

**NEPAL ELECTRICITY AUTHORITY**  
(An Undertaking of Government of Nepal)  
**Finance Directorate**  
**INSTITUTIONAL STRENGTHENING PROJECT**

*(A Component of Electricity Grid Modernization Project-Additional Financing)*

**BIDDING DOCUMENT**  
**FOR**

**Procurement of Information Technology Products and Services**  
Supply, Delivery, Installation and Commissioning of ERP based  
Integrated Financial Management Information System (IFMIS)

**Volume II of III**

**Single-Stage: Two-Envelope**  
**Bidding Procedure**

Issued on: **23 February 2026**

Invitation for Bids No.: **ICB/FD/EGMPAF/ERP-082/83-01**

OCB No.: **ICB/FD/EGMPAF/ERP-082/83-01**

Purchaser: **Nepal Electricity Authority**

Country: **Nepal**

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# Preface

This Bidding Document for Procurement of Information Technology Products and Services has been prepared by Nepal Electricity Authority and is based on the Standard Bidding Document for the Procurement of Information Technology Products and Services issued by the Asian Development Bank dated December 2021.



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## Section 6: Schedule of Requirements



# **Section I: List of IT Products and Services**



# 1 Section I: List of IT products and services

## 1.1 About the Power Sector of Nepal

Nepal Electricity Authority (NEA) is a Power Generation, Transmission and Distribution Corporation that provides electricity services for Nepal to over 5.46 million consumers excluding around 0.48 million consumers served by the Community Rural Electrification Program (CREP).

The primary objective of NEA is to generate, transmit and distribute the adequate, reliable, and affordable power by planning, constructing, operating, and maintaining all generation, transmission, and distribution facilities in Nepal's power system both interconnected and isolated. In addition to achieving the above primary objective, NEA's major responsibilities are:

- a) To recommend the Government of Nepal on long and short-term plans and policies in the power sector.
- b) To recommend, determine and realize tariff structure for electricity consumption with prior approval of Government of Nepal.
- c) To arrange for capacity building to produce skilled manpower in generation, transmission, distribution, and other sectors.

NEA's hydropower plants generated 2,911 GWh of electricity in the year, a slight decrease from the previous years' 2,930 GWh. The energy purchased from Independent Power Producers (IPPs) and NEA's subsidiaries was 6,564 GWh and 2,597 GWh, an increase by 28.25 % and 4.37 % from the figure of 5,118 GWh and 2,488 GWh in FY 2023/24 respectively. The total energy imported from India was 1,895 GWh in FY 2023/24 as compared to 1,833 GWh in FY 2022/23, a slight increase by 3.38 %. The total available energy in the system increased by 12.91 % to 13,966 GWh in FY 2023/24 over the corresponding figure of 12,369 GWh in FY 2022/23. The total domestic consumption in FY 2023/24 was 10,243 GWh, an increase by 9.46 % over the corresponding figure of 9,358 GWh in FY 2022/23.

\The total export to India soared to 1,946 GWh in FY 2023/24 against the previous year's figure of 1,346 GWh only, an increase of 44.57%. Likewise, the import of energy was 1,895 GWh, which accounted for 13.57 % of the total available energy in FY 2023/24. Nepal has become net exporter of electricity with the export surpassing the import by 51 GWh. NEA has again been successful in reducing the system loss from 13.46 % in FY 2022/23 to 12.73 % in FY 2023/24.

To improve efficiency of business operations and increase employee productivity, NEA intends to implement an enterprise-wide Integrated Financial Management Information System(IFMIS).



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## 1.2 Organization Structure

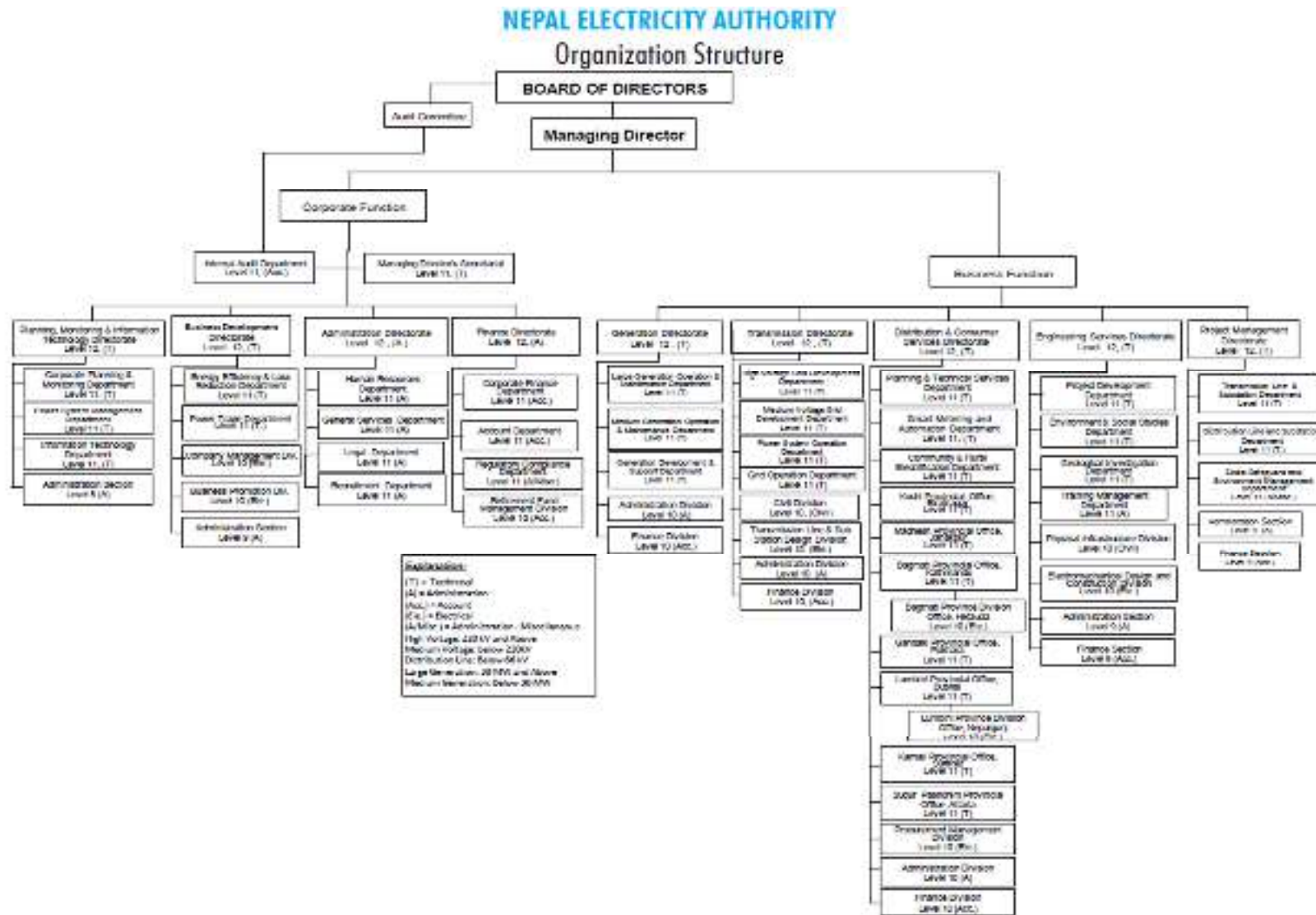


Figure 1: Organization structure



## 1.3 Existing Status

NEA has started the procedure of adopting modern digital technologies to enhance its employee productivity, operational efficiency and enable itself to serve its consumers in a better way. It is taking steps for automation of its day-to-day business operations by implementation of advanced software solutions and modernization of the grid.

### 1.3.1 IT Applications

NEA has developed many application systems over a period to meet its requirements in the areas of financial accounting, HR and materials management. The platform used in the applications are Oracle, Laravel, React, Java, Forms, Postgres, MySQL, Weblogic, Linux, Windows, Ubuntu etc.

#### **Back Office Applications**

- Centralization of Payroll and Pension Management: The payroll and pension management information system, previously operating in a decentralized manner across more than 200 NEA offices, is now being centralized.
- Centralization of Accounting Information System: The Accounting Information System (CAIS), which was decentralized across over 492 NEA offices, is also being centralized.
- Centralized Employee E-Attendance System: An e-attendance system is being implemented nationwide to streamline attendance management.
- Centralized Fixed Asset and Inventory Management Systems: Both systems are now being managed centrally to enhance efficiency.
- Human Resource Management System : NEA has centralized HRIS including PIS, Performance Appraisal and Sampati Bibaran Record.
- NEA Mobile App Implementation: The IT department has roll out the NEA mobile app in the fiscal year 2079/80 BS.
- Online Meter Applications and Complaint Management Systems: These systems have been developed and implemented across all provincial and division offices, along with their respective branches.
- E-Bidding Process: NEA management has decided to process e-bidding through the government portal [www.bolpatra.gov.np](http://www.bolpatra.gov.np), facilitated by the Public Procurement Monitoring Office (PPMO) since Shrawan 2075 BS.
- SCADA EMS Solution Upgrade: The upgrade of the existing SCADA Energy Management System has been completed by M/s Siemens.
- Any Branch Payment System Rollout: The implementation of any branch payment system is underway to enhance service delivery throughout the country.
- Consumer Relationship Management (CRM) System: This system helps for consumer complaint and line related problem solving.
- Grievance Management System: This system is used for handling customer grievances.
- Consumer SMS Line Disconnection Information System: This system helps to inform consumers before their line gets cut due to non payment.
- Corporate consumer payment portal: This consumer portal is used for collection payment of NEA big consumers.
- NEA Website (Internet /Intranet)



- Ticket Management System (TMS): This system is used for generation Problem Tickets from various offices to the IT Department.

### 1.3.2 Smart Metering/Smart Grid Project

Smart Metering and Smart Grid Project under Metering and Automation Division, completed the replacement of 72,000 Three Phase Electromechanical Whole Current Meters with Smart Whole Current Meters in first phase and in the second phase, installation of three phase smart meters for remaining consumers is in progress. All the meters installed are in communication with Head End System (HES) and energy and electrical instantaneous data, meter events and alarms received from the meter through Head End System is exported to Meter Data Management System (MDMS) for data analysis and reporting purpose.

The Smart Metering Smart Grid project, is also integrating Three Phase CT operated smart meter, procured by Procurement Management Division, into its system. Consumers connected with smart meters for energy metering are integrated with billing system and configured for automated billing generation without any human intervention. Consumers receive electricity bill via SMS and email.

Smart Metering Smart Grid project has started analyzing the energy loading and energy requirement analysis, load analysis, reliability indices, customer GIS locational mapping, consumer ranking, energy balance and loss analysis models etc. that will be helpful and key factor in the planning and upgradation of the system.

DCSD is operating all over the country through seven provincial offices and two divisional offices to facilitate its consumers with line connection, revenue collection and handling grievances.

#### **Smart Metering for 2 DCS in KTM Valley**

NEA is implementing Smart metering in 2 DCS in Kathmandu valley. The total number of Smart meters under implementation are 98,000. As part of the AMI implementation NEA has procured Head End System (HES), Meter Data Management System (MDMS), Business Intelligence as well as Smart Meters, DCU, etc. The communication network is RF and the DCUs are connected using sim cards.

For this phase implementation, the proposed system has HES an MDM from Wisdom along with Middleware and database. From the Infrastructure the proposed system has blade chassis and blade server for compute infrastructure along with SAN storage and SAN switches at DC and SAN storage at NLDC. Both DC and NLDC will be connected by fibre by NEA. Also, it has firewalls, Load balancers and Network L2 and L3 switches for connectivity and for management and monitoring of the Applications, Servers, Storage,



Network and Databases proposed under Smart Metering Phase- I system integrator has also provisioned for EMS software.

NEA has planned to implement GIS (Geographical Information System) software to manage DCS asset inventories like substation, feeder, transformer, poles & meters along with its position on earth. It will help to identify the actual information about s/s, feeder, and poles, transformers, and consumers' capacity, and to balance the transformer's load as per connection to the consumer. It also helps to facilitate the consumer service faster & reliable against any fault in the distribution system. Additional benefits of this smart distribution system will aid outage management, no light management, and an optimal connection path for new consumers can be built.

### **Other IT Applications**

The IT Department is responsible for providing the infrastructure for automation. It implements the governance for the use of network and operating systems, and it assists the operational units by providing them the functionality they need. Especially in NEA, under Planning, Monitoring and Information Technology Directorate, IT Department plays a vital role for core IT related activities within the organization with its rudimentary data centre located in the IT Department Building at central office. Apart from the implementation of new IT systems, the department provides continuous ICT support, maintenance, and training to all NEA offices round the clock. Information Technology Audit has been conducted (assessment of internal controls within its information system environment to assure validity, reliability and security of information and information systems). After the assessment of the audit, the department has upgraded the necessary Computer Hardware (Server) requirements, network security equipment and software requirements. Communication Backbone establishment (intranet connectivity) is being carried out throughout the nation. The IT Department has started connecting all the NEA offices and has plans to connect all the offices within this Fiscal Year.

#### **1.3.3 Revenue Management System (RMS)**

For the implementation of centralised Revenue Management System, NEA has signed the contract with Longshine Technology Group Co. Ltd., People's Republic of China. The project is at advance stage of implementation.

#### **1.3.4 About Subsidiary companies**

Apart from development activities which NEA is undertaking on its own, quite a few generation projects are being executed through NEA's subsidiary companies. In addition, subsidiary companies related to consulting services, cross border power transmission and power trading have also been established. NEA's existing subsidiary companies are listed below:



### **1. NEA Engineering Company Limited**

NEA established NEC to provide complete engineering services and solutions in the development of the energy sector as well as other infrastructures. NEC is providing the consulting services for Feasibility Studies, Detailed Engineering Design, Design and Documents review, Project Management, Construction Planning, Financial Analysis and Supervision of Hydroelectric and other Infrastructure Projects in different fields such as civil, hydro-mechanical, electro-mechanical, transmission lines and distribution system, plant operation, maintenance and rehabilitation works, etc.

### **2. Upper Tamakoshi Hydropower Company Limited (UTKHPL)**

Upper Tamakoshi HEP (456 MW) started commercial generation from August, 2021 and delivered 2,058.63 GWh of energy to NEA in FY 2023/24. UTKHPL has also started the construction of Rolwaling Khola HEP (20.66 MW) under EPC mode.

### **3. Tanahu Hydropower Limited (THL)**

Tanahu Hydropower Project (140 MW) is being developed under THL, a subsidiary company of NEA, under the co-financing from ADB, JICA and EIB

### **4. Raghuganga Hydropower Limited 1 (RGHPL)**

RGHPL was established to develop Rahughat Hydroelectric Project (40 MW) with EXIM Bank of India financing. Civil and Hydro-mechanical Contractor, Jaiprakash Associates Limited, India, and Electromechanical Contractor, Bharat Heavy Electrical Limited, India, are being engaged in their works.

### **5. Chilime Hydropower Company Limited (CHCL)**

CHCL was the first subsidiary company of NEA and owns the Chilime HEP (22.1 MW). It has five subsidiary companies, namely; Rashuwagadhi Hydropower Company Limited (RGHCL) constructing Rashuwagadhi HEP (111 MW), Madhya Bhotekoshi Jalvidyut Company Limited (MBJCL) constructing Middle Bhotekoshi HEP (102 MW), Sanjen Jalvidyut Company Limited (SJCL) constructing Sanjen HEP (42.5 MW) and Upper Sanjen HEP (14.8 MW), Chilime Seti Hydropower Company to develop Seti Nadi 3 (87 MW) hydropower project and Chilime Engineering and Services Company Limited (ChesCo) to provide Engineering and Consulting Services for developing hydropower projects.

### **6. Trisuli Jalavidhyut Company Limited (TJVCL)**

This Company was established with NEA and Nepal Doorsanchar Company Limited (NDCL) as promoters, to develop Upper Trishuli 3B HEP (37 MW) as a cascade of Upper Trishuli 3A HEP.



