



**INFORMATION SYSTEM AUDIT
REPORT
ON
CUSTOMER CARE & BILLING SYSTEM
OF SNGPL AND SSGC
MINISTRY OF ENERGY
(PETROLEUM DIVISION)**

AUDIT YEAR 2022-23

AUDITOR-GENERAL OF PAKISTAN

SERVING THE NATION BY PROMOTING ACCOUNTABILITY,
TRANSPARENCY AND GOOD GOVERNANCE IN THE MANAGEMENT
AND USE OF PUBLIC RESOURCES FOR THE CITIZENS OF PAKISTAN

PREFACE

Articles 169 and 170 of the Constitution of the Islamic Republic of Pakistan 1973 read with Sections 8 and 15 of the Auditor-General's (Functions, Powers and Terms and Conditions of Service) Ordinance 2001 require the Auditor-General of Pakistan to conduct audit of the receipts and expenditure from the Federal Consolidated Fund, Public Account and that of any authority or body established by or under the control of Federation or a Province. The Information System Audit of Customer Care & Billing (CC&B) System being used by Sui Northern Gas Pipelines Limited (SNGPL) and Sui Southern Gas Company Limited (SSGC) was carried out accordingly.

The Directorate General of Audit Petroleum & Natural Resources, Lahore conducted Information System Audit of Customer Care & Billing (CC&B) System of gas distribution companies i.e., SNGPL and SSGC during May-June, 2023 for the Audit Year 2022-23. The Audit examined data sufficiency for users, system efficacy and efficiency of internal controls designed to ensure that the systems and applications were appropriate to the entity's needs associated with consumers' facilitation. Moreover, the Audit also assessed, on test check basis whether the management complied with applicable laws, rules and regulations in developing and managing CC&B system. This IS audit report indicates specific actions that, if taken, would help the management improve the system.

This report has been finalized in the light of discussions during Departmental Accounts Committee meetings held on November 16 & 28-29, 2023.

The IS Audit Report is submitted to the President of Pakistan in pursuance of Article 171 of the Constitution of the Islamic Republic of Pakistan 1973, for causing it to be laid before both Houses of Parliament (Majlis-e-Shoora).

-Sd-

Islamabad
Dated: December 24, 2024

(Muhammad Ajmal Gondal)
Auditor-General of Pakistan

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ABBREVIATIONS AND ACRONYMS

BoD	Board of Directors
CC&B	Customer Care & Billing
CF&AO	Chief Finance & Accounts Officer
CIS	Customer Information System
CNIC	Computerized National Identity Card
DAC	Departmental Accounts Committee
DMS	Document Management System
ERM	Enterprise Risk Management
ERP	Enterprise Resource Planning
FTP	File Transfer Protocol
FY	Financial Year
GIS	Geographic Information System
HDD	Hard Disk Drive
HHU	Hand Held Unit
HR	Human Resources
IBM	International Business Machines
ID	Identity Document
IEC	International Electro technical Commission
IS	Information System
ISMS	Information Security Management System
ISO	International Organization for Standardization
IT	Information Technology
JD	Job Description
MIS	Management Information System
OGRA	Oil and Gas Regulatory Authority
PAO	Principal Accounting Officer
PSEs	Public Sector Enterprises
RAM	Random-Access Memory
RFP	Request for Proposal
SNGPL	Sui Northern Gas Pipelines Limited
SOP	Standard Operating Procedure
SSGC	Sui Southern Gas Company Limited
UPS	Uninterruptible Power Supply
USB	Universal Serial Bus

EXECUTIVE SUMMARY

The Directorate General Audit, Petroleum & Natural Resources, Lahore carries out audit of Ministry of Energy (Petroleum Division) and Public Sector Enterprises (PSEs) under the Petroleum Division. Information System (IS) audit of Customer Care & Billing (CC&B) System was conducted during May-June, 2023.

Sui Northern Gas Pipelines Limited (SNGPL) and Sui Southern Gas Company Limited (SSGC) are public limited companies in gas distribution business. These companies are listed on Pakistan Stock Exchange (PSX) Limited. SSGC and SNGPL initiated programs to implement a Customer Information System (CIS) integrated with Enterprise Resource Planning (ERP) and Geographic Information System (GIS) in 2004 and 2009 respectively. The objective was to achieve complete automation of various processes with proper data capturing & ownership at each level. It was also aimed at automated bills processing to reduce errors and customers' complaints. The system continues to operate catering for the needs of these companies.

During the course of audit, it was observed that SSGC's IT Strategic Plan and IT Policy did not have the approval of Board of Directors. Lack of approval of strategic plan highlighted the issue of ownership at the top level which is compulsory for the achievement of objectives of the CC&B system. Audit also observed lack of focus on timely updating of the key elements of the IT system like software and critical servers. Updating these systems is required to ensure system's stability, security and compliance with industry standards. Management of SSGC failed to develop workflow controls to restrict multiple users from making amendments in the amounts billed to customers, and avoid the risk of loss to the company.

Both companies failed to introduce appropriate procedures governing firewalls, log review, backup, change management and incident response. The companies were yet to put in place controls for identified risks, ensure documentation of risk management, data sanitization and scrapping of IT equipment.

Key Audit Findings

During IS Audit, it was observed that:

- i. CC&B System at SSGC was working without any approved IT strategic plan creating impediments in successful achievement of goals ¹;

¹Para 4.1.1

- ii. Many of the essential policies and procedures were not developed by both SSGC & SNGPL ²;
- iii. Serious issues of non-documentation involving data sanitization, security risk assessment, and other procedures pointed towards weak IS management ³;
- iv. Internal audit under ISO 27001 was not conducted by SNGPL ⁴;
- v. CC&B version, the server & web applications used by SSGC and training, IT/MIS operating manual being used by SNGPL were outdated ⁵;
- vi. The management practices regarding registering new consumers and complaints in CC&B system at both SNGPL & SSGC were weak ⁶;
- vii. There were discrepancies in user access management in both organizations ⁷; and
- viii. Procurement of CC&B system was made by SNGPL under a questionable process, and for which no Request for Proposal and related record was available⁸.

Recommendations

In view of the audit findings, it is recommended that the following steps may be immediately taken in order to improve the IT environment:

- i. The management of SSGC must get approval of both the IT Strategic Plan and IT Policy from the BoD so that the ownership of the top management is ensured which in turn will help to achieve overall objectives of the incorporation of Information System in an effective manner;
- ii. The managements of SSGC and SNGPL must establish rules to be implemented on firewalls, log review procedures, operating procedures to implement the backup policy, policy for change management and policy to cover incident response;

²Para 4.1.2

³Para 4.1.3

⁴Para 4.1.4

⁵Para 4.2.1

⁶Para 4.2.2

⁷Para 4.3.1

⁸Para 4.5.1

- iii. Both managements must formulate mitigation controls for identified risks, ensure documentation of risk management/data sanitization and scrapping of IT equipment;
- iv. SNGPL should conduct internal audit under ISO 27001 on periodical basis in addition to complying with other such requirements under these standards.
- v. The management of SSGC must ensure updation of software/critical server, versions of CC&B to maintain the system's stability, security and compliance with industry standards and SNGPL should update operational and training manuals;
- vi. Both companies must ensure entering complete particulars in CC&B system, correct classification of complaints along with priority and entering feedback from complainants;
- vii. Both managements must strengthen internal controls by revisiting the user access rights and revoking them, develop controls and enforce to stop multiple logins at the same time to secure the data and protect the authorization; and
- viii. SNGPL should share approval of Board of Directors for procurement of CC&B system along with documents of RFP.

1. INTRODUCTION

SNGPL & SSGC are gas utility companies in Public Sector domain working in their areas of jurisdiction in the country for purchase, transmission and distribution of natural gas. The billing model is core function of both the gas companies from which major portion of the revenue is generated and for this purpose SNGPL and SSGC embarked upon improving automated solution (Customer Care & Billing System) which was designed and developed by ORACLE Corporation. SNGPL got certificate under ISO/IEC 27001:2013 to show their Information Security Management System complies with the requirements of the International Standard. However, SSGC was in process to get certificate under ISO/IEC 27001.

