



**SPECIAL STUDY ON
INSTALLATION OF AUTOMATIC
METER READING (AMR) / ADVANCE
METERING INFRASTRUCTURE (AMI)
AND ABC CABLE IN SEPCO**

**FOR THE FINANCIAL YEARS 2016-17 TO
2021-22**

AUDIT YEAR 2022-23

AUDITOR-GENERAL OF PAKISTAN

PREFACE

The Auditor-General conducts audit in terms of Articles 169 and 170 of the Constitution of the Islamic Republic of Pakistan 1973, read with Sections 8 and 12 of the Auditor-General's (Functions, Powers, Terms and Conditions of Service) Ordinance 2001. The Special Study on Installation of Automatic Meter Reading (AMR) / Advance Metering Infrastructure (AMI) meters and ABC Cable in SEPCO were carried out accordingly.

The Directorate General of Audit Power conducted Special Study on Installation of Automatic Meter Reading (AMR) / Advance Metering Infrastructure (AMI) meters and ABC Cable in SEPCO during March, 2023 for the period up to 2021-22 with a view to report significant findings to stakeholders. In addition, Audit also assessed, on test check basis, whether the management complied with applicable laws, rules and regulations in managing installation of AMR/AMI meters and ABC cables. The Special Study Report indicates specific actions that, if taken, will help the management to achieve the envisaged benefits in an efficient manner.

The Special Study Report is submitted to the President of Pakistan in pursuance of the Article 171 of the Constitution, in order to be laid before both houses of Majlis-e-Shoora [Parliament].

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Islamabad
Dated: 30 April, 2024

(Muhammad Ajmal Gondal)
Auditor-General of Pakistan

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ABBREVIATIONS AND ACRONYMS

ABC	Aerial Bundled Cable
ADB	Asian Development Bank
AGP	Auditor-General of Pakistan
AMI	Advance Metering Infrastructure
AMR	Automatic Meter Reading
BCR	Benefit Cost Ratio
BOD	Board of Directors
CCI	Council of Common Interest
CPPA-G	Central Power Purchase Agency-Guarantee
CT	Current Transformer
DISCO	Distribution Company
DLP	Defect Liability Period
EA	Energy Accounting
ECC	Economic Coordination Committee
EDTIP	Electricity Distribution & Transmission Improvement Project
ELR	Energy Loss Reduction
EM&RC	Electricity Monitoring & Reconciliation Committee
ESP	Economic Stimulus Package
FEC	Foreign Exchange Component
GoP	Government of Pakistan
GoS	Government of Sindh
GPRS	General Packet Radio Service
GSM	Global System for Mobile Communication
GWH	Giga Watt Hour
HESCO	Hyderabad Electric Supply Company
HT	High Tension
IAS	International Accounting Standards
KV	Kilo Volt
KW	Kilo Watt
KWH	Kilo Watt Hour
LC	Local Component
LoA	Letter of Acceptance
LT	Low Tension
MDC	Meter Data Collection
MDM	Master Data Management
MoU	Memorandum of Understanding

MoWP	Ministry of Water and Power
MRN	Material Return Note
MW	Mega Watt
MWH	Mega Watt Hour
NOC	Network Operating Centre
NTDC	National Transmission AND Dispatch Company
PAC	Public Accounts Committee
PCC	Plain Cement Concrete
PDEIP	Power Distribution Enhancement Investment Programme
PDP	Power Distribution Program
PITC	Power Information Technology Company
PKR	Pakistani Rupees
PPMCL	Power Planning & Monitoring Company Limited
PP	Public Procurement
PMT	Pad Mounted Transformer
PMU	Project Management Unit
SE	Superintending Engineer
SEPCO	Sukkur Electric Power Company
SM	Smart Meter
S&S	Standards & Specifications
SSA Wing	Special Sector Audit Wing
SoPs	Standard Operating Procedures
TOC	Taking over Certificate
TOD	Time of Day
ToRs	Terms of Reference
ToU	Time of Use
USAID	United State Agency for International Development
US\$	United States Dollar
VPN	Virtual Private Network
WAPDA	Water and Power Development Authority
WB	World Bank

EXECUTIVE SUMMARY

The Directorate General of Audit Power conducted Special Study of Installation of Automatic Meter Reading (AMR) / Advance Metering Infrastructure (AMI) meters and Aerial Bundled Cable (ABC) in SEPCO during March 2023.