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## **7. Power Transmission Company Nepal Limited (PTCN)**

This company has been established with the objective of developing high voltage transmission interconnection system between Nepal and India. The Nepal portion of the 400 kV double circuit line between Dhalkebar and Muzaffarpur was implemented by PTCN. PTCN also developed the Nepal section of the 400 kV Double Circuit Transmission Line from Bhattamod to NEA substation at Dhalkebar

## **8. Tamakoshi Jalavidhyut Company Limited**

Tamakoshi Jalvidyut Company Limited has been registered for the development of Tamakoshi V HEP (99.8 MW) which is a cascade development of the Upper Tamakoshi HEP.

## **9. Uttarganga Power Company Limited (UGPCL)**

This company was established as a subsidiary company of Nepal Electricity Authority to undertake the study and development of Uttarganga Storage Hydroelectric Project (828 MW) in Baglung district of Gandaki Province.

## **10. DudhKoshi Jalavidhyut Company Limited**

This Company has been established for the implementation of Dudhkoshi Storage HEP (670 MW). The revised final reports are expected to be submitted by July 2024. A decision has been taken to use the Tunnel Boring Machine (TBM) for excavating the 13.2 km Headrace Tunnel instead of the Drill and Blast Method (DBM)

## **11. Upper Arun Hydropower Company Limited (UAHEL)**

UAHEL was established for the development of Upper Arun Hydroelectric Project (1,063.36 MW) and Ikhuwa Khola Hydroelectric Project (40 MW).

## **12. Modi Jalavidhyut Company Limited (MJCL)**

MJCL is a Subsidiary Company of NEA established to develop and implement two projects namely Upper Modi A Hydroelectric Project (UMAHEP) 42MW and Upper Modi Hydroelectric Project (UMHEP) 19.8MW in Kaski District of Gandaki Province.

## **13. Nepal Power Trading Company Limited (NPTC)**

NPTC has been established with the objective of carrying out power trading within and outside the country.

## **14. Chainpur Seti Jalbidhyut Company Limited (CJCL)**

This is a company established to undertake the construction of the PROR type Chainpur Seti Hydroelectric Project (210 MW). The project is designed to generate an Annual Energy of 1,206 GWh.



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## 2 Scope of Work

### 2.1 About Project Objective

Nepal Electricity Authority (NEA) intends to implement an *Enterprise Resource Planning (ERP) based* Integrated Financial Management Information System (IFMIS) for integrated data collection, analysis and sharing platform to address the key business challenges and share the data across various functional areas which can make its business processes efficient, more robust, and reliable to meet the present and future challenges.

NEA envisages to implement IFMIS with the following objectives:

- Integrating the organization’s financial, operational and administrative functions into a single platform.
- Standardize business processes and adopt leading business practices.
- Achieve better financial management and faster financial reconciliation.
- Efficient Assets Management of the Transmission Network and Sub-Stations.
- Manage strengthening of Transmission Network through efficient Project Management.
- Manage the organization with optimum utilization of enterprise resources and productive deployment of human resources.
- Real time information availability across the organization.
- Enterprise-wide seamless Integration
- Single repository of master data with easy data retrieval and reporting and ‘Bird Eye View’ to the Top Management.



## 2.2 Brief Scope of Work

The scope of work for System Integrator (SI) is to implement an *Enterprise Resource Planning (ERP) based* Integrated Financial Management Information System (IFMIS) across the enterprise, inclusive of corporate offices, 129 DCS offices, Generation and Transmission Directorates, sub-stations, other administrative units etc. The scope of work includes supply, installation, configuration, customization, testing, implementation and roll out of hardware and software for IFMIS at Data Centre (DC) with necessary Annual Technical Support (ATS), Annual Maintenance Contract (AMC) and Facility Management Services (FMS).

SI shall carry out the supply and implementation of Commercial Off the Shelf (COTS) based Enterprise Resource Planning (ERP) product with relevant database, licenses, and other software in conformance to industry standards and installation of necessary infrastructure (at DC) and its maintenance for all the users. To achieve this, the SI shall provide a solution that is secured, scalable and meets the desired high performance requirement of an enterprise business system which at the least meets or exceeds the functional requirements and performance benchmarks as specified in this Bid Document and ensures that all the required hardware, software and licenses, if any, satisfy the requirements of this specification and are suitable for future infrastructure scaling as per business need and software upgrades as recommended by OEM.

*The total period of contract would be 7 years including 2 years of implementation period and Annual Technical Support and Operations & Facility Management Services support for 5 years which is further extendable year on year based on mutual agreement.*

The envisaged IFMIS solution shall consist of the following modules:

Table 1: List of Modules

S. No	Module	S. No	Supporting Modules
1	<b>Financial Management</b>	1	<b>Document Management System and Workflow Management System</b>
2	<b>Human Resource Management</b>	2	<b>BI &amp; BW</b>
3	<b>Maintenance Management</b>	3	<b>Mobile Application</b>
4	<b>Material Management</b>	4	<b>ESS &amp; MSS</b>
5	<b>Project Management</b>		

### 2.2.1 Geographical Scope

NEA intends to implement the IFMIS solution across the enterprise in around **214 offices**. IFMIS is to be implemented at all offices of NEA as specified in Table 2: List of NEA offices (*tentative*)



Table 2: List of NEA offices

Particular	Offices	Projects
Central Office Kathmandu	11	3
Distribution and Consumer Services Directorate	138	40
Provincial offices	7	101
Divisional Offices	2	13
Engineering Directorate	10	12
Generation Directorate	1	7
Thermal Generation units and Offices	2	
Hydel generation Units and offices	22	
Project Management Directorate	1	42
Transmission Directorate	1	99
Sub Stations	9	
Others	10	71
<b>Sub Total</b>	214	388
<b>Total</b>		<b>602</b>

### 2.2.2 Detailed As-Is Study and To-Be

- a) SI shall carry out a current state assessment of the existing IT architecture of NEA including IT Applications & Solutions, Utility Business process, ICT Infrastructure Solutions, End user's competency, information system security, governance structure etc.
- b) SI will identify gap areas and also formulate a high level To-Be report including but not limited to recommendations on sunset/carry forward of existing IT applications & solutions which need before/post implementation of the IFMIS, change management requirements, key risks and mitigation strategy, proposed governance structure, procedures and policies, security requirements etc.
- c) SI will take the necessary inputs and approval on the formulated As-Is Status and To-Be report from Stakeholders/Nodal Officers of NEA.

### 2.2.3 Business-Blueprinting



- a) SI should prepare and submit a detailed solution architecture and deployment architecture of the system (HLD & LLD Reports for IT infrastructure). SI should submit Solution Architecture for IT infrastructure deployment for Data Centre and back-up site.
- b) SI should submit the Guaranteed technical parameters for each of the IT infrastructure components and obtain approval before manufacturing and supply.
- c) The functional and technical requirement specifications mentioned as part of this Bid Document are indicative and provide broad contours for designing a robust IFMIS. The SI is expected to conduct requirement gathering workshops with relevant business stakeholders to obtain detailed requirements against the specifications to be able to design a state-of-the-art IFMIS.
- d) SI shall commence designing of the IFMIS post sign off on all requisite design documents submitted to NEA.

#### 2.2.4 Design and Customization

- a) SI should carry out the supply, installation, development, and customization of modules based on the approved solution design, technical specifications document and FRS document for IFMIS.
- b) SI shall prepare and submit a detailed project plan for the software development /Customization.

#### 2.2.5 Provisioning of DC

- a) Provisioning of DC to be undertaken with Business Blueprinting.
- b) SI shall be responsible for supply and installation of necessary hardware, software and supporting systems for successfully running IFMIS operations for scope of work at Data Centre.
- c) SI shall supply, install, commission, and maintain the additional hardware and software systems for IFMIS including supporting system and services at Data Centre (DC)
- d) SI shall procure software licenses in the name of NEA and renew the software licenses during annual technical support.
- e) NEA shall provide space and location of Data Centre and remote backup Site post award of the contract.

#### 2.2.6 System Integration Requirement

- a) SI shall provide integration services for end-to-end integration of supplied ERP based IFMIS with NEA existing IT/ Business Solutions but not limited to. Data Migration needs to be handled for existing IT/ Business Solutions but not limited to e-attendance Monitoring System, Pay roll and Pension Management system, Human Resource Information System (HRIS), Appraisal System, Employee Transfer Management System, Transformer Maintenance System, Project Management System, Customized Accounting System (CAS), Inventory Management System, Asset Management System



(AMS) etc. of NEA and integration shall be done where necessary and needed. The integration requirement shall be finalized during the business blueprinting.

- b) SI shall provide integration/ interfacing services for IFMIS with under implementation/ upcoming IT/ Business solutions like RMS, GIS, DMS, SCADA, OMS, E-Office System, Biometric system for attendance etc. at NEA. SI shall propose an integration platform as currently no integration platform is used in NEA.

### 2.2.7 Testing and Inspection

- a) Following the standard testing procedures, SI must perform various inspections and Tests including but not limited to Factory Acceptance testing (FAT), Pre-Dispatch Inspection, Type Testing for hardware and simulated Load testing, Performance test, response time test etc. on the System as part of and the user acceptance procedure for software. Test environment for review by NEA shall be built on NEA on-premises data centre.
- b) The System Integrator must deliver an overall plan for testing and acceptance of IFMIS, in which specific methods and steps should be clearly indicated. The System Integrator should design and submit an adequate number of Test Cases for each item of the scope. The acceptance test plan will be defined by the System Integrator, agreed, and approved by NEA and will include all the necessary steps to ensure complete functionality, operation, security, and performance of the IFMIS solution, either individually (i.e., specific module wise/ component-wise) or collectively as a whole, whichever would be appropriate to such an exercise. It is System Integrator's responsibility during the tests to evaluate and incorporate any further changes to the infrastructure & application, at no extra cost to Client. Any recommendations for change by System Integrator will be discussed with Client.

The System Integrator must:

- i. Propose/Offer testing tool and outline the testing methodology that will be used for testing
- ii. Define the various levels or types of testing that will be performed
- iii. Provide necessary checklist/documentation that will be required for testing. System Integrator must describe how the testing methodologies will conform to the requirements
- iv. Indicate how one will demonstrate to Client that all functions in the new system installed have been tested. The test strategy document shall guide the project team during implementation to ensure that planning and testing activities in the various phases of IFMIS implementation are conducted

### 2.2.8 Solution Security

- a) Audit trail, system activity logs, capturing of IP addresses, Domain Control and Policy imposition should be provisioned and maintained in the system. Bidders shall develop a system to FLAG risks as observed from Audit Trail. Best in class Security systems viz



firewall, antivirus, and other security features to secure the system from external threats. (The details of the firewall, antivirus, and other security features to be provisioned shall be part of the technical proposal).

- b) Proposed solution should comply with necessary IT/ Cyber Security guidelines of Govt. of Nepal. Additionally, it should be in accordance with Electronic Transaction Act 2063 and Electronic Transaction Rule 2064.

### 2.2.9 Data Migration

- a) SI shall carry out data migration (including master & transaction data) to IFMIS from different Legacy systems of NEA.

### 2.2.10 IFMIS Pilot, Roll Out, Stabilization , Go-Live , Handholding and FMS

- a) SI shall carry out a Pilot in the prescribed offices of NEA as per the project timelines.
- b) SI shall carry out the rollout of IFMIS across the enterprise as per the project timelines.
- c) SI shall provide hand holding support for 12 months after Go - Live Declaration.
- d) The system will be called Go-live after due approval from NEA and compliance to the Go-Live criteria defined in the Bid Document.
- e) SI shall be required to depute requisite numbers of people who would be responsible for Facility Management Services including handholding support to NEA post Enterprise-wide Go-Live declaration at various sites offices on rotational basis. They will be responsible for resolving end-user queries and problems on IFMIS at NEA. Deployed manpower shall be skilled and equipped with requisite tools and infrastructure for safe, reliable, proper, and correct installation of the required system.

### 2.2.11 Prevalent laws and guidelines

SI shall adhere to the prevalent laws and guidelines with subsequent amendment (if any) of NEA and Government of Nepal which would be built into the business logic of the IFMIS. These rules include but not limited to:

- a) Nepal Electricity Authority Act, 1984,
- b) NEA Employees Rules and Regulations
- c) NEA Financial Administration Rules and Regulations
- d) Electricity Act,1992
- e) Nepal Accounting Standards/ IFRS
- f) Electricity Regulatory Commission Rules, 2018
- g) Electricity Regulation Commission Act, 2017
- h) Electronic Invoice Procedure, 2074
- i) NEA IT Policy 2023

### 2.2.12 Audits and IT security

- a) SI shall ensure quality assurance by conducting audits through OEMs and ensure compliance to the audit recommendations on IFMIS.



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- b) SI shall also provide the necessary assistance for closure of all other audits including IT/ Cyber Security audits conducted by authorized agencies. SI shall establish all the necessary procedures/ infrastructure/ technology/ personnel to ensure that the IFMIS Security is not compromised.

#### 2.2.13 **Change Management, Capacity Building and Training**

- a) SI shall provide basic and specialized training on IFMIS to the employees of NEA pertaining to their areas of work. This activity shall include Change Management, Hand Holding and Capacity Building sessions including training of users for effective use of the system.
- b) SI shall impart training to NEA employees and other key stakeholders on the usage and maintenance of the IFMIS.
- c) SI shall provide a change management plan to NEA which addresses the various aspects of capacity building and training.

#### 2.2.14 **Adherence to Implementation Plan and Governance Structure**

- a) SI shall ensure implementation of IFMIS, inline to the agreed implementation schedule and rollout plan.
- b) SI shall adhere to roles and responsibilities as defined in the Bid Document, but not limited with respect to design, development, customization, implementation as well as operations and maintenance of IFMIS across NEA enterprise.
- c) SI shall conform to defined Governance Structure for project review and monitoring including risk management during the entire contractual period.

#### 2.2.15 **Warranty, Technical support, and Maintenance services**

- a) SI shall provide warranty of all supplied hardware for the entire duration of the project.
- b) SI shall have back-to-back support from OEM for any equipment supplied as part of the project. Proof of the same shall be submitted to NEA upon finalization of the OEM by the successful bidder.
- c) Warranty shall entail engineering and technical assistance during the implementation and FMS period.
- d) SI shall provide necessary Facility Management Services for 5 years after Successful Go-live of IFMIS.

#### 2.2.16 **Exit Management and Knowledge Transfer**

SI will be required to provide the necessary handholding and transition support including all information as may be necessary and reasonable required to effect as a seamless handover as



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practicable in the circumstances to NEA or designated staff or any other agency that is selected for maintenance of IFMIS solution post completion of Contract with the SI.