Customer Care & Billing System is an automated and integrated Customer Information System, which focuses on the customers for their needs in Customer Services, Billing, Field Services, Finance and Meter Management in order to maximize customer satisfaction and stakeholder values through highest levels of process efficiencies. With the advent of CC&B system, the business processes were expected to be enhanced and efficient. The intended benefits of using CC&B system were to:

- i. make all customer related information visible with a 360° view from single application;
- ii. complete automation of processes across the board with proper data capturing & ownership at each level;
- iii. achieve efficiency, productivity and quality in all operations;
- iv. integrate the building with ERP and GIS systems, besides fulfillment of internal and external reporting requirements;
- v. track status of all customer-requests and other related activities, aging of pending connections in real time;
- vi. coordinate fieldwork for meter installation/removal to ensure automatic dispatch via CC&B without any delays reducing time lags due to manual paper movements;
- vii. integrate and define meter-reading & billing schedules in the system much before time, for enhanced efficiency;

- viii. process bills automatically resulting in minimal billing errors and reduction of complaints;
- ix. assign and monitor 'to be done' tasks;
- x. control access to various elements. Audit trails would be available for critical transactions; and
- xi. maintain deposits and all other financial transactions in CC&B resulting in availability of actual balances at any time.

The departments which were integrated through Customer Care & Billing system included:

- i. Sales
- ii. Distribution
- iii. Billing
- iv. Accounts/Finance
- v. Customer Services
- vi. Stores
- vii. Metering

2. AUDIT OBJECTIVES / TORS

The IS audit of CC&B was selected with the objective to check whether all customer-related information was visible from single application and check whether the proper functionalities and modules for customer care have been developed and fully operationalized. As per approved TORs, the Audit intended to assess whether:

- i. CC&B system was procured as per RFP and network diagram/mapping;
- ii. Business continuity plan was framed and implemented including Disaster Recoveries, Backup policy etc.;
- iii. Information security policy was framed and approved by BoD and security audit certification was conducted;
- iv. IT Risk Register was prepared and risks were identified and reported;
- v. IT equipment procurement was made effectively (Hardware and Software);
- vi. Change Management Policy was designed and personnel were trained accordingly;

- vii. Physical security including fire suppression system, strong room for server, etc. exists;
- viii. Notification alerts were automatically generated in CC&B;
- ix. The log analysis and remedial measures are taken if needed; and
- x. Proper functionalities and modules for customer care and billing were developed and fully operationalized including new customer registration, billing/meter reading, meter equipment, gas load/pressure, tariff change, disconnection/reconnection etc.

3. AUDIT SCOPE AND METHODOLOGY

The IS audit of Customer Care & Billing system of SNGPL and SSGC was carried out at their headquarters and regional offices in Gujranwala, Faisalabad and Multan. Period under audit was financial year 2021-22. A questionnaire was prepared and response was sought from the management on this questionnaire. Audit also scrutinized the manual record as well as data retrieved from the system.

Audit focused on understanding the CC&B System, collection of record, carrying out desk audit, identifying high risk areas, and analyzing the data for development of audit findings.

4. Audit Findings and Recommendations

4.1 IT Governance

4.1.1 Non-approval of IT strategic plan

As per Clause 5.1 of ISO 27001, “the top management shall demonstrate leadership and commitment with respect to the information security management system by: a) ensuring information security policy and the information security objectives are established and are compatible with the strategic directions of the organization and, e) ensuring that the information security management system achieves its intended outcome(s)”.

During IS audit it was observed that the IT Strategy which was recommended in March 2021 by the senior management of SSGC, was not approved by Board of Directors (BoD). In the absence of a strategic plan, the risk of the projects and initiatives getting delayed increases manifold keeping the overall objectives of the organization at bay. For instance, SSGC failed to achieve certain key benchmarks including installation of cameras at identified critical offices/sites, provision of customer self-service portal at SSGC’s website, introduction of mobile app, and monitoring and upgradation of servers, networks and business applications. Just like IT strategy, IT policy, which was drafted in May 2019, was also not got approved from the BoD of SSGC.

Audit was of the view that existing operations of Information System lacked approval of the Board of Directors which enhanced the risk of ownership of already taken actions and decisions. Further, absence of any leadership from the top resulted in non-achievement of strategic goals like enhanced customer experience, operational integrity, process modeling, service up-gradation and innovation.

The matter was reported to Ministry of Energy (Petroleum Division) on September 4, 2023. In DAC meeting held on November 16, 2023, SSGC stated that IT strategy document was developed, several iterations were carried out and most of the projects had been completed. Further, IT policy document was duly approved by higher management. DAC directed the management to get the IT Policy and IT Strategy approved from the Board. No further progress was reported till finalization of this report.

Audit recommends that approval of both the IT Strategy and IT Policy be sought immediately from the BoD.

4.1.2 Non-formulation of Policies, Rules and Procedures

As per Clauses 4.1.6, 4.1.8 & 4.1.11 of IT/MIS Operating Manual of SNGPL, Network team would utilize various preventive measures to secure its network infrastructure such as Firewall. IT/MIS will periodically carry out a User Access Review exercise for CC&B and E-Business Suit. Back-up of all the data and information will be taken on regular basis to enable the IT system to be recovered. According to ISO 27001– Annex A.14.2, changes to systems within the development lifecycle shall be controlled by the use of formal change control procedures. According to ISO 27001– Annex A.16, management responsibilities and procedures shall be established to ensure a quick, effective and orderly response to information security incidents. As per Clause 6.1.2 & 6.1.3 of ISO 27001, the organization shall define and apply an information security risk assessment and treatment process.

During IS audit of SNGPL and SSGC, it was observed that relevant rules, policies and procedures were not being developed or updated as warranted as a result of introduction of new technologies. For example, the rules to be implemented on firewalls were not established by SNGPL. Logs for updating were also not available to show the activity report. Absence of rules and regular updating was not only counter-productive, but also gives false sense of security, adds processing cost creating burden on the already constrained processing capacity.

It was also observed that SNGPL's IT/MIS Operating Manual did not contain any log review procedures of the key users which were involved in operational activities of IT system, thereby exposing the system to a number of threats. The management of SNGPL also failed in development of detailed operating procedures to implement the backup policy. It was not clear, who was responsible for taking backups, keeping in safe custody, for how long and with what frequency and who was responsible to keep a copy of backup at Disaster Recovery Site. Change management policy did not exist in SSGC. As per record, it was noticed that changes had been made on the basis of activity form only which did not serve the purpose of effective monitoring and control. The management of SSGC did not develop any policy to cover and record incident response, which could have acted as a preventive control.

Audit would present a case where due to non-preparation of procedures and responsibilities for incident response management, the Data Centre was completely shut down in SSGC on March 27, 2023.

Audit was of the view that failure to establish rules to be implemented on firewalls, log review procedures and operating procedures to implement the backup policy may jeopardize the whole system and business and may make it susceptible to malpractices.

The matter was reported to Ministry of Energy (Petroleum Division) on September 4, 2023. In DAC meetings held in November 2023, SNGPL stated that in addition to firewalls, their security posture was strengthened by endpoint security measures, VM anti-virus systems and periodic penetration tests of the environment. Regarding log review procedures, the department was totally compliant with current approved manual. IT/MIS had implemented a comprehensive backup mechanism, prioritizing high availability and disaster recovery techniques to safeguard data against loss or any unforeseen disasters. SSGC stated that the change management policy and incident response management policy would be placed before the Board for approval.

DAC directed the management of SNGPL to update policies and procedural manuals and get it verified from Audit within two months. DAC further, directed the management to get the relevant log activity / frequency of back up as per manual w.e.f 2021 verified from Audit. DAC directed the management of SSGC to get the IT policy, including change management and incident response management, approved from the Board and implement the same. No further progress was reported till finalization of this report.

Audit recommends to implement the decision of DAC for development/ establishment of rule, policies and procedure manuals.

