RAJASTHAN ELECTRICITY REGULATORY COMMISSION JAIPUR

SUO-MOTU

In the matter of Charging Infrastructure, Tariff and other regulatory issues for Electric Vehicles.

Coram:	**Sh. Shreemat Pandey,**	**Chairman**
	Sh. S.C. Dinkar,	**Member**
	Sh. Prithvi Raj,	**Member**

Date of hearing: **08.10.2020**

Date of Order: **21.12.2020**

ORDER

1.1. The Government of India launched the National Electric Mobility Mission Plan (NEMMP), 2020 to enhance national fuel security and provide affordable and environment-friendly transportation in the Country.. Under this mission 'Faster Adoption and Manufacturing of Electric and Hybrid Vehicle in India' (FAME) Scheme Phase 1 and 2 was launched by Department of Heavy Industry (DHI) on 13.03.2015 and 08.03.2019 respectively to promote faster transformation from Internal Combustion Engines (ICEs) to Electric Vehicles (EVs). Also, the Ministry of Power (MoP) issued revised guidelines and standards for Charging Infrastructure for Electric Vehicles on 01.10.2019 and subsequently amended vide notification 08.06.2020. Considering the push given by the Central Government for promotion of EVs, substantial growth is expected in the number of EVs and EV Charing Infrastructure in the State. Keeping the above things in mind, the Commission issued a draft Suo-Motu order in the matter of Charging Infrastructure, Tariff and other regulatory issues for Electric Vehicles along with the Concept paper on Regulatory Framework for Promoting Electric Vehicles and their Impact on the Grid (henceforth referred to as 'Concept Paper on Electric Vehicles')and invited comments from the stakeholders on the Draft Suo-Motu Order.

1.2. The Public notices inviting comments/suggestions on the draft Suo-Motu order issued, were published in the following newspapers on the dates mentioned against each:

Table 1: Details of News Paper

Sr. No.	Name of News Paper	Date of publishing
(i)	Rajasthan Patrika	09.06.2020
(ii)	Dainik Bhaskar	09.06.2020
(iii)	The Times of India	09.06.2020

1.3. The Public notices along with the draft Suo-Motu order and the Concept paper on Electric Vehicles were uploaded on the Commission's website. The last date for submission of comments/suggestions by the stakeholders was kept as 29.06.2020.

1.4. The list of stakeholders who submitted their suggestions/comments on the draft Suo-Motu order and the Concept paper on Electric Vehicles is enclosed as **Annexure - I**.

1.5. The public hearing in the matter was held on 08.10.2020.

1.6. The Commission, while issuing this order, in the matter of Charging Infrastructure, Tariff and other regulatory issues for Electric Vehicles on Suo-Motu basis has considered the revised guidelines for Charging Infrastructure for Electric Vehicles notified by Ministry of Power (MoP) on 01.10.2019 and 08.06.2020 duly taking note of the comments/suggestions received from the stakeholders.

1.7. This order has been structured in following sections as given under:

i) Section 1 : General (This Section)

ii) Section 2 : Summary of comments/suggestions received from Stakeholders and Commission's view thereon.

iii) Section 3 : Final Order on Charging Infrastructure and Tariff for Electric Vehicles

SECTION 2

Summary of comments/suggestions on Suo-Motu draft order in the matter of Charging Infrastructure, Tariff and other regulatory issues for Electric Vehicles and Concept Paper published on Regulatory Framework for Promoting Electric Vehicles and their Impact on the Grid and Commission's view thereon

A. Issues specific to the Suo-Motu draft order in the matter of Charging Infrastructure, Tariff and other regulatory issues for Electric Vehicles

A1. Background

Initiatives to achieve NEMMP, 2020

Comments/Suggestions

2.1. M/s Rudraksh Energy suggested the following initiatives to achieve National Electric Mobility Mission Plan (NEMMP), 2020 launched by Government of India (GoI).

i) To meet additional demand, because of high penetration of Electric Vehicles (EV), adequate generation capacity may be added primarily through renewable energy sources in the distribution grid.

ii) Electric Vehicle charging station may be designed preferably with roof top solar generation to minimize dependence on coal/oil in the entire supply chain.

iii) Area wise integrated planning of public transport, EV promotion and renewable generation with effective pricing of electricity and smart grid tools for monitoring may be used.

iv) Developing intelligent charging stations equipped with fast chargers, timers and capable of switching to normal charging mode, based on the real time grid parameters.

2.2. Sh. G.L. Sharma submitted that the clauses related to National Electric Mobility Mission Plan (NEMMP), 2020 in the draft order are not related. Therefore, requested the Commission, not to consider the same.

Commission's View

2.3. The Commission's views on issues raised by the stakeholder are as follows:

i) The Commission is of the view that presently there is enough surplus power available with the Discoms on the basis of its existing PPAs so as to meet the additional demand of Electric Vehicles. As per Tariff Order dated 06.02.2020, the surplus power for FY 2019-20 was assessed as 6,372 MU. On the other hand, the demand for EV's is gradually increasing. Hence, the Discoms are already in a position to meet the growing demand of EVs at least for the next few years.

ii) The Commission in clause 4.3 of the Suo Motu Draft Order has already mentioned that the Charging Stations may be designed with roof top solar generation. The relevant extract is as follows:

"4.3. The Public Charging Stations may also be set up with rooftop solar facility under applicable Regulations."

The Commission is of the opinion that the development of Charging Stations is at a very nascent stage and therefore it is necessary to make all possible efforts for the industry to mature as early as possible. Restricting the setting up of Charging Stations only to facilities with roof top solar generation would affect the growth of the Industry. The Commission therefore has not imposed any such restriction in setting up of Charging Infrastructure. The Charging Station owner has an option to set up Charging Station with rooftop facility or to buy power directly from Discoms or through open access.

iii) The Commission feels that initiatives suggested by the stakeholder for area wise integrated planning would be required at a much later stage. Presently the focus should be on development of Charging Infrastructure facilities and making adequate power available for Electric Vehicles in the State.

iv) Ministry of Power (MoP) has notified guidelines for setting up Charging Infrastructure with fast charging facilities. Central Electricity Authority

(CEA) has issued technical and safety standards for setting up Charging Infrastructure. The owner of the Charging Station is free to set up Charging Infrastructure with additional features as far as it complies with the guidelines of MoP and technical and safety standards of CEA. Further, the Commission in Order has already directed Discoms to promote smart charging features at all Charging Stations so as to manage its load and provide grid security in the long run.

2.4. The reference to National Electric Mobility Mission Plan (NEMMP), 2020 is given in the background of the Draft Order so as to highlight the cause behind the growth of Electric Vehicles in India. Through this mission, the origin for development of pollution free transportation in the Country was established. Furthermore, there were various schemes introduced under this mission which resulted as an impulse for the growth of the Electric Vehicles in India.

A2. Setting up Public Charging Stations (PCS)

Definition for Public Charging Station (PCS)

Comments/Suggestions

2.5. M/s Mahindra Electric Mobility Limited (MEML) submitted that the proposed business model for setting up charging infrastructure covers both, i.e., a push for government owned charging infrastructure and encouragement for private entrepreneurship to set up charging infrastructure. M/s MEML requested to define public charging station in the order explicitly.

Commission's View

2.6. The term 'Public Charging Stations' as used in the draft Order have the same meaning as used in the guidelines for Charging Infrastructure for Electric Vehicles notified by Ministry of Power. The Commission for the purpose of clarification has included the definition of 'Public Charging Stations' in Section 3 of this Order.

Setting up of PCS owned by Discoms

Comments/Suggestions

2.7. With respect to the Discom owned public charging stations, M/s Rudraksh Energy and M/s BRPL submitted that the Discoms may set up PCS in their own premises, preferably at 33 kV sub-stations, or at any other location suitable for setting up charging station, as a part of other business in accordance with the provisions of Section 51 of the Electricity Act, 2003.

2.8. M/s BRPL suggested as below:

i) Space outside the grid substations may be utilized for setting up PCS, which are evenly spread across the distribution area.
ii) Discom may set up the PCS in both CAPEX and OPEX mode through empanelled vendors discovered through competitive mode with service charges as the bid parameter.
iii) Setting up of battery swapping stations and charging stations may be allowed initially for 2W & 3W, as the same have been treated at par as per MoP amendment to the revised guidelines dated 08.06.2020.

2.9. Sh. G.L. Sharma submitted that it is for the Discoms to consider whether they would like to enter into such other business and if so, they may apply to the Commission for seeking permission to carry out such other business as per Section 51 of the Electricity Act, 2003 with relevant details and justification.

Commission's View

2.10. The Commission feels that it is the discretion of the Licensee to set up PCS in their own premises or at any other location suitable for setting up Charging Station as part of Other Business in accordance with the provisions of Section 51 of the Act and relevant Regulations.

2.11. The submission of the stakeholder has already been covered in the Concept Paper on Electric Vehicles and the Draft Order for EV. Clause 3.1 of the Draft Order provides for Charging Stations to be set up through franchisee agreement. Further, the Commission has also introduced the model for setting up Charging Stations through Public Private Partnership (PPP) in Section 3 of this Order. As per Ministry of Power guidelines, setting

up Charging Stations is a de-licensed activity and hence private players can also set up Charging Stations .