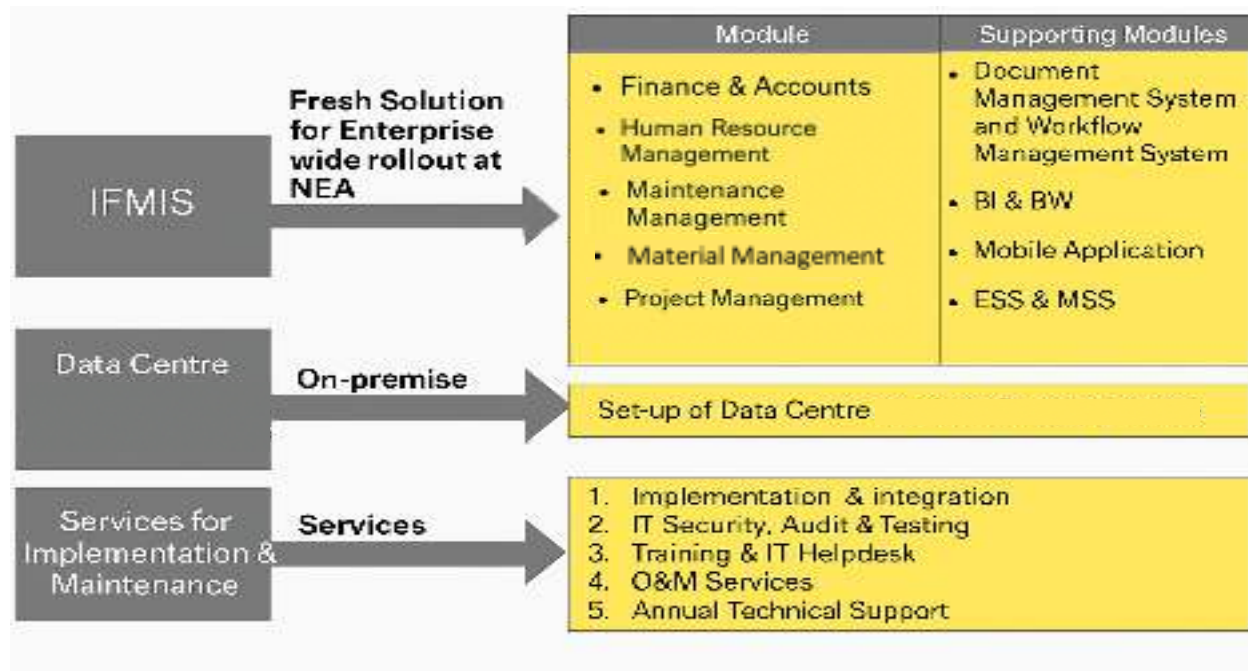


Figure 4: Indicative IFMIS deployment construct

### Extension of Scope to Subsidiary companies

NEA intends to extend IFMIS to its subsidiaries post successful implementation of IFMIS at NEA. The license requirement and functional requirement specification shall be furnished by NEA post implementation of IFMIS at NEA. The functional requirements of various modules for subsidiary companies may differ from functional requirements of NEA, proposed product will be initially implemented in NEA. Post its successful implementation at NEA, the bidder may be asked to implement the same proposed product with required configuration/customization in the subsidiary companies by procuring additional licenses of proposed product as required, with change request in line with provisions of Contract. IT-infra required for extension of scope to subsidiary companies have to be provisioned been considered in this Bid Document.

## 2.3 Detailed Scope for Work

### 2.3.1 System Scope

NEA has carried out a functional requirements analysis and detailed Functional Requirements Specifications (FRS) are attached in Section-III of the Bid Document for reference. *The scope of work including but not limited to the broad scope of work of the project is as detailed below:*

- a. SI shall design, supply, install, test, commission and provide commercial off the shelf (COTS) based Enterprise Resource Planning (ERP) deployed on on-premise Data Center.
- b. SI shall design a system that is modular, extensible, and elastic to meet future and current requirements, is secured, scalable and meets the desired high-performance requirement of an enterprise business system.
- c. The system should be built as a platform entirely with open APIs and the system features can be accessed via any user interface (internal or 3rd party applications) that works on top of these APIs. Provisions shall be made for creating and enabling micro web services as per requirements.
- d. SI shall provide a system that at the least meets or exceeds the functional requirements and performance benchmarks as specified in this Bid Document.
- e. SI shall upgrade the latest version of software without any additional charge to NEA during the duration of the project and ensure not to provide any software or hardware that is or is nearing technical obsolescence.
- f. SI shall design a system that provides capability to the end users across all offices to be able to use the IFMIS without any hindrances or performance challenges. For example, data migration/ de-migration or associated activities being carried out in one office should not result in downtime for end users in other offices.
- g. SI shall hand over the source code of all the customizations in the IFMIS product stack.

Indicative details of the Modules and Sub-Modules expected to be implemented by the SI in form of IFMIS solution are given below:

S. No	Modules	Sub Modules
1	Financial Management	Account Payable
		Account Receivable
		Banking Operations
		Capital Budget
		General Ledger
		Revenue Budget
		Treasury and Cash Management
		Fixed assets
2	Human Resource	Core HR
		Manpower Planning
		Recruitment



S. No	Modules	Sub Modules
		Confirmation
		Transfer, posting and deputation
		Leave and Attendance Management
		Travel Management
		Training & Career Development Management
		Reporting Requirements
		Performance Management & Appraisals
		Departmental and disciplinary actions
		Employee grievance and redressal
		Employee exit management
		Payroll, loans, and retirement benefits
		Pension Payment Management
		Reimbursement of commutation and gratuity paid by office
		Employee self-service for pensioners
		Loans and advances management
		Pay fixation and arrears management
		Employee claims
		Monthly payroll
		Personal taxation
		Deductions
		Communication along with gist of orders
		E payment
		Conference Room Booking
		Guest House Room Booking
		Departmental quarter allotment
		Employee welfare and CSR
		Miscellaneous requirements
		Performance Linked Incentive (PLI) Scheme
		Departmental Exam
3	Maintenance Management	Generation, Substation and Transmission and Distribution Line Maintenance
		Manage Routine Maintenance (like Transformers etc.)
		Manage Preventive / Predictive Maintenance (like Transformers etc.)
		Manage Emergency / Breakdown Maintenance
		Manage Statutory Requirement
		Asset Maintenance Maintain Asset and its Performance
		Manage BOM / Tools / Spares
		Cost Control of Assets
		List of additional reports
4	Material Management	Material Records Management (Material Master)
		Manage Inventory



S. No	Modules	Sub Modules
		Goods Receipt
		Goods Issue
		Inter-Store Transfer
		Verifying Utilization of Materials
		Scrap Disposal/ Sales
		Physical Inventory Verification
		Procurement
		Vendor Records Management
		Procurement Planning
		Purchase Requisition
		RFQ/ Tendering
		Purchase Order Management
		Turnkey Procurement
		Service Procurement
		Contract Management
		Purchase Order Receipts
		Inspection and Testing
		General
		List of required Reports
5	Project Planning	Project Planning
		Project Scheduling
		Project Execution
		Project Monitoring
		Project Accounting
		Integration with other programs
		List of required Reports
6	Document Management System and Workflow Management System	Document Management System & Workflow Management System
		File Management and Tracking System
		Authorization and Single Sign on
		Extraction Transformation and Loading
		Dataware House
7	BI & BW with AI Built-in functionalities	Dashboarding
		Scheduling, viewing, prioritizing, filter and search of reports
8	Mobile Application	Mobile Application for Self Service for Employees and other business processes
9	ESS & MSS	Enabling all the functionalities required for Employee Self service
		Enabling all the functionalities required for Manager Self service



### 2.3.2 Supply of Licenses

The indicative list of licenses required by NEA for IFMIS solution are mentioned below:

Sl. No.	Particular	Units	Total
1.	Full Use - IFMIS Application Users	No.	1300
2.	Payroll, Pension and Self-service Users	No.	15000
	Total	No.	16300

*Table 3: IFMIS solution licenses requirement*

**\* Note:**

1. Though it is estimated that NEA will require the licenses listed in the table above, the exact number can be known after As-Is study and final business blueprint prepared by SI and accepted by NEA.
2. The estimated number of licenses that shall be required for Pilot Implementation is approximately 150.
3. All licenses procured should be of full use, enterprise, perpetual, unrestricted, **transferrable** and irreversible in the name of NEA
4. SI shall supply the IFMIS solution as per the schedule suggested by SI and accepted by NEA.
5. The unit rate for tendered quantities will remain unchanged for the entire contract/ project duration. For any additional procurement of Licenses, NEA will have liberty to order additional Licenses for IFMIS & Other Software items in unit rates of items offered in commercial bid up to first 5 years of total contract duration. However, after Go-live of IFMIS, the unit rates will be derived considering the Quoted/Discovered unit rates and based on discussion and mutual agreement between the agency and the NEA.
6. IFMIS Licenses including Application, Database, Supporting Solution, Tools etc. shall be property of NEA, and shall be utilized by purchasers as per their business requirements.

As mentioned above 1300 are envisaged to be full use licenses, the numbers will be ascertained after as-Is study and final business blueprint prepared by SI and accepted by NEA. After As-Is study, if a lesser or greater number of end users than estimated are identified, the adjustment up to 1300 licenses shall be done without any change in the unit prices or other terms and conditions of the Bid and the Bidding Document.

Licenses shall be in the name of Nepal Electrical Authority (NEA). NEA is already in the process for unbundling and companies are being created by NEA. While purchasing the licenses, it must be considered that NEA may get unbundled in any number of companies (e.g., Generation, Distribution, Transmission companies) and/or create companies as and when required. In case



of unbundling or creation of companies by NEA, the licenses procured by NEA will be used by all unbundled/new companies of NEA at no additional cost to NEA.

Proposed product, being procured, should have provision to capture all financial transactions between NEA and subsidiary companies such as investment and return on investment.

Since the functional requirements of various modules for subsidiary companies may differ from functional requirements of NEA, proposed products will be initially implemented in NEA. Post its successful implementation at NEA, the bidder may be asked to implement the same proposed product in the subsidiary companies by procuring additional licenses of proposed product as required, with change request in line with provisions of Contract. NEA will conduct study and prepare functional requirements for IFMIS modules for subsidiary companies. After which, the proposed product will be further configured/ customized as per subsidiary companies' needs.

However, other ICT infrastructure procured under this project should be available for use by subsidiary companies, also if this project is implemented in subsidiary companies at a later stage.

### 2.3.3 Detailed As-Is Study

#### 2.3.3.1 Project Charter

- a. SI shall formulate a detailed project charter including the detailed project plan, indicating all activities along with the resources required, their roles, responsibilities, and time schedule of deliverables to be prepared at the start of project and submitted to NEA for approval.
- b. The project charter should also contain detailed approach and methodology, project management templates, deliverables, project organization, project risks and mitigation plans, dependencies etc.
- c. NEA shall constitute a project governance mechanism with adequate representation from all stakeholders to review the documents & deliverables of SI and accord necessary approval.
- d. SI shall deploy a project team inline to the manpower requirement as mentioned in the Bid Document.

#### 2.3.3.2 Site Study

- a. SI shall carry out Enterprise wide As-Is study of existing IT initiatives, applications, business process and procedures, IT infrastructure, end user's competency etc. along with requirement gathering workshops to identify the gaps and areas of improvements in the current state of NEA.
- b. SI shall identify and suggest on existing IT applications & solutions which needs to carry forward and sunset post implementation of the IFMIS.



- c. SI shall study the site locations to understand requirements for IFMIS at NEA. SI should understand the distribution of users, user's requirements & any other information as required for implementation and successful roll out of IFMIS at site's locations of utility.
- d. SI shall study and submit the details of ICT infra requirement at site offices.
- e. SI shall study sites to identify network connectivity requirements for optimal functioning of IFMIS. (Keeping the future expansion in view. Providing network connectivity at sites is not in scope of work of the SI). The study will include end user's system requirement, functional requirement, network bandwidth requirement etc. after studying existing sites and systems.
- f. At the end of site visits, SI would submit the detailed As-Is Study report and Gap analysis report.
- g. SI shall take the necessary inputs and approval on the formulated As-Is status report from stakeholders/ nodal officers of NEA

## 2.3.4 Designing of IFMIS solution

### 2.3.4.1 Requirement Gathering

NEA has carried out a high-level analysis of processes and identified the indicative functional requirements. These requirements will serve as a guideline to SI to gauge NEA's requirements.

- a. SI shall conduct a detailed requirement gathering session wherein the SI shall capture the detailed set of features/ functionalities/ business functions pertaining to the FRS.
- b. SI must map the Functional Requirements to proposed IFMIS and analyze the existing gaps between the Functional Requirements and functionalities provided by IFMIS. During this process SI should also identify the customization requirements for implementation in IFMIS solution.
- c. SI should conduct a detailed requirement gathering exercise with stakeholders at NEA by visiting at least 2 offices from each directorate to cross verify requirements with the FRS for all IFMIS modules.
- d. SI should arrive at the optimal technical specification, sizing, architecture, Bill of Material, SLAs for IT Infrastructure
- e. SI should also assess the user expertise level at each office location for various modules and suitably modify Training/ Handholding/ Change Management programs in consultation with the NEA.

### 2.3.4.2 Business Design

- a. SI to prepare "Functional Requirements & Software Requirement Specifications" document based on requirement gathering activities which shall detail the requirements of the complete solution up to the last possible detail. SI shall ensure that all requirements are covered in the developed IFMIS.
- b. SI shall perform a business study and prepare business design documents to map all business requirements of NEA in IFMIS.



- c. SI is expected to conduct workshops, give detailed presentations on Business Design, which will include discussions on the results gap analysis and specific recommendations for adoption of new improved business processes by NEA.
- d. Business design objective, approach and methodology should ensure the following four steps
  - i. **Simplification and Standardization of Processes:** The processes of all divisions need to be simplified into logical steps. All processes need to be depicted into simple flow diagrams with clear linkages. This will help in reviewing some of the old manual practices in view of the integrated system scenario of the future. The SI also needs to explore and recommend the standardization of processes across all lines of businesses/divisions.
  - ii. **Elimination of Redundant and Non-Value Adding Processes:** After simplifying the processes, all processes are to be reviewed to eliminate the redundant steps and practices. Non-availability of information across the departments results in repetitive and redundant activities in a manual work environment.
  - iii. **Value Addition:** After eliminating the redundant processes, the re-engineering of processes needs to be done keeping in view the standard best available processes/practices available in the proposed IFMIS solution. The primary objective of this step is to enhance functional efficiency and process performance. This is the most important phase which will have a strong bearing on the overall performance of the final solution.
  - iv. **Configuration:** After finalizing the To-Be process map, configuration through standard processes should be done in the IFMIS. Configuring the To-Be processes in the system should be able to address all the defined requirements.
- e. SI shall prepare a detailed Organogram for NEA and map it with role-based users for IFMIS solution.
- f. SI shall submit a Business Design document covering the complete requirements for necessary approval of NEA.
- g. SI shall submit the reports on To-Be Process Documents to the Nodal Officers of NEA.

#### 2.3.4.3 System Design

- a. SI shall prepare a comprehensive system architecture and design document after conducting a comprehensive analysis of the requirement for IFMIS at NEA. This design should include Solution Architecture, Network Design, Security Architecture etc. for IFMIS.
- b. SI shall be required to study the existing Network schema and design IP addressing scheme for Network. The IP addressing scheme proposed by SI shall be reviewed by NEA. However, the implementation of the approved IP addressing scheme including necessary configuration of IP addresses in all the desktops at all locations shall not be under the scope of SI.
- c. SI should prepare and submit a deployment architecture of the system including High Level Design and Low-Level Design etc. (HLD & LLD Reports)



- d. The architecture documents should give the complete architecture of the proposed IFMIS. The documents including, but not limited to the following, shall be submitted for necessary approval:
  - i. Application functional architecture
  - ii. Format of all input screens including data entry requirements
  - iii. Format of all reports that would be generated by IFMIS
  - iv. Access control mechanisms, data security and audit trails to ensure that databases are not tampered with or modified by unauthorized users.
- e. SI shall develop a comprehensive IFMIS with audit trail of all transactions (for e.g. add, update and delete) using transaction log reports, so that errors in data, intentional or otherwise, can be traced and reversed. Also, access controls must be provided to ensure that the databases are not tampered or modified by system operators.
- f. To ensure data security, the SI should factor necessary security parameters to be built in IFMIS.
- g. Design and Implementation of System Architecture: SI shall be entirely responsible for architecture of the system implemented to satisfy all features, functions, performance, and security as described in this document.
- h. IFMIS design must be such as to require the minimal installation, if at all, at the user's end, besides the internet browser. The IFMIS should be able to support all latest common browsers (like Internet explorer, Mozilla, Chrome etc.).
- i. SI shall consider users' inputs when they are finalizing all design components including user interfaces, mode of data entry, storage and retrieval, outputs reports, queries and the application design.
- j. SI shall be responsible for making sure that all the above considerations are adequately met. SI shall submit an architecture document covering the above aspects.
- k. SI shall ensure that granularity is built in the IFMIS application modules, sub modules and individual functionalities so that these functionalities can be enabled or disabled through the application administrator as per requirement.
- l. The system must possess easy-to-use user interfaces, able to perform tasks with minimum of clicks, maximum select options and provide suitable short-cuts wherever possible and guided through screens.
- m. SI shall make necessary provisions for management reports, dashboards, business intelligence tools, SMS gateway and data migration in line with the expectations of users provided in the functional requirements.
- n. SI shall address the above requirements according to site-assessment and the solution design.



