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Date: 27/05/2019

To,
The Secretary,
Maharashtra Electricity Regulatory Commission,
World Trade Centre, Centre No.1,
13th Floor, Cuffe Parade, Mumbai.

Subject: Submission of MSEDCL's comments on MERC Ag Sampling Methodology.

Reference: MERC public notice dated 6th May 2019.

Sir,

MERC has constituted a Working Group (WG) for Agricultural Consumption Study (AG Study). The WG has prepared a methodology and survey approach for conducting this Study. Vide its Public Notice dated 6th May 2019, MERC has invited comments on the proposed sampling methodology and field survey approach. Accordingly, MSEDCL hereby submits its Comments on the Proposed Sampling Methodology and Field Survey Approach.

Considering the Proposed Sampling Methodology and Field Survey Approach, MSEDCL would like to highlight some of the ground realities before the Commission.

Metering of Agriculture Consumers:

MSEDCL has always strived hard to provide meters to all the Agriculture Consumers. However, while providing meters, MSEDCL in the past has experienced various difficulties.

- Resistance from the AG consumers and local persons for installation of meters;
- Difficulty in getting contractors for Installation of meters for such wide spread area;
- Some AG consumers remove pumps along with service wire during rainy season

Due to these difficulties, execution of programs of metering to un-metered Ag consumer has always been in trouble.

Difficulties in meter reading and billing:

It is further observed that even after meters are installed / provided to un-metered agricultural consumers, meter reading of these consumers is very difficult because of below mentioned constrains:

- During rainy season or non-working period, the consumers generally remove pumps along with the meter and keep at home;

- Meter Boxes are mostly locked by consumer & Most of the time, the consumer / land owner is not available at the time of meter reading;
- Installation of AG pump is very scattered as per water availability/requirement

MSEDCL submits that due to different constraints viz., non-availability meter reading agencies, resistance of consumers to metering, damage to Meters by consumers etc., it is always a difficult task to bill the consumer as per meter reading and also correctly assess the proper index, or conduct the correct energy audit.

MSEDCL further submits that such difficulties for Ag consumers are faced by almost all State Utilities in India and most of the State use assessment methodology for estimating the Agriculture Consumption. Considering the wide spread geographical area, different crop pattern, rainfall and ground water availability, it is always difficult to assess the AG Consumption accurately.

Current Methodology of AG Index:

For assessment of unmetered Ag consumption, MSEDCL has been using the sub-division wise consumption of the metered AG Consumers with normal progressive meter reading status, i.e. excluding meters with zero or negative consumption. For the metered consumers, the maximum consumption is capped at 224 kWh/HP/month based on a maximum of 10 hours of supply per day and 300 days of operation per annum. Based on the consumption and connected load of metered AG Consumers with normal reading, the Index is calculated and is being applied to un-metered agricultural consumers connected load to arrive at consumption. Hon'ble Commission has accepted this methodology in the past and has approved the AG Sales based on this methodology.

Proposed Sampling Methodology and Field Survey Approach

The Working Group has proposed to use feeder as a basic unit of analysis. The sampling frame shall consist of 10,260 agricultural feeders in Maharashtra, which cover about 95 % agricultural consumers. Out of 10,260 Ag feeders, WG has decided to undertake field survey of 500 AG feeders spread across the State considering following criteria:

Feeder wise annual sales considered as the primary criterion for stratification. The feeders then will be ranked according to their total annual sales and then divided into four groups of equal sizes i.e. four quartiles. The sample will be then distributed across each quartile based on a weight considering the total number of consumers, the connected agricultural load, and the total agricultural sales in each quartile. Within each quartile, the sample will be further distributed across the four different feeder types (LT Mix, LT AGD, LT SPP, and LT SDT) based on a weight calculated in a similar fashion as above. A random sample will be then chosen from these 16 strata (four feeder types in each quartile). This proposed

sampling methodology is expected to result in agricultural electricity consumption estimated on these feeders being representative of the Maharashtra state as a whole.

In view of the Proposed Sampling Methodology and Field Survey Approach MSEDCL submits that the AG consumption should not be decided on normative basis as it very much depends on rainfall, ground water availability, cropping pattern etc. and these conditions vary every season and seasonal pattern is also varies every year. Hence, the AG consumption and survey shall be carried during each cropping season and also separately for each year considering all the dependent factors. Also this process needs to be continuous and not the one time exercise.

Sample Size:

Many critical criterion depends on the sample size of the data. An appropriate sample should be defined by the level of precision; level of risk and degree of variability. As MSEDCL supplies power to a diverse population, the degree of variability is high. Hence a larger sample size would be required to capture the true picture.

Also, it should be ensured that 100% consumers on the selected sample feeders shall be surveyed so as to have correct estimation of the consumption.

The most important selection criterion for sampling of feeder should be the predominance of agricultural load. All the feeders should be selected such that they have predominantly agriculture load wherein, 95% of the feeder load is attributed by agricultural loading.

Moreover, the sample feeders should be selected such that they represent the circle-wise, zone-wise geographical spread of the MSEDCL. The demand widely varies with time of the day, seasons, rainfall, crop pattern, river flow and other factors which contribute to the demand. The seasonal variation in agricultural demand should be well captured. The rainfall and requirement of water for irrigation in the year may not be same as that of the previous year. Hence, the demand due to shortage or excess availability of water will also impact the agricultural demand. Therefore, such exercise should be periodically reviewed and modified accordingly.

MSEDCL also suggests that the data of latitude/longitude of the consumers captured during the initial survey shall be used by the survey agency for the subsequent visits without depending on MSEDCL's employees for locating the consumers.

MSEDCL also submits that all information collected through survey related to AG consumption, demand & should not be subjective and independent of information obtained through word of mouth, newspaper articles or media.

Survey Approach – Use of questionnaire:

MSEDCL submits that in the Survey Approach, the Hon'ble Commission has prepared a questionnaire (provided in Annexure I of the proposed methodology) which is proposed to be filled based on inputs provided by MSEDCL and well as field survey including interviews of consumers. In this regard, MSEDCL submits that the parameters based on the consumer interview would be subjective and depends upon individual's assessment of the question which attracts individual's bias and thus cannot be relied upon. Therefore, such findings should be thoroughly cross verified based on the parameters derived from meter reading or any other such instrument in which the human intervention is minimal.

Input at EHV end should be considered as an important parameter:

MSEDCL submits that for each selected feeder, input at EHV end should be chosen for purpose of the AG study as a third party available data for analysis of AG consumption. Since the data pertaining to EHV input is sourced directly from the incoming EHV Feeder of MSETCL, the possibility of manual intervention resulting into an error is minimal. Thus the data pertaining to EHV input, being reliable and consistent should be adopted and pursued in the methodology. This EHV input data should be used to establish the relationship between the variation in EHV input vis-a-vis variation in AG sales.

Methodology for Assessing AG Index and Consumption:

It is further submitted that the Document has not clearly mentioned that how the data from MSEDCL, surveys and different stakeholders will be utilized to arrive at the AG Index and AG consumption. Hence, a specific concrete methodology for assessing the agriculture consumption using the various gathered information shall be brought out clearly in the Document.

It is therefore requested to consider the above mentioned suggestions/comments while finalizing the Sampling Methodology and Field Survey Approach for Agricultural Consumption Analysis Study.

Yours Faithfully,



(Satish Chavan)

Director (Commercial)

MSEDCL