4.1.3 Issues in documentation

As per Clauses 6.1.2 & 6.1.3 of ISO / IEC 27001:2013 updated in 2022, “the organization shall define and apply an information security risk assessment and treatment process”. As per Para 3.1 read with 13.2 of IT Policy of SSGC, “the IT department shall comprise of IT Information Security / IT Risk Officer who shall develop policies, procedures, technical controls and adopt measures that appropriately

address risks related to security events”. According to ISO 27001–Annex A.11.2, to prevent loss, damage, theft or compromise of assets and interruption to the organization’s operations, all items of equipment containing storage media shall be verified to ensure that any sensitive data and licensed software has been removed or securely overwritten prior to disposal or re-use. Further, as per Clause 4.6.4 of the IT/MIS Operating Manual of SNGPL, for scrapping of IT equipment a scrapping certificate will be forwarded to Finance Department and after approval IT/MIS department will handover scrape material to stores department and update the IT inventory software.

During IS audit of SNGPL and SSGC, it was observed that there were shortcomings in maintenance of IT risk registers of both SNGPL and SSGC (**Annex-I**). Both the organizations neither documented the control gaps nor formulated an information security risk policy and treatment plan to mitigate such gaps. The data sanitization processes for decommissioned IT assets were not adequately documented by SSGC. There were no records indicating which devices underwent data sanitization, the method used for sanitization, the date of the procedure or the personnel responsible for performing the task. Similarly, SNGPL scrapped two firewalls (Cisco ASA 5520) without approval, documentation of scrapping process and other vital information.

Audit was of the view that flawed documentation of risk management, data sanitization and scrapping of IT equipment process were exposing the system to security breaches and unauthorized access, confidentiality and regulatory compliance.

The matter was reported to Ministry of Energy (Petroleum Division) on September 4, 2023. In DAC meetings held in November 2023, SSGC stated that the company had initiated implementation of ISO 27001 for Information Security Management Systems (ISMS) and had applied mitigation controls to reduce the risk impact. It was further stated that the IT department retained the storage media including HDD, RAM & tapes of all used IT assets and handed over to stores department for disposal. Options were under considerations for either physically damaging the obsolete media or acquire an outsourced degaussing system to address the data sanitization mechanism. SNGPL stated that risk management department compiled all the risks at all levels enabling to control the associated threats. It was

also stated that Cisco ASA 5520 units were part of Head Office's infrastructure but underwent replacement in 2015.

DAC directed SSGC to review the issue of risk management and submit comprehensive report to Audit. DAC also directed to expedite the process of data sanitization record within three months. Further, DAC directed the management of SNGPL to improve the system of Risk Management within a week. DAC also directed to share sanction regarding scrapping of firewall. No further progress was reported till finalization of this report.

Audit recommends that both managements must formulate mitigation controls for identified risks, ensure documentation of risk management / data sanitation and scrapping of IT equipment.

4.1.4 Non conducting of internal audit under ISO 27001

According to Clause 9.2 of ISO 27001, the organization shall conduct internal audits at planned intervals to provide information on whether the information security management system conforms to the organization's own requirements for its information security management system and the requirements of International Standard.

During IS audit of CC&B System of SNGPL, it was observed that internal audit of its information security management system was not conducted. Thus, the senior management and BoD were unable to know the results about the implementation and maintenance of the information security management system.

Audit was of view that non-conducting of internal audit under ISO 27001 leads to non-conformity of continuing suitability, adequacy and effectiveness of SNGPL's information security management system.

The matter was reported on September 4, 2023 to Ministry of Energy (Petroleum Division). In DAC meeting held on November 28-29, 2023, the management stated that SNGPL data centers managed by the IT/MIS team achieved ISO 27001 certification in 2021. The management's adherence to the ISO 27001 standards was an ongoing process, emphasizing continuous improvement in information security practices and ensuring that the organization remain resilient against evolving security threats.

DAC directed the management of SNGPL to share the internal audit report with Audit for verification within two days. No further progress was reported till finalization of report.

Audit recommends strict compliance of the standards regarding regular internal audit of information security management system.

4.2 IT Operations

4.2.1. *Outdated Servers, Manuals and Web Applications*

According to Annex A.12.6.1 of ISO 27001, “information about technical vulnerabilities of information systems being used must be obtained in a timely manner. Any vulnerability is a weakness in security protection and must be dealt with effectively and efficiently where risk levels are unacceptable. Server principal support typically includes security updates and patches that address vulnerabilities and protect against potential threats. When support ends, new security vulnerabilities may not be addressed, leaving the system exposed to risks. This situation can pose challenges during audits, as auditors may flag the lack of security updates and the increased potential for unauthorized access or data breaches”.

During IS audit of SNGPL and SSGC, it was observed that both the companies were using outdated critical servers as well as other applications putting at risk the system to its vulnerabilities. SSGC was utilizing outdated versions of “IBM DB2 9.7 fix pack prior to 6” and “IBM WebSphere Application Server 7.0” that had reached the end of their principal support. Roles of these applications were crucial in managing databases and supporting functionalities. Further, management was utilizing that version of CC&B, premium support of which had already ended in 2020. There were serious concerns about potential risks to the stability, security and compliance of the CC&B system. Due to non-updating of servers and version of CC&B, the vendors ceased providing regular updates, patches and critical bug fixation for these products. Although, SNGPL updated CC&B application from version 2.2 to 2.6, it did not update the training manual of CC&B to version 2.6 since 2018. Further, the IT operational manuals were not updated despite directions from the Management Committee in its meeting held in December, 2021.

Audit was of the view that non-updating application software and critical server place the whole system vulnerable to safety, security and business loss.

The matter was reported to Ministry of Energy (Petroleum Division) on September 4, 2023. In DAC meeting held on November 16, 2023, SSGC stated that the company was in the process of CC&B upgrade from version 2.4 to 2.8. Once system was upgraded, IT department would either initiate an upgrade or explore alternative solution for these applications. In DAC meeting held on November 28-29, 2023, SNGPL stated that IT manual is regularly reviewed and as per the directions of the committee, status of the manual is shared with the Risk Management department. IT/MIS department organized training sessions for all CC&B stakeholders/users.

DAC directed SSGC to expedite the process at the earliest. DAC directed SNGPL to upgrade the training manual and share the same with Audit within six months. No further progress was reported till finalization of the report.

Audit recommends upgrading all critical components of the Information System to maintain the system's stability, security, and compliance with industry standards, thereby safeguarding customer data and ensuring uninterrupted service delivery.

4.2.2. Weak management practices in registering new consumers and complaints in CC&B system

As per S. No. 3 of Performance and Service Standards 2019 issued by OGRA, all complaints shall be recorded whether received by phone, letter, electronically or in person. Complaints about gas smell, asphyxiation, fire, gas pipe breakage, explosion or building collapse, etc., shall be dealt with / to attend as quickly as possible but within one hour for uncontrolled escapes, and two hours for controlled escapes. All other complaints which are determined to be low risk shall be responded to within 24 hours. Further, according to clause 5.2.2 of Customer Service Department Manual, the feedback of all received complaints after rectification shall be transferred to CC&B system.

During IS audit of CC&B System of SNGPL and SSGC, it was observed that at the time of registering new consumers in CC&B system, complete particulars i.e. OGRA license number, phone number, CNIC, preferred contact etc., were not entered in CC&B system. Similar was the case with complaint entries where vital information

like phone number, complaint type, etc. was found missing in many complaints. Further, complaints were wrongly prioritized as critical or normal e.g. blast, fire case, building collapse, gas leakages etc. were recorded as normal complaints while address correction, bill not received, gas stop etc. were recorded as critical complaints. Moreover, 250 complaints were resolved with a delay of 04 days to 200 days, which showed non-professional attitude of the management. Complaints were also closed without getting/putting feedback of consumers in CC&B application.

Audit was of the view that weak management practices were responsible for the issues highlighted above.

The matter was reported to Ministry of Energy (Petroleum Division) on September 4, 2023. In DAC meetings held in November, 2023, SSGC stated that a mechanism had already been implemented which made sure that no field was left blank in CC&B in future. SNGPL stated that the checks were already in place to ensure no mandatory fields were blank. As per SOP, while lodging complaints, entry of necessary information was mandatory like nature of complaint etc. All concerned had been advised strictly to follow the SOP when prioritizing the complaint to avoid any deviation from standard procedures in future. As suggested, feedback received from consumers be accurately punched into CC&B.