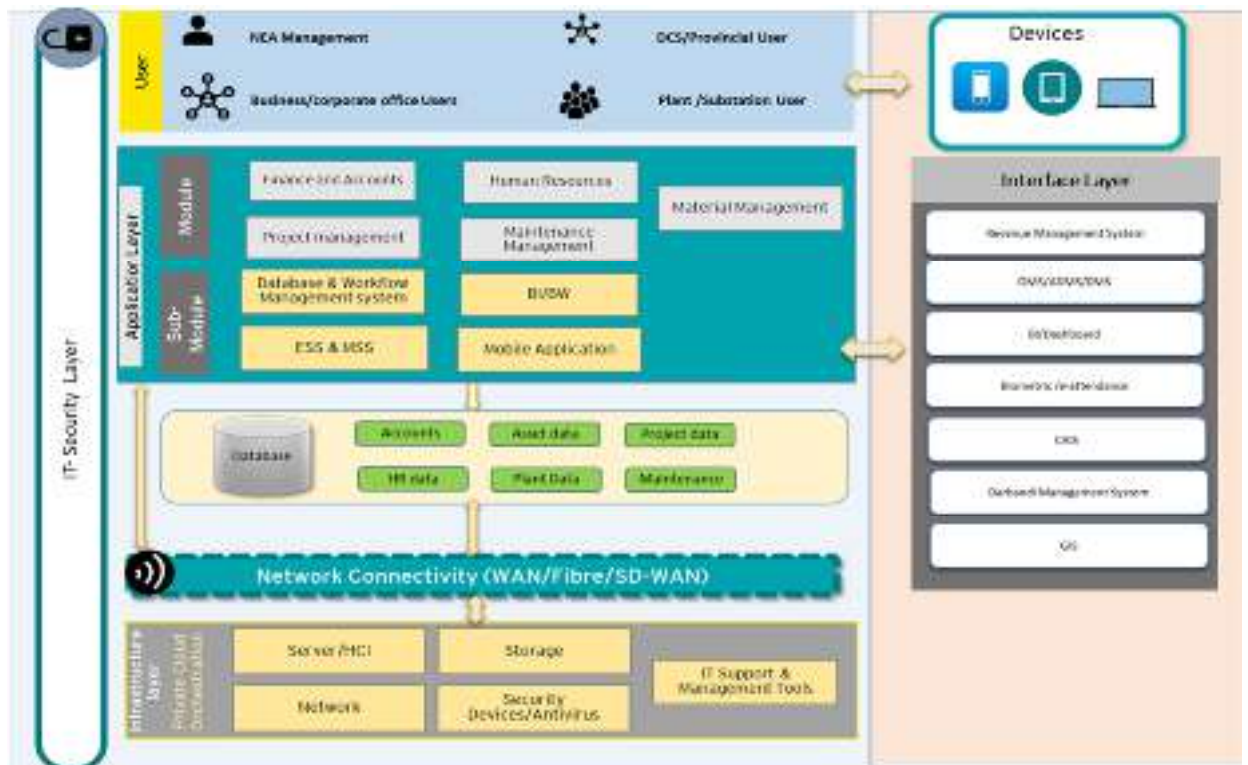


Figure 5: Indicative System Architecture Layers

### 2.3.5 Provisioning of DC for IFMIS

- a. SI will design the overall IFMIS solution including necessary IT infrastructure and software solutions. In case any missing supporting hardware or software solutions & tools are required for implementation and operation of IFMIS, it will be the responsibility of the SI to supply the same to NEA at no additional cost. SI shall provide necessary support for commissioning of IT Infrastructure at DC.
- b. SI shall execute Data Centre (DC) which shall include design, supply, installation, testing and commissioning of necessary IT Infrastructure & hardware equipment including servers, network, storage, supporting software etc. at Kathmandu Valley. Data Centre shall be designed considering the requirement of primary business operations, 24X7 availability and implementation of IFMIS at NEA.
- c. The IT Infrastructure at Data Centre utilization should not exceed the 50% utilization threshold level at any given point of time.
- d. The commissioning shall be completed one month prior to the completion of UAT.

### 2.3.6 Software Configuration/ Customization

SI shall be responsible for installation of IFMIS software, database, tools, and any other component required for making the IFMIS successfully operational as per the requirements of NEA. The activity will include but not limited to the following:

#### 2.3.6.1 Configuration

Based on the approved Business Design Document, the SI will undertake the system configuration and customization. After completion of configuration to the IFMIS, SI shall carry out a trial run. If needed, or/and the result is not up to the expectation of NEA, further reconfiguration will be done by the SI in order to close any gaps.

##### 1. Database Software:

SI should ensure that Database software to be supplied along with proposed product should have the following support and capability **but not limited to**:

- a. Support Operating Systems like UNIX, Windows, and Linux on a 64-bit platform
- b. Support Unicode character sets
- c. Support for JDBC & ODBC
- d. Should have the capability to store data types, like ASCII, Hexadecimal, Binary, Geo Spatial, etc.
- e. Support Schemas, Roles Based Access & Authentication
- f. Provide a clustered environment with load sharing, so that the nodes in the cluster are able to perform all the read-write operations on the centralized database simultaneously with automatic load balancing feature. In case of failure of one server, the other server/s are able to perform all the operations seamlessly to provide a highly available system
- g. Support for dynamic scalability, to add server/node in the cluster with system availability.
- h. Provide centrally browser-based GUI Administration Tool to Create, Delete & Manipulate different Database Objects
- i. Provide Server Configuration Tools to automatically configure clients, network etc.
- j. Provide auto-tuning facilities to manage the database objects & resources dynamically. Provide High availability
- k. Support Online Backup
- l. Should be able to handle the human errors (viz. accidental deletion of data, instance crash, etc.)

#### 2.3.6.2 Customization

NEA intends to implement IFMIS functionalities and leading practices available in the offered solution, as far as possible. SI is required to undertake customization that may be needed in line with changed, improved or specific business processes requirements prepared during the Business Design phase of the IFMIS implementation. However, the same must be tested, accepted, and approved by NEA.

The system should be built as a platform entirely with open APIs and the system features can be accessed via any user interface (internal or 3<sup>rd</sup> party applications) that works on top of these



APIs. Provisions shall be made for creating and enabling micro web services as per requirements.

All custom development should be carried out in a controlled and planned manner with adherence to IFMIS prescribed coding standards and naming conventions. SI needs to provide configuration, customization, and installation documents to NEA. SI should follow disciplined approach for configuration and customization which should not restrict NEA for any future upgrades to its IFMIS to this effect, the SI should provide a certificate from OEM which certifies that SI has followed disciplined approach for configuration and customization of IFMIS and it will not stop NEA from future upgrades.

### 2.3.6.3 Custom Developments

SI should explore all options available in Standard IFMIS to meet the requirements and demonstrate standard options to NEA. If NEA concludes that no option meets the requirement and the requirement is critical for business, SI shall submit the case for custom development to NEA or the agency appointed by NEA. The following details should be submitted:

- a. User Requirement Specifications
- b. Functional Specifications Document
- c. Complexity Classification under Simple/ Medium/ High, with justification
- d. Any impact to Standard functionality/ features and future upgrade
- e. Effort and Time-line Estimation

NEA reserves the right to seek customization to meet its unique requirements and validate the design or findings suggested as custom development by SI. In case it is difficult to arrive at the reasonableness of these requirements on customization during the implementation, the same shall be resolved through discussions. In case the issue is not settled, the same shall be referred in the first place to the Steering Committee.

The committee may at its discretion co-opt any subject expert internal/ external of NEA who in its opinion may help in resolving the dispute. The decision of the Steering Committee and or the subject expert internal/ external of NEA appointed by the Steering Committee is final.

NEA reserves the right to get the functional specifications and effort reviewed by an external consultant.

### 2.3.7 Integration Requirements

With respect to integration of the system, SI shall ensure the following, including but not limited to:

- Flexible Interface through API
- Customizable adapters and interfaces for integration

The proposed system and overall software solution should be capable of SOA or any other open-source integration methodology-based integrating with external systems. The integrated



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systems should be capable of communicating and sharing data with each other or any other external system as required by NEA to generate the following benefits:

- Data Analytics
- Alert and Alarm
- Dashboard
- BI Reports
- Any other external system

NEA has started the modernization of Distribution network of Kathmandu Valley. Under this new system, NEA has planned to implement Distribution Management system (DMS), Outage Management system (OMS) with crew management and SCADA System. The new system is planned with RTUs and FRTUs and Motorized SCADA enabled motorized RMUs and GO switches, which will be connected through the fiber optics backbone network. NEA will also implement other smart grid solutions in the coming future.

NEA is also implementing Smart metering through various programs in Kathmandu valley and in other locations. Both these projects have two makes of Meter data management system (MDMS) and Head end systems (HES). Kathmandu valley smart metering project managed by PMD for 98,000 consumers is using MDMS built on Java and C++ with REST integration type and the other smart metering project managed by DCSD has MDMS built on Dot net.

**NEA is also implementing a Revenue management system (RMS). SI shall integrate with the RMS system (LS Energy Pack) to get the needed data/information.**

Therefore, the proposed system and overall solution shall be capable of supporting the vision of a modern/ smart grid. It shall be capable of integrating with modern distribution Centres and support the latest grid automation technologies as well.

### 2.3.8 Testing and Inspection Requirements

#### 2.3.8.1 Testing

Testing and quality assurance in software development is more rigorous since each component must be more reliable if it is to be reused. A system is tested at various stages of development and deployment. For example, each component is tested as a unit for checking the correctness of its own code. Further, the component is tested with its dependent components. After final release of the entire set of components, the system is tested for the correctness of system functionality. Finally, the components are further tested in simulated production load for performance and load analysis.

All testing is the responsibility of SI and NEA shall undertake UAT once all testing completion is confirmed by the SI. The SI shall be responsible for the planning of the testing processes which includes preparing test plans and defining roles and responsibilities. The SI will be responsible for the coordination of the test preparation (consists of preparing test specification, test environment, test data, test cases) and execution (includes testing at various levels like unit



level, integration level, system level and production). NEA will approve the test scenarios, cases etc. prepared by SI.

**Test Plans:** The SI is expected to submit the test plans to NEA for approval. Test plans contains following items:

- a. Roles and responsibilities of test team
- b. Test Scenarios along with entry and exit criteria
- c. Test specifications
- d. Suspension and resumption criteria

**Test Scenarios:** The SI along with NEA should prepare test scenarios for each business scenario. A test scenario when executed should fulfil a business requirement as per the scope of business functionality. Test scenarios include following:

- **Test Specification** - During the test specification phase, the test cases are specified. It consists of description of the input, process to be executed and a prediction of output results.
- **Test Environment** - The test environment should be different from the production environment. At no instance, during the tenure of the project, will the production environment be used for testing any case or change. A separate test environment should always be available for testing purposes. Component developer does unit testing and integration testing. Integration testing can be delegated to a specialized testing group. Each of the members in the testing group is provided with a testing environment according to his/her role and responsibilities. Following is sample testing environment for testing:
  - a. A workstation
  - b. A set of tools and applications required on workstation like access to user interface, browser etc.
  - c. Access to centralized document database (where all the project related documents are maintained)
  - d. Access to testing tools and defect logging tools
  - e. Access to the central database or repository for development and unit testing (this database contains sample test data)
  - f. Access to deployed components
- **Test Data** - Test data is prepared for testing at each stage. The test data should be prepared in such a way that it covers the basic path and every alternate path of the code. The basic path and alternate paths are prioritized to capture relevant data. Tools can also be used to generate test data.
- **Test Execution:** The following testing steps are usually employed in the project lifecycle. The software developer is expected to follow these steps:



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- a. **Baseline Testing** -The purpose of Baseline Scope testing activities is to plan and conduct testing to validate the Baseline configuration. Baseline Scope testing shall ensure that Baseline configuration is valid and supports the business processes defined in the Blueprint. Baseline Scope Testing shall include:
- Unit Testing: Testing of transactions and functions within modules
  - Scenario Testing: Testing of business processes and scenarios
- b. **Testing of Customized Development** - After customization & configuration of the IFMIS, the SI shall conduct tests to demonstrate that the system meets all the requirements (functional and Non-Functional) specifications as brought out in this Bid Document and would be in accordance with the procedures detailed in the approved process document. Based on these tests, a report would be submitted by SI for review and approval by NEA. The test results and response times should be demonstrated by SI during the testing phases (System, integration & Stress and Load testing) at each NEA location in an environment/infrastructure as mutually agreed upon by NEA and SI. The development testing shall cover testing of:
- i. Unit testing of customer-specific development
  - ii. Conversions
  - iii. Enhancements (User-exits and other code enhancements)
  - iv. Reports

Development should be tested by NEA to make sure that the test results (output data) are correct and reflect the business processes defined in the Business Blueprint Design.

After development unit testing is completed, all customer-specific programs and forms shall be included in the Final Integration Test.

- c. **Integration Testing** - The purpose of integration test shall be to plan and execute testing of the integrated components, including simulation of live operations, and analyze the results, important for functional verification of the production system. Integration testing shall be accomplished through the execution of predefined business flows, or scenarios, that emulate how the system will run the processes of NEA. These business flows, using migrated data from the pre-existing systems, shall be performed in a testing environment consisting of IFMIS products, third-party software if any. The integration tests shall build the necessary level of confidence that the solution is complete and will perform the processes of NEA. Integration testing shall focus on cross-functional integration points, as well as end-to-end business processes. The final integration test plan shall start with the testing of cross-functional integration points (touch points) and end with the end-to-end testing of critical business processes identified within the Business Blueprint.



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- d. **System Testing** - System testing is performed when all the components are delivered to a central repository prior to the release of the software. The testing is done on priority basis of business processes. All the defects are logged and assigned to respective component owners. The component and unit testing are performed after the correction of code. However, it may depend on size and type of individual test specifications. Impact analysis is useful to narrow down testing efforts by identifying critical test cases affected due to code change.
- e. **Security/Penetration Testing** - Testing how well the system protects against unauthorized internal or external access, wilful damage, etc.
- f. **Pre-Production Testing** – Pre-Production testing is done simulating the production load. Test data is either prepared or generated from the tools. This testing is used to evaluate performance, load capacity and concurrency. Load testing tools can also be used for this purpose. Load, scalability, and stress testing would be conducted prior to Go-Live once the System Integration testing of the configured and customized solution has been conducted successfully. SI should use suitable simulation tools in accordance with the agreed test procedures keeping in view NEA's projected future load of transactional users as proposed by SI and agreed by NEA. After successful testing and its clearance with NEA, the solution would then be considered as ready for commissioning.

Following special type of testing are done during Pre-Production Testing Phase:

- i. Regression Testing
  - ii. Performance testing (stress, volume, back up tests)
  - iii. Load testing
  - iv. Installation testing
  - v. Recover/ error testing
- g. **User Acceptance Testing** - During the test scenarios definition, for each of the business scenarios, an acceptance criterion is defined. Acceptance criteria include expected behaviour of the s/w component and the expected results (data). Expected results form a part of the Exit Criteria. In addition to expected results and behaviours, some conditions are also specified in the exit criteria. They can be:
- i. Number of bugs to be discovered for a functional module. This depends on the size of the functionality and is an indicator of the amount of testing done.
  - ii. If any medium or low-priority errors are outstanding - the implementation risk must be signed off as acceptable by NEA
  - iii. All High Priority errors from System Test must be fixed and tested
  - iv. Code Coverage
  - v. Error (Exception) Handling



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SI shall be responsible for creation of test plan, script, environment, scenarios, entry exit criteria for UAT. Same shall be reviewed, discussed, and finalised in consultation with NEA. Upon conduction of UAT, SI shall maintain a monitoring and tracking tool with a dashboard wherein it will be possible for NEA to monitor the progress on development of changes suggested during the UAT and their subsequent releases into the production environment. Upon acceptance and approval of NEA on the UAT, the milestone shall be deemed completed by the SI.

### 2.3.8.2 Inspections

**Factory Inspections:** All the hardware, software, non-IT equipment etc. should have gone through appropriate type testing, factory acceptance test procedures. SI shall be required to furnish certificates from OEM in this regard.

**Inspections following delivery:** All the hardware and software will be inspected for compliance with the functional and technical requirements as mentioned in the Bidding Document and as agreed between the Purchaser and the System Integrator through contract. SI shall provide a comprehensive list of all the items supplied in accordance with the implementation schedule.