There was a persistent billing issue between Government of Sindh (GoS) and SEPCO for the period from July 2010 to July 2016. To resolve this long outstanding issue, the ECC of the Cabinet, through decision dated 25.11.2016, fully and finally settled the old billing disputes up to July 2016. The MoU was signed regarding settlement of outstanding electricity dues with GoS and installation of AMR meters against 15,268 GoS connections.

Aerial Bundled Cable (ABC) in a distribution system is primarily used for the safety of precious human life and animals as well as to control non-technical losses i.e., electricity theft through “kunda” in thickly populated areas.

The Special Study revealed that the overall performance of the company regarding installation of AMR meters and ABC cables remained less effective.

Keeping in view of audit objectives, key audit findings and recommendations are as follows:

Key Audit Findings

1. Non-implementation of ECC decisions regarding installation of AMR meters.
2. Non-completion/ capitalization of ABC cable project –Rs.749.092 million.
3. Non-installation of AMR meters on Government of Sindh (GoS) housing colonies.
4. Non-compliance with NEPRA’s directions regarding AMR meters.
5. Non-installation of AMR meters against 429 connections having arrears – Rs.2142.988 million.
6. Non-completion of the project of installation of AMR meters - Rs.44.60 million.

7. Loss due to retendering for procurement of ABC Cable - Rs.35.65 million.

1. INTRODUCTION

The Sukkur Electric Power Company (SEPCO), being an electricity distribution company was formed by bifurcating HESCO on 18th of August 2010 (modified) and the areas of operation entirely under the jurisdiction of HESCO were divided between the two DISCOs. The new company has been incorporated under the Companies' Ordinance with the name of SEPCO on 23.11.2010. The Company obtained a distribution license from the National Electric Power Regulatory Authority (NEPRA). The principal activity of the Company is distribution and supply of electricity within its defined geographical boundaries. The Company purchases electricity from CPPA-G through NTDC system and sells to the consumers of ten (10) Districts of Sindh Province.

There was a persistent billing issue between Government of Sindh (GoS) and SEPCO for the period from July 2010 to July 2016. To resolve this long outstanding issue, the ECC of the cabinet through decision dated 25.11.2016, conveyed by Ministry of Energy (Power Division), Islamabad on 7th December 2016, fully and finally settled the old billing dispute up to July 2016 vide Para 7(i) & (v) of the Summary and fixed the billing of SEPCO @ Rs. 555.82 million per month from 08/2016 onward till the installation of AMR/AMI meters on GoS connections. MoU regarding settlement of outstanding electricity dues with GoS and installation of AMR meters against 15,268 GoS connections was signed (50% cost of AMR meters to be borne by GoS and remaining 50% by SEPCO). It is pertinent to mention here that issues like overbilling to consumers, meter tempering by consumers, complaint redressal and commercial losses can well be addressed through installation of these meters. Aerial Bundled Cable (ABC) in a distribution system is primarily used for the safety of precious human life and animals as well as to control non-technical losses i.e., electricity theft through "kunda" in thickly populated areas by replacing barred conductor with ABC. Scope for SEPCO areas included installation of 527 Kilometers of ABC.

The special study reviews the implementation of Automatic Meter Reading technology and ABC cable in SEPCO and its implications and effects in decreasing technical, non-technical & commercial losses. It highlights

deficiencies in the installation of ABC cables. This review regarding installation of AMR meters on GoS connections also embraces the impact of ECC decision for recovery of SEPCO dues from GoS.

2. DEFINE STUDY

i) Purpose of Study

The purpose of study included whether the: -

- a) SoPs were followed during design, supply, installation, and commissioning of Advanced Metering Infrastructure (AMI), Automatic Meter Reading (AMR) meters and Aerial Bundled Cable (ABC).
- b) Expenditure incurred was in conformity with the relevant laws, rules and regulations.
- c) Principles of economy, efficiency and effectiveness were followed during execution of audit.

ii) Scope of Study

The Special Study scope included the review of design, supply, installation and commissioning of Advance Metering Infrastructure (AMI) and procurement and installation of Aerial Bundled Cable in Sukkhur Electric Power Company Limited (SEPCO). This Special Study covers the impact of procurement and installation of AMR meters on Govt. of Sindh connections since ECC's decision in 2016.

iii) Beneficiary of Study

The beneficiary of study includes the SEPCO, Ministry of Energy (Power Division) and Government of Sindh.

3. STUDY DESIGN

i) Time Period

The study was carried out during March 2023.

ii) Data

The data coma testing progress reports, overbilling and line losses

position (before and after implementation of AMR meter/AMI) & Procurement and installation of Aerial Bundled Cable and capitalization status of the works was examined on test check basis.

iii) METHODOLOGY

Following special study methodology was adopted during execution of this Special Study: -

- Field work covering audit of record as per audit procedure.
- Interview and discussion with the stakeholders.
- Review of procurement plan with reference to AMR/AMI meters and ABC Cable.

