

Ref. No.: SE/TRC/MYT-2024/

039722

Date:

24 DEC 2024

To,

The Secretary,

Maharashtra Electricity Regulatory Commission,

13th Floor, Centre No. 1, World Trade Centre,

Cuffe Parade, Mumbai-400 005.

**Subject:** MSEDCL's Multi Year Tariff (MYT) Petition for Final True Up of ARR of FY 2022-23 & FY 2023-24, Provisional True Up of ARR of FY 2024-25 and Projections of ARR and determination of Tariff for the 5th Multi Year Tariff Control Period for FY 2025-26 to FY 2029-30 (Case no. 217 of 2024)- Submission of replies to Data Gaps Set-2.

**Reference:** 1. Letter no. SE/TRC/MYT-2024/37313 dated 29.11.2024.  
2. Letter no. SE/TRC/MYT-2024/39521 dated 20.12.2024.  
3. Email from MERC regarding Data Gaps Set-2 dated 17.12.2024.

Respected Sir,

As per the provisions of MERC (MYT) Regulation 2024, MSEDCL has submitted its Multi Year Tariff (MYT) Petition for Final True Up of ARR of FY 2022-23 & FY 2023-24, Provisional True Up of ARR of FY 2024-25 and Projections of ARR and determination of Tariff for the 5th Multi Year Tariff Control Period for FY 2025-26 to FY 2029-30 vide letter under reference (1). Hon'ble Commission vide its email dated 10<sup>th</sup> Dec. 2024 raised Data Gap Set-1 in respect of the said petition. Accordingly, MSEDCL submitted the reply to Data Gap Set-1 before Hon'ble Commission vide letter under reference (2).

Further, Hon'ble Commission vide its email under reference (3) raised additional data gaps (set-2). Accordingly, MSEDCL is hereby submitting the replies to Data Gaps Set-2, copy of which is enclosed herewith. Further, replies to certain queries as mentioned in the said replies will be submitted subsequently.

This may please be taken on record and be placed before Hon'ble Commission for its kind consideration.

Thanking you.

Encl: As above

Regards,  
  
Director (Commercial)  
MSEDCL

## **Data Gaps Set-2**

### **Petition of M/s Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL) for Final True up of ARR for FY 2022-23 & FY 2023-24, Provisional True up of ARR for FY 2024-25 and Projections & ARR for 5<sup>th</sup> control period for FY 2025-26 to FY 2029-30. (Case No. 217 of 2024)**

## **Section 1: Data Gaps on Energy Sales & Revenue**

### **MYT Projections for FY 2025-26 to FY 2029-30**

#### **Query 1. Form: Revised RA Plan**

- a. It has been observed that MSEDCL has added some hard punch numbers in the agriculture sales (L41:P41) and subtracted hard punch numbers in 'LT-POULTRY/HIGHTECH' (Cell K30) categories in the 'Revised RA Sales' MSEDCL needs to clarify on the same.

#### **MSEDCL Reply:**

- a. MSEDCL submits that the reply to the said query shall be submitted subsequently.

#### **Query 2. Form: Revised Sales Proj. Incl. DF**

- a. While projecting the revised sales for FY 2025-26 to FY 2029-20, MSEDCL has adjusted the sales from EV, Rooftop and Solar Pump in the different categories using the hard-punched percentage figures in column K. MSEDCL needs to submit the justification of these percentage numbers.

#### **MSEDCL Reply:**

- a. MSEDCL submits that the reply to the said query shall be submitted subsequently.

## **Section 2: Data Gaps of Tariff Design & Methodology**

### **Tariff Design & Methodology**

#### **Query 3. 6.4 – ToD proposal**

- a. The MERC MYT Regulations, 2024, has provided indicative time slots and tariffs for ToD charges. Further, it has mentioned that distribution licensee needs to propose category-wise ToD tariff after assessing the growth in the demand. The relevant extract is reproduced below:

*“Provided that Distribution Licensee may propose seasonal ToD tariff in its Tariff Petition: Provided further that the distribution licensee to propose their ToD time slots with slot-wise rebate/penalty at the time of MYT or MTR Tariff filing subjected to compliance of the applicable MoP Rules: Provided further that the Commission at the time of MYT Order proceedings may extend the applicability of the ToD Tariff to the other consumer categories after assessing the growth in the demand.”*

- b. MSEDCL has proposed category wise different ToD tariffs/rebates in MYT petition. MSEDCL needs to provide detailed calculation undertaken for the category-wise ToD study and submit the rationale behind the same.

- c. MSEDCL needs to provide 24-hour load curve for each month during the last 5 years. MSEDCL also needs to provide the monthly/hourly variation in power purchase cost against the 24-hour load curve for each month during the last 5 years.
- d. Further, MSEDCL needs to provide projected hourly source-wise incremental variable cost calculation for the years in 5th Control Period. MSEDCL also needs to provide the basis for Average category-wise hourly consumption during each time slab as shown in the Petition.

**MSEDCL Reply:**

MSEDCL submits that the reply to the said query shall be submitted subsequently.

**Query 4. 6.6 – Grid Support Charges**

- a. MSEDCL has proposed Grid Support Charges in the MYT Petition. However, to ensure transparency and accuracy, MSEDCL is required to provide a detailed Excel-based calculation, explicitly outlining each component of the formula utilized to compute Grid Support Charges.

**MSEDCL Reply:**

- a. MSEDCL submits that the reply to the said query shall be submitted subsequently.

**Query 5. 6.17 – Tariff for LT and HT– Electric Vehicle (EV) Charging Stations**

- a. There In the Para 6.17 of the MYT Petition, MSEDCL has proposed single part Tariff for EV charging stations categories. However, in the revenue calculations, MSEDCL has considered two-part tariff for EV charging station categories. MSEDCL is required to clarify and confirm the proposed tariff applicability, as an inconsistency has been identified in the MYT petition.

**MSEDCL Reply:**

- a. MSEDCL submits that the reply to the said query shall be submitted subsequently.

**Query 6. 6.18 – Billing Demand**

- a. There MSEDCL has mentioned that it has projected MSEDCL would not have excess supply in the night hours as most of supply addition is happening in solar for 5th Control Period. Accordingly, it has proposed the demand recorded during night should also be considered for determining billing demand.
- b. MSEDCL is required to provide a comprehensive analysis and justification for its proposal to incorporate night demand into the billing demand calculation, highlighting the associated benefits.

**MSEDCL Reply:**

- a. MSEDCL agrees that it has submitted the same in its Petition. During night as there would be no solar power most of the thermal power plants would be generating near their maximum generation capacity. Hence demand of consumers during nighttime should be considered for determining billing demand as it would lead to corresponding increase in power demand from thermal power plants which would lead to higher requirement of contracted capacity by MSEDCL.
- b. MSEDCL submits that in general maximum demand recorded by any consumer is factored for

determining billing demand for that consumer. The relevant extract from Hon'ble Commission's order in case no. 226 of 2022 is reproduced hereunder:

***Billing Demand - LT tariff categories***

.....

*Monthly Billing Demand will be the higher of the following:*

- a) 65% of the actual Maximum Demand recorded in the month during 0600 hours to 2200 hours;*
- b) 40% of the Contract Demand.*

*Note:*

- Only the Demand registered during the period 0600 to 2200 Hrs. will be considered for determination of the Billing Demand.*
- In case of a change in Contract Demand, the above period will be reckoned from the month following the month in which the change in Contract Demand is effected.*

***Billing Demand - HT tariff categories***

.....

*Monthly Billing Demand will be the higher of the following:*

- a. Actual Maximum Demand recorded in the month during 0600 hours to 2200 hours;*
- b. 75% of the highest Billing Demand recorded during the preceding eleven months, subject to the limit of Contract Demand;*
- c. 70% of the Contract Demand.\**

*\*For FY 2024-25: 75%”*

It is to be noted that billing demand for the month was determined based on actual maximum demand recorded in the month during 0600 hours to 2200 hours. An exception was done from 2200 hours to 600 hours during night when the recorded maximum demand was not being used to determine billing demand. This was enforced because during nighttime demand was less and even if a few consumers exceeded their contract load it was not expected to have a high impact on grid stability and additionally MSEDCL would have got higher revenue (from consumers exceeding their contract demand) than incremental variable cost. However, in the changed circumstances when there is no steep backing down of thermal generating stations during night it would not be rationale to not consider Maximum Demand recorded during night for determination of billing demand.

**Query 7. Form – Input CSS, CSS FY 2025-26 to FY 2029-30, Rev from CSS**

- a. There is #REF! error in some cells of the mentioned sheets. MSEDCL needs to rectify the error.

**MSEDCL Reply:**

- a. MSEDCL submits that the reply to the said query shall be submitted subsequently.

**Query 8. Modified ACoS**

- a. MSEDCL's projection of Franchisee Revenue from the Proposed Tariff for the 5th Control Period is lower than the Franchisee Revenue at the Existing Tariff. However, the sales of distribution franchisees have been increasing over the years. MSEDCL must provide a justification for this discrepancy and, if necessary, re-evaluate the revenue from franchisees at the proposed tariff.

**MSEDCL Reply:**

- a. MSEDCL submits that the reply to the said query shall be submitted subsequently.