### 2.3.9 Data Migration

Data Migration refers to validation and migration of data from the manual/ legacy system to the new database schema, linking and Meta tagging the documents to the relevant records in the Data Management System (DMS) and conformance to quality control requirements. The data should be migrated from the current application and media to the IFMIS during Enterprise wide roll out and prior to 'Go-Live' of the application.

The key data migration requirements include:

#### 1. Data conversion:

Since there would be significant difference between existing legacy database table structures and IFMIS database table structures, therefore mapping shall be done between existing tables and proposed tables and data to be made compatible for migration and migrated into new tables.

- a. Perform data cleansing for incorrect/ incomplete data.
- b. Perform validation of digitized/ scanned records
- c. Obtain approval from competent authority on migrated data

The tools and solutions required for performing data migration must be customized by SI after adequate study of the data to be migrated.



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## Estimated Volume for Data Migration:

Name of Application	Indicative size of Database	Database
Pay roll and Pension Management system	680 MB	Oracle
e-attendance	838.01GB (old software) 1.5 GB (new software from 2081)	MsSQL
Human Resource Information System (HRIS)	20 GB	MySQL
Customized Accounting System (CAS)	35 GB	Oracle
Inventory Management System	500 MB/office	Oracle (de-centralized server)
Asset Management System (AMS)	2.34 GB	Oracle

**Note:**

\* Please note that these are estimated volume and can vary on ground based on further analysis. More accurate data will be provided at the time of data migration.

**2. Data Assessment**

The study of the source/legacy systems must provide comprehensive insights into the content, structure, quality, and integrity of the source/ legacy systems.

**Risk Identification and Mitigation Plan for Data Migration:** The SI shall identify all risks associated with the data migration and enumerate mitigation measures and prepare a Risk Identification and Mitigation plan for Data Migration. The plan must address the contingency measures to be adopted during the event of a data migration failure. It must also clearly specify measures to be taken to prevent data loss. It may be preferable to consider migration of data to a backup system at the same time as the new system to address data loss due to system failures.

**3. Data Mapping and Cleansing**

A comprehensive data mapping exercise must be undertaken by the SI before embarking on data migration. A good data map will detail an in-depth cross referencing of all mutual fields across the source system and the target system. It must include the following (but not limited to):

- a. Names of applicable fields- to (destination) and from (source)
- b. Lengths and data types of these fields
- c. Mapping of relationships between entities



- d. Check on the constraints, unique fields and integrity checks
- e. Any logic involved in mapping such as string truncations or validations against any business rules.

SI shall be responsible for migration of operational data as required, including financial transaction data such as ongoing contracts, employee transaction data etc.

In the event of any gaps in data migration, the SI shall discuss with NEA, document the findings, and get it approved from NEA.

- a. SI shall run mock data migration tests to validate the conversion programs that have been written.
- b. SI shall validate the data before uploading the same to the production environment.

SI shall support in conducting the acceptance testing and verifying the completeness and accuracy of the data migrated from the legacy systems to the proposed solution.

SI shall submit data migration strategy in their bid, detailing all the activities to be performed during the data migration. Indicative broad activities to be performed by the SI are as follows:

- a. An assessment needs to be done to identify the database requirements for the application envisaged for this project. The data requirements in terms of master data and transaction data need to be identified, which is required for the envisaged solution.
- b. Migration of complete records available in electronic form is required to be performed to acceptable quality and standards as prescribed in this Bid Document.
- c. Development of merged database structure
- d. Porting of all the data into the database
- e. Final updating of the single database

#### **Additional Requirements for Data Migration**

- a. The SI shall migrate the data at the implementation sites of NEA.
- b. The SI shall formulate the “Data Migration Strategy” which will also include internal quality assurance mechanisms. This will be reviewed and approved by NEA prior to commencement of data migration.
- c. The SI shall incorporate all comments and suggestions of NEA for Data Migration.
- d. The SI shall perform mock data migration tests to validate the conversion programs.
- e. The SI shall facilitate data cleaning and validation for all data migrated from the legacy systems to the new application.
- f. The SI shall generate appropriate control reports before and after migration to ensure accuracy and completeness of the data.
- g. The SI shall convey to NEA in advance all the mandatory data fields required for functioning of the proposed solution and which are not available in the legacy systems and are required to be obtained by NEA.
- h. SI shall conduct the acceptance testing and verify the completeness and accuracy of the data migrated from the legacy systems to the proposed solution.



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- i. SI shall give the template for data migration to NEA and NEA shall furnish the required data on the templates provided by the SI. The SI shall furnish adequate guidelines to fill the data templates to NEA.

### 2.3.10 Pilot Implementation of IFMIS

SI shall carry out the pilot of the customized IFMIS Application at selected locations identified by the NEA, as mentioned in Table 4 below. During pilot implementation, System Integrator will run the full functional IFMIS at above identified locations and support the users to enter 1-month transactions and generate all monthly reports as specified in functional requirement specifications and additional reports, as required by user/ management. System Integrator to ensure that all the bugs and defects identified should be fixed during pilot implementation phase itself before going for rollout of IFMIS at all locations as identified below:

S.No	Name of Office	Number of users				
		Finance Management	HR Management	Project Management	Material Management	Maintenance Management
1	Ratnapark Distribution Centre	3	1	0	2	2
2	Kulekhani First Hydro Power Centre	3	1	0	2	2
3	Kathmandu Grid Division	3	1	0	2	2
4	Central office (Central Payment Section, ISP)	15	15	2	5	2
5	Baneshwor DC	3	1	0	2	2
6	Dhangadhi DC	3	1	0	2	2
7	Itahari DC	3	1	0	2	2
8	Project (grid Solar)	3	1	1	2	0
<b>Total</b>		<b>36</b>	<b>22</b>	<b>3</b>	<b>19</b>	<b>14</b>

Table 4: Pilot locations and number of licenses

At the end of Pilot Phase, System Integrator shall submit the “Pilot Implementation Report”.

Following indicative activities are to be completed before Pilot rollout:

Project Activities	Compliance (Yes/No)
Commission of DC	
Completion of advance IFMIS System Configuration	



Project Activities	Compliance (Yes/No)
Execution of System Integration Testing	
Finalize Cutover (Conversion) Plan	
IFMIS Software Provisioning & Installation	
IFMIS System Installation on DC	
IFMIS System Testing (Unit Testing etc.)	
User Acceptance Testing (UAT)	

*Table 5: Indicative list of activities before pilot roll out*

Following indicative activities are to be completed for declaring the Pilot GO Live:

S.No.	Required activities before pilots Live:	Yes/ No
1	Data Centre commissioned including all hardware, software, network components.	
2	All Application Software modules of the IFMIS solution stack under the scope of ITIA developed and customized as per business process requirement of utility along with their integration.	
3	Integration with legacy applications (as per indicated list of existing integration/ interfaces to begin with) completed.	
4	Functional testing of integrated software completed for acceptance by utility. User acceptance testing, and QA checks are crucial at various stages of development and during deployment of IFMIS solution stack. Each software component is tested independently and then further tested along with its dependent components. Before final release, an integration testing of the complete system is done to check the system functionality in the presence of the designated utility representatives.	
5	Data migration from existing/ legacy system to new system completed and reconciled.	
6	Training has been imparted by SI to end users of IFMIS solution stack at Pilot locations.	
7	All changes/ feedback of UAT are duly captured and reflecting in the software application.	

*Table 6: Indicative activities to be completed for declaring Pilot Go Live*

### 2.3.11 Rollout of IFMIS Solution

After successful pilot completion, necessary changes in the System, IFMIS applications shall be rolled out in NEA. System Integrator shall submit the Rollout Report to NEA.

Following indicative activities are to be completed before rollout:



Project Activities	Compliance (Yes/No)
Completion of Customized IFMIS Objects	
Completion of Data Migration (at all Rollout locations)	
End User Creation with defined roles & authorization	
Execution of System Performance Test (Stress, Load, Backup Tests etc.)	
Helpdesk flow has been finalized	
Master data for all modules uploaded and verified	
Open transaction items have been uploaded and verified	
Operational Helpdesk	
Operational Tools Readiness IVR, ITSM & IT Operations	
Periodic backup has been setup	
Successful Completion of End-User Training	

*Table 7: Indicative activities to be completed before roll out*

### 2.3.12 Stabilization Period of IFMIS

The stabilization period involves the following activities-

- Fine tuning of the applications and systems ensuring all required related component are working fine and as per SLA.
- Submission of stabilization report
- Training & Capacity building Activity
- SLA and Performance Monitoring

### 2.3.13 Go-Live Criteria and Quality Control/ Inspection by NEA

The scope of cut-over would be for each of core and support processes. The cut-over strategy needs to detail the sequence of activities, tasks, data conversion required for sunset of existing operational legacy applications and upload of the necessary balances and open items into the ERP system before go-live.

The key requirements for cut over are as following:

- a. The cut-over plan should detail the strategy by which the data will be uploaded for the different legacy applications and the nature and volume of backlog transactions. This shall include specified forms/formats/templates including digitized data.
- b. It should detail the strategy used for cut-over of existing legacy application/data digitized and open item before go-live.



- c. It should describe the various prerequisites and assumptions used for each of the data elements before uploading in the live system.
- d. It should detail the various business decisions to be taken collaboratively by NEA and SI for finalizing the cut over strategy for legacy applications and existing data of organization.

The ERP Go-Live will be complete after successful completion of stabilization period as defined in the Bid Document this shall include:

- a. User Adoption Support: SI shall provide User adoption support, by deputing technical and functional consultants at NEA site after implementation of ERP system at that site. During the Implementation period prior to “Go Live”, the SI shall support NEA users in adoption of the system.
- b. ERP System - Go live: The system will be declared Go-Live when the following tasks are accomplished:

Project Activities	Compliance (Yes/No)
Documentation of all the issues/problems that come up during the stabilization period and resolution methodology / solutions	
Error free operations and running of all IFMIS modules with real-time data for a period three (3) months.	
Establish Service Level Agreements	
Go-Live Approval	
Program Logic Control & Phone/Email for operation support (L1-L3) have been published	
Successful Completion of Stabilization period after IFMIS Rollout	
Tuning of IFMIS	
User Guide documents for all modules have been created	
IFMIS System Accessibility to all End Users	
a) Master Data	
b) Transactional data	

*Table 8: Go-Live Checklist*

**2.3.14 Cyber Security**

SI shall provide end-to-end cyber security services to meet IT security challenges for IFMIS based on the proven frameworks and security best practices. It is vital that the processes and technology supporting the Information Security function for IFMIS are proven and compliant to best practices/ standards. It is envisaged that the cyber security operations shall be centralized, structured, coordinated and responsive resulting in effective cyber threat prevention and detection, thereby securing IFMIS from attackers. The Information Security functions shall respond faster, work collaboratively, and share knowledge more effectively.



SI shall bring advanced data analysis and forensics insight to provide the following services to NEA:

Sl. No.	Cyber Security Requirement for IFMIS
1.	Cloud security
2.	Intranet Next Generation-Firewall
3.	Intranet Intrusion Prevention Solution
4.	Anti-Virus Services

*Table 9: Cyber Security Requirement*

#### 2.3.14.1 Security during Development & Integration Phase:

SI shall meet the security requirements listed below (including but not limited to) during the development and integration stage:

- a. SI shall address emerging cybersecurity vulnerabilities in their software coding under System Development Life Cycle (SDLC). This should be done by taking into consideration the SANS Top 25 Most Dangerous Programming Errors and the OWASP Top 10 Projects.
- b. SI shall propose a legacy data cleansing approach
- c. SI shall propose a security mechanism to be used for API and adopt the best practices such as OWAPS guidelines to ensure security.
- d. SI shall promptly notify NEA when vulnerabilities are found in their code.
- e. SI shall apply security related patches and updates.
- f. Remote access by the SI will only be performed using technology authorized by NEA.
- g. Any data interfaces implemented or built by the SI will be required to have encryption and authentication (strong authentication when possible.)
- h. Files containing NEA information will be transferred using encrypted file transfer techniques agreed upon by both parties.
- i. System Integrator shall be responsible for overall design and management of the solution (IFMIS, Database, Middleware & Other Associated Software's) to meet and comply with Bid Document requirements including Performance, Security, SLA, Guidelines and policies for entire project duration. Also, any Manpower required to operate the SOC Operation will be provided by IFMIS Integrator.

#### 2.3.14.2 Security during Operations phase

##### A. Security Policy

SI will adopt a leading information security framework (such as ISO 27001, ISO 22301) to define, monitor and update security policies (including network, server, application, and website/mobile app security).



**B. Incident Response**

SI shall do the analysis of application and network incidents, do post-incident reporting, and implement practices to ensure rapid response to attacks.

The SI shall do a proactive review of the incident response plan to improve incident response time and implement continuous improvement processes to strengthen overall effectiveness of security.

**C. Distributed Denial of Service (DDoS) Protection**

SI should secure IFMIS against DDoS attacks such as network and application-level attacks with minimal business disruption. It must keep the businesses up and running at high performance levels even under attack, avoiding any monetary losses and serious reputation damage.

**D. Malware Analysis**

SI shall conduct analysis of newly discovered malware to uncover its scope and origin. Perform dynamic real-time analysis of advanced malware identified and prevent true zero-day and target attacks which can aggressively evade signature-based defences through various channels such as Web, Email & Files.

SI shall perform the threat analysis of unwanted or suspicious malwares by the behaviour or signature-based deduction and take input from the logs, detection, vulnerability or suspicious activities feeds IOC.

**E. User Authentication and Control**

SI shall define and implement the highest level of access governance. The proposal of this solution is to have an enhanced user role security where access should be restricted to only authorized users with multi-factor or two-factor authentication.

The system should have access control features for controlling the access rights over the system and over the various functions/features available for different types of users. Best practices from IFMIS security including password strength, password aging, password history, reuse prevention etc. must be followed for access control.

Application user authentication and authorization related transactions should be encrypted and use a wide array of authentication schemes, standards or token types to ensure that only valid users and applications get access.

- i. SI must ensure that end user access to DC based server's is through SSL, VPN.
- ii. SI must ensure DC should have built-in user-level controls and administrator logs for transparency and audit control.
- iii. DC shall have access control policy and ensure role level access control employed with ability to manage roles & identity centrally.

**F. Hardening**

All unnecessary packages must be removed and/or disabled from the system. Additionally, all unused operating system services and unused networking ports must be disabled or blocked.



Only secure maintenance access shall be permitted, and all known insecure protocols shall be disabled.

- i. SI shall provide a consolidated view of the availability, integrity, and consistency of the Web/App/DB tiers on DC.
- ii. SI must ensure Database nodes (RDBMS) should be protected with a higher security layer at DC.

### **G. Security Audit**

SI shall engage with the certified empanelled agency appointed by NEA and SI will cooperate fully with the auditor. The auditors shall be responsible to conduct the following activities:

- i. Security Audit that includes (but not limited to) vulnerability assessment, penetration testing, application security assessment API testing and Mobile application assessment biannually (once in six months) for entire infrastructure.
- ii. Implementation of information security controls and perform periodic (once in a year) assessment.
- iii. Propose ways to enhance the protection of IFMIS & Supporting IT Infrastructure.
- iv. Ensure the applications are free from OWASP Top 10/SANS and web/mobile application vulnerabilities as released from time to time.
- v. SI is responsible for mitigating all security risks found and continuous monitoring Activities. All high-risk vulnerabilities must be mitigated within 15 days from the date vulnerabilities are formally identified.

**Source Code Review:** Third party agencies shall review the source code of web and mobile applications for hidden vulnerabilities and design flaws. It shall also verify whether security controls are implemented appropriately.

**Secure Configuration Review:** Third Party Agency shall review the security configuration IFMIS and provide the detailed report that include the recommendations for remedial actions and submit the results to NEA.

### **2.3.14.3 Security Requirements and Features**

SI will have to establish all the necessary procedures / infrastructure/ technology / personnel to ensure that the IFMIS security is not compromised.