TORs OF SPECIAL STUDY

The Special Study of SEPCO was conducted in line with the existing guidelines of AGP. Accordingly, special study audit was conducted as per approved ToRs by SSA Wing in July 2022:

- Whether the objectives set forth for installation of AMR meters and Aerial Bundled Cable by the companies were achieved or not?
- To check the losses before and after installation of cables on specific feeders
- Whether PPRA rules were observed during procurement of Automatic Meter Reading (AMR) meters / Advanced Metering Infrastructure (AMI) and Aerial Bundled Cable (ABC)?
- Whether consultants were hired for installation of meters as per PPRA?
- Whether payment to contractor or consultant were made in line with applicable rules and regulations?
- Whether the deliverables as agreed with network service providers were achieved or not?
- Whether the feasibility of feeder was prepared before installation of Aerial Bundled Cable (ABC) LT feeder?
- What safety measures were adopted for installation of Aerial Bundled Cable?

4. DATA ANALYSIS AND RESULTS

4. DATA ANALYSIS AND RESULTS

4.1 Non-implementation of the ECC decisions regarding installation of AMR meters

According to Para-7-III(i) of ECC decision dated 25.11.2016, “the Ministry of Water and Power to ensure proposed installation of the Automatic Meter Reading System (AMR/AMI) on all connections owned by Govt of Sindh within a period of four months”.

During Special Study on installation of Automatic Meter Reading (AMR)/Advance Metering Infrastructure (AMI) and ABC in SEPCO, it was observed that as per ECC’s decision proposed installation of AMR on Govt of Sindh connections was to be completed in a period of four months, however, a period of almost 7 years had since been elapsed but the installation of AMR meters could not be completed.

The inefficient execution process resulted in non-implementation of ECC’s decision regarding installation of AMR meters up to the financial year 2021-22.

The matter was taken up with the management in March 2023. The management replied that the AMR Project started without any delay after a decision of the Council of Common Interest (CCI). Moreover, the matter regarding installation of AMR / AMI Meter s against GoS connections was discussed in Sindh Cabinet meeting held on 07.01.2019 and the execution / completion date of AMR Meters were extended by Sindh Cabinet up to 31.05.2019.

The DAC in its meeting held on 4th August 2023 directed the CEO to present a fact-finding report, headed by GM (Technical) within 30 days and share the same with audit.

Audit recommends implementation of DAC’s decision.

4.2 Non-installation of AMR metering on Government of Sindh (GoS) Housing Colonies

According to Para-II (b) of ECC’s decision dated 25.11.2016, “the DISCOs will install individual meters in place of bulk supply meters in all

housing colonies owned by GoS. To facilitate the DISCOs, the GoS would provide details of required individual connections/meters and full cost of such individual meters as well as their installation would be borne by GoS. Any delay in identifying such connection shall be the responsibility of GoS which shall continue to pay the energy charges as reflected on the bulk meters till installation of individual meters”.

During Special Study on installation of Automatic Meter Reading (AMR)/Advance Metering Infrastructure (AMI) and ABC in SEPCO, it was observed that as per ECC decision dated 25.11.2016, installation of individual meters was required in housing colonies owned by Government of Sindh (GoS) after replacing bulk supply meters. However, the same was not done. Due to non-installation of individual meters, there was still disputed billing of bulk supply meters.

Non-adherence to ECC’s decision resulted in non-installation of AMR meters on Government of Sindh (GoS) housing colonies up to the financial year 2021-22.

The matter was taken up with the management in March 2023. The management replied that demand notices for Rs.220.225 million (Capital Cost) and Rs.7.338 million (Security) against 34 residential colonies were issued but not paid by GoS. However, the AMR meters had been installed against all bulk supply connections of GoS. Now billing was being done regularly and there was no loss to SEPCO. Audit contended that how the AMR meters were installed against bulk supply connections without paying demand notices. The reply of the management was not tenable. Audit further contended to provide paid demand notices.

The DAC in its meeting held on 4th August 2023 directed the management to reconcile the data and submit a revised reply to audit.

Audit recommends implementation of DAC’s decision.