**Query 9. Table No. 177 and Modified ACoS**

- a. In It has mentioned that % of revenue from Fixed/ Demand Charges to total revenue is proposed to increase from 20% in FY 2025-26 to 30% in FY 2029-30.

| Year                                       | FY 25-26 | FY 26-27 | FY 27-28 | FY 28-29 | FY 29-30 |
|--|----------|----------|----------|----------|----------|
| %age of revenue from Fixed/ Demand Charges | 20%      | 22.5%    | 25%      | 27.5%    | 30%      |
| Fixed Expense as ratio of ARR              | 45.0%    | 43.8%    | 43.9%    | 45.0%    | 46.8%    |

- b. However, in the Modified ACoS sheet, % of revenue from fixed charges to total revenue shown are different. MSEDCL needs to clarify and revisit the numbers shown in Modified ACoS sheet.

**MSEDCL Reply:**

- a. MSEDCL submits that the reply to the said query shall be submitted subsequently.

**Query 10. Wheeling Charges**

- a. An inconsistency has been detected between the Wheeling Charges proposed in the Petition and those applied in revenue computations for the control period (Form no. 13) as well as for the computation of Grid Support Charges. MSEDCL needs to reconcile the numbers and rectify the error.

**MSEDCL Reply:**

- a. MSEDCL submits that the reply to the said query shall be submitted subsequently.

**Section 3: Power Purchase Expense****Excel Formats****Query 11. MYT Excel Formats – Output sheet**

- a. Many rows in the Power Purchase Excel formats esp. in Output sheet has hard punched numbers. For e.g. – Previous PP Cost, ARR (As per Hourly MoD), Revenue from Sale of Surplus Power, etc.

- b. MSEDCL needs to properly link the numbers and submit formula driven excel computation.

**MSEDCL Reply:**

- a. MSEDCL submits that the reply to the said query shall be submitted subsequently.

## **Section 4: Data Gaps on Power Purchase Cost**

### **True Up for FY 2022-23 & FY 2023-24**

#### **Power Purchase**

##### **Query 12. Power Purchase Plan**

- a. The Commission vide its letter dated 18 November 2024 directed to revisit its ST-DRAP, MT-DRAP planning along with proposed power procurement and file the revised RA plan along with MYT filing. MSEDCL shall submit the compliance of the letter dated 18 November 2024.

**MSEDCL Reply:**

- a. MSEDCL submits that the reply to the said query shall be submitted subsequently.

## **Section 5: Data Gaps on Capex and ARR**

### **Contribution to Contingency Reserve**

#### **True Up for FY 2022-23**

##### **Query 13. Form ARR Summary cell F23**

Contribution to contingency reserve provided in ARR Summary cell F23 in excel model is a hard punch number. MSEDCL needs to provide proper linkage to it.

**MSEDCL Reply:**

MSEDCL submits that the requisite updates have been made and the reply to the said query shall be submitted subsequently.

#### **True Up for FY 2022-23**

#### **O&M Expenses**

##### **Query 14. Form F3.1**

Impact of Wage revision linking missing in Form F3.1 cell H15 and H55.

**MSEDCL Reply:**

MSEDCL submits that the requisite updates have been made and the reply to the said query shall be submitted subsequently.

## **ARR projection from FY 2025-26 to FY 2029-30**

### **Additional Surcharge refund for FY 2025-26 to FY 2029-30**

##### **Query 15. Form AS & RLC refund**

There are hard punch numbers in the cell G4 to I4 and G10 to K10 in Form AS & RLC refund.

MSEDCL need to rectify it.

**MSEDCL Reply:**

MSEDCL submits that the reply to the said query shall be submitted subsequently.

**Query 16. Form 11**

The calculation of Contribution to Contingency Reserve in cell O14 to S14 of form 11 is not clear and don't have clear linkages. MSEDCL need to rectify it.

**MSEDCL Reply:**

MSEDCL submits that the requisite updates have been made and the reply to the said query shall be submitted subsequently.

**Query 17. Table 168 Combined ARR for Supply and Wires Business for the Control Period and Form ARR Summary**

Income from Open Access Charges does not match with the Form ARR Summary of the excel cell P37 to T37 to Petition Table 168 Combined ARR for Supply and Wires Business for the Control Period.

**MSEDCL Reply:**

MSEDCL submits that the reply to the said query shall be submitted subsequently.

**Query 18. 15 - Details of Opex Scheme**

a. Income The regulation 93.5 and 103.5 under MYT Regulation 2024 states that:

“A Distribution Licensee may undertake Opex schemes for system automation, new technology and IT implementation, etc. and such expenses may allowed over and above normative O & M expenses, subject to prudence check by the commission:

Provided that the Distribution Licensee shall submit detailed justification, cost benefit analysis, and life-cycle cost analysis of such schemes as against capex schemes, and savings in O&M expenses, if any.”

b. MSEDCL has not provided the cost-benefit analysis of such schemes as against capex scheme and savings in O&M Expenses resulting from the OPEX schemes as part of the submissions in the MYT Petition. MSEDCL is required to provide the same for all the schemes claimed under OPEX.

**MSEDCL Reply:**

**Reply to point a & b.**

MSEDCL submits that the scheme wise requisite details are **Annexure Datagap Set 2\_Query 18 & 24.**

**Query 19. 15 – Details of Opex Scheme**

a. MSEDCL need to provide brief note on selection of service provider for various opex as

claimed in in the Petition.

- b. MSEDCL is to submit as to how cost competitiveness is ensured in the selection process followed.

**MSEDCL Reply:**

**Reply to point a, b.**

MSEDCL submits that tender advertisement published through Newspaper and mahadiscom website by MSEDCL. As per the CVC/MEITY guidelines, the terms and conditions are applied for floating of tender. The qualification criteria for the bidders are defined to confirm the technical capability of bidders and financial status of bidder. The experience criteria for bidder is mentioned to confirm bidders past experience in similar projects. After submission of technical and commercial bid their technical evaluation is carried out.

The Pre bid meeting is conducted and response to pre-bid quires are published. Selection will be done through bidding process based on L1 criteria for technically qualified bidder.

| S.No . | Tender no.  | Name of tender                             | Estimated Cost in Cr. (₹) | No. of bidders | Name of L1 Bidder  | LoA Amount in Cr. (₹) |
|--------|---|--|---------------------------|----------------|--|-----------------------|
| 1      | CGM/IT/CCS/2021 /1 Ver.3                          | Centralised Customer Care                  | 148.63                    | 6              | M/s Arceus Infotech Pvt ltd  | 136.13                |
| 2      | CGM-IT/Substation Monitoring System/MAH/23-24/018 | Substation monitoring system               | 382.29                    | 2              | M/s Amnex Infotech pv Ltd. In consortium with M/s Rite water solution India pvt ltd and synergy system and solution pvt ltd. | 382.29                |
| 3      | CGM/IT/CLOUD/2024-25/020 VERSION- 4               | MSEDCL Cloud project                       | 89.73                     | 2              | M/s SM Networks & Solutions Pvt. Ltd.  | 98.52                 |
| 4      | CGM (IT)/ Load Forecasting/2022                   | Demand forecasting                         | 47.34                     | 2              | M/s SCS Tech India Pvt. Ltd. In consortium partner M/s Mercados Energy Markets India Pvt. Ltd.                               | 32.56                 |
| 5      | CGMIT/GIS-NA/2022                                 | Enterprise GIS & Network Analysis Solution | 49.81                     | 2              | M/s SCS Tech India Pvt. Ltd. In  | 46.95                 |

| S.No | Tender no.                    | Name of tender                                       | Estimated Cost in Cr. (₹) | No. of bidders | Name of L1 Bidder                          | LoA Amount in Cr. (₹) |
|------|-------------------------------|--|---------------------------|----------------|--|-----------------------|
|      |                               |  |                           |                | consortium with M/s Sliver Touch Tech Ltd. |                       |
| 6    | CGM-IT/RDSS/SAP AMS/23-24/017 | ERP SAP S4 HANA                                      | 117.27                    | 3              | M/s Deloitte Touche Tohmatsu India LLP     | 106.9                 |
| 7    | GEM/2023/B/3914 284           | Procurement of SDWAN solution                        | 53.47                     | 2              | M/s SM Networks & Solutions Pvt. Ltd.      | 53.16                 |
| 8    | CGM(IT)/ITOT-RDSS/22-23/10    | Redevelopment of MSEDCL IT SYSTEMS UNDER RDSS SCHEME | 11.40                     | 3              | M/s Idea Infinity IT Solutions Pvt Ltd.    | 9.71                  |

#### Query 20. 15 – Details of Opex Scheme

- a. With regards to Centralized Customer Care Center (CCCC), it is observed that there has been approx. 200% increase in Provisional True-up years and projections years as compared to true-up years. It is requested to submit justification for the same. Also provide the details with regards to nature of work performed in CCCC and No. of call made vis-à-vis payments made to CCCC operator.

#### MSEDCL Reply:

- a. MSEDCL submits that earlier customer care contract was for only 200 agents who were handling the Inbound calls. For outbound calls a new contract was placed on 08.12.2023. The opex cost is increased due to below factors:

- The number of agents for outbound calling are 374 agents and covered in scope of work hence there is increase in opex cost.
- Due to increase in number of consumers the opex cost is also increased.

The consumer count is increase in FY 23-24 due to outbound calling consumer for recovery of arrears, awareness, campaign. Information of new scheme to consumers and various other activities etc.