Broad Security requirements are:

- a. All systems should have integrated security features that are configurable by the system administrator to control access to the application, functional modules, transactions, and data.
- b. Public key verification methods should be followed for verifying that the contents of a document have not been tampered with and allowing the receiver to confirm the identity of the sender.



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- c. The applications should require the use of unique user IDs and passwords for authentication purposes and digital signatures, Biometric and other devices as applicable.
- d. The application should allow for the following:
  - The enforcement of password standards
  - The establishment of a specified period for password expiration, and
  - The prohibition of recent password reuse
- e. System administrators should be able to define functional access rights and data access rights by assigned user ID, functional role, and owner organization.
- f. The systems should permit the system administrator to assign multiple levels of approval to a single user.
- g. System administrators should be able to restrict access to sensitive data elements by named user, groups of users, or functional role.
- h. System should be auditable as per requirements from time to time.
- i. System should have audit logging capability to record access activity, including the following:
  - i. All log-in/ log-out attempts by user and workstation
  - ii. User-submitted transactions
  - iii. Initiated processes
  - iv. System override events; and direct additions, changes, or deletions to application-maintained data
- j. System should provide the ability to query the audit log by type of access, date and timestamp range, user ID, IP address and terminal ID.
- k. All the information assets (information and information systems) should be classified, and security should be defined according to the criticality of the information asset. All the data / information contained within systems or in hard copies related to this project, are owned by NEA. No information should be made public either directly or indirectly nor allowed to be accessed by unauthorized persons.
- l. System audit should be enabled for all the information assets to establish detective controls. System should have evidence, like audit trails, logs, registers, proof of background checks, approvals from NEA or its designated agency, support for various decisions, support for accounts etc. for the purpose of third- party security audit.
- m. System should have security incident management procedures. This incident management procedure should use Technical Support facilities and should be reported in the incident management System.
- n. Should have system development and change control procedures including effective segregation of duties and environment.
- o. Proper protection against malicious software should be ensured. This would include implementation of an effective anti-virus solution, scanning viruses at regular intervals or on certain triggers and updating the solution as and when a new patch is received from the anti-virus solution provider.
- p. Should have proper logical access security for all the information assets. Entire network including servers, communication links, database etc., should be logically segregated from the rest of the networks.



- q. Should ensure suitable technical and procedural controls to protect the network. Wherever the IFMIS project network encounters an untrusted network, additional security measures should be taken like firewall, IDS, DMZ, proxy server, encryption etc.
- r. Robust backup procedures should be established for the same.

**Note:**

In case of any major external issue like “Security threat” Or “Cyber Security Incident” occurred due to failure or lack of necessary IT/ Cyber Security measures by SI, it will be the responsibility of SI to recover all the utility data and systems without loss of any data and business operation. Such incidents of grave magnitude which may result in loss of data, utility business or public image may attract the penalty of at least a quarterly payment or part there-off.

**2.3.15 Audits and Quality Assurance****2.3.15.1 Audits & Reporting**

The audit and reporting activities will be carried out by any internal authority, Product OEM, or any Third-party agency to ensure the compliance with quality and overall requirements captured in the Bid Document for IFMIS to achieve the goals and objectives as envisaged by NEA.

IFMIS being deployed as a part of this project, will require auditing and validation both initially as well as on an ongoing basis. The audit activities are mandatory and shall be carried out periodically inline to the timelines/ frequency captured as per audit requirements of the Bid Document. However, in case of any exception the audit and validation activities can be carried out on an ad-hoc basis, at the discretion of NEA. The SI must understand its need to cooperate and support such audit or validation activities conducted by NEA or any of its appointed agencies.

SI shall be responsible for facilitating and extending full cooperation for audits by any internal authority, Product OEM, or any Third-party agency.

**To carry out IFMIS audit (OEM Audit), the cost shall be borne by the SI including the cost to incorporate any post audit suggestions/ recommendations.**

However, for any other third-party audit, the cost will be borne by NEA. If in case, due to un-fulfilment of requirements due to SI, multiple iterations (more than 1) are required to be carried out for any third-party audit, then the cost of further audits will be charged to SI for any subsequent iterations or visits of third-party auditors.

The audit and validation activity will be carried out to identify, assess, evaluate, and recommend on but is not limited to, the following:

- a. Performance
- b. Security



- c. Manageability
- d. Customized Source Code
- e. OEM Standard and Compliance
- f. Availability of Services
- g. Functional and Technical Specifications
- h. Policy and Procedure
- i. Service Level Requirements
- j. Software and Supporting System
- k. Hardware and other components
- l. Project Documentation etc.

### 2.3.15.2 Auditing

The purpose of the audit will be to assess, evaluate and assure to the management of NEA, that the implemented IFMIS process, policy and elements of systems are functioning properly and effectively to achieve the planned objectives. In case, any element of the solution is not functioning in line to the specific requirements and standards, then the audit shall recommend the required corrections and corrective action.

The audit activity shall include verification, examination, and evaluation of the overall solution with objective evidence to assess that IFMIS solution has been designed, developed, implemented, and documented in accordance and in conjunction with specified requirements.

The audit and validation activities under this will include, but is not limited to, the following mentioned activities:

#### 1. Service Level Agreement (SLA) Audit:

The quarterly monitoring and performance review of SI against the monthly formulated reports for SLA.

- a. A designated third-party or personnel from NEA will review the performance of SI against the SLA.
- b. The SLA reports shall be formulated based on the automated system generated reports.
- c. SI shall submit the system generated monthly SLA report to the designated Nodal officer as per agreed frequency and timeline.
- d. For the requirement of SLA audit, the NEA may perform a visit either by internal department or by an external contractor at respective Data Centre location.
- e. The review/ audit report will form a basis of any action relating to imposing penalty on or breach of contract of the SI.

#### 2. IFMIS- OEM Audit

This audit activity shall include the validation and assessment of the entire IFMIS including IT Infrastructure and supporting systems through Original Equipment Manufacturers (OEMs). The required activity shall be performed on the entire implemented solution to certify that all necessary standards, precautions, and guidelines have been adhered to



achieve the optimal performance of the solution. The duration of the OEM audit shall be quoted by the bidder.

**A. First Iteration of Audit – Blue Printing and Designing of IFMIS**

- i. Review of As-Is, To-Be, Gap Analysis, Solution Mapping Document and Technical Design Document along with any other related documents;
- ii. Prepare module wise detailed observations covering & including, but not limited to, process coverage, usage of IFMIS functionalities, risks in customized processes (if any).
- iii. Data Migration strategy with the proposed data conversion template and migration strategy for existing IT Solutions, if required.
- iv. Shall include recommendations on industry best practices for IFMIS for NEA as appropriate e.g., organization structure, codification etc.
- v. Audit to ensure installation of proper versions and licenses for IFMIS including, but not limited to IFMIS Software’s licensing, integration middleware, supporting systems, any other layer of software etc.
- vi. Verification of standard IFMIS functionalities including module, sub-module which can be used to meet NEA requirements;
- vii. Verification and review of the custom development approach and methodology as per standards recommended by IFMIS OEM. Further, OEM will also identify risks for NEA in such developments;
- viii. Review of all custom developed components / objects / process etc. with risk assessment, if any;
- ix. If any standard IFMIS functionality, module or sub-module is not used by SI, the same needs to be informed to NEA.
- x. The IFMIS OEM audit process will include review of solution documents and on-site discussions with SI and NEA.
- xi. SI will be required to comply with IFMIS OEM observations;
- xii. After compliance by SI, IFMIS OEM will verify and confirm that all relevant observations/recommendations are incorporated by, and the solution provided by SI is acceptable to IFMIS OEM considering NEA requirements.
- xiii. IFMIS OEM will prepare a detailed audit report and submit the same to NEA. If required, IFMIS OEM need to present audit findings to management of NEA.

**B. Second Iteration of Audit – Posts Development, Configuration and Rollout of IFMIS**

IFMIS OEM will verify the specification and configuration to confirm, but is not limited to, the following mentioned activities:

- i. The OEM will verify and confirm before Go-live, the technical preparedness of the system is appropriate for Go-live;
- ii. The OEM will review technical & operational procedures, system performance, user support documents & structure is as per scope and OEM standards;
- iii. Shall verify that the implemented solution is in line with the standard practices;
- iv. The OEM will conduct an audit to confirm that the solution is performing as per NEA SLAs. The audit report will be a pre-requisite to the completion of IFMIS stabilization phase.



- v. In case, if there is any variation, OEM will inform that implemented specifications /functionalities etc. will suffice the requirements of NEA;
- vi. If the specifications are not enough, OEM will inform and provide a detailed report containing risks and impact on the overall solution to NEA.
- vii. SI will have to take corrective actions based on OEM recommendations. Post incorporation of the recommendations the IFMIS OEM will verify the compliance of the same.
- viii. IFMIS OEM will ensure closure of all audit observations to its satisfaction and provide final report to NEA.

The following will be the deliverables of such OEM engagements and the mechanisms for follow up actions.

- a. The mechanisms. All the review by the IFMIS OEM will occur in collaboration with NEA and SI team. SI shall be required to participate in the Review program conducted by NEA and the IFMIS OEM. The SI shall depute their competent persons to participate in the review programs. The Review program will look for best implementation practices while following a prescribed methodology. The extent and frequency of the review shall be determined by IFMIS OEM in consultation with NEA but shall be frequent enough to validate each of the major project milestones. While some of the review will be required to be done at the project site, some of the reviews of codes or documents can be carried out at the location convenient to the IFMIS OEM. The IFMIS OEM team will plan the activities in consultation with SI and NEA and the IFMIS OEM will report directly to NEA on all the matters related to their activities.
- b. The deliverables. The deliverables of the activities of the IFMIS OEM will, at the minimum include recommendation reports, suggestions on specific action items, minutes of the meetings and approval certificates.
- c. The follow up actions. The SI is required to incorporate the recommendations arising out of the expert services provided by the IFMIS OEM. The IFMIS OEM will also be responsible for helping NEA to get its suggestions/ recommendations implemented. The IFMIS OEM should validate the incorporation of the review findings on behalf of NEA. The efforts required for incorporation of the recommendations/ suggestions/ comments etc. arising out of the activities of the IFMIS OEM expert services, will be part of the normal implementation effort for the project and treated as rework for inadequate quality. NEA will not accept any change requests for these efforts.

### 3. IT/ Cyber Security Audit

Audit of IT security and Cyber security practices by certified Third-party agency to assess and evaluate the implementation of security policy and vulnerability assessment to be conducted once every two years. The report shall include the parameters as per the agreement with NEA and rate the security implementation in three grades i.e., Satisfactory, Requires Improvement and Unsatisfactory.

- a. Security Audit shall include but not limited to vulnerability assessment, penetration testing, application security assessment, application assessment for entire infrastructure.



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- b. Third party agency shall be responsible for implementation of information security controls and perform periodic assessment.
- c. It shall propose ways to enhance the protection of IFMIS & supporting IT infrastructure.
- d. Secure Configuration Review: Third Party Agency shall review the security configuration of IFMIS and provide the detailed report that include the recommendations for remedial actions.
- e. System Integrator shall provide the declaration of readiness for IT security and cyber security audit post successful Go-live of IFMIS.

### 2.3.15.3 Follow-up Audit

Post completion of audit assessments (Internal or external) may have the findings that require corrections and corrective action. Since most of the corrective actions cannot be performed at the time of audit.

NEA may require a further follow-up audit to verify that corrections were made, and corrective actions were taken. The NEA may also conduct the follow-up audits to verify the preventive actions taken because of performance issues that may be reported as opportunities for improvement.

### 2.3.15.4 Reporting

SI shall provide the necessary support and co-operation for overall monitoring of the IFMIS. For the purpose of monitoring the SI shall provide the system generated reports with a provision of further detailed analysis, if required.

SI shall formulate an exhaustive list of required reports and seek the concurrence of NEA. SI should submit the reports on a regular basis in a mutually agreed format.

Each report shall be circulated and submitted to the designated Nodal Officer of NEA in the format mutually agreed upon. An indicative list and frequency of such reports are as following:

- 1) Weekly reports
  - a. Backup and restoration
  - b. Infrastructure uptime Report
  - c. New Software Patches
  - d. Resource utilization of critical components
  - e. Data Migration Report
  - f. Changes Made in Database
  - g. Changes Made in Middleware
  - h. DC Access Reports etc.
- 2) Monthly reports
  - a. Summary of resource utilization for all components in DC
  - b. Log of preventive / break-fix maintenance undertaken
  - c. Summary of usage of storage media provisioned



- d. Summary of major and minor changes undertaken in DC
  - e. DC Availability and Operations Report
  - f. Database Growth Report
  - g. Summary of Incidents reported
  - h. Consolidated SLA / Non-conformance Report
  - i. Integration Services
  - j. Help Desk Services
  - k. Project Management
  - l. IMAC Services
  - m. Resource Attendance
  - n. Service Management Controls Report
  - o. Change and Release Management
  - p. System Maintenance Reports etc.
- 3) Quarterly Reports
- a. Asset database report and Asset audit report
  - b. Feedback report from users for services rendered.
  - c. Inventory of spare parts in Data Centre
  - d. Security Audit Report
- 4) Incident Reporting (as and when it occurs)
- a. Any system/component failure with root cause analysis
  - b. Peaking of resource utilization on any component
  - c. Bottlenecks observed in the system and possible solutions and workarounds.
- 5) Security Incident Reporting (as and when it occurs)
- a. Detection of security vulnerability with available solutions/workarounds for fixing.
  - b. Hacker attacks, Virus attacks, unauthorized access, security threats, etc. — with root cause analysis and plan to fix the problems.
  - c. Any hazards or events like Fire, environmental conditions, physical security, etc. at DC.

### 2.3.15.5 Indicative Schedule for Audit

Sl. No.	Activity	Frequency	Audit Agency
1	SLA Audit	At discretion of NEA	Internal/Third Party
2	IFMIS - OEM Audit	<b>Twice:</b> 1. Post Solution Design 2. Before IFMIS Go-Live	IFMIS OEM
3	IT/ Cyber security Audit	Biyearly (Once every two years)	Internal/Third Party



Note: The duration of OEM Audit shall be minimum 25 days including all audit activities and post audit compliance checks and validation.			

*Table 10: Schedule for Audit*

### 2.3.16 Documents and Deliverables

#### User feedback and NEA

- a. SI is expected to build adequate mechanisms to get the feedback from different users of the IFMIS during different stages of the project. The users/ stakeholders for providing their feedback will be identified by NEA.
- b. SI is expected to deploy in this project the expertise and experience of similar projects carried out by them earlier. It is expected that all the key deliverables will go through a review with these experts. Similarly, the SI is expected to deploy all the quality assurance mechanisms as per international quality standards for this project.
- c. SI should clearly indicate up front what are the deliverables which will go through internal review, what type of expertise will be deployed for these reviews and what are the deliverables which will follow the quality assurance plans.

If any of the deliverables are not acceptable to NEA or its appointed experts, it will have the right to seek deployment of experts from the SI to review the deliverables.

#### Mechanism to Adopt Feedback

There are three types of feedback for the deliverables – from the IFMIS OEM, from the users/ stakeholders and from the internal experts of SI. The following is expected from SI on the feedback.

- a. All the feedback will be discussed with NEA and based on guidance from NEA, will be incorporated into the project.
- b. Since the feedback for any rework is by nature correcting the inadequacy of quality of the work produced in the first place, NEA will not accept any change notice requests for these modifications.
- c. SI should build adequate mechanisms to control the risks of time overruns possibly due to effort required to rework bad quality deliverables.
- d. SI should indicate in the beginning and during the start of each phase how it plans to take feedback and the mechanisms to incorporate the feedback into the project plan and deliverables.

SI will report to NEA on how the feedback has been incorporated into the project deliverables and take a sign off from the designated authority of NEA.

The acceptance procedure of deliverables & overall solution for IFMIS shall include:



- Initially, SI will provide draft deliverables for IFMIS & Overall solution by considering the approved project timelines for review and feedback of NEA within stipulated time frame.
- NEA will provide feedback within the agreed timeframe to make necessary change corrections (if required).
- SI shall be required to re-submit the revised documents/deliverables.