2.12. The Commission has not differentiated between 2W/3W and 4W in its Draft Order. The setting up of battery swapping stations and charging stations is to be allowed across all segments in the vehicle industry. Restricting the setting up of Charging and Swapping Stations initially to only 2W/3W vehicles will affect the growth of 4W vehicles in the State. Battery Charging and Battery Swapping Stations shall also be developed in the State in line with the definition specified in MoP amendment to the revised guidelines notified on 08.06.2020 and shall be treated at par with Public Charging Stations.

2.13. The Commission is of the opinion that the Licensee shall initiate the process of setting up infrastructure for Charging Stations either by themselves or appropriate model so as to meet the targets given in the guidelines notified by Ministry of Power. The Discoms may come up with the proposal to set up Charging Stations in phased manner in its area of supply under various business models.

2.14. The Discoms can earn other income through carrying out such other business and can simultaneously offload some amount of surplus power available with them to meet the demand of EVs. This additional income can be used to reduce the ARR of Discoms and the benefit can be passed on to the consumers.

Setting up of Privately owned PCS

Comments/Suggestions

2.15. M/s CUTS International, with respect to the privately-owned PCS submitted that the delicensing for setting up PCS will encourage private players to invest in charging infrastructure. The stakeholder submitted there should be mapping of priority cities in Rajasthan for deployment of EV charging infrastructure. The cities should map priority area for private investment through consultation with the relevant stakeholders. These sites should be made available online, showing the number and type of chargers

approved for the electrical connections and conditions.

Commission's View

2.16. The Commission has already clarified in Clause 2.3 of the Draft Order that it encourages setting up of privately-owned Public Charging station with due necessary approval from the Discoms. Though private players are free to decide the location for setting up Charging Stations, in case of Discoms owned Charging Stations and for those Charging Stations to be set up under other model, the locations should be decided after considering the demand/growth and existing traffic of EVs in specified areas of the Licensees.

2.17. The Discoms, therefore may propose to set up Charging Stations in phased manner in its area of supply after conducting a detailed survey of demand assessment for EV Infrastructure and submit to the Commission for intimation required under Section 51 of the Electricity Act 2003 in the form of Other Business. The study conducted shall act as a base for deciding the locations at which the Licensee plans to set up Charging Stations. The Commission has included the relevant clause in Section 3 of this Order.

2.18. As regards the suggestion of the stakeholder of providing online information of location of Charging Stations with number and type of chargers etc., The Commission is of the view that a mobile application may be developed with the support of Information Technology (I.T.) Companies and Network Service Providers (NSPs) within 6 months from the date of this Order, whereby all the real time information on EV Charging Stations such as real time updates on time slot availability, type of charging infrastructure available, available load of Charging Station, distance from present location of EV user and applicable tariff after inclusion of TOD charges and service charges, shall be accessible to all EV users in the area of supply. The relevant clause is included in Section 3 of this Order.

Other Business Model for Setting up PCS

Comments/Suggestions

2.19. M/s CUTS International submitted that the cost benefit analysis of other business model for PCS, such as Public Private Partnership (PPP), which are not included in the draft order should be undertaken to assess their viability. M/s CUTS International submitted the sample cost benefit analysis of business model for a reference. Also, there is a need to look at the business models on the basis of end usage. For the same, following factors may be considered:

i) Housing Concentration
ii) Commuting Patterns
iii) Vehicle Mix
iv) Typical driving Patterns

2.20. M/s Source Advisory submitted that the draft order does not mention the type of PPP model, i.e., model of revenue or any other contractual obligations intended for such partnerships. In this regard, it is requested to clarify on the same. Also, the draft order does not specify, if the Discoms intend to provide any kind of capital subsidy on equipment or other financial incentives to individuals for setting up PCS and any processing fee to the Discom for the setting up PCS.

Commission's View

2.21. The Commission agrees with the suggestion of the stakeholder regarding inclusion of Public Private Partnership (PPP) as one of the Business Model for setting up Public Charing Infrastructure. Accordingly, the Commission has introduced the model for setting up Charging Stations through Public Private Partnership (PPP) in Section 3 of this Order.

2.22. Further, the factors mentioned by the stakeholder are the driving factors for setting up a Charging Stations. However, with the same business models as specified in Section 3 of this Order, and Charging Stations can be set up considering these factors.

2.23. The various business models mentioned in Section 3 of this Order can be

adopted for setting up Charging Stations in the State. In case of PPP model, Discom shall enter into a suitable PPP Agreement with the private player. Private players can also set up charging stations. Under any circumstances, the Charging Stations which are to be set up shall adhere to all the norms /guidelines notified by the MOP/CEA and can operate only after getting necessary clearance from the Discoms.

2.24. The Commission is of the opinion that the capital subsidy on equipment, if any or other financial incentives to individuals, if any for setting up Public Charging Stations may be offered only by the State Government through separate notification. Therefore, such aspects are not included in the Order.

Norms for Setting up of Public Charging Stations

Comments/Suggestions

2.25. M/s BRPL requested the Discoms to notify safety norms for battery charging stations and swapping station and additional safety requirements for charging and swapping station established in basement parking area in line with the CEA Regulations. Further, the Discom may publish on its website, a list of standard procedures and protocols to be followed by the station operators before and after setting up the charging stations. However, the same shall be based on CEA regulations, MOP guidelines and (State Electricity Regulatory Commission) SERC Regulations as applicable.

2.26. Sh. G.L. Sharma submitted that the list of standard procedures and protocols which are to be followed by the station operators before and after setting up the charging stations, can be included in the Supply Code, which is being finalized by the Commission. Therefore, it may be excluded from the order. Other matters are to be checked normally by the Discoms while releasing the connections, as per the mandatory requirements of the Supply Code, the Electricity Act, 2003 and other regulations framed for the purpose.

2.27. M/s CUTS International suggested that the standard procedure and protocols should be developed in consultation with relevant scientific bodies, academia, industry representatives and government departments,

considering the need and business viability of private players. Further, Environment, Social and Governance criteria should also be integrated into the protocols. The Discoms may specify the minimum facilities required at the charging station, which must be mandatorily adhered by the PCS operators. The finalized protocols may be displayed at the charging stations through posters or electronic media to ensure effective and transparent dissemination of information.

2.28. M/s BRPL submitted that the standard checklist for inspection may be prepared by the Discoms, in accordance with the CEA regulations, MOP guidelines and the same may be used for inspections after SERC approves the checklist.

Commission's View

2.29. The Commission has included in Clause 2.3.3 of the draft Order that the Discoms shall issue standard procedures and protocols which are to be followed by the Station owners/operators before and after setting up the Charging stations. Also, Clause 2.3.2 states that these Station owners/operators shall adhere to the norms/standards/specifications laid down by MoP and CEA from time to time. Hence, the submission of the Stakeholder has already been covered in the Order.

2.30. Section 2.3.3 of the draft Order for EV states that the DISCOM shall publish a list of standard procedures and protocols on its website that are to be followed by the Station owners/operators before and after setting up the Charging stations. These standard procedures and protocols have no relevance with Supply Code Regulations, which deals with the obligations of the Licensees. Therefore, that there is no need to include these procedures and protocols in Supply Code Regulations and the same is to be covered in the Order for EV, these clauses are retained.

2.31. The Commission is of the opinion that the Discom may develop the standards procedures and protocols in line with the guidelines prescribed by MoP/CEA and with necessary technical requirement for connectivity to the grid. The Discoms can develop these protocols in line with their Standard Operating Procedures (SOP). The Discom may also consider

Environmental, Social and Governance criteria, while designing standards procedures and protocols.

A3. Procedure to be followed by the Discom

Priority to Release Connection

Comments/Suggestions

2.32. Sh. G.L. Sharma submitted that priority may be given by the Discoms to release connections to Charging Stations and the same may be included in the Supply Code Regulations, which is being finalized by the Commission. Other parameters that are to be fulfilled by the prospective consumers, are already mentioned in the Supply Code and the Discoms shall completely ensure these compliances before releasing connections to Charging Stations. Therefore, the proposed clause in the present Order may be dropped.

2.33. M/s CUTS International recommended to have more clarity on the timeline for supply of electricity as it is prevalent in other states. For example, in Andhra Pradesh, a Discom is required to release power to the charging/battery swapping stations within 48 hours of application whereas in Maharashtra there is a window of 15 days. This will facilitate ease of doing business and enhance efficiency and accountability in the process. Failure to adhere to these timelines should lead to penalty for the Discoms.

Commission's View

2.34. The MoP guidelines state that priority should be given by Distribution Licensees for providing connectivity to Public Charging Stations. Accordingly, the following clause was included in the draft Order.

"3.1. The Discom shall facilitate growth of Electric Vehicle Charging Infrastructure either by setting up Charging stations on its own or through franchisee agreement and also release connections to privately owned Charging Stations ***on priority basis on payment of charges as per prevailing orders/ Regulations****… **(Emphasis Added)**"*

2.35. As per supply code Regulation separate priorities are included for separate

categories and as per order dated 06.02.2020 EV charging station is a separate category, therefore there is no need for changes in the Supply Code Regulations.

2.36. The Commission, however, feels that clause 3.1 may not be deleted from this Order due to its relevance in providing connection to PCS. Further, it clearly mentions that the release of connection shall be as per the prevailing Regulations, i.e., the Supply Code Regulations.

2.37. The Discom have surplus power and it will be in the interest of the Discom also to release connection on priority and with in the specified timelines.