DAC directed both managements to get the stated stance verified from Audit. DAC further directed SNGPL to introduce data collection / correction system and share the work plan with Audit. No further progress was reported till finalization of report.

Audit recommends entering complete particulars in CC&B system, ensuring correct classification of complaints along with priority and entering feedback from complainants. Audit also suggests that a periodical report is generated on the data of complaints for the higher ups in the gas companies.

4.2.3. Non-completion of “To-Do” messages resulting in unresolved errors generated in the CC&B System

As per System Process Document Specific of CC&B “To-Do Management” is an application of the CC&B System where numerous events trigger the creation of messages, describing work that requires human attention. For example, if a bill segment has an error, a To-Do message is created to highlight such issues. Each To-

Do entry has a To-Do log that maintains a record of the To-Do's progress in the System. A To-Do entry is created when it is assigned to a user, to whom it was assigned, and when and by whom it was completed”.

During IS audit of CC&B System of SNGPL and SSGC for the FY 2021-22, it was observed that there were 14,885 To-Do's pending which were 3 months old and 237,803 To-Do's pending for more than 4 months in the CC&B System of SSGC and 2,068 sample cases of To-Do's were pending relating to SNGPL as detailed in **(Annex-II)**.

Audit was of the view that pending To-Do's in the system indicated that the job or work assigned by the in-charge could not be completed but no action was taken to rectify the situation.

The matter was reported to Ministry of Energy (Petroleum Division) on September 4, 2023. In DAC meetings held in November, 2023, SSGC stated that a batch program would be developed which would ensure that all resolved cases be auto completed at the end of the day or during the cycle end. SNGPL stated that mostly all the field activities are part of some process i.e. meter installation field activity is generated against new connection and is used by distribution department.

DAC directed SSGC to complete the batch program and report to Audit. DAC directed SNGPL to get the relevant record verified from Audit on case-to-case basis. No further progress was reported till finalization of the report.

Audit recommends to resolve all pending To-Do's and develop a check / program to ensure that all resolved To-Do's be auto completed and not shown as pending.

4.2.4. Non-utilization of archiving tool in CC&B despite inclusion in support & maintenance contract

According to Rule 5(5)(a) of the Public Sector Companies (Corporate Governance) Rules, 2013, the principle of probity and propriety entails that company's assets and resources are not used for private advantage and due economy is exercised so as to reduce wastage. Further, while discussing agenda 12 in 550th BoD meeting held on July 30, 2020 the Board directed to ensure that payment of software maintenance fee should only be made for those software packages which were in use.

During IS audit of CC&B System of SSGC for the FY 2021-22, it was observed that the archiving tool was not used at all despite having included in the service level agreement and covered under the yearly support and maintenance contract with the vendor. This showed inefficiencies in IT application acquisition and contract management, ineffective cost management, non-value addition and lack of focus on business support.

Audit was of the view that non-utilization of CC&B Archiving Tool, despite its inclusion in the service level agreement and yearly support and maintenance contract, highlighted potential shortcomings in the organization's IT project management, budget allocation practices, and lack of proper analysis and cost-benefit assessments conducted before acquiring any IT application or service by the management.

The matter was reported to Ministry of Energy (Petroleum Division) on September 4, 2023. In DAC meeting held on November 16, 2023, SSGC stated that Oracle archiving module was purchased as a part of bundled license deal. Archiving & purging tool kept the volume of data in the production data-base at a manageable level without compromising the system's ability to perform normal operation. However, SSGC was using this tool to purge data from huge CC&B production data-base in order to maintain sizeable data-base to keep system performance at optimal level. Audit contended that purging data was done on October 22, 2023 which showed that the archiving tool was not used from 2019 till 2022 but the management paid software maintenance fee of Rs 2.2 million during the year 2021-22 alone which was clear violation of directives of BoD.

DAC directed the management to submit comprehensive report with supporting documents to Audit. No further progress was reported till finalization of the report.

Audit recommends to share report besides excluding those applications in service level agreements which were not in use.

4.2.5. Reliance on manual processes compromising the efficient use of CC&B application

According to Clause 4.3.2 of Process Analysis Report of SNGPL and as per SOP of IT CC&B of SSGC the meter reads and misc. data obtained through the hand

held units and books was to be uploaded through FTP files into CC&B. Further, as per Interface of CC&B application “New Registration”, when the turn of customer comes according to first come first served basis, survey of the site is conducted to determine if the connection is feasible or not in accordance with Clause 7 & 35 of Performance and Service Standards, 2019, introduced by OGRA. Furthermore, according to Clause 4.1.3 of Customer Service Department Manual of SNGPL, the record complaints received through personal visits of consumers shall be registered in CC&B system.

During IS audit of CC&B System of SSGC and SNGPL for the FY 2021-22, it was observed that some workflows were performed manually which compromised the efficient use of CC&B application. Firstly, the meter reading process was not fully automated, as Hand Held Units (HHU) were not directly synchronized with CC&B for automated meter reading. This led to manual entry/uploading of meter read files into CC&B after streamlining by the IT department. Secondly, the manipulation of the system-generated merit list for meter installations was noted as meters were installed without adhering to the turn/merit policy. This manipulation compromised data integrity, violated applicable rules, and reduced overall efficiency. Further, 126 manual complaints were not registered in complaint management system of CC&B and the process of issuance of bills in installments was done manually instead of through CC&B system. Moreover, gas bills relating to all consumers were printed and distributed manually instead of issuance of e-bill through system which resulted in wasteful expenditure on printing/distribution of paper bills.

Audit was of the view that manual processes of meter reading, instalment of bills, and manipulation of system generated merit list could compromise the efficient use of CC&B and increased risk of errors.

The matter was reported to Ministry of Energy (Petroleum Division) on September 04, 2023. In DAC meetings held in November, 2023, SSGC and SNGPL stated that there was no provision in CC&B’s current version to automate meter reading files (downloading / uploading activities) directly into CC&B system without the human intervention. SNGPL stated that the computerized merit list was generated by IT/MIS department depending on merit of each Region and the same was forwarded to the concerned Region for implementation. Bills were manually amended in case of installment as the relief was given to consumer for time being to facilitate

them for payment easily in parts. Further, there were very few complaints which could not be entered in the system due to insufficient information provided by the complainant. Moreover, in franchise areas awareness campaigns were launched and 86,307 consumers had opted for e-billing facility.

DAC directed both the companies to get the stated stance verified from Audit and to improve the mechanism to check the accuracy, reduce the chances of errors and share the report with Audit after three months. DAC further directed SNGPL to implement the merit in letter and spirit and get the record verified on case-to-case basis. DAC also directed to enhance and improve efforts for e-billing. No further progress was reported till finalization of report.

Audit recommends development of automated meter reading process / synchronization of HHU with CC&B, discontinuing the manual process of installments, manipulation of merit list and issuance of e-bills instead of printing.

4.2.6. Poor meter configuration and non-utilization of active meters in inventory

According to training manual of meter and equipment management 2009, CC&B provided complete tracking of meters and items that have a unique badge number. In CC&B, items were divided into two major types Badged items (track-able and have a unique badge number) and Un-Badged items (not track-able and without unique badge number). Further, as per Clause 4.1 of IT/MIS Operating Manual, CC&B was an automated and integrated Customer Information System, which focused on valued customers for their needs in Customer Services, Billing, Field Services, Finance and Meter Management in order to maximize customer satisfaction and stakeholder values through highest levels of process efficiencies.

During IS audit of CC&B System of SNGPL for the FY 2021-22, it was observed that the management configured meters in the CC&B application by assigning badge numbers, meter types, manufacturers, and models for tracking purposes. However, in some instances, different types of meters (from different manufacturers) were assigned the same badge numbers, leading to poor configuration and increased risk of errors in tracking meters. Further, 6.949 million meters (domestic and commercial) held in different store locations in the CC&B application, were found active but unattended for installation. Additionally, despite having this

stock of meters, the management procured 0.4 million domestic meters in FY 2021-22 which resulted in un-necessary expenditure of Rs 2.780 billion.

