access consumers will lead to over recovery.

6.8 **Proposal**:

(a) The tariff design should progressively reflect actual break-up between fixed charges and variable charges as per the DISCOMs prudent and efficient cost structure. SERC's should develop a phased implementation plan over a three to five-year horizon to progressively bring in fixed charges in retail tariff to reflect 75% -100% of the fixed cost liability of DISCOMs.

(b) Consumer categories with low load factor (load factor less than 15%) such as Domestic Category and Small Commercial consumers etc. may be partially exempted from fixed charges being linked to actual fixed cost liability as such consumers shall not be able to absorb the tariff reflective of actual fixed cost liability.

(c) For the states, where demand/fixed charge are recovering wheeling cost incurred by DISCOMs (no separate tariff for recovering wheeling cost), Open Access consumers should get credit for wheeling charges paid by them towards fixed/demand charges payable by them subject to 100% fixed cost recovery. For example, if through fix/demand charges, Open Access consumers are paying 80% of the fixed cost and including wheeling charges this recovery becomes 110%, Open Access consumers should get 10% reduction in the fixed cost payable by them.

7. Conclusion

7.1 After examining the current scenario of Open Access in the Indian Power Sector, it is clear that there are a number of issues that are hindering stakeholders while operationalizing open access. These issues along with suggested action points have been discussed in in the preceding sections of this Report.

7.2 Solutions arrived at based on this exercise of consultation need to be implemented in a time bound manner to facilitate growth of the Indian economy while maintaining the viability of the regulated entities and protecting smaller consumers from undue burden of socialization of costs.

7.3 It is important to look at the underlying causal factors of these issues and ensure that solutions developed address these factors in a sustainable manner. A large proportion of issues regarding charges levied on Open Access Consumers stem from the inadequacies in the design of retail supply tariff.

7.4 Therefore, in order to have economic and efficient charges for facilitating open access, it is important to design prudent cost reflective retail tariff using economic principles while fulfilling social objectives in electricity pricing through direct subsidies. Section 8.3 of the Tariff Policy 2016 envisages this aspect:

> *"Direct subsidy is a better way to support the poorer categories of consumers than the mechanism of cross subsidizing the tariff across the board. Subsidies should be targeted effectively and in transparent manner. As a substitute of cross subsidies, the State Government has the option of raising resources through mechanism of electricity duty and giving direct subsidies to only needy consumers. This is a better way of targeting subsidies effectively"*

7.5 SERCs should ensure that DISCOMs develop the requisite capability and infrastructure to assess the costs incurred in supply of power to each consumer category. SERCs should develop and approve procedures for accounting and allocation of costs into different voltage levels of the network/ consumer categories of the DISCOM.

7.6 SERCs should design tariff linked to the cost of supply of each consumer category. Such tariff would then allow SERCs to factor in cross subsidy which are within the limits specified in the National Tariff Policy 2016.

7.7 SERCs should calculate Regulatory Asset and surcharge to recover the same for each year separately. Surcharge for Regulatory Assets should be payable by Open Access consumers also based on year they had availed supply from DISCOMs.

7.8 SERCs should also introduce differential Cross Subsidy Surcharge as per ToD Tariff- for peak, normal and off peak hours.

7.9 There is also need for rationalising tariff by SERCs, which enables DISCOMs to recover fixed cost through fixed/demand charges and variable charges through energy charge.

7.10 With respect to Additional Surcharge SERCs need to implement a mechanism to determine quantum of stranded power purchase commitment in each time block and the charges for same. Such charges should be recoverable from Open Access consumers only thus protecting retail supply consumers from such costs.

7.11 Two Part Standby charges need to be determined by the SERCs periodically. Stand-by charges should reflect cost of power procurement on short term basis and deviation settlement charges liable to be paid by DIOSCOMs in lieu of supply of such power.

ANNEX

Proposed detailed methodology for arriving at Additional Surcharge for stranded power under long-term PPAs

1. The assessment of Additional Surcharge should be carried out for peak and Off-peak periods for each season. The period of 12 months in a financial year may be divided into two or more seasons based on shape of load curves. Peak and off-peak period for a state should be decided by the SERC.

2. The method basically calculates additional surcharge based on actual parameters for the immediate past and assumes that conditions would remain same for corresponding period next year.

3. Assessment of stranded power attributable to Open Access customers during each 15-minute time block of peak period of a season may be done as under:

SP = Minimum [(UR - LS), OA]

Where

SP is Stranded Power (MW) attributable to Open Access customers during the time block

UR is un-requisitioned power (MW) during the time block from various Power Stations with which Discom has long-term PPA duly approved by the SERC

OA is the quantum of Open Access granted (MW) during the time block

LS is the quantum (MW) of load shedding carried out or load restrictions imposed on various categories of consumers or areas during the time block

In the above calculation, load shedding or load restrictions in the command area of Discom, is subtracted from the un-requisitioned power to arrive at actual stranded power during the time block. By using minimum of stranded power and open access quantum, it is ensured that only the power stranded because of Open Access Consumers is used for assessment of Additional Surcharge.

Thereafter, average stranded power during the peak period can be calculated as under:

$AVSP_{pk}$ = Average of Stranded Power attributable to Open Access customers (SP) over all the time blocks during peak period of the season

Similarly, average Stranded Power during off-peak period should also be assessed for each season.

4. Next, effective per MW fixed cost for stranded power is calculated for each season. This rate is equal to the weighted average of fixed cost per MW of the stations in which power remained un-requisitioned, with quantum of un-requisitioned power used as weight.

Thus,

$R = (\sum AVUR_i \times FC_i) / \sum AV\ UR_i$

Where

R is effective fixed cost in Rs /MW of stranded power

FC_i is the fixed cost of i^{th} generating station in Rs/MW where there was un-requisitioned power (this can be calculated by dividing the annual fixed charge of the generating station with its Installed Capacity in MW)

$AVUR_i$ is the average un-requisitioned power (MW) (during the season) from i^{th} generating stations

5. Next, total Additional Surcharge recoverable during peak period of the season is calculated as under:

$$A_{pk} = (AVSP_{pk} \times R \times HR_{pk}/8760) - I_{pk}$$

Where

A_{pk} is the total additional surcharge (Rs.) recoverable for the peak period of the season

$AVSP_{pk}$ is average Stranded Power attributable to Open Access customers (MW) during the peak hours of the season

R is effective fixed charge (Rs/MW) of stranded power for the season

HR_{pk} is number of hours during peak period of the season

I_{pk} is the amount credited by generator (Rs.) for sale of un-requisitioned power in accordance with para 6.2 (i) of the Tariff Policy

Similarly, total Additional Surcharge recoverable during off-peak period of the season (A_{op}) can also be calculated.

6. Now, Additional Surcharge (Rs/Unit) can be calculated as:

$ASC_{pk} = A_{pk} /(OA_{pk} \times HR_{pk} \times 1000)$

Where

ASC_{pk}	is additional Surcharge (Rs/Unit) for the peak period of the season
A_{pk}	is the total additional surcharge (Rs.) recoverable for the peak period of the season
OA_{pk}	is the average quantum of Open Access granted (MW) during peak hours of the season
HR_{pk}	is the number of hours during peak period of the season

Similarly, additional surcharge (Rs/unit) for off-peak period of the season can also be calculated.