Single Window Clearance Mechanism

Comments/Suggestions

2.38. With respect to the requirement of clearance certificate from the authorized official designated by Discom for setting up PCS by private players, M/s MEML and M/s CUTS International recommended to have a single window clearance facility rather than having multiple bodies for clearance, which could result in delay. Also, digital technology could be integrated into the process of scrutiny prior to granting of clearance certificate.

Commission's View

2.39. The setting up and functioning of Charging Stations are required to adhere to various set of guidelines notified by the MoP/CEA and also as per the proposed standard procedure and protocols for Charging Infrastructure to be published by the Discom on its website. Hence, the Commission is of the opinion that it is essential to obtain necessary clearance from the Discom before commissioning a Charging Station. The relevant clause is mentioned in Section 3 of this Order.

2.40. The EV cell set up by the Discom for monitoring of Charging Stations shall be responsible for providing necessary clearance for Charging Stations. The relevant clause is included in Section 3 of this Order. The owners of Charging stations have an option to directly approach EV cell of Discom to get the necessary clearance after submission of requisite documents. Hence, the

EV cell set up by the Discom shall also act as a single window clearance mechanism. The Discom shall also include the procedure for getting clearances in its standard procedures and protocols for Charging Infrastructure.

2.41. The EV cell would also perform the function of amicable grievance redressal of the stakeholders. In case grievance is not settled the consumer may resort to Grievance redressal mechanism as per the RERC Regulations.

System Capacity

Comments/Suggestions

2.42. With respect to the facilitation of charging by increasing system capacity, M/s MEML requested to clarify that whether it would cover the capex cost of setting up additional transformer and civil works in order to meet the load requirements, due to charging infrastructure being set up or not.

Commission's View

2.43. With regards to the cost of infrastructure required for power supply to Charging Stations, Clause 5.6 of the draft Order states that the Discom shall propose Capital Investment Plan for upgrading its network to accommodate demand for Charging Infrastructure. Accordingly, such capital expenditure/operating cost shall be borne by the Licensee, which would be recovered through their respective ARRs/tariffs. However, connection to individual charging stations shall be provided as per prevailing Regulation.

Setting up of Separate EV Cell

Comments/Suggestions

2.44. M/s MEML recommend that the Discoms may keep a tab on the operations of the charging stations by digital methods of data collection and monitoring. However, charging a fee for the same might strain the economic viability of the charging station business instead any monetization of data should be revenue share agreement between Discom and charging provider.

2.45. M/s Rudraksh Energy proposed that such cells may be headed by TA to SE (O&M) in each O&M Circle, to be centrally monitored by the TA to CE (HQ) of each Discom. Also, the fees for monitoring and facilitation shall be determined by the Commission, which should be nominal in initial years to promote charging stations.

2.46. M/s CUTS International recommended to include provisions for setting up of grievance redressal mechanism for both PCS and service users. This can work as a platform to raise concerns, which can be facilitated through the EV monitoring cell to be set up by Discom or through the creation of mobile application.

Commission's View

2.47. Commission directs the Discoms to constitute the Electric Vehicle (EV) cells to monitor EV Charging stations that are being set up in its area of supply and also to perform the other tasks as assigned in this order including grievance redressal for which appropriate provisions have been incorporated in Section 3 of this order.

Database for Charging Stations and Data Collection for EV consumption

Comments/Suggestions

2.48. M/s CUTS International stated that most of the EV charging occurs at home or at the workplace. Therefore, the draft may include the following:

i) Provision for redefining city and building codes for integrating the need for charging infrastructure in urban infrastructure planning.
ii) Provision for installation of charging infrastructure in public buildings, offices, malls etc.
iii) Detailed provision on financial incentives for encouraging slow and fast charging at residence or offices.

2.49. Further, there has been no discussion to collect data on private charging, i.e., consumption, metering and performance in the draft order, which can inform governments and other stakeholders about the gap in the charging infrastructure and effective solutions to bridge these gaps. Therefore, it is recommended to have a data collection mechanism for private charging

at home and at office, which should be mandated in the order.

2.50. M/s CUTS International sought clarity on the collaboration of Network Service Provider (NSPs) with the PCS on the advance online booking of charging slots. Further, it was recommended that a mobile application could be developed, wherein consumers could have one-point access to all the different types and location of PCS at a city or Discom level.

2.51. M/s BRPL suggested that apart from providing the static information, real time information of EV charging station may also be shared with utility by every PCS. The PCS may be allowed active and TOD tariff-based charging and should participate in the demand response program of Discoms, which will help in better load management of EV during the day and hence can avoid unnecessary grid upgradation for EV load. Discom may also recommend the suitable TOD/TOU tariff based on such information (as approved by SERC from time to time).

2.52. M/s CUTS International further suggested/submitted that each Discom should create and manage a database for all PCS set up in its area of license. This should be fed into a larger database of PCS under all Discoms in the State, which should be accessible to the CEA. Further, the larger database should have a component accessible in the public domain to provide information to the consumers, so that they can make informed choices. There should be periodic upgradation of the data and monitoring of the databases to ensure credibility of information. The private charging station owners should regularly share data with the Discoms through the database.

Commission's View

2.53. The Commission is of the opinion that the factors stated by the stakeholder may be covered in the detailed proposal to be submitted by Discoms for setting up of Charging Stations. As far as providing financial incentives is concerned, the Commission is of the view that the State Government may decide on whether to give such incentives to the owners of Charging Stations or not.

2.54. The Commission agrees with the suggestion of stakeholder that there should be information available with the Discoms on consumers resorting to private charging at home and office premises on consumption, metering and performance. The Discoms should assimilate information of consumers resorting to private charging at own premises with details on consumption, metering and performance. This information would help the Discoms to come to conclusion on the current demand of EVs for private charging and also to plan for future power purchase and/or additional infrastructure, if required. The Commission has included an appropriate clause in Section 3 of this Order.

2.55. As regards to the submission of the stakeholder of making real time information available to owners of Electric Vehicles, It is necessary that a mobile application may be developed by the Discoms so that EV owners have the access to all the information relating to different types and location of PCS within the License area of the Discoms. The Commission is of the opinion that Discom through Nodal Agency with the help of I.T. Companies and Network Service Providers (NSPs) should be able to provide all the real time information on EV Charging Stations such as real time updates on time slot availability, type of charging infrastructure available, available load of Charging Station, distance from present location of EV user and applicable tariff after inclusion of TOD charges and service charges, shall be accessible to all EV users in the area of supply. The appropriate clause has been included in Section 3 of this Order.

2.56. The Commission has already specified the Time of Day (ToD)/ charges in for EV. The EV cell of the Discom should also monitor the load of each Charging Station so as to enable EV cell to assess the peak and off-peak time slots for EV Charging. The Discoms accordingly may propose to change the time slots for Time of Day (ToD)/Time of Use (ToU) charges if required, in their future Tariff Petition based on actual information. The appropriate clause has been included in Section 3 of this Order.

Inspection of Premises of PCS

Comments/Suggestions

2.57. Sh. Shanti Prasad suggested that for charging stations at residence, workplace or farm, the inspection may be restricted to once a year. Also, no such inspection may be carried out, where captive battery charging is effected within sanctioned load up to 18.65 kW, i.e., LT supply and if battery make is approved by the Discom.

Commission's View

2.58. EV Charging Stations are required to be adhered to various set of guidelines notified by the MoP/CEA including standard procedures and protocols for setting up and functioning of charging infrastructure. Hence, the Discom shall be given a free hand to inspect the premises of the Charging Station at any point of time by giving prior notice to the owner of Charging Stations.

2.59. The Authorized Official designated by the Discom shall have the right to inspect all Public charging Stations set up in the area of license of the Discom. The Authorized Official shall verify that the standard guidelines and protocols are followed by the Public Charging Station at all times. The appropriate clause has been included in Section 3 of this Order.

2.60. As regards to restricting inspections, the Commission is of the view that it would not be appropriate to restrict the Authorized official of the Discom in carrying out multiple inspections, if required. However, inspection can be done only in accordance with relevant provision of the Act and Regulation.

A4. Incentives to the Public Charging Stations

Purchase of Power for PCS through Open Access

Comments/Suggestions

2.61. M/s Rudraksh Energy and Sh. Shanti Prasad submitted that the load of PCS is around 100 kW - 500 kW, whereas, as per the Open Access Regulation, the minimum Contract Demand required is of 1000 kW. In this regard, the Open Access Regulation may have to be amended so that PCS can procure power through Open Access in accordance with the Open Access Regulations, 2016.

2.62. Sh. Shanti Prasad further submitted that large number of EV charging stations may opt for Open Access. In this regard, it is suggested to have a simplified procedure and accounting, i.e., combining charges under number of heads like scheduling charge, transmission charge, wheeling charge, additional surcharge, cross subsidy surcharge etc., another for transmission and wheeling losses and third for excess drawl. Further, additional surcharge is towards stranded capacity. EV charging stations will be new consumers and will be utilising the existing stranded capacity so if they opt for open access then logically stranded capacity will not be on account of them. Additional charges and Cross Subsidy Surcharge may be dispensed off for EV charging stations as the proposed tariff for EV charging stations is on a lower side.

2.63. M/s CUTS International suggested that according to the Draft Industrial Policy, 2019 of Rajasthan it was proposed to waive of cross subsidy on open access, therefore, efforts should be made to pass on the above benefits to PCS owners under this order.

2.64. M/s BRPL submitted that virtual aggregation of physically disaggregated PCS to qualify the threshold for applying Open Access, should not be made available for electric vehicle public charging stations, as is the existing case for any other open access consumers.