No of calls and Payment made to agency for providing CCC services is as under

| Sr No | FY               | No of calls |            | Complaint Attended | Payment   | Amt recovered |
|-------|------------------|-------------|------------|--------------------|-----------|---------------|
|       |                  | Inbound     | Outbound   |                    | Rs. Cr.   | Rs. Cr.       |
| 1     | 2022-23          | 21,84,352   | -          | 36,49,647          | 8.15 Cr.  | 1307.75       |
| 2     | 2023-24          | 25,51,017   | 47,68,962  | 35,80,846          | 14.49 Cr. | 1764.96       |
| 3     | Apr 24 to Nov 24 | 18,97,178   | 388,71,077 | 31,13,325          | 14.17 Cr. | 2152.95       |

The scope of LOA was revised with Addendum No. CGM/IT/36157/Dt.08.12.2023 for  
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cancellation of CFC at division level and the same manpower utilized at CCCC for outbound calling such as activities-

| Sr No | Activities   |
|-------|--|
| 1     | Outbound Calling for arrears recovery  |
| 2     | Follow up with field staff for   |
|       | 1. New Connection pendency,  |
|       | 2. Pendency of online applications   |
|       | 3. Pendency of billing complaints and power failure complaints   |
| 3     | Welcome Call to New Consumer   |
|       | - Information of tariff applicable   |
|       | - Bill details, discounts on bill such as go-green, prompt payment discount, digital payment discount etc. |
|       | - Online payment facility  |
|       | - Mobile app and web self-service facility   |
| 4     | Complaints forwarded by VIPs with end-to-end resolution and consumer feedback                              |
| 5     | Consumer Feedback on various services  |

There are multiple benefits many of them are intangible benefits these are as follows-

- Call center activities resulted in improving customer satisfaction.
- Facilitating, monitoring and resolving consumer complaints within SOP timeline.
- Improving quality of supply and quality of billing.
- Due to outbound calls newly connected consumers as a welcome call for image improvement of company amongst larger public.

Life-cycle cost analysis:

| COST SUMMARY               |  | Cost Per Year<br>(Rs. Cr.) | Revised Cost<br>(Rs. Cr.) |
|----------------------------|--|----------------------------|---------------------------|
| A                          | Call Center Cost                                     | 8.89                       | 44.47                     |
|                            | Toll Free & Telephone lines cost                     | 2.14                       | 10.70                     |
|                            | CFC manpower diverted to call center (bal 44 months) | 16.19                      | 59.36                     |
| <b>GRAND TOTAL (A+B+C)</b> |  | <b>27.22</b>               | <b>114.54</b>             |

#### Query 21. 15.3 – Substation Monitoring Scheme

- It has mentioned that the project is proposed under Special Assistance Scheme of GOI with interest free loan, instead of earlier proposed under RDSS Scheme.
- It is observed that, MSEDCL has proposed significant amount under this scheme in OPEX for provision projection years as compared to true-up years. MSEDCL to provide savings in O&M cost because of implementation of the scheme.

c. Further, MSEDCL to mention the funding details of the scheme.

**MSEDCL Reply:**

**Reply to point a, b, c.**

MSEDCL submits that earlier the cost in true up shown up it was in OPEX scheme, for 44 number of substations in akola dist. however in projection year the project cost is shown against recently issued for 3,563 number of substations excluding substation proposed under SCADA the project is proposed under substation monitoring scheme funded by ADB with 70% loan and 30% equity.

**Query 22. 15.6 – Business Analytics and Demand Forecasting Solution**

a. It has mentioned that MSEDCL intends to purchase a Software Solution with the capability of energy load forecasting and power trade strategy management along with power purchase optimization/power portfolio optimization. MSEDCL to provide details of savings in power purchase due to demand forecasting. Further, MSEDCL to mention the funding details of the scheme.

**MSEDCL Reply:**

a. MSEDCL has engaged M/s SCS Tech India Pvt Ltd (Consortium Partner Mercados Energy Market India Pvt Ltd) for implementation of Business Analytics and Demand Forecasting Solution. The key components of this project are Demand forecasting, Energy Portfolio Management, Scheduling Optimization, Bidding and the Business analytics. The project is achieved Go-live in the month of Sept-2024.

Followings are the tangible benefits achieved by using the solution:

- The solution leverages AI/ML-based demand forecasting methods, enabling MSEDCL to achieve a 30% reduction in demand forecasting errors compared to the previous year since the EPM solution went live. This improvement has significantly enhanced forecasting accuracy, allowing for better optimization of the energy portfolio. Additionally, it has resulted in cost savings through effective bidding in the DAM and RTM markets. Below table represents the Mean Absolute Percentage Error (MAPE) achieved this year compared to last year:

| Day ahead MAPE Analysis |              |              |
|-------------------------|--------------|--------------|
| Month                   | 2023<br>MAPE | 2024<br>MAPE |
| Sep                     | 5.07%        | 3.35%        |
| Oct                     | 3.32%        | 2.95%        |
| Nov                     | 4.12%        | 2.27%        |
| Dec                     | 2.66%        | 2.14%        |
| Average                 | 3.79%        | 2.68%        |

- The scheduling optimization and improved bidding strategy have enhanced the user experience by reducing cycle times and achieving power purchase cost optimization savings of about 164 Cr. through DAM and RTM bidding for the month of Oct-24 and Nov-24.

- The solution is currently in the stabilization period, with some critical tasks still to be addressed during this phase. Key activities such as integrating the Real-Time SCADA system with the solution interface and capturing real-time RE generation data are part of the ongoing stabilization efforts. MSEDCL is working diligently alongside the implementing agency to ensure these tasks are completed efficiently and within the stabilization timeline.

MSEDCL submits that the project is operating under RDSS Scheme as per the sanctioned letter of Power Finance Corp. Ltd. Vide letter no. 02:10: RDSS:2021:1 MSEDCL Dt.22.09.2022 60% amount approved cost of works would be provided by Govt of India and balance cost of the works or( over and above cost of DPR )has to be arranged through loan or internal resources.

#### **Query 23. 15.6, 15.7. 15.8 & 15.9**

- MSEDCL has proposed expenditure under these schemes for provisional true-up against the approved nil amount. Further, MSEDCL has proposed ERP SAP S4 Hana for projection period. MSEDCL has issued more than Rs. 200 Cr. LoA for implementation of these schemes.
- Further details of modalities for funding like subsidy component, debt/ equity (internal accrual) needs to be provided.

#### **MSEDCL Reply:**

- MSEDCL presents the following table detailing the SAP S4 HANA project. The Letter of Award (LOA) has been issued to M/s Deloitte Touche Tohmatsu India Pvt. Ltd., as per the SBD from MOP, for a value of Rs. 106.90 Crores. The LOA includes the following:

|  |                              |
|--|------------------------------|
| Annual SaaS based COTs ERP pricing:            | Rs. 79.58 Crores (opex)      |
| SAP HANA In-memory Base Edition 1 TB Appliance | Rs. 4.65 Crores (capex)      |
| license with 5-year ATS+ ATS for PI/PO         | Rs. 5.30 Crores (opex)       |
| Implementation Cost:                           | Rs. 3.68 Crores (capex)      |
| AMS for 2 years:                               | Rs. 12.92 Crores (opex)      |
| Training to end users:                         | Rs. 0.47 Crores (capex)      |
| Change request                                 | Rs.0.30 Crores (opex)        |
| Total Cost                                     | Rs. 106.90 Crores (Incl GST) |

The project is being executed under the RDSS Scheme, as per the sanctioned letter from Power Finance Corporation Ltd. (Letter No. 02:10: RDSS:2021:1 MSEDCL, dated 22.09.2022). Under this scheme, 60% of the approved cost of the works will be provided by the Government of India, while the remaining balance will need to be arranged through loans or internal resources.

- MSEDCL submits that the funding details debt/equity, internal accrual to the said query shall be submitted subsequently.

#### **Query 24. Opex Queries**

- MYT Regulations 2024 states that, Opex schemes shall be undertaken for system automation, new technology, IT implementation, etc. The relevant extract from the regulation is given below:

***“A Distribution Licensee may undertake Opex schemes for system automation, new technology and IT implementation, etc. and such expenses may allowed over and above***

*normative O & M expenses, subject to prudence check by the commission:*

*Provided that the Distribution Licensee shall submit detailed justification, cost benefit analysis of such schemes as against capex scheme, and saving in O&M expenses, if any”*

b. MSEDCL has proposed various OPEX schemes for the 5th Control Period as under:

|  |   |
|--|---|
| Centralised Customer Care Center Services          | Procurement of SD-WAN Solution                            |
| Business Analytics and Demand Forecasting Solution | Annual Technical Support of SAP /Oracle Software Licences |
| ERP SAP S4 HANA                                    | SMS Services  |
| Enterprise GIS & Network Analysis Solution         |   |

c. As the expenses associated with these above schemes are recurring and have a characteristic of O&M expenses, MSEDCL is required to furnish a rationale for classifying these schemes as Opex schemes, rather than incorporating them into the O&M expense category.

#### **MSEDCL Reply:**

**Reply to point a, b, c.**

MSEDCL submits that the Customer Care Centre scheme has been earlier submitted for the approval of the Hon'ble Commission which was approved by the Hon'ble Commission under Opex mode.