Audit was of the view that weak system controls resulted in poor configuration / errors in tracking meters and un-necessary expenditure of Rs 2.780 billion due to non-utilization of active meters available in inventory.

The matter was reported to Ministry of Energy (Petroleum Division) on September 4, 2023. In DAC meeting held on November 28-29, 2023 SNGPL stated that there may be some duplicate badge numbers in CC&B due to wrong punching of meter types / configurations and therefore users made them unique by adding additional number (-01, -02 etc.) at the end of badge number in such cases. The management further stated that meters held by Metering / Distribution for scrapping / evidence of tampering were not updated in CC&B as per their actual status and thus remained as active which resulted in notational meters inventory which did not exist physically in Stores as usable meters. Proper SOP had already been developed and location history / status of gas meters was being updated in CC&B by respective Departments like Distribution, Billing, Stores and Metering.

DAC directed SNGPL to conduct fact finding inquiry and share the report to Audit within 15 days. DAC further directed to generate the system report regarding scrap etc. and data cleansing, and share the report with Audit within three months. No further progress was reported till finalization of the report.

Audit recommends to ensure the correct configuration and classification of meters in CC&B and ensure regular monitoring and updating the meters inventory in CC&B to prevent un-necessary expenditure on purchase of meters.

4.2.7. Un-authorized new connections in violation of Government instructions

As per MOE letter No. NG (D)-16(91)/2021 –Imp-Pt dated 03.12.2021 “The Government while taking cognizance of wide gap in gas supply and demand has imposed moratorium on expansion in domestic gas network, therefore, work on all gas schemes in pipeline or approved shall not proceed further unless the issues of gas availability and price distortion are addressed”.

During IS audit of CC&B System of SSGC for the FY 2021-22, it was observed that a moratorium on new connections was in effect during the audit period,

as per directives of the Federal Government. Despite the moratorium, 43 new connections were processed and ID was created in CC&B for domestic customers. The unauthorized processing of these connections highlighted serious gaps in CC&B System of SSGC.

Audit was of the view that the unauthorized processing of new connections involved the management's negligence towards incorporating effective controls in the CC&B system.

The matter was reported to Ministry of Energy (Petroleum Division) on September 4, 2023. In DAC meeting held on November 16, 2023, SSGC stated that the instructions for moratorium on new connections could not be implemented at IT level. A fact-finding inquiry was underway and report would be submitted in due course of time.

DAC directed the management to complete fact-finding inquiry and share the same with Petroleum Division, DG (Gas), CF&AO Wing and Audit. No further progress was reported till finalization of the report.

Audit recommends to share the fact-finding report on the issue.

4.3 User Access Management

4.3.1. Discrepancies in user access management

According to Table A.1 of ISO 27001, control against A.9.1.1, “an access control policy shall be established, documented and reviewed based on business and information security requirements”. As per control A.9.2.1 “a formal user registration and de-registration process shall be implemented to enable assignment of access rights”. Further, according to Clause 8.2 (k) of ISO/IEC 27002, the allocation and use of privileged rights should be restricted and managed by “not sharing or linking identities with privileged access rights to multiple persons, assigning each person a separate identity which allows assigning specific privileged access rights”.

During IS audit of CC&B Systems of SNGPL and SSGC, it was observed that the user access was granted without prescribed forms, undertakings and approvals in violation of the policy. Moreover, user access rights in IT systems were not revoked promptly upon death of users and during ex-Pakistan leave (sample cases in **Annex-III**). SSGC assigned multiple users from different departments the rights of

addition/change in critical services. Due to excess user rights, chances of misstatements, inaccuracy, unauthorized or erroneous changes or modifications in customer data could not be ruled out. SNGPL allowed users to login on multiple devices (laptops/desktops) at the same time which created the risk of unauthorized access to sensitive data, unauthorized data manipulation, thereby compromising the safety and integrity of the whole system.

Audit was of the view that excessive user access rights and non-revocation of users who left the company or during leave put the whole system at risk associated with unauthorized access, safeguarding sensitive information and system security.

The matter was reported to Ministry of Energy (Petroleum Division) on September 4, 2023. In DAC meetings held in November, 2023, SSGC stated that user access was granted on forms and heads of departments requested to assign additional / cross functional access rights due to operational needs to their users. Management had to ensure that domain IDs for executives must be automatically disabled upon retirement dates. SNGPL stated that there was no such policy in the company that a user must be restrained from working on the CC&B system while on leave. IT department could restrict people to login from multiple devices at a time, however, it had been allowed to facilitate data entry in regions.

DAC directed both companies to implement the Manuals regarding submission/approval of user access prescribed forms/undertakings and get the record verified from Audit. DAC further directed to ensure the deactivation of the IT access of the retired/transferred officials and to make policy regarding non-utilization of the users' access rights during the leave. DAC directed SSGC to submit detailed reply regarding excessive user rights for verification from Audit. Moreover, DAC directed SNGPL to evaluate the mechanism of multi logins and report to audit within one month. No further progress was reported by both companies till finalization of the report.

Audit recommends to strengthen internal controls by revisiting the access rights policy ensuring stopping multi-logins at the same time to secure the data and protect the authorization and establish effective accountability regime.

4.3.2. Absence of workflow controls making the system prone to misuse

As per Clause 133.2 of HR Manual of SSGC, Job Description Documents, “the company, in order to achieve its organizational goals, needs to have a full and complete understanding of what each job entails and the requisite skills, abilities, and other credentials needed to perform these jobs. The employee, on the other hand, to perform well on a given job, needs a clear comprehension of the different functions and job responsibilities he / she has been assigned”.

During IS audit of CC&B System of SSGC for the FY 2021-22, it was observed that one-user authorization for dues / billed amount was being provided making the system susceptible to misuse. In one incident audit identified that due to this vulnerability, certain officers misused their user rights and tampered with credit billable (billable charge) against various customers resulting in withdrawal of Rs 36.905 million (as detailed in **Annex-IV**). Although the officers were terminated from their jobs, audit requested the management through requisition dated June 23, 2023 to confirm whether the financial loss of the company was recovered or not, and whether such short-comings had been removed or not but no response was provided to Audit by the management.

Audit was of the view that authorizations should have been through a workflow that should require multiple users (at least two-users instead of one-user) to allow reduction/change in the billed amount / dues.

Audit was of the view that due to the absence of workflow controls, the officers were able to tamper with the system, resulting in a loss of Rs 36.905 million due to withdrawal of billable tampering claims.

The matter was reported on September 4, 2023 to Ministry of Energy (Petroleum Division). In DAC meeting held on November 16, 2023, SSGC stated that in CC&B application, there was no workflow available for processing transactions by user, instead privileges were assigned to user to perform transactions i.e., bill, billable charge, adjustments, field activity creation as per user access control form duly approved by respective head of department. However, policy regarding authorization of adjustments to certain amount was the responsibility of respective business to develop & control.

DAC directed the management to provide a comprehensive report covering the aspects of improvement in controls, criminal action taken against the personnel and the amount recovered from the customers. No further progress was reported till finalization of the report.

Audit recommends a system of authorizations through a workflow that should require multiple users (at least two), to allow reduction / change in the billed amount / dues.

4.4 Data Analysis

4.4.1. Issuance of meters to fitters without mentioning consumer ID

According to Clause 4 of the Public Sector Companies (Corporate Governance) Rules, 2013, the Chief Executive is responsible for the management of the Public Sector Company and its procedures in financial and other matters.

During examination of CC&B data of SSGC for the FY 2021-22, it was observed that 283 field activities related to meter replacement were created in the CC&B system only because of wrong punching of consumer name. Based on data analysis, Audit noticed that the stores department issued new meters to the fitters for installation at the customers' premises without mentioning customer's name which resulted in punching error.

Audit was of the view that issuance of meter to the fitter without customer name resulted in wrong punching in CC&B system.