Commission's View

2.65. The Commission considered the submission of stakeholders. Commission is of the view open access for EV Charging stations may be availed in accordance with the RERC open Access Regulation 2016 and other relevant Regulations/orders issued by the Commission from time to time. Further, the Commission in its RE Tariff Regulations, 2020 has already given some exemptions in open access charges for availing power from Solar Projects.

<u>Procurement of Power for PCS through Captive Power Plants</u>
Comments/Suggestions

2.66. M/s Source Advisory submitted that the draft order does not include

procurement of power through captive power plants, it is suggested that the Discoms should provide power banking facilities to all those energy operators who have set up captive renewable energy plants to operate their charging stations. This would in turn encourage generation and use of renewable power for EV.

2.67. Sh. Shanti Prasad suggested that for the EV charging station having captive generation from roof top or captive solar generation, fixed charges based on contract demand/connected load may be reduced by the ratio of monthly solar energy supplied to actual electrical consumption.

2.68. The captive solar generator set up for supplying power to PCS should be able to sell surplus power through exchange. On the sale of this surplus power, solar generator should get a certificate for supply of solar energy to the grid. These certificates will entitle them to make adjustments in the electricity bill raised by Discom on monthly basis. These functions may be carried out by the Power Exchange or through separate unit of Discom.

Commission's View

2.69. The EV charging station with captive RE plants can avail banking facility as per the provisions of Renewable Energy Tariff Regulations notified by the Commission from time to time. Accordingly, the energy accounting and settlement will also be governed by the provisions of these Regulations.

Setting up of PCS with Solar Roof top

Comments/Suggestions

2.70. M/s Rudraksh Energy submitted that PCS may be set up with roof top solar under applicable regulation, wherein during first 5 years, the principle of net metering may be made applicable and the surplus energy, if any, may be purchased by the Discom at the tariff to be approved by the Commission. Also, no parallel operation charges may be made applicable on such roof top solar facility

Commission's View

2.71. The Commission has considered the suggestion and considers it appropriate that the PCS with Roof-top Solar generation shall operate as per the applicable provisions of the RERC (Connectivity and Net Metering for Rooftop and Small Solar Grid Interactive Systems) Regulations, 2015 amended from time to time.

Battery Swapping Stations (BSS)

Comments/Suggestions

2.72. M/s Rudraksh Energy regarding the setting up of battery swapping stations (BSS), submitted that the public charging station may also set up Battery Swapping Station as due to very high cost of additional battery, it would be difficult to implement battery swapping model.

Commission's View

2.73. The Commission has included the definition of Battery Swapping Stations in Section 3 of this Order, in line with the definition in MoP revised guidelines notified on 08.06.2020. As per the guidelines of MoP, Battery Swapping Stations (BSS) are allowed to be set up in the State and the Commission considers it appropriate that BSS should be treated at par with the Public Charging Stations. The tariff applicable for Public Charging Stations shall also be applicable to Battery Swapping Stations. However, the Commission may if required, notify separate tariff for battery swapping stations in its subsequent Tariff Orders.

A5. Tariff Structure for Public Charging Stations

Applicable Tariff and TOD Structure for PCS

Comments/Suggestions

2.74. M/s CUTS International suggested to include a sunset clause limiting the period for which concessional tariff will be provided to PCS. Also, other time of the day slots could also be considered on the basis of types of vehicles it caters. For instance, PCS targeted for corporate fleets can be allowed to provide TOD benefits during the office hours. Similarly, highway PCS could

be allowed for TOD tariff on times, when frequency of buses is not high. In addition, provisions may be made to ensure safety of vehicles and consumers at night, as time of charging of vehicle could vary from 30 minutes to several hours. The Discom may supply power to PCS at its average cost of supply and any subsidy that the Commission computes after due cost benefit analysis for PCS can be directly transferred to the beneficiary's account through DBT.

2.75. Sh. Shanti Prasad submitted, that during off peak hours (2300 hours to 0600 hours) 15% rebate on energy charge for PCS may induce charging station to utilise fossil fuel power during night, which will be against the aim of reducing carbon emission by use of EV. Instead, it is suggested that if the charging station go for battery storage during the day and utilise it during the peak hours then for every unit of battery storage utilized during peak hours (to be specified by Discom), 10% rebate on energy charges may be given for equivalent energy in Discoms energy bill.

2.76. M/s Rudraksh Energy suggested that the tariff applicable for PCS should be as per Commission's tariff order issued from time to time. Further, it is suggested that since there is no motive power (HP) in Battery, the fixed charges for LT-8 Tariff Category for PCS shall be specified in Rs. /kW/Month and the applicable tariff as of now should be made applicable for FY 2020-21 with 2% annual escalation for the subsequent five years.

2.77. M/s BRPL requested to include peak hours surcharge to flatten the curve and shift some of the peak load to off peak hours. The rebate of 15% may be aligned with the marginal cost of power procurement by Discom during the said off peak period of 23:00 hours to 06:00 hours. Similarly, the peak surcharge should be aligned with the marginal cost of power procurement by Discom during the peak hours, in order to provide a deterrence to avoid EV charging in those slots and also prevent network overloading.

2.78. M/s CUTS International requested to modify the clause wherein it has been provided that Voltage rebate, Load factor rebate, rebate for incremental consumption and rebate for new HT connections shall not be applicable for PCS.. Also, the EV market segment and its charging infrastructure

ecosystem is a highly price sensitive segment, the existing rebates and performance linked incentives should be provided for PCS category too. A sunset or review clause can be added for the time being.

2.79. M/s Rudraksh Energy requested that the Discoms may be directed to submit daily load curves of Peak and off-Peak hours on every 1st or 15th date of every month with effect from April 2019 to March 2020. Whereas, M/s BRPL requested that the TOD tariff revision exercise may be done based on system peak and peak demand. Also, TOD tariff should promote charging of EV during the slots of the day with high renewable share on the grid, based on the Discoms power scheduling portfolio.

Commission's View

2.80. The concessional tariff is proposed in the draft Order for promoting investors/owners/operators to set up Charging Stations in the State of Rajasthan. The proposed tariff is to be continued till the time the Commission decides to revise the Tariff either through Tariff Order or through separate Order on EV Charging Tariffs. Further, the Commission feels that the Time of Day charges are proposed in line with the peak and off-peak hours prevailing in the State. As stated earlier, the EV cell of the Discom can monitor the load of EV Charging Stations. The charges can accordingly be further revised based on the actual trend seen in EV Charging Stations and accordingly the Discom can propose modification in the time slots/charges for Time of Day in the next Tariff Petition. The Commission feels that it is up to the individual EV owner to go for battery storage during the day and utilize the same during peak hours so as to reap further benefits of TOD charges. The Commission does not intend to provide separate incentive for this mechanism.

2.81. The fixed charges specified under LT-8 is to be changed to Rs. /KW/Month. Any further revision in tariff for EV Charging Stations shall be done either through Tariff Orders of Discoms or through separate Order on PCS.

2.82. The Commission is of the opinion that the existing clause of not providing any voltage rebate, load factor rebate and rebate for incremental consumption and new HT connection to PCS, is appropriate and there is no

need to make any modifications in this regard.

Waiving off or Reduction in Demand Charge

Comments/Suggestions

2.83. M/s Source Advisory requested the Commission to waive off or reduce the demand charge of 40/HP/month of sanctioned load for LT and Rs. 135/kVA/month for HT. The demand charges mentioned are higher compared to other States, who have adopted the EV policy, except for Karnataka and Assam. In fact, the states of AP, Delhi, Uttar Pradesh, Chhattisgarh and Punjab do not levy any kind of demand charges on PCS to ensure that the tariff remains on the lower side, so that investors as well as consumers are encouraged to adopt EV and the business becomes lucrative for the initial years.

Commission's View

2.84. The Commission for the purpose of giving a concessional tariff to EV Charging stations has kept the energy charges below the average cost of supply of the Discoms and the fixed charges which are much less than fixed charges of other categories.

Applicable Tariffs to Other Consumers

Comments/Suggestions

2.85. M/s Source Advisory requested the Commission to explicitly mention the tariffs applicable to other consumers mentioned at para 5.4 of the draft order. Moreover, the Commission may approve a new category for EV charging both for private as well as public, as the consumer will be paying bills according to the higher slab, since the consumption of power will increase if he chooses to charge his vehicle by his own. A fixed tariff will highly reduce the consumer's electricity bills and thus, incentivize other consumers to adopt EVs.

2.86. M/s BRPL requested as follows for the tariff applicable to other consumers:

i) Public charging shall be only required for top up charging.

ii) Most of charging is done at home during night hours. Therefore, there

is a need to introduce EV tariff for private charging as well.

iii) In order to reduce the cross-subsidy burden on other consumers, suitable TOD/TOU rates may be determined, which shifts the charging behaviour during off peak hours, where marginal cost of additional procurement is lower than EV tariff.

iv) The Commission may consider issuance of time based EV connection through which charging may be allowed during off peak hours and benefit of reduction of fixed charges can be passed on to EV users.

Commission's View

2.87. The Commission has clearly stated in the draft Order that each consumer can charge EV in its own premises and the tariff for EV charging shall be the same as the tariff of the premises. The tariff proposed in the draft Order is applicable to PCS which include public as well as private charging stations.

2.88. Individual consumers who seek to charge their EVs at their own existing premises should apply for increase in load/demand so that their billing demand do not exceed their contract demand or actual load does not exceeds sanctioned load.