It is further submitted that remaining schemes are opex in nature and these schemes are being implemented to improve consumer satisfaction and organization efficiency, hence the scheme proposed under opex scheme.

Cost benefit analysis for opex scheme is attached herewith as **Annexure Datagap Set 2\_Query 18, & 24.**

#### **Query 25. Smart Meter Roll-out Plan**

a. MSEDCL to submit details of its Smart meter roll-out plan, if any.

#### **MSEDCL Reply:**

a. MSEDCL hereby submits that it has defined specific timelines for installation of meters under different categories which are given as below:

| Particulars                  | Qty. in Nos. | Timeline        |
|------------------------------|--------------|-----------------|
| All Feeder Meters            | 27,826       | December – 2024 |
| All DT Meters                | 4,31,807     | February – 2025 |
| All Govt. Offices & Quarters | 6,30,359     | February – 2025 |
| PM Suryaghar Bijali Yojana   | 1,64,295     | February – 2025 |
| All HT Consumers             | 23,086       | February – 2025 |
| Other Consumer Meter         | 2,29,15,026  | March – 2025    |
| Total                        | 2,41,92,399  | May – 2025      |

**Query 26. DSM Regulations**

- a. The Commission has notified DSM Regulation on 19.11.2024. In the said Regulation, the Commission has provided Demand Flexibility Portfolio Obligation (DFPO). MSEDCL needs to factor in DFPO target while working out power purchase basket. As per Regulation 4(b) of DSM Regulations, Distribution Licensees are mandated to submit block estimates and budget to implement DF/DSM portfolio in MYT Petition. MSEDCL to kindly provide details of the same as they are missing in the Petition.

**MSEDCL Reply:**

- a. MSEDCL submits that the reply to the said query shall be submitted subsequently.

**Query 27. Special Trajectory of certain variables**

- a. MSEDCL is requested to provide the historical performance of variables for last (5) years and benchmark trajectory for control period.

**MSEDCL Reply:**

- a. MSEDCL submits that the table below provides the historical performance of last 5 years:

| Parameters                             | FY 19-20 | FY 20-21 | FY 21-22 | FY 22-23 | FY 23-24 |
|--|----------|----------|----------|----------|----------|
| SAIFI                                  | 1.5      | 1.28     | 1.4      | 1.39     | 1.13     |
| SAIDI                                  | 144.77   | 92.56    | 221.87   | 127.75   | 105.43   |
| % Collection Efficiency (Conventional) | 93.56%   | 93.58%   | 99.12%   | 98.33%   | 95.82%   |
| % OA Less Distribution Loss            | 16.35%   | 15.73%   | 15.23%   | 15.06%   | 16.42%   |
| % AT&C Loss                            | 21.74%   | 21.14%   | 15.98%   | 16.48%   | 19.91%   |

## 1 DETAILS OF OPEX SCHEMES

### OPEX SCHEMES

#### 1.1 Centralised Customer Care Center Services

##### 1.1.1 Objective:

The purpose of setting up the Centralised Customer Care Center is to improve the supply /billing related complaint handling processes of MSEDCL and enhance the customer servicing capabilities of MSEDCL. Centralized Customer Care Center (CCCC) is equipped with latest technology & multi skilled customer service representatives. CCCC are manned by trained and polite personnel, who are sensitive to customer needs. CCCC takes the complaints and feedback through Telephone calls, e-mail etc. and each communication are answered and forwarded to concerned office.

##### 1.1.2 Scope:

To improve Customer Care Services, MSEDCL has outsourced the entire CCC Operations (incl. Manpower, Infra, Links, etc.) on turnkey basis to a professional large scale BPO company. Deployment of 374 nos of agents in 3 shifts at 2 locations to handle inbound calls and outbound calls to consumer. 200 Nos of agents appointed for inbound calls for consumers for complaint registration (billing complaints, power related and other type of complaints)

##### 1.1.3 Benefits:

- Better & professional Customer Care service to MSEDCL Consumers calling its Toll free numbers (1912, 19120, 1800-233-3435, 1800-212-3435). High Availability of CCC operations. BPO companies maintain robust CCC Infrastructures, trained manpower backups & redundant telecom lines to avoid disruptions and SLA penalty.
- Faster call handling and quicker resolution of Consumers' Calls.
- Outbound calls for the payment follow-ups can be easily arranged for better recovery of revenue.
- 374 nos of agents engaged for outbound calling for various activities as below –

| <b>Sr No</b> | <b>Activities</b>  |
|--------------|--|
| 1            | Outbound Calling for arrears recovery  |
| 2            | Follow up with field staff for   |
|              | 1. New Connection pendency,  |
|              | 2. Pendency of online applications   |
|              | 3. Pendency of billing complaints and power failure complaints   |
| 3            | Welcome Call to New Consumer   |
|              | – Information of tariff applicable   |
|              | – Bill details, discounts on bill such as go-green, prompt payment discount, digital payment discount etc. |
|              | – Online payment facility  |
|              | – Mobile app and web self service facility   |
| 4            | Complaints forwarded by VIPs with end to end resolution and consumer feedback                              |
| 5            | Consumer Feedback on various services  |

#### 1.1.4 Project status:

- i) Letter of Award for 'Providing Customer Care Services and establishment of Consumer Facilitation Centers (CFC) at all O&M Divisions of MSEDCL for the period of 5 years' is issued on dated 16.06.2022 for Rs.136.13 crores
- ii) Centralised Call Center operations made live in Sep-2022.
- iii) The addendum of LOA issued to M/s Arceus Infotech Pvt Ltd. on 08.12.2023 for revision in scope after cancellation of scope of CFC and deployment of additional 374 no. of FTE at Call Centre for outbound calls for various activities for Rs. 114.54 Crs.

#### 1.1.5 Revenue Expenditure:

LOA issued to M/s Arceus Infotech Pvt Ltd. on 08.12.23. Amt of Rs.136.13/- . The total cost includes the opex in nature.

| <b>FY22 - 23<br/>(Actual)</b> | <b>FY 23 - 24<br/>(Actual)</b> | <b>FY 24 - 25<br/>(Revised<br/>Projected)</b> | <b>FY 25 - 26<br/>(Revised<br/>Projected)</b> | <b>FY 26 - 27<br/>(Revised<br/>Projected)</b> | <b>FY 27 -28<br/>(Revised<br/>Projected)</b> | <b>FY 28 - 29<br/>(Revised<br/>Projected)</b> | <b>FY 29 - 30<br/>(Revised<br/>Projected)</b> |
|-------------------------------|--------------------------------|---|---|---|--|---|---|
| 9.75                          | 14.50                          | 20.68   | 25.20   | 25.20   | 25.20  | 25.20   | 25.20   |

#### 1.1.6 Cost Benefit:

There are multiple benefits many of them are intangible benefits these are as follows-

- Call center activities resulted in improving customer satisfaction.
- Facilitating, monitoring and resolving consumer complaints within SOP timeline.
- Improving quality of supply and quality of billing.
- Due to outbound calls newly connected consumers as a welcome call for image improvement of company amongst larger public.
- Tangible benefit- The amt recovered against the calls are the tangible benefit. Out of 27crs the 17 crs and 13 crs are recovered .

Due to follow up calls for arrears recovery through outbound calling the revenue recovered is summarized as below.

| <b>Sr<br/>No</b> | <b>FY</b>         | <b>No of calls</b> |                 | <b>Complaint<br/>Attended</b> | <b>Payment<br/>to the<br/>agency /<br/>vendor</b> | <b>Amt<br/>recovered<br/>after<br/>follow up<br/>calls.</b> |
|------------------|-------------------|--------------------|-----------------|-------------------------------|---|---|
|                  |                   | <b>Inbound</b>     | <b>Outbound</b> |                               |   |   |
| 1                | 2022-23           | 2184352            | -               | 3649647                       | 8.15 Crs  | 1307.75   |
| 2                | 2023-24           | 2551017            | 4768962         | 3580846                       | 14.49 Crs   | 1764.96   |
| 3                | Apr24 to<br>nov24 | 1897178            | 38871077        | 3113325                       | 14.17 crs   | 2152.95   |

#### 1.1.7 Life-cycle cost analysis:

| <b>COST SUMMARY</b>        |   | <b>Cost Per Year<br/>(Rs)</b> | <b>Revised Cost</b>  |
|----------------------------|---|-------------------------------|----------------------|
| A                          | Call Center Cost                                      | 8,89,45,568                   | 44,47,27,840         |
|                            | Toll Free & Telephone lines cost                      | 2,14,04,020                   | 10,70,20,100         |
|                            | CFC manpower diverted to call center ( bal 44 months) | 16,19,15,012                  | 59,36,88,378         |
| <b>GRAND TOTAL (A+B+C)</b> |   | <b>27,22,64,600</b>           | <b>114,54,36,318</b> |

#### 1.1.9 Funding details:

Proposed in Revenue budget.

#### **Substation Monitoring System (SMS)**

##### 1.1.8 Objective:

Substations are inevitable components in all power networks. It is the heart of the distribution network. The entire downstream network is controlled and managed by sub-stations.

Substation equipment health monitoring is very important for providing reliable and continuous power to consumers. Therefore, substation monitoring system is required for having real-time data of sub-stations, to monitor failures and breakdowns, Feeder load profiling, Load growth planning and management.