The indicative list of project deliverables which are required to be submitted by the SI shall include, but not limited to the following:

### 2.3.16.1 Key Deliverables

The indicative list of project deliverables which are required to be submitted by the SI shall include, but not limited to the following:

#	Project Phases	Tasks	Time line
1	<b>Implementation Phase</b>		
	<b>Project Initiation</b>	Project Kick-off with presentation on IFMIS overview to senior management.	M2
		Project Charter.	
		a) Detailed project plan with work breakdown structure along with dependencies	
		b) Resource schedule & deployment plan	
		c) Roles & responsibilities	
		d) Project Governance structure & escalation matrix	
		e) Stakeholder communication matrix	
		Detailed training/ Organization change management strategy & schedule	
		Risk Management & Quality Assurance Planning Reports	
		As-Is Study report including existing business process, workflows, reporting requirement, process maps etc.	
		Gap analysis report with identified gaps & areas of Improvement	
	To Be Report		
2	<b>Business Blueprinting</b>	Updated Functional Requirement Specifications	M6
		Non-functional Requirements Specifications Documentation	
		Business Solution Design Document	
		Finalized Business blueprint/design documents	
		Data Conversion and Migration Strategy	
3	<b>Design &amp; Customization</b>	Draft OEM audit report with observations (1 <sup>st</sup> Iteration)	M14
		Final OEM audit report with compliance (1 <sup>st</sup> Iteration)	
		Integration with existing solutions (Legacy, Other Systems)	
		Approved End-User Training Strategy (along with End-User Training Curriculum, Manuals, and Schedule)	
		Trainings to Core Team/Nodal Officers	
		Implementation & rollout strategy	



#	Project Phases	Tasks	Time line
		Performance Testing Report	
		Software Testing Report including all requisite tests conducted as per the Software Development Lifecycle (SDLC) including unit, integration, regression, load, stress, performance, user acceptance etc.	
		User Acceptance Testing (UAT) Report	
		Software licenses (supporting certificates/documents)	
		Data archival, retention policy	
		Cyber Security Policy	
		Business Continuity/Disaster Recovery Planning policy	
		<b>Pre – roll out preparedness checklist</b>	
		User Training Manual, FAQ etc.	
		Data migration report	
4	<b>IFMIS-Pilot Rollout</b>	Supply of licenses for Pilot Rollout	M15
		Roll out for Pilot Location	
		Demonstration & Acceptance	
		Pilot Go-Live	
		Incorporation of changes and observations of Pilot Phase	
5	<b>Training and Change Management</b>	Training for 80% of the trainees	M17
		Training for 100% of the trainees	M24
6	<b>IFMIS - Enterprise wide roll out</b>	Data Migration Completion Report	M24
		Configuration manuals, Standard Operation Procedure (SOP) etc. and all associated self-help documents for all users	
		Draft IFMIS OEM audit report with observations (2 <sup>nd</sup> Iteration)	
		Final IFMIS OEM audit report with compliance (2 <sup>nd</sup> Iteration)	
		SLA and Performance Monitoring Plan	
		All custom code with database objects depicting entity relationship diagrams	
		Help desk structure, process, and operational manual	
		Help Desk setup Initiation	
		Exit Management Plan	
		Pre-Go-Live declaration report	
		Enterprise wide Go-live completion report	



#	Project Phases	Tasks	Time line
7	<b>IFMIS - Stabilization Support</b>	Fine tuning of the applications and systems ensuring all required related component are working fine and as per SLA.	M27
		Submission of stabilization report	
		Training & Capacity building Activity	
		SLA and Performance Monitoring	
<b>2</b>	<b>Hardware Procurement, Supply, Installation, configuration and Commissioning Phase</b>		
1	<b>Setup of IT infrastructure of DC and DRC</b>	Procurement of IT infrastructure	M9
		Supply of IT infrastructure	
		Installation, Configuration and Commissioning of IT infrastructure Report	M14
		Site acceptance testing of hardware (SAT)	
<b>3</b>	<b>Software Licenses Procurement, Customization, and Configuration Phase</b>		
1	<b>Software Licenses</b>	Supply, delivery, design, customization, integration, implementation, testing, commissioning of Software of Enterprise-wide licenses including IT infra	M12
<b>4</b>	<b>Support Phase</b>		
	<b>Facility Management Services</b>	SLA and Performance Monitoring	From M25 to M84
		Monthly activities report (including Issue tracker, Helpdesk ticket analysis, Change Request status and Status of all service requests logged with Offered OEM Product etc.) – Reports shall be tool generated and available for viewing in the tool itself.	
		Solution Usage Reports - Transactions and Users	
		User Manual with necessary revision	
		Change Management & Release Management Reports	
		Issue log and resolution report	
		Revised Exit Management Plan	

**Note:**



1. The Project deliverables mentioned above are indicative and shall be finalized based on discussion and agreement between SI and NEA.
2. SI shall provide respective deliverables as per the captured schedule for their review and feedback of NEA.
3. NEA will provide feedback within the agreed timelines to make necessary changes, corrections, if required. SI shall be required to resubmit the revised deliverables.
4. Feedback and revision of documents and deliverables will be an iterative process.
5. Deliverables, Payment terms, Timelines and Activities are to be seen in totality.

### 2.3.16.2 Documentation Requirements

#### a) End-User Documents

Documentation will be supplied and maintained by SI during the project. Physical and virtual ownership of all documents, supplied by SI, will rest with NEA. The electronic copies shall be submitted along with all the paper documents and manuals, required for operating and configuring the system. The documents provided must include at least:

- i. User Manual (both online and paper copies) providing detailed instructions on how to use the IFMIS. In addition, it describes how to access, submit inputs to, and interpret outputs from the application
- ii. System installation guide including the configuration of the supplied infrastructure.
- iii. Module wise - Application Training Manuals

#### b) Technical Documents

SI shall supply operation and maintenance manuals for all deliverables. These shall be in such details as to enable NEA to operate, maintain, adjust, and fix the system etc.

SI shall ensure that the IFMIS components being developed are thoroughly documented with comprehensive manuals and adhere to standard methodologies in software development as per ISO and/ or CMMI models. The documents including but not limited to are:

- i. Product installation and configuration steps;
- ii. Application access procedures;
- iii. User screen layout and content;
- iv. Transaction entry procedures;
- v. Batch job setup, API setup, processing, and recovery/restart procedures;
- vi. Error codes with full descriptions and recovery steps;
- vii. Standard report layout and content;
- viii. Internal processing controls;
- ix. Application security;
- x. Operating specifications and system flowcharts;
- xi. Database entity relationships, table formats, and data element descriptions; and Program module descriptions
- xii. Quality assurance plan documenting the planned and systematic pattern of all actions necessary to assure confidence that the software developed will conform to the NEA functional and technical requirements.



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- xiii. Interface Control Document - Documenting the interface characteristics of one or more IT systems and document the Integration & interface agreements between interface owners. It contains information on both physical and data element requirements that are necessary to make the transfer of information between systems feasible.
- xiv. Test Plan Containing information on the software test environment to be used for independent testing, the test cases to be performed, and the overall testing schedule. This includes methodology, schedule, resources, tools, procedures, environment definition, test cases, and software test results.
- xv. Systems Manual Detailing the data structure, table, forms and report structures;
- xvi. Installation and maintenance manual for the servers and other hardware;
- xvii. Operations Manual providing instructions for installing the application, troubleshooting, interpreting message logs, and FAQs;
- xviii. Troubleshooting Guide/ Handbook for Helpdesk which describes the various troubleshooting methods

### 2.3.17 Minimum Resource Requirements

SI shall ensure deployment of enough specialized and experienced manpower throughout the project to complete the implementation & stabilization of the IFMIS successfully. At no stage, manpower (with requisite qualification and experience) shall be less than that committed in the bid. Such manpower shall be maintained from start of the project up to complete Go-Live stage and continuing during Facility Management Support phase. SI must propose a team consisting of experienced and skilled professionals with relevant experience in the proposed areas:

#### 2.3.17.1 Team Composition and Desired Qualification

The minimum desired qualification for the key personnel has been indicated below:

Sl. NO	Position	Desired Qualification
1.	Team Leader/ Project Management expert	The Project Manager shall possess Bachelors in - Electrical/ Electronics/ IT/ Computers and Master's in Business Administration with at least 15 years of experience and minimum 7 years as Project Manager in implementation of at least 3 ERP projects.
2.	Assistant project Manager	The Asst. Project Manager shall possess Bachelors in - Electrical/ Electronics/ IT/ Computers and Master's in Business Administration with at least 10 years of experience in implementation of at least 2 ERP projects.
3.	Change Management Expert	The Change Management Expert should be Bachelor's degree in Electrical/ Electronics/ IT/ Computers with Master's in Business Administration or higher qualification or higher qualification with minimum 7 years of experience conducting change management workshops, developing change



Sl. NO	Position	Desired Qualification
		management strategy for Implementation of IT Solutions/ ERP System.
4.	Infrastructure Expert	The ICT Infrastructure Expert shall possess Bachelors in - IT/ Computers or higher qualification with at least 7 years of experience in working across IT areas including Enterprise Architecture, IT Infrastructure, Software Architecture Design, Business Analysis.
5.	Database/System Administrator	The Database/ System Administrator shall possess Bachelors in - Electrical/ Electronics/ IT/ Computers or higher qualification with at least 7 years of work experience as System/ Database administrator for proposed OEM Product/ Solution for IT Solution Systems.
6.	Functional Lead for each of the ERP module	The Functional Lead shall possess Bachelors in - Electrical/ Electronics/ IT/ Computers or higher qualification with at least 7 years of experience in functional support for implementing and supporting ERP implementation projects.
7.	Handholding Expert	The Handholding Expert shall have preferably Bachelor's degree in Electrical/ Electronics/ IT/ Computers with Master's in Business Administration and at least 7 years of proven experience in similar nature of work
8.	Helpdesk Co-ordinator	The Helpdesk Co-ordinator shall have preferably Bachelor's degree in Electrical/ Electronics/ IT/ Computers with master's in business administration and at least 7 years of proven experience in IFMIS in area of Material, Inventory and Procurement in similar nature of work
9.	Helpdesk Staff	The Helpdesk Staff shall have preferably Bachelor's degree at least 3 years of proven experience in similar nature of work

### 2.3.17.2 Team Responsibilities

- **Project Manager:**

The Project Manager will serve as Single Point of Contact (SPOC) and will be responsible for the overall coordination to ensure the satisfactory fulfilment of the requirements. The major responsibilities but not limited to:



- a) Scope of work including supply, implementation, roll out, acceptance, change management
  - b) Overall project planning and discussions with senior management of client
  - c) Overall review of the tasks and progress of the project
  - d) Planning, resourcing, and supervision of all project activities
- **Assistant Project Manager:**

The Assistant Project Manager will serve as secondary point of contact and will be responsible for the overall coordination to ensure the satisfactory fulfilment of the requirements. The major responsibilities but not limited to:

    - e) Scope of work including supply, implementation, roll out, acceptance, change management
    - f) Overall project planning and discussions with senior management of client
    - g) Overall review of the tasks and progress of the project
    - h) Planning, resourcing, and supervision of all project activities
  - **Finance & Accounts Expert (Functional Expert):**

The major responsibilities but not limited to:

    - a) Study the existing business process
    - b) Understanding / Identification of NEA Business Requirements
    - c) Mapping of Existing Business Process, Alignment of Software Solution with NEA Business
    - d) Designing the business process in accordance with the prevalent rules and laws.
    - e) Designing the Finance and Accounts module as per the functional requirement specification
    - f) Helping NEA officials to accustom with finance and accounts modules
    - g) Integration of Finance and accounts modules
  - **Human Resource and Administration Expert (Functional Expert):**

The major responsibilities but not limited to:

    - a) Study the existing business process
    - b) Understanding / Identification of NEA Business Requirements
    - c) Mapping of Existing Business Process, Alignment of Software Solution with NEA Business
    - d) Designing the business process in accordance to HR policies of NEA
    - e) Designing the HR module and administration as per the functional requirement specification (FRS).
    - f) Helping NEA officials to accustom with HR and administration modules
    - g) Integration of HR and administration modules
  - **Maintenance Management Expert (Functional Expert):**

The major responsibilities but not limited to:



- a) Study the existing business process
  - b) Understanding / Identification of NEA Business Requirements
  - c) Mapping of Existing Business Process, Alignment of Software Solution with NEA Business
  - d) Helping NEA officials to accustom with the module
- **Material Management Expert (Functional Expert):**  
The major responsibilities but not limited to:
    - a) Study the existing business process
    - b) Understanding / Identification of NEA Business Requirements
    - c) Mapping of Existing Business Process, Alignment of Software Solution with NEA Business
    - d) Helping NEA officials to accustom with the module
- **Project Management Expert (Functional Expert):**  
The major responsibilities but not limited to:
    - a) Study the existing business process
    - b) Understanding / Identification of NEA Business Requirements
    - c) Mapping of Existing Business Process, Alignment of Software Solution with NEA Business
    - d) Helping NEA officials to accustom with the module
- **Change Management Expert**  
The major responsibilities but not limited to:
    - a) Shall assist NEA official in understanding the feature of each module
    - b) Shall conduct workshops and training at various offices of NEA
    - c) Shall perform live demo of various modules
- **ICT Infrastructure Expert:**  
The major responsibilities but not limited to:
    - a) Study the existing business process
    - b) Understanding / Identification of NEA Business Requirements
    - c) Analyze the Enterprise specific requirements, formulate solution framework, technology selection, Overall IT solution development, solution prototype etc.
    - d) Responsible for planning and implementation of IT equipment at identified locations, installation and maintenance of hardware, software & network, evaluation of system performance and tracking of project deliverables & progress etc. with overall process.
- **Database expert/System Administrator:**  
The major responsibilities but not limited to:



- a) Study the existing business process
  - b) Understanding / Identification of NEA Business Requirements
  - c) Monitoring and maintenance of databases, installation of database software patches/upgrades, monitoring of database backups, database replication techniques, standardization, and implementation of databases to improve the management of production and test environments
  - d) Support users by resolving problems with applications' databases
  - e) Monitor and allocate volumes, analysis of utilization and resources, performance tuning, monitor DB replication, coordination of system upgrades or fixes
- **Handholding Expert**  
The major responsibilities but not limited to:
    - a) Shall assist NEA official in understanding the feature of each module
    - b) Shall conduct workshops and training at various offices of NEA
    - c) Shall perform live demo of various modules
  - **Helpdesk Coordinator**  
The major responsibilities but not limited to:
    - a) Shall lead helpdesk team
    - b) Shall SPOC for the helpdesk
    - c) Shall Submit the monthly report of ticketing and resolution along with resolution time
  - **Helpdesk Staff**  
The major responsibilities but not limited to:
    - a) IT Support Staff shall be responsible for facilities management support for software, network and other infrastructure provided to NEA

### 2.3.17.3 Before Go – Live

The minimum resource requirement before Go-Live is mentioned in table below.

Sl. NO	Position	No. of resources
1.	Team Leader/ Project Management expert	1
2.	Change Management Expert	1
3.	ICT Expert	1
4.	Database/System Administrator	2
5.	Functional Lead for each of the ERP module	5

**Note:** SI shall provide the necessary resources to meet the project timelines to make IFMIS Go-live. SI shall ensure appropriate support from IT/ Subject matter experts through deployment/ deputation at sites to help the end users of individual sites before and during the time of Roll Outs and Go-Live declaration.



#### 2.3.17.4 Post Go-Live

The minimum resource requirement post Go-Live is mentioned in the table below.

SI. No.	Resource	Min No. of Staff Required at NEA(After Go- Live)
1.	Project Manager	1
2.	Handholding Support staff (for a period of 12 months from date of Operational Acceptance)	5
3.	Helpdesk Co-Ordinator	1
4.	Helpdesk Staff during FMS period	10

Note: The helpdesk staff shall work in two shifts

#### 2.3.17.5 Initial Composition, Full Time Obligation; Continuity of Personnel

SI shall ensure that each member of the Key Personnel devotes substantial working time to perform the services to which that person has been assigned as per the proposal.