2.89. The Commission is of the view that most of the EV charging needs to be done through Charging Stations that are being set up in the State. This would help Discoms to manage EV load in an efficient manner. Charging at home/office premises may lead to shifting of consumption to higher slabs.

2.90. On the other hand, the Commission has kept the tariff for Public Charging Stations at a lower rate of Energy and Fixed Charges, irrespective of the consumption in this category. This would not only help the Discoms manage EV loads efficiently but also pass on the benefit of low rates to the end users.

2.91. Further, Commission has already specified TOD charges in this Order for EV.

<u>Ceiling of Service Charges</u>

Comments/Suggestions

2.92. M/s Rudraksh Energy suggested that the Commissions may fix the ceiling of

service charges to be charged by Public Charging Stations (PCS) to EV owners depending upon the type of charging station, based on the time taken to charge the battery fully. Further, it is suggested that PCS should adopt Fast Charging (1hour charging time) and Ultra-Fast Charging (less than 30 minutes time).

2.93. On deciding the ceiling price of service charges by PCS/FCS, M/s BRPL submitted that ceiling price shall be made applicable to those PCS who have received a demand incentive from the government. Also, it should not be made applicable to those investors who have invested CAPEX for setting up of charging station, without receiving any grant from the government. Whereas, M/s MEML requested to let market forces determine the price, the customers are willing to pay for charging and may not impose a price ceiling for the same.

Commission's View

2.94. The Commission has provided at clause 5.11 of the Draft Order that the State Nodal Agency (SNA) shall be responsible for deciding the ceiling of service charges to be charged by PCS to EV owners. The relevant extract is as follows:

> *"5.11. State Nodal Agency shall be responsible for deciding the ceiling of Service Charges to be charged by PCS/FCS."*

2.95. The MoP guidelines provides for either State Nodal Agencies or the State Government or the Appropriate Commission to decide for ceiling on service charges. Accordingly, the responsibility has been bestowed on State Nodal Agency in the draft Order.

2.96. The Commission feels that the ceiling price of service charge needs to be decided so as to cap the overall tariff being charged to EV users. It would be solely at the discretion of the owner of the PCS to charge this service charge or not. PCS may charge lower service charge than ceiling to remain competitive in the market.

Duplicity of Clauses on Tariff Applicability

Comments/Suggestions

2.97. Sh. G.L. Sharma submitted that following clauses of the draft order are already there in the Commission's tariff order dated 06.02.2020, i.e.,

> *"5.1 The tariff applicable for public charging stations shall be as per Commission's tariff order issued from time to time. The current position as follows.*
>
> *…….*
>
> *5.4 The consumers of other categories will be charged as per tariff applicable to their respective category or to say they need not to take a separate connection. They can charge Electric Vehicles within their respective connection, provided that load with EV charging does not exceed the Sanctioned connected/contracted load or demand as the case may be.*
>
> *In case connected load or contract demand exceeds the sanctioned connected load or contracted demand as the case may be, the consumer will be subject to penal provisions as per Tariff or Electricity Supply Code Regulations."*

2.98. These clauses have been published by the Discoms in their booklet and made available to every consumer. Whereas, others are to be considered by the Discoms, as per their requirements, based on the receipt of the application from the prospective consumers. Therefore, the above clauses may be dropped from the Order.

Commission's View

2.99. The Commission is of the view that clauses mentioned in the Order are necessary and relevant to the framework for EV Charging Infrastructure and therefore are included in the Order.

Separate Metering for EV Charging and Smart Meters

Comments/Suggestions

2.100. M/s MEML and M/s BRPL submitted that many PCS can be set up in public areas like malls, shopping complex, multiplex etc. These should be recognized as PCS with appropriate parameters and can be provided a separate meter for EV charging with EV tariff, rather than at commercial rates. This will bring in a greater density of charging stations, as the land cost will be minimized and economics will be viable. This approach is being adopted by the Discoms in Delhi for charging infrastructure. Further, land for parking sites for EV Charging may be provided at concessional rates, i.e., preferably on per usage charge instead of monthly lease, which shall be awarded based on minimum service charges.

2.101. M/s Source Advisory requested the Commission to mention the details of smart charging features with respect to V1G, V2G and V2H. The stakeholder also requested the Commission to issue regulations and define tariff related terms and conditions for such smart charging features in the subsequent draft.

2.102. M/s Source Advisory requested to have a separate metering for charging of EV and smart meters to be installed for consumers charging vehicles at their premises, which will help Discoms to efficiently manage load, reduce AT&C losses as well as promote the usage of smart meters. Whereas, M/s BRPL suggested to provide prepaid smart energy meters to all the EV charging connections.

Commission's View

2.103. The Commission feels that the owners of public areas like malls, shopping complex, multiplex etc. are free to set up their own PCS in their premises and the tariff applicable to them shall also be the tariff for such Public charging Stations. However, if the charging is done through the connection provided for non-domestic usage, tariff applicable for the non-domestic category shall be levied.

2.104. The Commission has already mentioned the details of smart charging

features in Concept Paper and smart charging hence can be taken up by EV Charging Stations considering the aforesaid factors. Discoms may also verify the necessary requirements before taking up smart charging feature by the Charging Stations.

2.105. For implementation of Smart Charging, the Discom shall install smart meter at all Public Charging Stations. Smart Charging will not only help Discom to manage its load but also provide grid security in the long run. The appropriate clause is included in Section 3 of this Order.

2.106. In case of inhouse charging, separate metering is not required for EV Charging as the tariff applicable would be the tariff of the premises. The Commission is of the opinion that smart meter can be installed by the EV owner for charging of EV in his own premises. However, in such a case the cost of the same shall be borne by the consumer as it is the discretion of the consumer to charge EV in his premises.

Separate Arrangement at EV Owners Premises

Comments/Suggestions

2.107. M/s BRPL on account of increase in connected load because of EV charging in the premises suggested as below:

i) Discom may offer a separate metered connection under EV category.
ii) Smart EV charger shall be mandated for a user to get the EV connection, which shall be hardwired with Discom supply.
iii) Discom shall empanel the Electric Vehicle Supply Equipment (EVSE) suppliers fulfilling the CEA/MoP specifications based on bidding.
iv) SERC may offer rebates for these home chargers as an incentive for home charging.

Commission's View

2.108. The Commission is of the view that EV owners charging at their own premises can make a separate arrangement as per their requirement. Since the tariff would be applicable as per the tariff of the premises used

for charging, there is no need for separate metered connection for EV charging.

Capital Investment Plan of Discoms

Comments/Suggestions

2.109. With respect to the capital investment plan of Discoms accommodating charging infrastructure, M/s CUTS International requested that the Discoms while preparing their capital investment plan after discussion with investors/stakeholders/private players, the Commission to explicitly state other relevant consumers including end user consumer representatives and NGO, which would directly impact the future prospects of setting up PCS.

2.110. M/s BRPL requested to have a time bound study by the Discom based on the projection for EV adoption and subsequent requirement of charging and network augmentation. The report for the same may be submitted to the Commission for its approval.

Commission's View

2.111. As stated earlier, Discoms have been directed to submit a proposal for setting-up Public Charging Stations at various locations in their license area based on the detailed survey of demand assessment for EV Infrastructure, either by themselves or through third party. This proposal shall also include the necessary Capital Investment and network augmentation required by the Discom to meet the load of Public Charging Stations.

Other Issues

Comments/Suggestions

2.112. M/s CUTS International requested to replace the word "may" in clause 5.7 and 5.9 of the draft with "shall", to make the provisions regarding installation of smart meters binding on all PCS. Also, a sub-section may be added to make it binding for the Discoms to submit a monitoring and evaluation report to the State Nodal Agency or the Commission on smart charging features after a fixed period, preferably half yearly, which may be made

available for public scrutiny and research purposes.

2.113. M/s CUTS International suggested to have an institutionalised review, monitoring and feedback structure in the draft on the matters related to tariff, service charges, TOD and other rebates. Also, role of consumers and civil society organizations in consultation processes and discussions may be included explicitly.

2.114. Sh. Shanti Prasad requested that the State Nodal Agency referred in the draft order may kindly be indicated or specified to be notified by the State Govt.

Commission's View

2.115. The Commission has noted the suggestion of the stakeholder and directs EV Cell of each Discoms to submit a monitoring and evaluation report to the State Nodal Agency on smart charging features to be implemented by the Public Charging Stations in the area of its supply, after every one year. Accordingly, the same has been included in Section 3 of this Order.

2.116. The EV Cells of Discoms shall also conduct a study regarding smart charging features with respect to Vehicle to Grid (V2G) and Grid to Vehicle (G2V) and submit to the State Nodal Agency so that Discoms may plan their future power requirement and power portfolio.

2.117. As regards suggestion of institutionalised review, monitoring and feedback structure, the State Nodal Agency has been assigned several responsibilities. However, with more EV charging infrastructure coming on line appropriate comprehensive mechanism will be evolved over the time.

2.118. As regards the State Nodal Agency, as per the guidelines of MoP regarding charging infrastrucutre, every state government shall nominate a nodal agency for that state for setting up charging infrastrucutre as of now the Government of Rajasthan vide its order dated 12.02.2019 has designated Jaipur Vidyut Vitran Nigam Limited (JVVNL) as the State Nodal Agency for setting the charging infrastructure for Electric Vehicles in the State.