##### 1.1.9 Brief Scope of work:

- Supply, customization, installation, deployment and maintenance of necessary hardware, centralized software and communication equipment at 3563 nos. of 33/22/11 kV Substations and switching stations across MSedCL on CAPEX+OPEX basis.  
Additional scope of 3563 substn Substation monitoring system
  1. Set up of Central control center with cloud based central software & hardware server and workstation at msedcl premise
  2. Monitoring of
    - ✓ Incoming and outgoing feeders
    - ✓ Capacitor bank
    - ✓ Station distribution transformer
    - ✓ Substation DC auxiliary power supply

- ✓ Power Transformer's
  - ✓ Monitoring of solar feeder .
3. Monitoring of RMS data of each Solar plant commissioned by solar developers under MSKVY 2.0 at Central control center.
  4. Feeder control action also proposed under ADMS (Automatic Demand Management Scheme) for all feeders.
    - The time for implementation of project is proposed to be one year from date of issue of LOA and comprehensive support service for 2 years. Total contract period will be for 3 years.

#### 1.1.10 Benefits of Substation Monitoring System:

- Benefits to MSEDCL:
  - ✓ Improved monitoring and situational awareness of remote substations
  - ✓ Feeder Interruption analysis and computation of reliability indices such as SAIDI, SAIFI, etc.
  - ✓ Monitoring failures and breakdowns, Feeder load profiling, Load growth planning, and management
  - ✓ Data for Strategic, Managerial, and Operational decisions
- Benefits to Customers:
  - ✓ Quick actions from MSEDCL to reduce downtime and improve customer satisfaction.
  - ✓ SMS alerts facility can be extended to consumers so that consumers will know that the feeder is under breakdown.

#### **Funding Details :-**

As per screening committee approvals and Minutes of meeting It is proposed under ADB DPR scheme, it will be funded by 70 % loan(ADB) and 30% (GOM) equity

#### 1.1.11 Current Progress/Status:

LOA issued to M/s Amnex Infotech pv Ltd. in consortium with M/s Rite water solution India pvt ltd and synergy system and solution pvt ltd. on dt 11.03.2024 of Rs.382.29 crs. Survey completed as per scope of work ,

projections

(Rs. Crs)

| <b>FY22 - 23<br/>(Actual)</b> | <b>FY 23 - 24<br/>(Actual)</b> | <b>FY 24 - 25<br/>(Revised Projected)</b> | <b>FY 25 - 26<br/>(Revised Projected)</b> | <b>FY 26 - 27<br/>(Revised Projected)</b> | <b>FY 27 -28<br/>(Revised Projected)</b> | <b>FY 28 - 29<br/>(Revised Projected)</b> | <b>FY 29 - 30<br/>(Revised Projected)</b> |
|-------------------------------|--------------------------------|---|---|---|--|---|---|
| 5.23                          | 0.75                           | 0.03                                      | 19.61                                     | 19.61                                     | 19.61                                    | 19.61                                     | 19.61                                     |

Note – The actual expenditure in 2024-25 are showing against pilot project at Akola only for 44 nos of substation.

## **MSEDCL Cloud Project**

### **1.1.12 Objectives:**

The objectives of the Cloud Project are listed below :

To deal with very less Operational issues: Cloud computing has fewer issues and lot more reliable than On-Premise infrastructure. The cloud runs on it's own servers through a professional company whose only job is to make the cloud functional and bug-free with cloud uptime as per the service level agreement with the customer which is normally 99.99%.

For faster Deployment/Scalability of IT infrastructure: By having Cloud Computing Contract, faster deployment of IT infrastructure is possible (within a matter of minutes) when the IT infrastructure resources are required, whereas for On-Premises IT infrastructure equipment, the procurement process can take months. In case of Cloud Computing, resources can be purchased and consumed on a “pay-as-you-go” basis and increased or decreased as needed for optimal utilization, Cloud computing is scalable on demand, Cloud service providers usually allow scaling up and down on demand seamlessly. The billing of cloud resources is done on recurring basis.

For Security of Infrastructure: Clouds are usually managed by large technologically advanced companies like Google, Microsoft, Amazon etc. backed by the top class security professionals managing the security infrastructure of cloud 24\*7.

Also vide Maharashtra Government Circular (मार्तसं-060/3/2017 dtd. 29th Jan 2018) on Cloud Computing Policy, instructions were given to the Govt. Departments, Local Bodies & PSUs to migrate all their existing IT applications onto Cloud Platform. In pursuance to this, MSEDCL Competent Authority vide Board Resolution no. 1242 dtd. 07/04/2018, has accorded approval to migrate all MSEDCL IT applications (hosted at On-premise Data Centre) to Cloud Platform.

### **1.1.13 Scope:**

MSEDCL has issued Letter of Award (Ref.2) for ‘Selection of Managed Service Provider (MSP) for Providing Cloud Services to MSEDCL for 3 Years’ to M/s SM networks & Solutions Pvt. Ltd. and

its Consortium Partner M/s StarOne IT Solutions India Pvt. Ltd. of Rs. 98,52,87,708.26/- (Rs. Ninety-Eight Crores Fifty-Two Lakhs Eighty-Seven Thousand & Seven Hundred and Eight and Twenty-Six Paise Only) for following scope of work. The Cloud Service provider is M/s Amazon Internet Services Pvt. Ltd. (Amazon Web Services).

- I. MSEDCL envisages managed services for its cloud infrastructure deployed on Amazon Web Services (AWS) Cloud, for the duration of next 3 years i.e. 2024 – 2027. The major services planned to procure through end-to-end cloud services/ infrastructure, cloud support services, and future up-scaling of services and existing management services.
- II. MSEDCL plans to adopt Infrastructure as a Service (IaaS) model wherein MSP and CSP will be responsible for managing and controlling the underlying Cloud infrastructure including operating systems, storage, network, security, etc. and the deployed applications shall be managed and controlled by MSEDCL.
- III. Existing Cloud contract does not have provision for utilization of new technologies such as Server-less technologies, Micro services, Machine Learning, Artificial Intelligence, IoT etc. Therefore, the scope of work for the new tender is prepared, with provision for utilization of future technologies during the contract period. In case of existing applications, with the increase in data/functionalities, additional resources (CPU, Memory, and Storage) will be required over the period to maintain the application performance.
- IV. Providing Cloud Infrastructure on Amazon Web Services (AWS) Cloud, including Network & Security, for MSEDCL applications along with 24x7x365 days support. Providing Management, Monitoring & Support Services for Cloud Infrastructure including Network & Security.
- V. Managed Disaster recovery services for business continuity and on premises backup centre Ensure continuity of operations in the event of failure and provision for configuring, scheduling, performing, and managing back-ups and restore activities.
- VI. Additional Infrastructure security components to meet CERT-IN and CEA requirements Provide integration, multi-factor Authentication, Identity and Access Management Services, Single Sign on for the cloud services as well as the applications hosted on cloud.
- VII. Provisioning for additional new storage, compute services & instances and future services like containers, CI/CD, Vault, code repositories, dashboard, AI/ML, DevOps tools as and when required. Operation & Maintenance, Help Desk support, Training etc.

#### 1.1.14 Benefits

- Less operational issues: The cloud service provider company has to maintain the cloud uptime as per the Service level Agreement with the Customer which is normally 99.99%. Therefore, cloud computing actually has fewer issues than On-Premises infrastructures.
- Security: Cloud Service Provider is usually backed by top class security professionals managing the security infrastructure of Cloud 24x7. The cloud service providers also perform more regular security audits. Cloud providers even back up data to additional remote servers so data loss just won't happen.

#### 1.1.15 Project status:

LOA is issued to M/s SM Networks & Solutions Pvt. Ltd. for providing cloud services for 3 years for Rs.98.52 Cr. incl. taxes (LOA no. CGM/IT/29427 dtd. 23.09.2024 ). Capex cost Rs. 33.38 Opex cost Rs.65.14 crs)

The Managed Service Provider M/s SM Networks & Solutions Pvt. Ltd. and its Consortium Partner M/s StarOne IT Solutions India Pvt. Ltd. have taken over the cloud management from the earlier Managed Service Provider.

Presently MSEDCL applications are running successfully on the cloud, provided by M/s Amazon Web Services through the Managed Service Provider M/s SM Networks & Solutions Pvt. Ltd.

#### 1.1.16 Revenue Expenditure:

Proposed in Revenue budget

Revised projections

(Rs. Crs)

| <b>FY22 - 23<br/>(Actual)</b> | <b>FY 23 - 24<br/>(Actual)</b> | <b>FY 24 - 25<br/>(Revised<br/>Projected)</b> | <b>FY 25 - 26<br/>(Revised<br/>Projected)</b> | <b>FY 26 - 27<br/>(Revised<br/>Projected)</b> | <b>FY 27 -28<br/>(Revised<br/>Projected)</b> | <b>FY 28 - 29<br/>(Revised<br/>Projected)</b> | <b>FY 29 - 30<br/>(Revised<br/>Projected)</b> |
|-------------------------------|--------------------------------|---|---|---|--|---|---|
| 14.2                          | 13.25                          | 21.72   | 21.72   | 21.72   | 23.89  | 23.89   | 23.89   |

Actual expense 2022-23 and 23-24 shown for contract placed during the f.y.2019-24 placed to M/s Orient Technologies Pvt Ltd. The previous contract end on Oct-2024.