4.3 Non-completion and non-capitalization of completed ABC Projects –Rs.749.092 million

According to Fixed Assets Management (FAM-4) of Accounting Manual, after completion, the assets are transferred to the concerned operation

division which in turn capitalizes the assets and fixed assets register is updated accordingly. Moreover, debit advice (s) is prepared for transfer of each project to concerned operation division with the supporting documents which include completion reports (A-90) and Asset booking (AB 161).

During Special Study on installation of Automatic Meter Reading (AMR)/Advance Metering Infrastructure (AMI) and ABC in SEPCO, it was observed that eight (8) work orders were issued during 2011 to 2013 to different contractors for replacement of existing LT Bare Conductor with Aerial Bundled Cable and installation of static energy meters in place of conventional meters at a cost of Rs.228.577 million. The electrical material regarding ABC valuing Rs.520.515 million was also issued from warehouse for installation on different locations of SEPCO (**Annex-A**). A period of more than ten (10) years had since been elapsed but neither the all works were completed nor completed works were capitalized in books of accounts.

Inefficient project execution resulted in non-completion/capitalization of ABC project amounting to Rs.749.092 million up to the financial year 2021-22.

The matter was taken up with the management in March 2023. The management replied that work orders were issued by the Chief Engineer Development HESCO instead of PMU SEPCO and no work in progress was indicated in the accounts. The reply of the management was not tenable. Audit contended to provide complete capitalization record if no work was in progress.

While disagreeing with the management reply, the DAC in its meeting held on 4th August 2023 directed the management to constitute an inquiry committee headed by GM (Technical) within 30 days and share the outcome with audit duly vetted by PPMCL.

Audit recommends implementation of DAC's decision.

4.4 Non-compliance to NEPRA's directions regarding AMR meters

As per Para 75.3 of NEPRA directions dated June 02, 2022, SEPCO was directed to submit the impact analysis/ benefits achieved due to the installation of AMR meters on Government connections. SEPCO was further directed to

submit a plan for the installation of AMR meters at least on PMT level in its service territory”.

During Special Study on installation of Automatic Meter Reading (AMR)/Advance Metering Infrastructure (AMI) and ABC cable in SEPCO, it was observed that NEPRA directed the SEPCO management to submit impact analysis/ benefits achieved due to installation of AMR meters on Government of Sindh (GoS) connections along with a plan for the installation of AMR meters on PMT level in its service territory. However, it was noticed that neither any impact analysis was made, nor any plan was submitted by SEPCO as directed by NEPRA. Moreover, establishment of AMI cell was outstanding since May, 2018 to date. It is pertinent to mention that issues like overbilling, meter tempering, complaint redressal and commercial losses could be well addressed through installation of AMR meters. Due to non-compliance of NEPRA’s directives, neither analysis of billing and recovery was made nor could envisage benefits achieved.

Non-adherence to Authority’s direction resulted in non-compliance of NEPRA’s directions during the financial year 2021-22.

The matter was taken up with the management in March, 2023. The management replied that as per directives of Ministry of Energy (Power Division), establishment of AMI Cell was under process. As and when the cell was established, compliance would be made.

The DAC in its meeting held on 4th August 2023 directed the management to submit the impact analysis/benefits achieved due to installation of AMR meters on Government connections within 15 days and share with all stakeholders.

Audit recommends implementation of DAC’s decision.

4.5 Non-installation of AMR meters against 429 connections having arrears – Rs.2,142.988 million

According to Para 7(i) of ECC decision dated 25.11.2016,“It was also agreed that GoS and the DISCOs would not, after full and final payment, raise any outstanding issues, claims or other liabilities, whatsoever, in relation to settlement period, including relation to arrears of electricity bills, late payment

surcharge, previously reconciled bills or write offs, electricity duty etc”.

During Special Study on installation of Automatic Meter Reading (AMR)/Advance Metering Infrastructure (AMI) and ABC in SEPCO, it was noticed that 429 connections having arrears amounting to Rs.2,142.988 million were running without AMR meters since 2018 to date. As per the agreement, AMR meters were required to be installed but the same was not done. Non-installation of AMR meters might result in dispute of billing and jeopardize the recovery of arrears.

Non-adherence to ECC’s decision resulted in non-installation of AMR meters against connections having arrears amounting to Rs.2,142.988 million up to the financial year 2021-22.

The matter was taken up with the management in March 2023. The management replied that there was no dispute of billing between GoS and SEPCO. The whole billing from July 2019 to June 2023 had been reconciled including non-AMI connections. The reply of the management was not tenable, as audit observation was regarding non-installation of AMR meters against connections having huge arrears. Hence, the clearance of arrears against these connections was required to be provided besides ensuring the installation of AMR meters.