B. ISSUES SPECIFIC TO THE CONCEPT PAPER ON REGULATORY FRAMEWORK FOR PROMOTING ELECTRIC VEHICLES AND THEIR IMPACT ON THE GRID

Stranded Capacity and its Role in Promotion of EV

Comments/Suggestions

2.119. Bask Research Foundation submitted that the proposed measure of the Commission to utilize the stranded capacity to promote electric mobility by offering discounted tariffs is appreciated. However, Discoms needs to further add capacity in their power procurement portfolio and suitably account for electric vehicle load for power procurement planning.

2.120. Bask Research Foundation further requested the Commission to explicitly mention the period for which discounted tariffs shall be offered, as it may not be feasible for Discoms to provide discounted tariffs for an unlimited period. Discounted tariffs may also be capped based to EV demand in mega-watts (MW) and Million Units (MU). A period of 3-5 years is recommended for the same, and it may be reviewed in 12 months before the expiry of the mentioned period or when the demand quota crosses 60%, whichever is earlier.

2.121. It is also submitted by Bask Research Foundation that due to the increase in demand of EV, it is requested to assess the impact on the distribution grid at local level instead a state-wide impact. The more urbanized centres would be the early adopters and are more likely to witness impact on local grid, which should be assessed as well.

Commission's View

2.122. The Commission is of the view that the fixed charges are already being paid by Discom for contracted capacity which is not consumed. Hence, power from these sources can be used to supply to EV load..

2.123. As regards the time period for discounted tariff, the Commission shall consider the same through Tariff Order of Discoms or a sperate Order for EV Charging Stations as and when need arises.

2.124. Regarding suggestion of taking into account impact of EV load, The EV Cell

of Discom shall keep a tab of the increase in EV load due to EV Charging Stations and charging of EVs at own premises and accordingly plan for the load management so that the increase in load of EV does not significantly affect the stability of the grid. The EV Cell formed by the Discom should also plan for the effective load management of EV Charging Stations for efficient functioning of the grid. Accordingly, the same has been included in Section 3 of this order.

Electric Mobility in Jaipur

Comments/Suggestions

2.125. Bask Research submitted the following insights on likely patterns of EV adoption in India and in Jaipur, which will have a direct impact on need for PCS for consideration of the Commission:

i) For intracity travel, mobility transition shall largely be led by electric buses. With predictable routes and sufficient docking time at bus stations, likelihood of comprehensive public charging infrastructure for same is unlikely.

ii) In personal vehicle space, electric cars are likely to be adopted as second vehicle. This may imply that during early years, need for fast public charging for privately owned two and four wheelers is likely to be low.

iii) Fleet operators have the necessary fiscal capacity to lead the transition of electric mobility. To ensure high utilisation of assets they are likely to need fast charging infrastructure.

iv) Similarly, two and three wheelers are likely to be early adopters of electric vehicles but do not require dedicated fast charging infrastructure, as slow charging infrastructure for four-wheeler can serve as fast charging infrastructure for them.

Commission's View

2.126. The Commission has noted the suggestions of the stakeholder and appropriate view would be taken up at a later stage, once the demand for Public Charging Station increases.

Socialization of Costs

Comments/Suggestions

2.127. Regarding bearing the cost of electricity mobility transition, Bask Research Foundation submitted that the main apprehensions with electricity mobility transition is about who is going to bear the costs of transition. During the early years, Discoms will have to invest in power procurement as well as augmentation of distribution infrastructure to meet the demand for EV charging. There are relevant concerns regarding utilisation of assets and power procurement contracts. Moreover, electric mobility transition is unlikely to benefit all consumers equally, if at all the benefits are able to reach all consumers more urbanised centres like Jaipur are likely to become early adopter. Therefore, it is recommended that socialisation of additional costs is restricted to regions where E-mobility transition has started. Socialisation of costs amongst consumer categories may also be done after due consideration of socio-economic impact on low paying consumers.

Commission's View

2.128. The Commission is of the opinion that at present there is no mechanism in place, in the State for charging different tariffs to urban and rural areas within the same Discom. Hence, in Commission's view socialising the cost of EV Infrastructure only to urban consumers or to consumers with high EV density would not be appropriate. Moreover, in longer terms it will be beneficial to all consumers of Discom as EV will provide much needed demand to utilise the surplus energy.

Public Charging Stations

Comments/Suggestions

2.129. The Commission may define "Public Charging Stations" as charging station at any place wherein common public can access the facility for at least 12 hours in a day. Under this definition, facilities such as shopping malls, religious institutions, academic institutions, sports complexes, parking spaces, etc. may set-up stations under the public charging category with

declaration to make it available to all public without any restrictions or discrimination. However, concerned facility may make appropriate arrangements to address security concerns, apply nominal parking charges and limit parking time based on minimum charging time needed for full charge. Additionally, these Public Charging Stations can be designed with rooftop solar generation to minimize dependence on fossil fuels in entire supply chain hence shifting towards cleaner energy.

Commission's View

2.130. The Commission has included the definition of Public Charging Stations (PCS) in Section 3 of this Order which is in line with the amendment to revised guidelines notified by Ministry of Power on EV Charging Stations.

Investments by Discom for Public Charging

Comments/Suggestions

2.131. Bask Research expressed concerns regarding ability of Discoms to make prudent investments in the electric mobility space and to address such concerns, the stakeholder suggested the following:

i) Unless it is a matter of grants, Discoms may establish public charging infrastructure by co-investing with private entities or PSUs such as NTPC, etc. In case of co-investment with PSUs, it is to be ensured that equity contribution is not backed by grants, as in such cases business prudence is often undermined.

ii) Discoms should report capital investments in distribution infrastructure for electric charging, electric charging stations, operations costs of each station, utilisation, record of accidents and breakdowns separately. The information shall be made available publicly, as it will facilitate learning across stakeholders.

iii) Wherever, public funds are invested via Discom, in case the utilisation of assets is less than 50%, transfer of cost to consumers should not be allowed.

Commission's View

2.132. The Commission has discussed the business models for setting up Charging Stations in the Concept Paper for EV and in the Draft Order. The Commission has additionally included the business model under Public Private Partnership (PPP) in Section 3 of this Order. The Commission, therefore, is of the view that any capital investment in infrastructure to cater demand of EV should also be included in the capital investment plan of the Discom.

Green to Green EV Charging solution

Comments/Suggestions

2.133. M/s Leap Green Energy and Sh. Shanti Prasad requested to have Green to Green EV charging, which includes charging of EV from renewable energy sources with the help of energy storage solution, where EV charging is met by 100% renewables. Also, the same will vastly minimize, grid disturbances due to flash loads especially when four wheelers and larger capacity EV fleets are charged using fast chargers.

Commission's View

2.134. The Commission has noted the suggestions made by the stakeholders and is of the view that it can be taken up at a later stage, as the demand for EV Infrastructure increases. Presently it is necessary for investors to come forward and set up Public Charging Stations so as to provide necessary push for growth of E-mobility in the State. The Commission, therefore, is not emphasising on Charging EV only through Renewable Energy sources at present.

Demand Side Management

Comments/Suggestions

2.135. M/s Bask Research submitted that demand side management measures and peak management may be critical for integration of electric mobility into the grid. DSM measures may be implemented across all sectors and not just electric mobility. Developing effective DSM measures is an evolutionary process, and it is critical that the same are deployed at the

earliest for refinement. This is especially important for staggering EV charging demand. For this purpose, it is essential that Discoms are mandated to record and report electricity demand patterns for at least 15-minute time slots, for all electric charging stations.

Commission's View

2.136. The Commission has considered the suggestion. The Commission is of the view that EV cell of the Discom shall be monitoring the demand patterns of EV Charging Stations for effective Demand side management and accordingly shall be suggesting measures to be adopted for better and smooth function of Charging Stations.

SECTION 3

3. Final Order on Charging Infrastructure and Tariff for Electric Vehicles

C 1: Charging Infrastructure

3.1. The Ministry of Power (MoP) issued revised guidelines and standards for Charging Infrastructure for Electric Vehicles on 1st October 2019. The key features of the guidelines are stated below.

i) **Private Charging** at residences/offices **shall be permitted**. Discom may facilitate the same.

ii) **Setting up Public Charging Station (PCS) shall be a de-licensed activity** and any individual/entity is free to set up public charging stations, provided that, such stations meet the technical and performance standards and protocol laid down in the guidelines or any other norms/standards/specifications laid down by MoP and CEA from time to time

iii) Connectivity for Public Charging station to be provided on **priority basis** by the Distribution Company.

iv) Charging station or Chain of Charging Station may obtain electricity from any generation company **through open access**.

v) Technical Minimum Requirements for Public Charging Infrastructure

vi) Charger connectors with rated voltage and number of charging points for each type of charging (slow/medium/fast)

vii) Tie-up with network service provider to enable advance remote/online booking of charging slots. Online information to be provided to EV owners on location, type and number of chargers installed at each station.

viii) Share charging station data with appropriate Discom and adhere to the protocols as prescribed by CEA for such purpose. Database shall be accessible to Central Nodal Agency and State Nodal Agency.

ix) Electric Vehicle Supply Equipment (EVSE) shall be type tested by an agency/lab accredited by National Accreditation Board for Testing and Calibration Laboratories (NABL) from time to time.

x) At least **one charging station** should be available in a **grid of 3 km X 3**

km in the cities and one Charging Station at **every 25 km** on both sides of highways/roads.

xi) Mega cities with population more than 4 million and the existing expressways/highways connecting to these mega cities will be taken up for coverage in first phase (1-3 years) and other cities like state capital/UT headquarters will be taken up in second phase (3-5 years)

xii) **Fast Charging Stations (FCS)** shall be installed at **every 100 km** on each side of the highway preferably within/alongside the Public Charging Station (PCS)

xiii) FCS Infrastructure details for long distance & heavy duty EV's

xiv) Discoms to facilitate fast/slow private charging at residences/offices

xv) Domestic charging shall be akin to domestic consumption

xvi) Tariff for supply to PCS shall be determined by Appropriate Commission

xvii) State Nodal Agencies (SNA)/State Government/Appropriate Commissions to fix the **ceiling of service charges** to be charged by PCS to EV owners considering charging of EV is a service.