#### 1.1.17 Life-cycle cost analysis:

Cloud operational cost is billed to MSEDCL on quarterly basis for the amount of computing resources (servers & storage) utilized per quarter.

#### 1.1.18 Funding details

Proposed in Revenue budget.

## **1.2 Business Analytics and Demand Forecasting Solution**

### **1.2.1 Objectives:**

Mahavitaran distributes electricity to consumers across the State excluding Mumbai. MSEDCL sources power from Mahagenco, Central Sector and Private Sector projects. The constant pressure to optimize the cost of power purchase due to the hazardous of the industrial sector moving out of state (Open Access) owing to higher power tariffs. In view of this, MSEDCL intends to purchase a Software Solution with the capability of energy load forecasting and power trade strategy management along with power purchase optimization/power portfolio optimization.

### **1.2.2 Benefits**

The proposed solution will enable measurable improvements including:

- Demand Forecasting
- Scenario Analysis
- Demand Supply Position Map (Load Generation Balance)
- Power Portfolio Management
- Scheduling Optimization
- Trade Optimization
- Enterprise Visualization

### **1.2.3 Scope of the work**

- Design, Implementation, commissioning of Business Analytics and Demand forecasting, Power Optimization Solution
- Integration of proposed solution with MSEDCL existing system, SCADA & proposed Substation Monitoring Scheme (SMS) of MSEDCL, existing AMR & SCADA, Scheduling software of MSLDC/WRLDC.
- Fetching all necessary data from external sources required as input for forecasting, Optimization and analysis purposes.
- Debriefing with Analytics including optimization with AI and ML and documenting causes, effects, patterns and results using incident-specific data based on time, date and location.
- Designing Live Dashboard for Business Analytics and Current Status of Incidents
- Providing Cloud Services for the deployment of the proposed solution.
- Provide Facility Management Service (FMS) for Application Maintenance for three years.

### **1.2.4 Current Progress/ Status:**

- The LOA for Business Analytics and Demand Forecasting Solution is issued to L1 bidder M/s SCS Tech India pvt ltd. in consortium partner M/s Mercados Energy Markets India pvt ltd. Of Rs. 32,55,71,118/- (capex cost Rs.24.57 crs, opex cost Rs.7.98 crs) UAT and Go live for confirmation of project is done on dt 12.09.24.

#### 1.2.5 Life cycle cost analysis:

Tender/LOA includes Licenses cost, Implementation cost, Training cost, , FMS cost, ATS cost.

#### 1.2.6 Funding Details:

The project is operating under RDSS Scheme as per the sanctioned letter of Power Finance Corp. Ltd. Vide letter no. 02:10: RDSS:2021:1 MSEDCL Dt.22.09.2022 60% amount approved cost of works would be provided by Govt of India and balance cost of the works /(over and above cost of DPR) has to be arranged through loan or internal resources.

(Rs Crs)

| FY22 - 23<br>(Actual) | FY 23 - 24<br>(Actual) | FY 24 - 25<br>(Revised<br>Projected) | FY 25 - 26<br>(Revised<br>Projected) | FY 26 - 27<br>(Revised<br>Projected) | FY 27 -28<br>(Revised<br>Projected) | FY 28 - 29<br>(Revised<br>Projected) | FY 29 - 30<br>(Revised<br>Projected) |
|-----------------------|------------------------|--------------------------------------|--------------------------------------|--------------------------------------|-------------------------------------|--------------------------------------|--------------------------------------|
| 0.00                  | 0.00                   | 2.41                                 | 2.41                                 | 2.41                                 | 2.41                                | 2.41                                 | 2.41                                 |

### 1.3 Enterprise GIS & Network Analysis Solution

#### 1.3.1 Objectives:

MSEDCL desires to implement a comprehensive GIS & NA solution with updated GIS & NA data of all areas under MSEDCL jurisdiction to efficiently maintain the electrical network, carry out smooth network planning and derive useful analysis of network parameters.

The proposed GIS and NA system will expand the capabilities at the Enterprise Level. MSEDCL intends to have an integrated WEB-MOBILITY-GIS-Analytics-based System, conceptualized to cater to core technical requirements of the processes under day-to-day Operations, Maintenance and Projects activities of MSEDCL staff, officers and Management.

The proposed Network Analytics solution is an integrated platform of web and mobile applications. Network addition, deletion and changes to be captured on the Mobile application. Network shall be created automatically, online, based on Mobile App information.

#### 1.3.2 Benefits

The proposed solution will enable measurable improvements including:

- GIS Implementation at Enterprise Level
- Reliability and Performance Indices
- Network System behaviour and response to disturbances
- Optimization of asset utilization and operating efficiency of the electric power system.

#### 1.3.3 Scope of the work

- Implementation of Enterprise GIS solution for MSEDCL with 1-year warranty and 4 years of Annual Technical Support (ATS).
- Implementation of Enterprise Network Analysis solution for MSEDCL with 1-year warranty and 4 years of Annual Technical Support (ATS) from OEM.
- Integration of GIS Solution & NA Solution with each other and other systems of MSEDCL. Eg. Load Forecasting, SAP-ERP, MDAS, ECCC, Dashboard.
- Provision of Facility Management Services (FMS) for GIS Solution & NA Solution for 5 years for operation & maintenance.
- Training of GIS Solution & NA Solution to MSEDCL users.
- Provision of Cloud Services for deploying GIS Solution & NA Solution from a MeitY empanelled and SQTC Audit Complaint Cloud Service Provider for 5 years.

#### 1.3.4 Current Progress/ Status

- The LOA is issued to L1 bidder M/s SCS Tech India pvt Ltd. in consortium with M/s Sliver Touch Tech Ltd. Of Rs 46,94,97,923/- (opex cost Rs.26.60 crs, capex cost Rs.20.34)

#### 1.3.5 Life cycle cost analysis

Tender/LOA includes Lines cost, Implementation cost, Training cost, cloud deployment cost, FMS cost, ATS cost.

(Rs Crs)

| <b>FY22 - 23<br/>(Actual)</b> | <b>FY 23 - 24<br/>(Actual)</b> | <b>FY 24 - 25<br/>(Revised<br/>Projected)</b> | <b>FY 25 - 26<br/>(Revised<br/>Projected)</b> | <b>FY 26 - 27<br/>(Revised<br/>Projected)</b> | <b>FY 27 -28<br/>(Revised<br/>Projected)</b> | <b>FY 28 - 29<br/>(Revised<br/>Projected)</b> | <b>FY 29 - 30<br/>(Revised<br/>Projected)</b> |
|-------------------------------|--------------------------------|---|---|---|--|---|---|
| 0.00                          | 0.00                           | 5.99  | 5.99  | 5.99  | 5.99   | 5.99  | 5.99  |

### 1.3.6 Funding of Details:

#### Revenue Budget

## 1.4 ERP SAP S4 HANA

### 1.4.1 Objectives

MSEDCL has automated its business processes by implementing SAP-ERP which covers Financial Accounting & Control (FICO), Projects Systems (PS), Plant Maintenance (PM), Material Management (MM) ERP core modules are live since 2015. Further SAP HRMS modules such as Payroll (PY), Organizational Management (OM), Personal Administration (PA), Time Management (TM), Travel Management, Performance Management along with 13 nos. of custom-developed allied modules developed on SAP ERP platform are live since Dec-2020.

Due to manifold increase in transactions every year, the performance of SAP ERP is degrading gradually. Also, M/s SAP has declared end of support for SAP ERP ECC 6.0 in the year 2027. Hence, it is planned to upgrade existing SAP ERP ECC 6.0 platform to S/4 HANA platform. S/4 HANA platform is the latest version of SAP ERP, wherein due to change in database from Sybase to HANA the performance of the system will improve. Further, SAP S/4HANA offers increased scalability to better support data storage and data analysis needs. MSEDCL is also planning to implement additional SAP ERP modules SAP Treasury and Risk module (TRM) for loan and grant management required by finance section.

### 1.4.2 Benefits of SAP S4 HANA:

- The SAP HANA in-memory database helps organizations to execute transactions and analyse business data in real-time.
- User experience is powered by Fiori – browser based and convenient to use.
- Embedded real-time analytics, and HANA powered in-memory processing to handle large data volumes of operational and transactional business data.

### 1.4.3 Benefits of SAP Treasury and Risk Module (TRM):

- With the SAP TRM application, one can integrate cash flows, transactions, loan ,grant and optimize straight-through processing with full-view and real-time analysis, audit trails, and compliance reporting.

### 1.4.4 Scope:

- a) Upgradation of SAP ERP ECC6 EHP 5.0 platform to SAP S/4 HANA (latest version) for Core Modules (FICO,PM,PS,MM,HCM) and implemented custom developed modules in MSEDCL including data migration.
- b) Implementation of Treasury and Risk Module (TRM) powered by HANA.
- c) Implementation of Cash Management Module powered by HANA.
- d) Upgradation of Solution Manager from 7.1 to 7.2 (or latest version) on HANA.
- e) Upgradation of existing 1 TB HANA appliance (Base edition) to 2 TB HANA appliance (Enterprise edition).
- f) Network services for providing cloud connectivity upto end locations. (MSEDCL offices upto subdivisions).
- g) Application Maintenance Services (AMS) towards Support, Maintenance & Enhancement of all existing SAP systems (Core & Custom modules) at MSEDCL till declaration of go-live of SAP S/4 HANA.
- h) Application Maintenance Services (AMS) after go-live declaration of S/4 HANA upgradation till end of contract period, towards Support, Maintenance & Enhancement of all upgraded SAP-ERP modules on S/4 HANA (FICO, PM, PS, MM, HCM, TRM & Cash Management) & implemented custom developed modules.