The matter was reported on September 4, 2023 to Ministry of Energy (Petroleum Division). In DAC meeting held on November 16, 2023, SSGC stated that the CC&B application was solely a billing engine and did not contain a meter inventory management module to manage the entire life cycle of meter or material. Meters were issued to Stock location (Fitter) in CC&B, and there was no facility in the CC&B system to issue meters directly to customer. In the ERP inventory module, the relevant business created a system-generated Meter Requisition so that the store may issue meters to the assigned fitter. Store then utilized ERP to issue meters in bulk to the fitter.

DAC directed the management to devise a system to ensure the issuance of meters to the customers instead of fitter. No further progress was reported till finalization of the report.

Audit recommends to devise a system to ensure issuance of meters against consumer numbers in order to avoid any discrepancy and to minimize the risk of misuse.

4.4.2. Issuance of provisional bills in violation of set standards

According to Clause 27 of Performance and Service Standards, 2019 introduced by OGRA, the Company shall issue first gas usage bill based on actual reading within 90 days of the commissioning of gas supply. Further, according to Clause 28, in case for any reason, meter is not read during any billing cycle, the licensee shall send a provisional bill, in accordance with the provisions of Gas Sales Agreement. Such provisional billing shall not continue for more than three billing cycles at a stretch. The amount so paid shall be adjusted against the bill raised on the basis of actual meter reading during subsequent billing cycles.

During analysis of the data retrieved through of CC&B System of SSGC and SNGPL for the FY 2021-22, it was observed that regional offices of gas companies continued to issue provisional monthly bills to the consumers beyond the permissible period of three months after new installation of meters. In some cases, the delay was as much as 168 months after the commissioning and installation of gas connections (**Annex-V**). Further, regional offices issued provisional billing beyond maximum limit of 03 months (**Annex-VI**).

Audit was of the view that non-issuance of bills within 90 days and issuance of provisional bills over the years through CC&B is clear violation of OGRA standards.

The matter was reported on September 4, 2023 to Ministry of Energy (Petroleum Division). In DAC meetings held in November, 2023 management of gas companies stated that the gas bills are issued after completion of all activities i.e. completion of service line, meter installation and generation / activation of gas sales agreement. Further, provisional gas bills were issued to its customers, if for any constraint / reasons the reading could not be obtained by the Meter Readers / Meter Reading Inspectors despite their all-out effort. Audit contended that there was no

effective check applied to stop provisional billing after the completion of three months in the CC&B system.

DAC directed the managements to conduct fact finding inquiry and submit report to Audit within three months and ensure the timely processing of the bills and implementation alert and report thereon and share the same with Audit. DAC further directed the managements to place the matter before the Board for decision on the issue of provisional billing and comply with the policy of OGRA. No further progress was reported till finalization of report.

Audit recommends strict compliance of instructions issued by OGRA regarding provisional bills.

4.4.3. Lack of reference of the physically approved documents for billing correction and adjustment in CC&B System

As per revised SOP of Billing Department of SSGC dated 24.02.2015, in order to exercise control over the accuracy of Billing correction made and to maintain control over any possible malpractice, every adjustment/journal voucher is required to be re-audited before updating in CC&B. It is the responsibility of Billing Control Section to ensure that all corrections/adjustment are verified and duly approved by competent authority.

During IS audit of CC&B System of SSGC for the FY 2021-22, it was observed that 462 accounting adjustments were made manually through Journal Vouchers, amounting to Rs 46.437 million. A sample of 16 cases was selected for detailed review and it was noticed that there was no link/reference of the physically approved documents in the CC&B System to ensure the approval / accuracy of billing corrections.

The matter was reported on September 4, 2023 to Ministry of Energy (Petroleum Division). In DAC meeting held on November 16, 2023, SSGC stated that at present, there was no provision for attaching approval documents for corrections and adjustments in the CC&B system. Document Management System (DMS) option could be planned after exploring CC&B interlink option to open required documents i.e. Approvals, Journal Voucher computation, Inspection Report, Application, CNIC, etc. Billing and IT Department would plan customized solution to control and traceability.

DAC directed the management to ensure that any adjustment through CC&B Billing has reference of approvals mentioned so that the approval can be traced where desired. No further progress was reported till finalization of the report.

Audit recommends to develop a link / option to attach documents relating to approvals and reference of corrections.

4.4.4. Weak monitoring resulting in unauthorized field activities

According to Clause 4 of the Public Sector Companies (Corporate Governance) Rules, 2013, the Chief Executive is responsible for the management of the Public Sector Company and its procedures in financial and other matters.

During IS audit of CC&B System of SSGC for the FY 2021-22, it was observed that the lack of diligent monitoring by the management led to unauthorized field activities. Specifically, some officers were found engaged in processing new gas connections far beyond their designated areas of responsibility and authorized zones. The following officers were found involved in these unauthorized activities:

Sr. No.	Designation	Executive No.
1	Senior Superintendent	23289
2	Deputy Manager	10441
3	Deputy Manager	10384

To compound the gravity of the situation, these officers not only abused their CC&B rights but also recklessly bypassed the payment section, indicating a disregard for established procedures and controls. The mentioned officers were duly dismissed from their roles. However, this discovery raised concerns about the organization's vulnerability to such unauthorized activities.

Audit was of the view that the unauthorized involvement was a consequence of inadequate monitoring by their superiors, business department and inability of the system to timely highlight such incidents.

The matter was reported on September 4, 2023 to Ministry of Energy (Petroleum Division). In DAC meeting held on November 16, 2023, SSGC stated that in order to restrict CC&B users to create/complete field activities within their domain or scope of work, Field Activity Type Validation Control had been implemented on CC&B users since year 2022 and any additional controls identified by the business

were also implemented for optimization. Furthermore, both deputy managers had been terminated after inquiry process.

DAC directed the management to share the discipline proceedings against the defaulters i.e. both deputy managers with Audit. Action taken against Senior Superintendent may also be shared with Audit. DAC further directed to share the control measures taken. No further progress was reported till finalization of the report.

Audit recommends to share report with Audit besides implementation of robust monitoring mechanisms, review of access controls, and reinforcement of a culture of compliance to safeguard against such unauthorized activities in future.

4.4.5. Non-transfer of current balance/payoff balance to new consumers

According to CC&B Process Documents – TRG-SL-03 Ownership Change & Address Correction, the customer can request for transfer of deposit from old ID to new ID at Accounts Department. As per Sr. No. 4 of the policy issued by SNGPL on 09.06.2021 “credit amounts will be transferred to new consumer’s account. Debit balance will be adjusted against credit balance in old consumer’s account and net balance will be transferred to new account.” Further, as per Affidavit Proforma (in Urdu) “security of Rs which is already available in company’s account that may be transferred to my name. In this regard No Objection Certificate is not available from previous consumer, therefore, I will be responsible for all dues. Company will not be responsible.”

During data analysis of billing of CC&B System of SNGPL for the FY 2021-22, it was observed that in cases of change of ownership, the current balance / payoff balance from previous consumers to new consumers were not transferred. This resulted in non-transfer of current balance / payoff balance from old consumer to new consumer amounting to Rs 0.627 million (in sample 30 cases – **Annex-VII**).

Audit was of the view that due to weak IT controls, management failed to transfer current balance / pay off balances to new consumers.

The matter was reported on September 4, 2023 to Ministry of Energy (Petroleum Division). In DAC meeting held on November 28-29, 2023, SNGPL stated that the security (credit balance) of tenant is not transferred to new account in case of

change of name. The existing credit balance is to be refunded to the old owner and the new Security is being charged to the new consumer. Audit contended that as per policy the amounts required to be transferred to new consumers.

DAC directed the management to get the record verified from Audit on case to case basis. No further progress was reported till finalization of report.

Audit recommends to develop system controls in CC&B to transfer the security, current balance / payoff balance at the time of change of ownership.

4.5 Procurement and HR

4.5.1. Procurement of CC&B system without Request for Proposal (RFP)

According to Rule 23 of PPRA Rules 2004, procuring agencies shall formulate precise and unambiguous bidding documents that shall be made available to the bidders immediately after the publication of the invitation to bid. Further, Para-2 of Implementation Services Proposal document of Oracle dated 13.05.2008 stated that since Oracle has not yet had the opportunity to review SNGPL's requirements, Oracle has prepared the effort estimates and draft project plan for the anticipated CC&B implementation activities from experience of similar projects for other clients.