C 2: Business Models for Setting up Public Charging Infrastructure

3.2. The Public Charging Stations (PCS) shall mean an EV Charging Station where any Electric Vehicle can get its battery recharged. PCS shall have the following infrastructure:

i) An exclusive transformer with all related substation equipment including safety appliance, if required

ii) 33/11 kV line/cables with associated equipment including line termination etc, if required

iii) Appropriate civil works

iv) Appropriate cabling and electrical works ensuring safety

v) Adequate space for charging and entry/exit of vehicles

vi) Public charging station shall have, any one or more chargers or any combination of chargers from the table given below in one or more electric kiosk/boards:

Table 2: Charger Specification

Charger Type	SR. No.	Charger Connectors*	Rated Output Voltage (V)	No. of Connector Guns (CG)	Charging Vehicle Type (W=wheeler)
Fast	1	Combined charging system (CCS) (min 50 kW)	200-750 or higher	1 CG	4W
	2	CHArge de MOve (CHAdeMO) (min 50 kW)	200-500 or higher	1 CG	4W
	3	Type 2 AC (min 22 kW)	380-415	1 CG	4W, 3W, 2W
Slow/Moderate	4	Bharat DC-001 (15 kW)	48	1 CG	4W, 3W, 2W
	5	Bharat DC-001 (15 kW)	72 or higher	1 CG	4W
	6	Bharat DC-001 (10 kW)	230	3 CG of 3.3 kW each	4W, 3W, 2W
*In addition any other fast/slow/moderate charger as per approved DST/BIS standards whenever notified Note: Type 2 AC (min 22 kW) is capable of charging e-2W/3W with the provision of an adapter					

vii) Charging station for e-two/three wheelers shall be free to install any charger other than those specified above subject to the compliance of technical and safety standards as laid down by CEA

viii) Tie-up with at least one online Network Service Provider (NSPs) to enable advance remote/online booking of charging slots by EV owners. Such online information to EV owners should also include information regarding location, types and numbers of chargers installed/available, service charges for EV charging etc.

ix) Sharing charging station data with the appropriate Discom and adhere to the protocols as prescribed by CEA for this purpose. CEA, Central Nodal Agency (CNA) and State Nodal Agency (SNA) shall have the access to this data base.

3.3. Electric Vehicle Supply Equipment (EVSE) shall mean an element in Electric Vehicle (EV) charging infrastructure that supplies electric energy for

recharging the battery of Electric Vehicles. EVSE shall be type tested by an agency/lab accredited by National Accreditation Board for Testing and Calibration Laboratories (NABL) from time to time.

3.4. The above minimum infrastructure requirements do not apply to private charging points meant for self-use of individual EV owners (Non-Commercial basis)

3.5. Captive charging infrastructure for 100% internal use for a company's own/leased fleet for its own use will not be required to install chargers as stated above and to have NSP's tie-ups.

3.6. Charging Station may also be installed by Housing societies, Malls, office complexes, Restaurants, Hotels, etc. with a provision to allow charging of visitor's vehicles, which are permitted to be parked in such premises.

3.7. Public Charging stations for long range EVs and heavy duty EVs (like trucks, buses etc.) will be Fast Charging Stations (FCS) with the following:

i) At least two chargers of minimum 100 kW (200-750 V or higher) each of different specification (CCS/CHAdeMO) or any fast charger as approved by the DST/BIS for above capacity) with single connector gun each.

ii) Appropriate Liquid cooled cables for high speed charging facility as above (3.10(i)) for onboard charging of fluid cooled batteries (currently available in some long range EVs), if required.

3.8. Such Fast Charging Stations (FCS) which are meant only for 100% in house/captive utilization, for example buses of a company, would be free to decide the charging specifications as per requirement for its in house company EVs.

3.9. The Public Charging Stations (PCS) for Electric Vehicles shall be set up in the State based on the following models.

i) Discom owned Public Charging Stations

ii) Privately owned Public Charging Station

iii) Public Private Partnership (PPP) Charging Stations

Discom owned Public Charging Station

3.10. Discom can set up Public Charging Station in their own premises or at any other location suitable for setting up Charging Station as part of other business in accordance with the provisions of Section 51 of the Act and relevant Regulations.

Privately owned Public Charging Station

3.11. Any interested party/private investor can set up Public Charging Station with the minimum technical requirements specified by MoP in its Guidelines and Standards for Charging Infrastructure for electric Vehicles.

3.12. The privately-owned Public Charging station shall adhere to the norms/standards/specifications laid down by MoP and CEA from time to time.

3.13. The Discom shall publish on its website, a list of standard procedures and protocols to be followed by the Station owners/operators before and after setting up the Charging stations.

3.14. The Authorized Official of the Discom has the right to inspect/examine the procedures/protocols of privately-owned Charging station at all times.

3.15. The Authorized Official designated by the Discom shall inspect and validate whether the Charging Station is adhering to the minimum Technical requirements of MoP/CEA and has followed standard procedure and protocols.

3.16. The privately-owned Public Charging station shall be operational to public only after receipt of Clearance from Authorized Official designated by the EV Cell of the Discom.

Public Private Partnership (PPP) Charging Stations

3.17. Public Charging Stations can also be set up under Public Private Partnership (PPP) model in the State. The Public Private Partnership model shall work on the mechanism of Build Own and Operate (BOO).

3.18. Discom shall propose to set up Public Charging Stations in its office premises or sub-station premises with areas of high EV density and invite bids from

private players for setting up Public Charging Stations in the premises of the Discom. The interested parties shall bid on the basis of service charge that would be levied by the Public Charging Stations owners to the EV owners, subject to the ceiling rate defined by the State Nodal Agency.

3.19. On selection of lowest bidder, the Discom and Private player shall enter into a PPP agreement. Under this agreement, the entire investment for setting up Public Charging Station shall be made by the private player selected through bidding process. The private player shall Build, Own and Operate the PCS in the premises of the Discom.

3.20. Under this model, charging station would be set up in the premises of the Discom at no additional cost. Also, infrastructure cost and network augmentation would be significantly minimized as Public Charging Station is set up in the premises of the Discom.

3.21. Private players under this model shall be saving on the land cost for setting up Public Charging Station as compared to the model for Privately owned Public Charging Station.

3.22. The Public Charging Station established under this model shall adhere to the norms/standards/specifications laid down by MoP and CEA from time to time.

3.23. The Discom shall publish on its website, a list of standard procedures and protocols to be followed by the Station operators before and after setting up the Charging stations.

3.24. The Authorized Official of the Discom will have the right to inspect/examine the procedures/protocols of Public Charging station established under PPP model at all times.

3.25. The Authorized Official designated by the Discom shall inspect and validate whether the Charging Station is adhering to the minimum Technical requirements of MoP/CEA and has followed standard procedure and protocols.

3.26. The Public Charging station established under PPP model shall be

operational to public only after receipt of Clearance from Authorized Official designated by the EV cell of the Discom.

3.27. In addition to the above models discussed under Public Charging Stations, other EV Charging Stations shall also be developed as defined in the MoP revised guidelines notified on 08.06.2020 and stated below.

Battery Charging Stations (BCS)

3.28. Battery Charging Station shall mean a station where the fully or partially discharged electric batteries for electric vehicles are electrically recharged. For all practical purposes, Battery Charging Station (BCS) shall be treated at par with Public Charging Station (PCS), and the applicable tariff for electricity supply to the Charging Station shall also be same as for PCS.

Captive Charging Stations (CCS)

3.29. Captive Charging Stations shall mean an electric vehicle charging station exclusively for charging the electric vehicles owned or under the control of the owner of the charging station e.g. Government Departments, Corporate houses, Bus Depots, charging stations owned by the fleet owners etc. and shall not be used for commercial purpose.

Battery Swapping Stations (BSS)

3.30. Battery Swapping Station shall mean a station where any electric vehicle can get its discharged battery or partially charged battery replaced by a charged battery.

C 3: Procedures to be followed by Discom

3.31. The Discom shall facilitate growth of Electric Vehicle Charging Infrastructure either by setting up charging stations on its own or through its appropriate model and also release connections to privately owned Charging Stations on priority basis on payment of charges as per prevailing orders/ Regulations.

3.32. The Discoms may come up with the proposal to set up Charging Stations in

phased manner in its area of supply after conducting a detailed survey of demand assessment for EV Infrastructure, either by themselves or through appropriate model and submit to the Commission for intimation required under Section 51 of the Electricity Act 2003 as an other business, and ARR of the retail supply of the Discom shall be reduced to the extent of income received from such other business

3.33. Subsequent to the intimation to the Commission, Discom shall take up the work of setting-up Public charging Stations at different locations in the area of supply through various business models subject to the fulfillment of requirement under the Act/Regulations.