#### 1.4.5 Life cycle cost analysis

Cost estimate as per budgetary quote from M/s SAP (without GST)

|   |                         |
|---|-------------------------|
| Annual Saas based COTs ERP pricing :            | Rs. 79.58 Crores (opex) |
| SAP HANA In-memory Base Edition 1 TB Appliance, | Rs. 4.65 Crores (capex) |
| license with 5 year ATS+ ATS for PI/PO          | Rs.05.30 Crores (opex)  |
| Implementation Cost :                           | Rs. 3.68 Crores (capex) |
| AMS for 2 years :                               | Rs. 12.92 Crores (opex) |
| Training to end users :                         | Rs. 0.47 Crores (capex) |
| Change request                                  | Rs.0.30 Crores (opex)   |

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|                           |                   |
|---------------------------|-------------------|
| Total Cost<br>(Inclu GST) | Rs. 106.90 Crores |
|---------------------------|-------------------|

#### 1.4.6 Current Progress / Status

LOA issued to M/s. Deloitte Touche Tohmatsu India LLP Amt of Rs. 1,06,89,76,389/- capex cost Rs.8.80 crs , Opex cost Rs.98.09 crs

Following are the Milestone are going under SAP s4 Hana project

- 1.Upgradation of project-
- 2.Migration
- 3.Implementation of solution

#### 1.4.7 Funding Details

The project is operating under RDSS Scheme as per the sanctioned letter of Power Finance Corp. Ltd. Vide letter no. 02:10: RDSS:2021:1 MSEDCL Dt.22.09.2022 60% amount approved cost of works would be provided by Govt of India and balance cost of the works/( over and above cost of DPR )has to be arranged through loan or internal resources.

#### Projection

| <b>FY22 - 23<br/>(Actual)</b> | <b>FY 23 - 24<br/>(Actual)</b> | <b>FY 24 - 25<br/>(Revised<br/>Projected)</b> | <b>FY 25 - 26<br/>(Revised<br/>Projected)</b> | <b>FY 26 - 27<br/>(Revised<br/>Projected)</b> | <b>FY 27 -28<br/>(Revised<br/>Projected)</b> | <b>FY 28 - 29<br/>(Revised<br/>Projected)</b> | <b>FY 29 - 30<br/>(Revised<br/>Projected)</b> |
|-------------------------------|--------------------------------|---|---|---|--|---|---|
| 0.00                          | 0.00                           | 23.58   | 23.58   | 23.58   | 23.58  | 23.58   | 23.58   |

### 1.5 Procurement of SD-WAN Solution

#### 1.5.1 Overview

MSEDCL wishes to procure SD-WAN solution to reduce the high cost of WAN bandwidth, enable better application performance, and improve internal business communication and IT agility by deploying Software-Defined WAN (SD-WAN) across MSEDCL field offices up to sub Division.

#### 1.5.2 Benefits

- SD-WAN solution shall improve performance of connectivity by using link optimization .The solution shall also manage the Link Load on available paths and auto failover for better performance of links.
- SD-WAN Solution shall have inbuilt QoS mechanism which is having application recognition and provide the bandwidth priority for most critical applications. This may include dynamic path selection, sending an application on faster link or even splitting an application between two paths to improve performance by delivering it faster.
- SD-WAN solution shall improve the MSEDCL Video Conferencing ( Data/Voice/Video traffic ) by using polices ,performance of the links such as jitter, latency, packet loss, etc and features like Video stream splitting ,de-duplications and automatic traffic diversion for better link performance for MSEDCL video Conferencing Solution.
- SD-WAN solution shall create full mesh connectivity among all the MSEDCL field offices and integrated with existing network.

#### 1.5.3 Scope of Work

- MSEDCL is looking for upgrading of its existing Network with SD-WAN across Maharashtra up to Sub division level with high performance, reliable, consistent network to achieve best performance of MSEDCL applications.
- It shall be bidders responsibility to integrate any new or existing FTTH broadband, MPLS, ILL, broadband link on supplied wifi enabled SD-WAN device during the contract period.
- The SD WAN Device(s) integrated with external WiFi access points, must be configured as per requirement.

#### 1.5.4 Current Progress / Status

LOA issued to M/s SM network & solution Pvt Ltd. Of Rs. 53,16,07,520/- opex cost 5.10crs capex cost 48.05crs , stabilization done for 698 locations.

#### 1.5.5 Funding Details

The project is operating under RDSS Scheme as per the sanctioned letter of Power Finance Corp. Ltd. Vide letter no. 02:10: RDSS:2021:1 MSEDCL Dt.22.09.2022 60% amount approved cost of works would be provided by Govt of India and balance cost /(over and above cost of DPR )of the works has to be arranged through loan or internal resources.

| <b>FY22 - 23<br/>(Actual)</b> | <b>FY 23 - 24<br/>(Actual)</b> | <b>FY 24 - 25<br/>(Revised<br/>Projected)</b> | <b>FY 25 - 26<br/>(Revised<br/>Projected)</b> | <b>FY 26 - 27<br/>(Revised<br/>Projected)</b> | <b>FY 27 -28<br/>(Revised<br/>Projected)</b> | <b>FY 28 - 29<br/>(Revised<br/>Projected)</b> | <b>FY 29 - 30<br/>(Revised<br/>Projected)</b> |
|-------------------------------|--------------------------------|---|---|---|--|---|---|
| 0.00                          | 0.00                           | 0.50  | 1.15  | 1.15  | 1.15   | 1.15  | 1.15  |

## **1.10 Redevelopment of MSEDCL IT Systems under the RDSS Scheme**

**Tender no. CGMIT/RDSS/ITOT/22-23/7 dtd. 25.11.22**

**LOA No. CGM/IT/36156 dtd. 08.12.2023**

### **1.10.1 Objective:**

Under RDSS sanction (Letter no. 02:10:RDSS:2021:I: MSEDCL dtd. 22.09.22 (RDSS Sanctioned letter), Ministry of Power (Govt of India), sanctioned for the upgradation of Customer Relationship Management (CRM), Document Management System (DMS), Energy Audit (EA), New Service Connection (NC) & Disconnection and Web Self Service (WSS) and Database Licences for MS-SQL, Oracle Enterprise Edition. Accordingly, a tender was floated for the Appointment of a System Integrator for the Redevelopment of MSEDCL IT Systems under the RDSS Scheme on 25.11.2022. Letter of Award to M/s Idea Infinity IT Solutions Pvt Ltd. for Rs. 9.70 Crs was issued vide LOA no. CGM/IT/36156 dtd. 08.12.2023.

### **1.10.2 Brief Scope of Work**

- i. Upgradation, Design, Development, Implementation, and Commissioning of new web applications such as Consumer Self-service and Employee Self Service by consolidating the following existing applications.
  - i. Document Management System (DMS),
  - ii. Customer Relationship Management System(CRM),
  - iii. Energy Audit (EA),
  - iv. New Connection System (NC),
  - v. Web Self-Service (WSS) system and Other related sub-systems.

- ii. Supply, installation, and commissioning of Enterprise Database with one-year OEM support. Bidder shall provide sufficient enterprise licenses for proposed solution. If open-source database is proposed, enterprise support from vendor or support partner should be provided.
- iii. Re-architect above applications and Migration of existing data into the new system.
- iv. Perform application and Infrastructure security audit annually of the new application viz. Consumer Self-service and Employee Self Service by CERT-IN empaneled Auditor after GO-Live.
- v. Module-wise technical training to MSEDCL IT staff.
  - a. Number of Staff to be trained – Minimum 25
  - b. Mode of Training – Offline
  - c. Copy of Training Manual to be made available – Per module, bilingual.  
For Customer facing Application: Necessary Document to be provided by the vendor.
- vi. Application Maintenance Support for the above applications for the period of one year after stabilization.
- vii. Handholding and Application Maintenance Services (AMS) of the systems after one year of Go-Live.
  - a. Staff to be deployed: One project Manager and 10 resources, including one staff having DBA experience (At least 5 years' experience of DBA)
  - b. Place of Deployment of Staff: Mumbai
  - c. Tenure of Deployment: 12 Months

### **1.10.3 Funding details**

Under the RDSS, 60% of the project cost of works of Sanctioned items would be provided as a grant by the Government of India whereas 40% or over and above of the remaining cost plus the cost for additional items is to be arranged by the MSEDCL, which will be funded through the revenue budget of 2023-24 & 2024-25.