During IS audit of SNGPL, it was observed that CC&B application was procured in 2009 without need assessment, request for proposals (RFP) or purchaser requirements. In this way, management accepted the ORACLE CC&B application without assessing whether the offered product was compliant or non-compliant to the business of SNGPL. Procurement of CC&B system was made by SNGPL under a questionable process, and for which no Request for Proposal and related record was available.

Audit was of the view that without need assessment and request for proposal documents, procurement of CC&B system resulted in non-achievement of objectives and non-evaluation of efficiency & effectiveness of system.

The matter was reported on September 4, 2023 to Ministry of Energy (Petroleum Division). In DAC meeting held on November 28-29, 2023, SNGPL stated that the RFP being required was almost 15 years old. The procurement of the Oracle CC&B system was in alignment with their strategic goals and had the necessary approvals. Audit contended that RFP was the fundamental document which was required to be reviewed during audit.

DAC directed the management to share the approval of the Board. No further progress was reported till finalization of report.

Audit recommends to share approval of the Board along with need assessment and request for proposal documents.

4.5.2. Acute shortage of Manpower in IT department

As per Para 7.1.1 of HR Manual of SSGC, manpower requirements are forecast by individual department heads and collated by the HR Department based on the given analysis of employee data, identifying future retirements, and keeping in view the Company's strategic corporate plans. For planning a human resource base, manpower numbers are preapproved based on projected annual requirements of SSGC as part of an annual business planning process.

During IS audit of CC&B System of SSGC for the FY 2021-22, it was observed that there was an acute shortage of senior-level manpower in the IT department as detailed below:

Grades	Designation	Approved Establishment	Current strength	Vacancies Vacant
IX	Senior General Manager	1	Nil	-1
VIII	General Manager	1	Nil	-1
VII	Deputy General Manager	6	2	-4
VI	Chief Manager	8	6	-2
V	Deputy Chief Manager	15	6	-9
IV	Manager	19	15	-4
Total		50	29	-21

Further, the management had not appointed security professional which showed that due importance to the information security was not given, putting IT system at stake.

Audit was of the view that the shortage of executive staff within the IT department poses a serious service delivery and project delivery risks, hindering IT from achieving its planned goals. Further, due to non-appointment of security professional, the risk of disruptions in the system could not be mitigated.

The matter was reported on September 4, 2023 to Ministry of Energy (Petroleum Division). In DAC meeting held on November 16, 2023, SSGC stated that HR Department was working on providing best resources for IT department through external hiring. Various advertisements in this regard had been published and various resources were also taken on board. However, for remaining vacant positions, recruitment was being carried out to meet resource requirement of IT Department. Enterprise Risk Management (ERM) department had already initiated to establish Information Security Management System (ISMS) in alignment with internationally recognized standard ISO 27001.

DAC directed the management to complete the review and hiring process at the earliest and to share the minutes of BoD meeting on the issue and details / update of ISMS. No further progress was reported till finalization of the report.

Audit recommends to implement the decision of DAC besides fulfilling the vacant positions and appointment of security professional.

4.5.3. Non-existent approved job description (JD's) in IT department

As per Clause 133.2 of HR Manual of SSGC, Job Description Documents entails the company, in order to achieve its organizational goals, needs to have a full and complete understanding of what each job entails and the requisite skills, abilities, and other credentials needed to perform these jobs. The employee, on the other hand, to perform well on a given job, needs a clear comprehension of the different functions and job responsibilities he / she has been assigned.

During IS audit of CC&B System of SSGC for the FY 2021-22, it was observed that the job descriptions (JD's) of the IT department were not approved by the Board's Human Resource and Nomination Committee.

Audit was of the view that a breakdown of the roles, responsibilities, and tasks must be done for everyone involved and working there. Without sufficient details, the IT department will not be able to carry out its duties effectively and efficiently.

The matter was reported on September 4, 2023 to Ministry of Energy (Petroleum Division). In DAC meeting held on November 16, 2023, SSGC stated that with the passage of time and technological advancements, JDs often become obsolete and needed enrichment and modification, and realignment with the role. At present, a

firm has been hired to prepare the JDs in close consultation with relevant department heads. Audit contended that without approved job description, the IT department would not be able to carry out its duties effectively and efficiently.

DAC directed the management to complete the Job Descriptions at the earliest. No further progress was reported till finalization of the report.

Audit recommends to develop the job descriptions in IT department so that intended control and accountability regimes can be established effectively.

5. CONCLUSION

CC&B System is purported to be not only an automated and integrated Customer Information System which focuses on the customers for their needs in Customer Services, Billing, Field Services, Finance and Meter Management but also a tool to maximize customer satisfaction and stakeholder values through process efficiencies.

CC&B System of SSGC and SNGPL has been working for long catering for the requirements of business process and customer needs to a large extent. However, there are issues which need immediate attention for an effective use of CC&B system for stakeholders and customers satisfaction. In SSGC, IT Strategic Plan and IT Policy need endorsement of the Board of Directors. Software, critical server, versions of CC&B have to be up to date to maintain the system's stability, security and compliance with industry standards. Internal audit of the IT System under ISO 27001, a standard adoption of which will ensure security of the system, has to be conducted regularly.

The managements of SSGC and SNGPL need to establish and regularly update rules to be implemented on firewalls, log review procedures, operating procedures to implement the backup policy, policy for change management and policy to cover incident response. Discrepancies in user access management like non-revocation of access rights, multiple logins at the same time, no workflow controls are to be managed to secure the data and protect the authorization.

ANNEXES

Annex-I
(Para No. 4.1.3)

Issues in documentation

SSGC

Sr. No	Risk Code	Risk Identification Date	Strategies & Objectives	Risk Events	Status
1	R4	11-Nov-20	Operational	Change Management may not be properly backed by documentations resulting non-tracking of changes / modifications and threatening data integrity and confidentiality.	In progress
2	R6	11-Nov-20	Operational	User account may not be revoked on timely basis upon transfers, retirement, termination and resignation resulting unauthorized activities threatening confidentiality and integrity of the information system, that may result in Financial losses and fraudulent activities.	In progress
3	R7	11-Nov-20	Operational	Developers may perform unauthorized changes to production system resulting in threatening system integrity.	In progress

SNGPL

1. No log or reference to the risk initiators and their preliminary concerns were available
2. Latest threats emerging from firewalls and antivirus logs were ignored altogether
3. Analysis of risks and associated threats and vulnerabilities were little or absent
4. Risks should have been initiated throughout and from different segments of the IT department and Information System, but nothing such were in existence.
5. What is the acceptable level of risks were not defined
6. Controls and measures defined to manage the risks were never reviewed and risk levels re-assessed.
7. Risk management requires periodic review, but log of nothing such practice was in existence.