The DAC in its meeting held on 4th August 2023 directed the management to verify their stance from Audit within 15 days.

Audit recommends implementation of DAC’s decision.

4.6 Unnecessary accumulation of arrear against AMR connections–Rs.7,834.49 million

According to Para 7(i) of ECC decision dated 25.11.2016,“It was also agreed that GoS and the DISCOs would not, after full and final payment, raise any outstanding issues, claims or other liabilities, whatsoever, in relation to settlement period, including relation to arrears of electricity bills, late payment surcharge, previously reconciled bills or write offs, electricity duty etc”.

During Special Study on installation of Automatic Meter Reading (AMR)/Advance Metering Infrastructure (AMI) and ABC in SEPCO, it was

observed that arrears amounting to Rs.7, 834.49 million were accumulated from July, 2019 to June, 2022 despite installation of AMR meters on GoS connections as tabulated below.

Years	Assessment	Payment (Rs. in million)	Balance (Rs. in million)
07.2019 to 06. 2020	5,076.92	2,801.71	2,275.21
07.2020 to 06.2021	6,001.21	3,360.13	2,647.08
07.2021 to 06.2022	6,861.099	3,948.89	2,912.20
Total	17,939.229	10,110.73	7,834.49

The completion percentage of the project was 58.70% (out of total 15,268 AMR meters, 10,808 have been installed leaving a balance of 4,460 AMR meters). AMR meters were installed to avoid dispute regarding billing and recovery of energy dues from GoS. The accumulation of arrears against AMR connections depicted that full energy dues were not being paid by GoS which negated the very purpose of installation of AMR metering.

Non-adherence to the ECC decision resulted in unnecessary accumulation of arrears against AMR connections of GoS amounting to Rs.7,834.49 million up to the financial year 2021-22.

The matter was taken up with the management in March 2023. The management replied that Energy Department (EM&RC) GoS had reconciled the arrears against them from 07/2019 to 06/2023. Therefore, there was no dispute of billing payment between SEPCO & GoS. Audit contended that accumulation of heavy arrears against GoS connections negated the very purpose of AMR metering which needed to be justified.

The DAC in its meeting held on 4th August 2023 directed the management to submit the revise reply and verify it from audit.

Audit recommends implementation of DAC's decision.

4.7 Excess payment to the contractors of ABC Cable works – Rs.7.254 million

According to Para-5 (5) of Public Sector Companies (Corporate Governance) Rules, 2013 “the board shall establish a system of sound internal control, which will be effectively implemented at all levels within the public sector company, to ensure compliance with the fundamental principles of probity and propriety, objectivity, integrity and honesty and relationship with the stakeholders.

During Special Study on installation of Automatic Meter Reading (AMR)/Advance Metering Infrastructure (AMI) and ABC in SEPCO, it was observed that two work orders were awarded to M/s Sheikh Abdur Rehman & Co and M/s Jawed Construction Company at cost of Rs.31.528 million and Rs.31.270 million respectively for replacement of existing LT Bare Conductor with Aerial Bundled Cable and installation of static energy meters in place of conventional meters with ABC service wire. However, it was noticed that amount of Rs.32.198 million and Rs.37.853 million was paid to these two contractors respectively. Thus, an excess payment of Rs.7.254 million was made to these contractors which was irregular and unjustified.

Non-adherence to purchase order clause resulted in excess payment to the contractor amounting to Rs.7.294 million up to the financial year 2021-22.

The matter was taken up with the management in March 2023. The management replied that there was no excess payment made to contractors, and that the record of payments was ready for verification. Audit contended that the management stance needed to be substantiated with documentary evidence.

The DAC in its meeting held on 4th August 2023 directed the management to inquire into the matter, expedite the work completion and verify record from Audit.

Audit recommends implementation of DAC’s decision.

4.8 Less recovery of agreed average billing from GoS – Rs.8,050 million

According to Para-7 (v) of ECC decision dated 25.11.2016, “the remaining billing i.e., August 2016 till installation of AMR/AMI shall be paid

by GoS on the basis of average agreed billing for 67 months as given above, i.e., Rs.555.82 million per month for SEPCO, and these amounts will be cleared within 60 days from the date of issuance of a particular bill”.

During Special Study on installation of Automatic Meter Reading (AMR)/Advance Metering Infrastructure (AMI) and ABC in SEPCO, it was observed that an amount of Rs.8,050 million was recoverable from Government of Sindh on account of average agreed billing for the financial years 2016-17 to 2018-19 (**Annex-B**). As per ECC’s decision the agreed amount i.e., Rs.555.82 million per month was to be cleared by the Government of Sindh within 60 days of billing. However, contrary to the ECC’s decision, an amount of Rs.8,050 million was outstanding from GoS.