Project status-

Letter of Award to M/s Idea Infinity IT Solutions Pvt Ltd. for Rs. 9.70 Crs was issued vide LOA no. CGM/IT/36156 dtd. 08.12.2023. Capex part Rs.7.33 crs opex cost 2.37 crs

Projections submitted in MYT petition (Rs. Crs)

| FY22 - 23<br>(Actual) | FY 23 - 24<br>(Actual) | FY 24 - 25<br>(Revised<br>Projected) | FY 25 - 26<br>(Revised<br>Projected) | FY 26 - 27<br>(Revised<br>Projected) | FY 27 -28<br>(Revised<br>Projected) | FY 28 - 29<br>(Revised<br>Projected) | FY 29 - 30<br>(Revised<br>Projected) |
|-----------------------|------------------------|--------------------------------------|--------------------------------------|--------------------------------------|-------------------------------------|--------------------------------------|--------------------------------------|
| 0.00                  | 0.00                   | 1.49                                 | 0.88                                 | 0.00                                 | 0.00                                | 0.00                                 | 0.00                                 |

#### 1.10.5 Cost Benefit Analysis:

The benefits out of this project are Intangible benefit. the upgradation of the above existing applications is essential to provide critical services to MSEDCL consumers smoothly. Also, the proposed upgradations will give the following benefits:

1. Strengthen the availability and responsiveness of existing applications.
2. Simplify IT infrastructure management by making workloads independent of hardware resources, thereby enabling business-driven strategies like strengthening its flexibility over Security and Redundancy policies.
3. Strengthen agility, scalability, multi-tenancy and governance of the entire Application Architecture on the industry lines and maintain these for the foreseeable future.
4. Utilization of the modern technologies evolved in software and database systems to improve the scalability, availability, maintainability, and performance.

Upgradation of the important existing applications is required on account of the following reasons:

- i. Increase in the number of consumers.

The consumer count on March 2010 (L&T LoA date and baseline for sizing) was 1,87,31,340. The total Consumer Count in the system as of today stands out be 2,96,69,375. Thus total consumer load has increased by 58.39 % since R-APDRP applications were designed and developed.

- ii. Addition of New Systems

Since the commissioning of R-APDRP applications, the following new applications have been developed/added:

1. Centralized billing
2. SAP Systems & Custom modules.
3. Big Data Solution/Dashboard (HANA)
4. Mahavitaran Mobile Applications (5 nos.)
5. Online Bill Revision system
6. Group Payment System

7. OCCS
8. MSKVY Portal, etc.

Therefore, the integration touchpoints have been increased. This has necessitated the comprehensive redevelopment of system architecture to meet the requirements of smooth integration with other modules.

### iii. Technological Advancements

- Cloud: Earlier the Applications and database were hosted in on-premise Data Centers and DR. Now with the adoption of the Cloud system, the applications need to be modified for efficient hosting on the cloud.
- As the data is growing extensively, more resources (more caches, temporary workspaces, etc) are required to process large sets of data. The new technologies in Application platforms, Database systems and Networking technologies need to be adopted to improve performance and reliability.
- For business continuity the copies of data need to be preserved in the form of Business Copies, Backups and DR.
- Participation in state-wide initiatives (eg. Aaple Sarkar, PM Gatishakti, PM Kusum, etc) to improve services to the public; and essential cross-agency functions where software compatibility within and among agencies is mandatory, such as enterprise application systems, and document sharing.
- Short Duration of Technology life cycles and changes that render existing hardware and software obsolete (i.e. unsupported versions and incapability with other versions or with new versions of software). Therefore, it is necessary to move the critical applications to latest available technologies/platforms.

## **O & M SCHEMES**

### **1.11 SMS Services**

#### **1.11.1 Objectives:**

MSEDCL sends SMS to its consumers informing the Status of their Complaints/Requests/Enquiries (around 2.5 lakh per month) which are registered at its Centralized Customer Care Centers via Toll Free Numbers.

#### 1.11.2 Scope of Work

The Government of India's Digital India programme and the e-Governance Policy of the Government of Maharashtra have mandated MSEDCL to take serious efforts To enhance service delivery, particularly through online mode for its large consumer base throughout the Maharashtra State

Currently, MSEDCL sends SMS to its registered consumers for providing different types of services such as Bill Alerts, Bill Reminders, Disconnection Notices, Payment Acknowledgements, Power Outage Notification, Meter Reading advance intimation, Meter Reading information, Self-Meter Reading Submission, Ag Policy Details, NC Paid Pending information, the status of online application, various MSEDCL Campaigns, etc. Similarly, various SMS are sent to Employees & Vendors for services such as OTP, Salary intimation, DMS alerts etc.

#### 1.11.3 Current Progress / Status

LOA issued to M/s BSNL tower corporation Limited (BTCL) on dt 24.03.2023 for providing SMS service to MSEDCL of Rs. 33.64 crs for 3 years (includes opex cost)

#### 1.11.4 Cost Benefit analysis for SMS Services:

Consumer can avail various MSEDCL services on real time basis The benefits are Intangible benefits.

Understanding that not all consumers would require mobile app, MSEDCL started providing all consumer related services through SMS on mobile and towards this, took massive efforts to collect mobile number of all consumers. Registered mobile numbers are used for passive communication with the consumers. SMS are sent to consumers in Marathi and English language as per consumer preference.

Benefits:-

- Instant acknowledgment on registered Mobile no / Email.

- Provide information about New Scheme/Policies.
- Energy Bill Generation SMS (Before/ After Due Date SMS)
- Payment Acknowledgement
- Outage Notification
- Meter Reading information
- Request for Self-Reading
- Complaint Acknowledgement
- To avoid Delay Payment charges or Disconnection Connection.

#### 1.11.5 Savings in O&M scheme

MSEDCL directly connected globally with consumers by online services. MSEDCL sends SMS for intimation/information about ongoing or new schemes/policies, Various Alerts, Notices etc.

- Consumer Satisfaction
- Resolve consumer complaints.
- Transparency in process.
- Quick Action
- Offline/Manual work is reduced.
- Paperless work & automated process.
- Time Saving & Instant Service.

#### 1.11.6 Life Cycle Cost Analysis:

The Rate of SMS is calculated as per given below.

Rate of SMS is 0.05 paise per SMS (excluding GST).

1. SMS Rate = Unit Rate + Charges as per Trai + Any other statutory charges

2. GST = As per govt. regulation

3. Total Cost per SMS = SMS Rate + GST

#### 1.11.7 Revenue Expenditure:

#### Revised Projections

The LOA issued to M/s BSNL vide LOA no CGM/IT/ 8923.dt. 24.03.23. of Rs. 33,63,81,420/-

| <b>FY22 - 23<br/>(Actual)</b> | <b>FY 23 - 24<br/>(Actual)</b> | <b>FY 24 - 25<br/>(Revised<br/>Projected)</b> | <b>FY 25 - 26<br/>(Revised<br/>Projected)</b> | <b>FY 26 - 27<br/>(Revised<br/>Projected)</b> | <b>FY 27 -28<br/>(Revised<br/>Projected)</b> | <b>FY 28 - 29<br/>(Revised<br/>Projected)</b> | <b>FY 29 - 30<br/>(Revised<br/>Projected)</b> |
|-------------------------------|--------------------------------|---|---|---|--|---|---|
| 14.63                         | 5.77                           | 24.75   | 13.95   | 13.95   | 13.95  | 13.95   | 13.95   |

#### 1.11.8 Funding details

Proposed in Revenue budget.

### 1.12 Annual Technical Support of SAP /Oracle Software Licences

#### 1.12.1 Introduction:

MSEDCL has implemented integrated SAP ERP (Enterprise Resource Planning) solution for its core functions for improvement in operation efficiencies with respect to the finance, project functions and integrating with existing systems viz. Billing, HRMS etc. MSEDCL has also invested in procurement of Oracle Databases Licences for its various IT systems.

#### 1.12.2 Objectives:

The OEM Annual Technical Support (ATS) which covers product updates, maintenance releases in the form of free fixes and patches and support related to the ERP products/ERP Database/Oracle Database is required for smooth functioning of SAP ERP, Oracle Database & Other IT Systems.

#### 1.12.3 Scope:

- Product updates/ Maintenance releases in the form of free fixes and patches, Support service or by deputation of experts if necessary.
- The Annual Technical Support is 24x7.

#### 1.12.4 Funding details

Proposed in Revenue budget.

#### 1.12.5 Cost Benefit analysis:

The benefits are intangible.

#### 1.12..6 Application maintenance services for SAP ECC

Support and maintenance of SAP ERP core and custom modules .

Scope- provide Support and maintenance of SAP ERP core and custom modules

SAP-ERP specialised skill set is required for day to day BASIS activities such as regular backup, monitoring of web services and performance and healthiness of the SAP-ERP system. Further as per requirements of user departments, it is essential to customise the SAP applications from time to time by undertaking code revision and configuration changes. Also, support issues like configuration mapping, data correction, document reversal, transaction issues etc. raised by end users, are required to be addressed on day to day basis

#### Projection-

| <b>FY22 - 23<br/>(Actual)</b> | <b>FY 23 -<br/>24<br/>(Actual)</b> | <b>FY 24 - 25<br/>(Revised<br/>Projected)</b> | <b>FY 25 - 26<br/>(Revised<br/>Projected)</b> | <b>FY 26 - 27<br/>(Revised<br/>Projected)</b> | <b>FY 27 -28<br/>(Revised<br/>Projected)</b> | <b>FY 28 - 29<br/>(Revised<br/>Projected)</b> | <b>FY 29 - 30<br/>(Revised<br/>Projected)</b> |
|-------------------------------|------------------------------------|---|---|---|--|---|---|
| 15.12                         | 14.02                              | 7.00  | 7.00  | 7.00  | 7.00   | 7.00  | 7.00  |