Annex-II
(Para No. 4.2.3)

**Non-completion of To-Do messages resulting in unresolved errors
generated in the CC&B System**

SSGC

Sr. No.	Description	Aging of To-Do's	
		Less than 4 months	4 months and above
1	Defense BLG (ZM)	234	8,065
2	F.B. Area BLG (ZM)	157	4,671
3	Garden BLG (ZM)	193	12,667
4	Gulistan-e-Johar BLG (ZM)	10,375	109,152
5	Gulshan-e-Maymar	48	5,244
6	Hub/Baldia BLG (ZM)	781	5,359
7	Lyari BLG (ZM)	172	6,083
8	Malir BLG (ZM)	194	2,611
9	Nazimabad BLG (ZM)	537	10,375
10	North Karachi BLG (ZM)	123	6985
11	Orangi BLG (ZM)	50	3,473
12	ZM Defence Karachi Sales	35	16,594
13	ZM Landhi / Korangi Karachi	542	7,139
14	ZM Landhi Karachi Sales	947	34,006
15	ZM North Karachi Gulshan	497	5,379
Total		14,885	237,803

SNGPL -Sample cases relating to Field Activity pending (To-Do's)

S. No.	Consumer ID	No. of To Do(s) Pending
1	77316910007	330
2	96816910002	95
3	36216910004	238
4	9816910005	63
5	49016910009	53
6	83616910002	179
7	53616910005	249
8	35816910000	82
9	44326444054	50

10	78416910004	219
11	2609691000	151
12	82716910003	131
13	42816910006	228
Total		2,068

Annex-III
(Para No. 4.3.1)

Discrepancies in user access management

S. No.	USER_ID	USER_NAME	REGION_NAME	S# of Register	Dates of leave / death	User Activity during the leave period or after death
1	AC050033	TANVEER IQBAL	Gujrat-DOM	L-30 & 140	01.03.2022 to 30.03.2022 & 27.06.2022 to 28.07.2022	128 activities found in CC&B on 01.03.2022 and 25 activities found on 20.07.2022 (during leave period i.e. 27.06.2022 to 28.07.2022)
2	BL090299	BARKATUL LAH	Mardan - DOM	L-134	21.06.2022 to 10.08.2022	18449 activities found in CC&B during the leave period i.e. 21.06.2022 to 10.08.2022.
3	SL051116	M NAZIR SAQIB	Faisalabad -IND	L-81	09.05.2022 to 27.05.2022	60 activities found in CC&B on 09.05.2022 (during the leave period i.e. 09.05.2022 to 27.05.2022)
4	SL087934	KHUDADA D LAK	Islamabad -Dom	L-64	11.04.2022 to 07.05.2022	2102 activities found in CC&B on 11.04.2022 (during the leave period i.e. 11.04.2022 to 07.05.2022)
5	DS529635	WAQAR AHMED	Peshawar	D-113	Died on 05.11.2021	4084 transactions found after date of death i.e. 05.11.2021 to 31.12.2021. User activity was requested for sample two months Nov. & Dec. 2021. User activity seems continued, therefore, revocation date may be shared with Audit.
6	DS106423	MUHAMMAD SALEEM	Peshawar	D-201	Died on 09.06.2022	34659 activities found in CC&B after date of death i.e. 08.06.2022. User activity was requested for sample two months Jun. & July. 2022. User activity seems continued, therefore, revocation date may be shared with Audit.

7	CS112969	MUHAMMA D SHAMSHAD	Gujrat- DOM	D-60	Died on 24.05.2022	250 activities found in CC&B after date of death i.e. 05.11.2021. User activity was requested for sample two months June. & July. 2022. User activity seems continued, therefore, revocation date may be shared with Audit.
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Annex-IV
(Para No. 4.3.2)

Absence of workflow controls making the system prone to misuse

Sr. No.	Name of the Executive Designation	Executive No.	Financial Loss (Rs)	Remarks
1	Mr. Nazar Muhammad Dy. Manager, Billing	8558	5,477,696	Involved in withdrawal of credit billable BC tampering claims against 206x customers.
2	Mr. Raza Muhammad DM, Billing	10366	696,452	Involved in withdrawal of credit billable BC tampering claims against 27x customers.
3	Mr. Jahanzaib Khan Engineer	10964	1,600,951	Involved in withdrawal of credit billable BC tampering claims against 54x customers.
4	Syed Sabir Shah DM, Billing	11348	27,409,004	Involved in withdrawal of credit billable BC tampering claims against 933x customers.
5	Mr. Naqeeb Ahmed	24874	1,720,545	Involved in withdrawal of credit billable BC tampering claims against 81 customers.
Total			36,904,648	

Annex-V
(Para No. 4.4.2)

Non issuance of bills to consumers in violation of set standards

Sl. No.	Region	Domestic customers	Bulk Domestic customers	Commercial customers	Commercial SPRT customers	Total
1	Gwadar	15	-	-	-	15
2	Hyderabad	406	-	1	-	407
3	Karachi Central	964	1	1	-	966
4	Karachi Eastern	682	-	-	-	682
5	Karachi Western	1,227	2	-	-	1,229
6	Larkana	616	-	-	-	616
7	Nawabshah	122	-	-	-	122
8	Quetta	900	5	2	3	910
9	Sukkur	164	1	-	-	165
10	Peshawar	88	-	-	-	88
Total		5,184	9	4	3	5,200

Annex-VI
(Para No. 4.4.2)

Issuance of provisional bills for more than three billing cycles

SNGPL

Region	No. of Cases	Aging in months	Region	No. of Cases	Aging in months
Abbottabad	54	4-10	Lahore West	27	4-5
Bahawalpur	127	4-18	Mardan	164	4-17
Faisalabad	66	4-10	Multan	401	4-39
Gujranwala	144	4-12	Peshawar	2769	4-36
Gujrat	68	4-10	Rawalpindi	895	4-23
Islamabad	924	4-26	Sheikhupura	105	4-25
Lahore East	201	4-8	Sialkot	74	4-12
Total Cases 6,019					

SSGC

Aging of Provisional Billing FY-2021-22								
Region	4-6 Months	7-9 Months	10-12 Months	13-24 Months	25-36 Months	37-48 Months	Above 48 Months	Grand Total (Cases)
Karachi	6,909	3,884	3,053	5,595	2,246	1,510	1,129	24,326
Hyderabad	1,217	335	93	131	38	12	8	1,834
Larkana	704	612	777	293	12		3	2,401
Nawabshah	210	96	26	14		1		347
Sukkur	239	119	122	278	68	65	36	927
Gawader	2	1	3	1	2		1	10
Quetta	4,915	2,183	1,258	2,872	938	503	693	13,362
Total Cases:	14,196	7,230	5,332	9,184	3,304	2,091	1,870	43,207

Annex-VII
(Para No. 4.4.5)

Non-transfer of current balance/payoff balance to new consumers

S#	Consumer ID	Region	Dated	Current Balance (Rs)	Payoff Balance (Rs)
1	8452581000	Gujranwala	21.12.2021	6,765.73	
2	2767210000	Multan	12.01.2022	1,262.37	279.74
3	9375110000	Multan	30.12.2021	(1,571.52)	
4	9244210000	Multan	30.12.2021	(604.19)	
5	7719210000	Multan	30.12.2021	(2,424.25)	
6	6075110000	Multan	30.12.2021	(4,428.67)	
7	6037210000	Multan	27.12.2021	269.67	(537.11)
8	2075510000	Multan	22.12.2021	274.64	(4,057.49)
9	1848700000	Multan	11.01.2022	273.76	(4,421.99)
10	0458700000	Multan	31.12.2021	269.51	(5,522.64)
11	9251210000	Multan	31.12.2021	(3,569.64)	
12	6575110000	Multan	30.12.2021	(6,688.58)	
13	0637210000	Multan	30.12.2021	276.63	(5,051.17)
14	0937210000	Multan	27.12.2021	20,620.30	19,486.43
15	9341210000	Multan	18.11.2021	5,318.72	3,818.72
16	0965510000	Multan	18.11.2021	(5,829.65)	
17	6156110000	Multan	07.10.2021	1,457.17	
18	1060713932	Faisalabad	27.01.2022	(3,232.38)	
19	7294765613	Faisalabad	19.01.2022	(65,508.93)	
20	6799590000	Faisalabad	17.08.2021	(4.78)	(1,004.78)
21	2816590000	Faisalabad	27.06.2022	626.32	
22	8131083526	Faisalabad	17.06.2022	(381,000.72)	
23	6054590000	Faisalabad	31.05.2022	2,165.00	1,665.00
24	6255590000	Faisalabad	29.11.2021	(4.09)	(118,964.09)
25	2885590000	Faisalabad	31.08.2021	86.20	
26	9401690000	Faisalabad	14.10.2021	8,424.00	7,924.00
27	2960111000	Faisalabad	31.08.2021	(7,498.00)	
28	8050690000	Faisalabad	28.09.2021	(4.77)	(504.77)
29	8680765428	Faisalabad	17.03.2022	(1.97)	(501.97)
30	4930690000	Faisalabad	21.09.2021	(2.68)	(86,085.75)
Total				(434,284.80)	(193,477.87)
G. Total					(627,762.67)