Non-adherence to ECC decision resulted in less recovery of agreed average billing of Rs.8,050 million from Government of Sindh up to the financial year 2021-22.

The matter was taken up with the management in March 2023. The management replied that the amount of Rs.8,050 million was under reconciliation/ verification with the GoS. Further progress would be intimated to Audit on completion.

The DAC in its meeting held on 4th August 2023 directed the management to reconcile the amount and submit a revised reply along with relevant record to Audit.

Audit recommends implementation of DAC’s decision.

4.9 Non-completion of installation of AMR meters project – Rs.44.60 million

According to Purchase Order No. 09/44 dated 12.01.2018, Clause-7 (PROJECT COMMISSIONING), The project should be executed and commissioned within thirty-six (36) weeks from the date of “Purchase / Work Order / Signing of Contract / Approval of Prototype whichever is later”.

During Special Study on installation of Automatic Meter Reading (AMR)/Advance Metering Infrastructure (AMI) and ABC in SEPCO, it was

observed that a contract was awarded to M/s KBK Electronics (Pvt) Ltd for design, supply, installation, and commissioning of single phase, three phase TOD and LT ToU AMR meters on 15,268 connections of Govt. of Sindh. However, AMR meters were installed on only 10,808 connections. Hence, 4,460 AMR meters were not installed up to June 2022 (4460 meters*Rs. 10,000 per AMR meter). Due to non-completion of project, billing to Government of Sindh (GoS) could not be served.

Non-adherence to Purchase Order clause resulted in non-completion of AMR meters project on GoS connections up to the financial year 2021-22.

The matter was taken up with the management in March 2023. The management replied that the total number of connections of GoS was 15,268 out of which 10,808 had been installed with AMR meters. The remaining meters were available in SEPCO store for installation against burnt / damaged meters of GoS connections. Audit contended that AMR meters on 15,268 connections were required to be installed as per purchase order which was not done.

The DAC in its meeting held on 4th August 2023 directed the management to conduct an inquiry for complete stock verification of GoS connections/meters besides fixing responsibility.

Audit recommends implementation of DAC's decision.

4.10 Loss due to retendering of procurement of Aerial Bundled Cable - Rs.35.65 million

As per Rule 4, of PP Rules, 2004 Procuring agencies, while engaging in procurements, shall ensure that the procurements are conducted in a fair and transparent manner, the object of procurement brings value for money to the agency and the procurement process is efficient and economical.

During Special Study on installation of Automatic Meter Reading (AMR)/Advance Metering Infrastructure (AMI) and ABC cable in SEPCO, it was observed that a tender No.1040 for procurement of ABC cable was opened on 09.02.2022. Only the single bidder namely M/s. Fast cable offered a bid price of Rs.268.20 million. However, the tender was cancelled on the pretext of high rates and being a single bidder. The procurement, just after three months

of cancellation of above said tender, was subsequently made through six tenders opened on 12.05.2022 and purchased orders issued to M/s Fast Cables Lahore and M/s Universal Cables Karachi at a cost of Rs.303.85 million. Resultantly, the company sustained a loss of Rs.35.65 million (Rs.303.85 million-Rs.268.20 million=Rs.35.65). This situation reflected that imprudent decision of the management caused loss to the company to the extent of Rs.35.65 million.

Non award of purchase order to the 2nd bidder resulted in excess cost of Rs.35.65 million to the company during the financial year 2021-22.

The matter was taken up with the management in March 2023. The management replied that only one manufacturer participated in bidding and quoted the rates offering the price of Rs.268.20 million. The bid evaluation committee observed that the value quoted by the Single Bidder was not reasonable and high as compared to market rates. Therefore, on recommendation of committee re-tendering was done but due to fluctuation in exchange rate of US\$ dollar, the overall amount of tender increased.

The DAC in its meeting held on 4th August 2023 directed the management to constitute an inquiry at management level and fix responsibility within thirty days.

Audit recommends implementation of DAC's decision.

4.11 Unjustified award of purchase order -Rs.196.675 million

As per Bid evaluation reports for the purchase of ABC cable, the Bid Evaluation Committee evaluated the technical and financial bid and recommended for placing Purchase Order to M/s Universal Cables Industries Ltd, Karachi, the Responsive Evaluated Bidder subject to condition that supplier will provide valid type test report of ABC cable from (S&S) NTDC Lahore.