3.34. Discom shall facilitate slow/fast charging at residence/offices by increasing its system capacity to avoid grid disturbances and make necessary provision for this in the Investment Plan.

3.35. The Discom shall publish 'Standard Procedures and Protocols for Charging Infrastructure' on its website and shall be made available in all its offices for access to public at large.

3.36. All Charging Stations are required to adhere to the guidelines specified in the 'Standard Procedures and Protocols for Charging Infrastructure' published by Discom as well as the guidelines and standards notified by MoP/CEA.

3.37. The Public Charging Station set up by Discom, privately-owned model or through PPP model shall require a Clearance from the Authorized Official designated by the EV cell of the Discom for such purpose, before it is operational and accessible to the public.

3.38. The connectivity shall be granted to the Public Charging Station only after the issuance of Clearance from the Authorized Official designated by the Discom.

3.39. The Authorized Official designated by the Discom shall have the right to inspect all Public charging Stations set up in the area of license of the Discom. The Authorized Official shall verify that the standard guidelines and protocols are followed by the Public Charging Station at all times.

3.40. The Discom shall set up a separate EV cell for monitoring charging stations installed by individuals/private players. The EV cell shall be responsible for monitoring and facilitation of the functioning/operations/safety standards etc. adopted by charging station operator. The Discom may charge a fee for this purpose which shall be determined the Commission in respective Tariff Orders. The EV cell shall also monitor the increase in load due to EV charging stations and accordingly would plan the load management for efficient functioning of the grid. Further, this monitoring would also help the Discom to assess the peak and off-peak time slots for EV charging.

3.41. The owners of Public charging Stations will have an option to directly approach the concerned sub-division or EV cell of the Discom to get the connection after submission of requisite documents. The Discom shall mention the procedure for reporting and release of connection to the Charging Stations owners in its standard procedures and protocols to be published. The EV cell would also perform the function of amicable grievance redressal of the stakeholders. In case grievance is not settled the consumer may resort to Grievance redressal mechanism as per RERC Regulations

3.42. Every Discom shall maintain a database of all the Public Charging Stations, Battery Charging/Swapping Stations and Captive Charging Stations set up in its area of License. This database shall include details of type of chargers/connectors/rated voltage/ number of charging points and type of charging available at different locations. The database shall be made available on the website of the Discom. The combined database of all Discoms in the State shall be accessible to CEA for creation of national online database of all PCS.

3.43. The Discoms shall develop a mobile application with the support of Information Technology (I.T.) Companies and Network Service Providers (NSPs) within 6 months from the date of this Order, whereby all the real time information on EV Charging Stations such as real time updates on time slot availability, type of charging infrastructure available, available load of Charging Station, distance from present location of EV user and applicable tariff after inclusion of TOD charges and service charges, shall be accessible

to all EV users in the area of supply.

3.44. The Discoms should assimilate information of consumers resorting to private charging at own premises with details on consumption, metering and performance. This information would help the Discoms to monitor the demand of EVs for private charging and also to plan for future power purchase, load management and/or additional infrastructure etc.

C 4: Incentives to Public Charging Stations

3.45. The Public Charging Stations may be allowed to purchase power from any source through open access route in accordance with the provisions of Terms and Conditions for Open Access Regulations, 2016.

3.46. The Public Charging Station may also set up battery swapping stations with due intimation to the Distribution Licensee. The tariff applicable for Public Charging Stations shall also be applicable to Battery swapping Stations. However, the Commission may notify separate tariff for battery swapping stations, if required.

3.47. The Public Charging Stations may also be set up with rooftop solar facility under applicable Regulations.

3.48. As per RERC Renewable Energy Tariff Regulations, 2020 there shall be an exemption of 100% in Intra State transmission charges and wheeling charges for Solar Power Project set up before 31.03.2023 for supplying power to Electric Vehicle charging stations either under Captive route or through open access. This exemption shall be applicable for first ten years from the date of establishing of Electric Vehicle charging stations. The above exemptions shall be applicable for projects with individual plant capacity of maximum 25 MW and for the total capacity of 500 MW.

C 5: Tariff Structure for Public Charging Stations

3.49. The tariff applicable for public charging stations shall be as per Commission's tariff order issued from time to time. The current position as follows.

The Commission in its latest tariff order dated 06.02.2020 has decided to introduce the following new categories under Electric Vehicle Charging

with concessional tariff as under:

Electric Vehicle (EV) Charging Station (LT-8 and HT-6)

Public Charging Station

3.50. The tariff applicable to public charging station will be as follows:

Table 3: Public Charging Station Tariff

Category	Energy Charges	Fixed Charges
Public charging station (LT-8)	Rs 6.00/unit	Rs 40/HP/month of sanctioned connected load.
Public charging station (HT-6)	Rs 6.00/unit	Rs 135/KVA/Month

Time of Day (TOD) structure for Public Charging Station

3.51. During Off-peak Hours (2300 hours to 0600 hours) rebate of 15% for Public Charging Station shall be allowed as under:

Table 4: ToD Rebate for Public Charging Station

Off peak hours	Rebate on EC
11 PM-6 Am	15%

3.52. Voltage rebate, Load factor rebate, rebate for incremental consumption and rebate for new HT connections shall not be applicable for this category. Other general terms and condition as applicable to industrial consumers shall also apply to EV charging station.

3.53. The above tariff applicable to PCS shall also be applicable to Battery Charging Stations (BCS) and Battery Swapping Stations (BSS) as defined in the preceding paragraphs.

3.54. The above tariff shall remain in force till revised by the Commission through the subsequent Orders.

Other Consumers

3.55. The consumers of other categories undertaking charging of Electric Vehicles in their respective premises will be charged as per tariff applicable to their respective category or to say they need not to take a separate connection. They can charge Electric Vehicles within their respective

connection, provided that load with EV charging does not exceed the Sanctioned connected/contracted load or demand as the case may be.

In case connected load or contract demand exceeds the sanctioned connected load or contracted demand as the case may be, the consumer will be subject to penal provisions as per Tariff or Electricity Supply Code Regulations.

3.56. Consumers shall apply to Discoms in case there is an increase of Connected load /contract demand on account of EV charging in their premises. The Discom shall revise the load/demand of consumer as per guidelines specified in RERC (Electricity Supply Code and Connected Matters) Regulations, 2004 amended from time to time. The Discom shall take utmost efforts to upgrade its system as per the requirements of load for EV charging in its area of supply.

3.57. Discoms shall initiate the process of setting up of Charging Infrastructure either through themselves or through appropriate model so as to meet the targets given in the revised guidelines notified by Ministry of Power.

3.58. Keeping in view the likely growth in Electric Vehicles the Discom shall propose Capital Investment Plan for upgrading its network for accommodating Charging Infrastructure in order to facilitate smooth and efficient EV Charging at respective Charging Stations. The Capital Investment Plan shall be prepared after rigorous discussions with investor/stakeholders/private players, who are keen to set up charging stations in the License area of the Discom.

3.59. Discoms may also encourage other energy companies (like IOCL, HPCL, IGL etc.) to invest in providing a charging network, specially the fast charging stations at inter-city routes like state and national highways.

3.60. The Discom shall also promote Smart Charging features by optimizing the charging process according to distribution grid constraints and local renewable energy availability, whereby EV charging patterns could be controlled to flatten the peak demand and support real time balancing of the grid by adjusting their charging levels.

3.61. The EV Cells of Discoms shall also conduct a study regarding smart charging features with respect to Vehicle to Grid (V2G) and Grid to Vehicle (G2V) and submit to the State Nodal Agency so that Discoms may plan their future power requirement.

3.62. For implementation of Smart Charging, the Discom shall install smart meter at all Public Charging Stations. Smart Charging will not only help Discom manage its load but also provide grid security in the long run.

3.63. EV Cell of each Discoms shall submit a monitoring and evaluation report to the State Nodal Agency on smart charging features to be implemented by the Public Charging Stations in the area of its supply, after every one year from the date of issuance of this Order.

3.64. The State Government shall nominate a nodal agency for the State for setting up a charging infrastrucutre. As of now the State Govt. has nominate Jaipur Vidyut Vitaran Nigam Limited (JVVNL) for this purpose.

3.65. State Nodal Agency (SNA) based on the monitoring and evaluation report on smart charging shall give its recommendations to the Commission for efficient operations, if required.

3.66. With smart charging and metering in place and growth in solar applications, the Discom shall review the ToD hours and propose variable time differentiated pricing to take maximum benefit of available day time power.

3.67. State Nodal Agency shall be responsible for deciding the ceiling of Service Charges to be charged by PCS/FCS.

3.68. Copy of this order may be sent to the State Government, Central Electricity Authority (CEA), State Nodal Agency (SNA), Distribution Licensees and all the Stakeholders.

(Prithvi Raj)	(S.C.Dinkar)	(Shreemat Pandey)
Member	Member	Chairman

Annexure - I

The list of Stakeholders who submitted their suggestions/comments:

SR. No.	Name of the stakeholder
1	M/s Samta Power
2	Shri Shanti Prasad
3	M/s Source Advisory
4	M/s Mahindra Electric Mobility Limited
5	M/s BSES Rajdhani Power Limited
6	M/s CUTS International
7	Shri G.L. Sharma
8	M/s Bask Research Foundation
9	M/s Leap Green Energy
10	M/s Rudraksh Energy