During Special Study on installation of Automatic Meter Reading (AMR)/Advance Metering Infrastructure (AMI) and ABC in SEPCO, it was noticed that five tenders were floated for procurement of ABC cable. As per evaluation reports, M/s Universal Cables Pvt Ltd Karachi was declared the lowest respective bidder and recommended for placing purchase orders subject

to the condition that the supplier would provide valid type test reports or fresh type testing from NTDC Lahore. Five purchase orders amounting to Rs.196.675 million were issued to M/s Universal Cables on 16.09.2022. However, the type test reports were not provided by supplier. Audit is of the view that in the absence of valid type test report placement of purchase orders were unjustified.

Non-adherence to bid evaluation report resulted in unjustified award of purchase order amounting to Rs.196.675 million during the financial year 2021-22.

The matter was taken up with the management in March 2023. The management replied that the firm got prototype approval from Chief Engineer NTDC, Lahore dated 15.09.2022. The prototype approval issued to M/s Universal Cables, Karachi by Chief Engineer (S&S) was valid for one-year upto 14.09.2023. Hence, valid prototype approval had been provided by the supplier. Audit contended that reply was not substantiated with documentary evidence.

The DAC in its meeting held on 4th August 2023 directed the management to verify the record from audit.

Audit recommends implementation of DAC's decision.

4.12 Irregular award of purchase orders to M/s Universal Cable Karachi and M/s Fast Cable Lahore in violation of PPRA rules –Rs.303.850 million

As per Rule 9 of PP Rules, 2004 “Save as otherwise provided and subject to the regulation made by the Authority, with the prior approval of the Federal Government, a procuring agency shall announce in an appropriate manner all proposed procurements for each financial year and shall proceed accordingly without any splitting or regrouping of the procurements so planned.

During Special Study on installation of Automatic Meter Reading (AMR)/Advance Metering Infrastructure (AMI) and ABC in SEPCO, it was observed that six (6) tenders were floated for procurement of ABC cable through splitting the quantities in six lots. Contrary to the PP Rules, splitting of quantities in different lots was irregular which requires justification.

Non-adherence to PPRA rules resulted in irregular award of purchase

orders amounting to Rs.303.850 million during the financial year 2021-22.

The matter was taken up with the management in March 2023. The management replied that no splitting of the quantities was done. The quantity and the nomenclature of the material was given in each tender i.e., 1082/22 to 1087/22 was different in its specification. Therefore, being different in nature, gauge, size nomenclature and the quantities of the material, the items may not be treated as one (01) as all these items procured were different.

The DAC in its meeting held on 4th August 2023 directed the management to provide working papers of six lots duly verified by the BoD to audit for verification.

Audit recommends implementation of DAC's decision.

4.13 Non-execution of works orders regarding non-return of dismantled material to store –Rs. 228.58 million

According to the Contract Agreement No. SEPCO-LCB-ELR-09 dated 22.05.2013, Schedule of Price Clause-5; the contractor was liable for dismantlement and preparation of Material Return Note (MRN) and returning electrical material to designated store.

During Special Study on installation of Automatic Meter Reading (AMR)/Advance Metering Infrastructure (AMI) and ABC in SEPCO, it was observed that eight (8) work orders valuing Rs. 228.58 million were issued during financial years 2011 to 2013 to different contractors for dismantlement of LT conductor along with hardware, HT< structure/poles/PCC Poles, existing service lines and energy meters and installation of static energy meters in place of conventional meters. The dismantled material was required to be returned to designated store through Material Return Note (MRN). However, the same was not forthcoming from record.

Non-adherence to Contract Clause resulted in non-return of dismantled / healthy conventional meters and material to store up to the financial year 2021-22.

The matter was taken up with the management in March 2023. The management replied that the dismantled material had been returned to Sukkur warehouse by various divisions.

The DAC in its meeting held on 4th August 2023 directed the management to verify the record from audit.

Audit recommends implementation of DAC's decision.

4.14 Non-verification of connection not owned by GoS

According to Para-1.3 of WAPDA Commercial Procedure, "the Revenue Officer and Assistant Manager are responsible for: i) implementing in conjunction with the Executive Engineer, the commercial policy laid down from time to time by the Authority through the Company ii) efficient application of billing and collection procedure".

During Special Study on installation of Automatic Meter Reading (AMR)/Advance Metering Infrastructure (AMI) and ABC cable in SEPCO, it was observed that Energy Department Government of Sindh provided list of 390 connections which were not owned by GoS. These connections were required to be physically verified to know the actual status of these connections.

Non-adherence to rules resulted in non-verification of connections not owned by GoS during the financial year 2021-22.

The matter was taken up with the management in March 2023. The management replied that concerned SEs (Operation) would do on-site verification and report would be produced to audit.

The DAC in its meeting held on 4th August 2023 directed the management to share this report with audit duly agreed by GoS & SEPCO.

Audit recommends implementation of DAC's decision.

4.15 Overall Assessment

As per ECC decision dated 25.11.2016, installation of AMR meters was meant to overcome the billing and recovery disputes between SEPCO and Sindh Government, however contrary to ECC's decision partial billing was being made through AMR meters as there were some deficiencies in billing of non-communicated and damaged meters. A total of 15,268 AMR meters were required to be installed on GoS connections in thirty-six (36) weeks w.e.f. 12.01.2018 but only 10,808 AMR meters could be installed by the management up to June 2022. Moreover, GoS was also not paying full electricity dues which resulted in accumulation of arrears against GoS. No proper AMR cell was

established for execution and monitoring of the system.

As regards the installation of ABC, SEPCO made efforts to eliminate theft and reduce energy losses on HT/ LT feeders but due to lack of proper administration and vigilance, the installation/ completion reports were not prepared by the management. However, as per comparison of line losses of thirty-two (32) 11 KV feeders on which ABC was installed, there was a marginal decrease in line losses on 15 feeders whereas line losses increased on other 17 feeders, despite installation of ABC cable.

4.16 CONCLUSION

The Special Study revealed that the overall performance of the company regarding installation of AMR meters and ABC cables remained unsatisfactory. The envisaged benefits of installation of AMR/AMI meters on the connections of GoS could not be reaped fully due to delay in installation of AMR meters. The completion percentage of the project was 58.70% (out of total 15,268 AMR meters, 10,808 have been installed leaving a balance of 4,460 AMR meters). It is pertinent to mention here that issues like overbilling to consumers, meter tempering by consumers, complaint redressal and commercial losses can well be addressed through installation of these meters. Non-compliance of ECC/NEPRA decisions and PP Rules resulted in ineffective monitoring of project management which led to issues i.e., non-mated meters, low signal strength, non-return of dismantled materials, unjustified award of contract, connections not owned by GoS, violation of PP rules by splitting the contract and accumulation of arrears despite partial installation of AMR meters on GoS connections. The management failed to complete the installation of Aerial Bundled cable project even after elapse of a period of more than ten years. Aerial Bundled Cable (ABC) in a distribution system is primarily used for the safety of precious human life and animals as well as to control non-technical losses i.e., electricity theft through “kunda” in thickly populated areas by replacing barred conductor with ABC. Scope for SEPCO areas included installation of 527 Kilometers of ABC.

5. Recommendations

In view of the audit findings, following measures are recommended for improvement in the operational working of AMI infrastructure and strengthening the ABC network to eliminate the element of pilferage/theft of electricity and to achieve the maximum benefits:

- Compliance with the ECC decision regarding installation of AMR meters needs to be ensured;
- To ensure implementation of NEPRA's directions regarding AMR meters;
- Violation of PP Rules needed to be investigated/inquired for fixing responsibility;
- Installation of AMR meters on all GoS connections including housing colonies needs to be completed;
- Inquiry may be conducted to fix the responsibility for non-completion/capitalization of ABC Cable project;
- Reconciliation of monthly data of billing of muted/non-communicated meters be made with GoS. on monthly basis in order to avoid piling up of electricity dues;
- The reasons of non-communication be monitored / analyzed and if pertained to field, then it may be enquired thoroughly for fixing responsibility;
- Installation of ABC cable be made on other high loss feeders to control theft / pilferage of electricity; and
- Violation of PP rules needed to be investigated / inquired for fixing responsibility.

ACKNOWLEDGEMENT

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ANNEXES

Annexure-A**(Para No.4.3)****Details of Non-completion/ capitalization of ABC cable Project**

Sr. No	Description	Amount (Rs. in million)
1	Contract Price of 8 Work orders	228.577
2	Cost of Material issued from warehouse	520.515
Total		749.092

Annexure-B**(Para No.4.8)****Details of less recovery of agreed average billing from GoS**

Year	No. of connections	Unite billed	Billing (Rs. In million)	Payment (Rs in million)	Balance (Rs in million)
2016-17	15484	620.3	9104.6	4692.8	4411.8
2017-18	15693	665	8584.2	7183.9	1400.2
2018-19	15797	464.2	8920.2	6682.2	2238.0
Total	46974	1749.5	26609	18558.9	8050