SI shall not make any changes to the composition of the Key Personnel and not require or request any member of the Key Personnel to cease or reduce his or her involvement in the provision of the Services during the Term (or agree to any request other than from NEA that would have the same effect):

- a. unless that person resigns, is terminated for cause, dies, is long-term disabled, is on permitted mandatory leave under Applicable Law or retires; and
- b. Without NEA's prior written consent. The clauses of non-disclosure agreement shall always operate in any such case.

#### i. Replacement

1. In case the resource has resigned, then the SI must inform NEA within one week of such resignation.
2. SI shall promptly initiate a search for a replacement and use commercially reasonable efforts (including the expenditure of reasonable sums, such as to engage the services of a recruiting firm) to ensure that the role of any member of the Key Personnel is not vacant for any longer than 30 days, subject to reasonable extensions requested by SI of NEA.
3. Before assigning any replacement member of the Key Personnel to the provision of the Services, SI shall provide NEA with:
  - A resume, curriculum vitae and any other information about the candidate that is reasonably requested by NEA; and



- An opportunity to interview the candidate.
4. The SI must provide a replacement resource, who scores at least the same marks as the resource proposed originally on the same evaluation parameters defined in this Bid Document. Once this confirmation is received, NEA may request for an interview of the candidate and notify SI within mutually agreed timelines. If NEA does not request an interview within mutually agreed timelines, then it would be deemed as accepted.
  5. If NEA does object to the appointment, SI shall not assign the individual to that position and shall seek an alternative candidate in accordance with this Section.
  6. The SI must ensure at least 4 weeks of overlap period in such replacements.

## ii. High Attrition

If in the first 6-month period from the Contract Effective Date or in any rolling 12 months period during the Term, 15 percent or more of the members of the Key Personnel cease or reduce their involvement in the Services for any reason other than with NEA's prior written consent, SI shall:

1. provide NEA with a reasonably detailed explanation as to the reasons for such change, including, where applicable and permitted, notes from any exit interviews conducted by SI with any departing member of the Key Personnel; and
2. if such change to Key Personnel has or is likely to have any material adverse impact on the provision of the Services or any substantial part thereof, undertake, at its own costs, such remediation acts as are reasonably necessary in order to improve the retention of the Key Personnel including making reasonable changes to the human resources policies and procedures applicable to the Key Personnel (including those related to compensation, benefits and other conditions so that they are competitive with the market) as may be necessary to ensure that such policies and procedures comply with Best Industry Practice.

SI must provide the minimum number of resources at the specified locations of NEA. However, the numbers and locations provided below are only indicative, the SI shall carry out an assessment and propose actual numbers required to meet all Service Level requirements with appropriate approval from NEA.

### 2.3.18 Facility Management Services (FMS) including Handholding Support

The SI shall be required to provide the services to manage the entire IFMIS installed & commissioned for NEA in order that the IFMIS have maximum availability to enable NEA to realize their desired business objectives.

- a) System Management Services shall be provided by SI in order that maximum uptime and performance levels of installed IFMIS System is ensured. As such, SI is expected to provide services as per ITIL (IT Infrastructure Library) standards with performance levels meeting or exceeding those mentioned in Service Level Agreement (SLA) agreed between NEA and the SI.



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- b) SI shall develop IFMIS specific automated helpdesk with necessary ticketing tools to be able to log and resolve tickets pertaining to the IFMIS. To achieve the desired Service Levels, the SI may need to interact, coordinate, and collaborate with the other vendors of NEA. SI will act as the Single Point of contact for all issues relating to the Service Levels.
- c) SI will be primarily responsible for providing desired services during the project implementation period. The duration of Facility Management Services (FMS) shall be for 5 years which shall start immediately from the date of Enterprise wide Go-Live of IFMIS System Enterprise-wide rollout at NEA.
- d) Handholding Support: SI will also provide exclusive handholding support for a period of 12 months from the date of Go Live declaration. It is expected that the SI deploys at least 5 resources with knowledge on technical and functional aspects of IFMIS to ensure effective adoption of the IFMIS through handholding support and smooth running of the system & day-to-day functioning. It is of paramount importance that adequate transfer of knowledge to the core team members of NEA takes place. Towards this, the SI should mentor NEA core team members who will be responsible for doing any configuration change independently. SI needs to take the responsibility of creating support strategy. The objective of this exercise is to ensure that NEA builds in-house competencies to maintain the IFMIS in the long term without dependency on external consultants.
- e) The Facility Management Services (FMS) would include following major areas of services.
  - i) Ticket logging through Help Desk Services
  - ii) Technical Support Services
  - iii) SLA monitoring etc.
- f) The SI shall provide adequate resources for supporting the above said services at the user locations. The Help Desk agents shall coordinate the assigning of user calls to FMS resources. An indicative number of resources required for this is mentioned in the minimum resource requirement section of this Bid Document.
- g) SI shall provide the Facility Management Services for agreed duration for each day coinciding with the business hours of that specific location and SI shall also make arrangements for handling of emergency calls. The NEA runs 24\*7\*365 days, but the business hours of the utility may be considered as 08:00 AM to 6:00 PM.
- h) The SI shall submit a comprehensive Facility Management Services process, plan, and deliverables for the entire IFMIS including the field activities along with the proposal for approval of NEA.
- i) SI shall perform periodic health check-ups and troubleshooting of all the ERP and implement proactive rectification measures as required.
- j) FMS Team: SI shall appoint an FMS Helpdesk Coordinator of project in the Facility Management Services phase. FMS Helpdesk Coordinator will be single-point-of-contact for responding to all the queries or accepting its problem management requests from NEA. The FMS Helpdesk Coordinator would be stationed at corporate offices/ Head Quarters of NEA. The helpdesk team shall be stationed at NEA HQ or location specified by NEA in Kathmandu valley. The space for setting up the helpdesk would be provided



by NEA. All requisite infrastructure and resources required for smooth functioning of the FMS help desk would be provided by the SI at no extra cost to NEA.

- k) The SI shall deploy enough and qualified, skilled manpower to carry out the FMS services. It is imperative for FMS staff to know the tender including scope of work, solution etc. and be able to deal with all the queries related to the IFMIS. The SI shall ensure replacement in not more than 7 days of the FMS staff whose performance is not found satisfactory by the NEA.

### 2.3.18.1 Functional Support

The Functional Support Services for application contemplated herein shall be provided for IFMIS implemented by SI. The SI shall render both on-site maintenance and support services to NEA.

The scope of the services is as below: -

#### 1. Enhancements and defect fixes

- a) SI shall incorporate technological changes and provide enhancements as per the requests made by NEA. SI shall perform minor changes, bug fixes, error resolutions and minor enhancements that are incidental to proper and complete working of the application.

#### 2. Routine functional changes

- a) The SI shall be responsible for user and access management, creating new report formats, and configuration of reports. SI shall provide user support in case of technical difficulties in use of the software, answering procedural questions, providing recovery and backup information, and any other requirement that may be incidental / ancillary to the complete usage of the application. The SI shall perform user ID and group management services. The SI shall maintain access controls to protect and limit access to the authorized End Users of NEA.

The services shall include administrative support for user registration, creating and maintaining user profiles, granting user access and authorization, and providing ongoing user password support.

#### 3. Tuning of the ERP solution

- a) The SI shall also undertake tuning of IFMIS, databases, any third-party software and any other components provided as part of the solution to optimize the performance.
- b) Deployment/ Re-Deployment of IFMIS solution: The SI shall be responsible for deployment of the IFMIS solution and re-deployment in case of any upgrades to the underlying hardware or operating system and carry out any necessary testing.
- c) The key service level requirements need to be ensured by the SI during the operations and maintenance period. These requirements shall be strictly imposed and either NEA or a third-party audit/ certification agency shall be deployed for certifying the performance of the SI against the target performance metrics as outlined in the SLA's



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defined in the Bid Document.

### 2.3.18.2 Operations and Maintenance support for IFMIS

SI shall provide IFMIS application development and maintenance/support services on an ongoing basis, especially in response to support required for integration, data exchange along with requests for changes in the applications through an ATS. Support in software development and maintenance shall include:

- a) Maintaining usage of deployed IFMIS applications to ensure its effective day to day operational usage. The job includes support maintenance of all the application modules along with system software.
- b) SI shall debug and fix the operational problems, perform error handling while running the application during the project period.
- c) SI shall generate the additional system report, modify existing reports and queries, as per user's requirement.
- d) SI shall provide hands-on assistance to the users to resolve any operational doubts as and when needed while the application is in operations.
- e) SI shall be responsible for Integration of deployed IFMIS applications with other applications/systems during the project period.
- f) SI shall document all the changes incorporated in the application software and improve the documentation of existing user/system reference manuals of different modules wherever it is necessary and required.

### 2.3.18.3 User Management Services

The user management services shall include Directory Services for NEA which comprises of the following services:

- Domain management
- Group management
- User management
- Implementation of domain policies and standards etc.

The above-mentioned directory services shall be implemented and used within the enterprise environment of NEA including DC and DR.

### 2.3.18.4 DC Operations and Maintenance Services

SI shall carry out the below mentioned activities:

#### 1. Resource Management

SI shall be responsible for adequate sizing, provision and maintenance of the necessary compute, memory, and storage required, building the redundancy into the architecture (including storage) and load balancing to meet the service levels.



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While the initial sizing and provisioning of the underlying infrastructure may be carried out based on the information provided. It is expected that the SI, based on the growth in the user load (peak and non-peak periods; year-on-year increase), will scale up or scale down the compute, memory, and storage as per the performance requirements of the solution and meet the SLAs.

- a) In addition to scaling, for any major expected increase in the workloads, carry out the capacity planning in advance to identify and provision, wherever necessary, the additional capacity to meet the user growth and/or the peak load requirements to support the scalability and performance requirements of the solution.
- b) The scaling up/ scaling down (beyond the auto-scaling limits or whenever the auto-scaling limits needs to be changed) has to be carried out with prior approval by NEA. SI shall provide the necessary details including the sizing calculations, assumptions, current workloads, and utilizations, expected growth/ demand and any other details justifying the request to scale up or scale down.

## **2. Patch and Configuration Management**

SI shall manage the instances of storage, compute instances, and network environments. This includes agency-owned and installed operating systems and other system software. SI is also responsible for managing specific controls relating to shared touch points within the security authorization boundary, such as establishing customized security control solution examples include, but are not limited to, configuration and patch management, vulnerability scanning, and protecting data in transit and at rest, host firewall management, managing credentials, identity & access management, and managing network configurations.

## **3. Security Administration**

- a) Appropriately configure the security groups in accordance with the Security policies.
- b) Regularly review the security group configuration and instance assignment to maintain a secure baseline.
- c) Secure and appropriately segregate/isolate data traffic/application by functionality using DMZs, subnets etc.
- d) Conducting regular vulnerability scanning and penetration testing of the systems, as mandated by policy of Government Agency's / NEA.
- e) Review the audit logs to identify any unauthorized access to the government agency's systems.

## **4. Monitoring Performance and Service Levels**

SI shall provide and implement solutions and processes for monitoring the availability of assigned applications, responding to system outages with troubleshooting activities designed to identify and mitigate operational issues.

- a) Reviewing the service level reports, monitoring the service levels and identifying any deviations from the agreed service levels.
- b) Monitoring of service levels, including availability, uptime, performance, application specific parameters, example, for triggering elasticity, request rates, number of users connected to a service.



- c) Detecting and reporting service level agreement infringements.
- d) Monitoring of performance, resource utilization and other events such as failure of service, degraded service, availability of the network, storage, database systems, operating systems, applications, including API access.

## 5. Backup

- a) Configure, schedule, monitor and manage backups of all the data including but not limited to files, images, and databases as per the policy finalized by NEA.
- b) Restore from the backup wherever required.

## 6. Support for Third Party Audits

- a) Enable the logs and monitoring as required to support for third party audits

### 2.3.18.5 Data Centre and Data Recovery Centre Operations

SI's responsibilities shall include, but not limited to, the following;

- a) Monitor, log & report of entire IT Infrastructure Solution including servers, storage, supporting system, software, equipment & module operation etc. on 24x7x365 basis.
- b) Perform periodic health check-up & troubleshooting of all systems & modules installed & implemented in adherence to the proactive rectification measures.

### 2.3.18.6 Server Administration/ Management

SI's responsibilities shall include, but not limited to, the following;

- a) Provide the server administration and monitoring service to keep servers stable, operating efficiently and reliably.
- b) Provide administrative support for user registration, creating and maintaining user profiles, granting user access and authorization, providing ongoing user password support, and providing administrative support for print, file, and directory services.
- c) Setting up and configuring servers.
- d) Installation of the server operating system and operating system utilities.
- e) Re-installation in the event of system crash/ failures.
- f) Administration of Operating System for IT system.
- g) Manage Operating system, file system and configuration.
- h) Ensure proper configuration of server parameters, operating system administration and tuning.
- i) Regularly monitor and maintain a log of the performance monitoring of servers including but not limited to monitoring of CPU, disk space, memory utilization, I/O utilization, etc.
- j) Regular analysis of events and logs.
- k) Apply OS Patches and updates.
- l) Monitor & verify logs files and periodically clean up log files.
- m) Ensure proper running of all critical services on the servers. Schedule and optimize these services.
- n) Maintain lists of all system files, root directories and volumes.
- o) Resolving all server related problems.



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- p) Escalating unresolved problems to ensure resolution as per the agreed SLAs.
- q) Responsible for periodic health check of the systems, troubleshooting problems, analyzing and implementing rectification measures.
- r) Logical access control of users and groups on the system.
- s) Responsible for managing uptime of servers as per SLAs.

### 2.3.18.7 Database Administration Services

SI's responsibilities shall include the following, but not limited to;

- a) Undertake end-to-end management of the database on an ongoing basis to ensure smooth functioning of the same.
- b) Undertake tasks including managing changes to database schemes, disk space, storage, and user roles.
- c) Setting and tuning system parameters.
- d) Building appropriate indexes, specifying large enough buffers and caches, aligning the database implementation with IT infrastructure, monitoring databases and applications, re-organizing databases etc.
- e) Manage database upgrade or patch upgrade as and when required with minimal downtime.

### 2.3.18.8 Backup/restore Management

SI shall perform backup and restore management in accordance with mutually agreed to backup and restore policies and procedures, including performance of daily, weekly, monthly quarterly and annual backup functions (full volume and incremental) for data and software maintained on Servers and storage systems including interfacing with NEA's specified backup media storage facilities. SI shall be responsible for ensuring the design, implementation, and operationalization of a Local Backup as well as Lean Backup environment at the Remote Location site, as provisioned by the Client. Network connectivity between DC and remote location site will be provided by client.

SI's responsibilities shall ensure the below but are not limited to;

- a) 24x7 support for file & volume restoration requests.
- b) Maintenance and Upgrade of infrastructure and/or software as and when needed.
- c) Performance analysis of infrastructure and rework of backup schedule for optimum utilization.
- d) Generation and publishing of backup reports periodically.
- e) Forecasting storage requirements for backup.
- f) Ensuring failed backups are restarted and completed successfully within the backup cycle.
- g) Monitor and enhance the performance of scheduled backups.
- h) Real-time monitoring, log maintenance and reporting of backup status on a regular basis.
- i) Management of storage environment to maintain performance at optimum levels.



- j) Design, configure, and deploy the lean backup solution in accordance with the Client's Remote Location Backup strategy, ensuring compatibility with existing applications and infrastructure.
- k) Integrate the lean backup setup with the Client's environment and conduct testing to validate compliance as per client requirement.  
Periodic Restoration Testing of the Backup.
- l) Periodic Browsing of the Backup Media.
- m) Backup and restore of data in accordance with defined process/procedure.
- n) Management of the storage solution including, but not limited to, management of space, volume, RAID configuration, configuration and management of disk array, SAN fabric/switches, etc.
- o) Coordinate with the Client's designated IT team to perform periodic verification and validation of backup integrity and restoration capabilities.
- p) Interacting with Process Owners in developing/maintaining Backup & Restoration Policies/Procedures.
- q) Provide complete documentation covering solution architecture, system configuration, operational procedures, and maintenance guidelines.

### 2.3.18.9 Service Delivery Management

SI shall provide detailed description for service delivery management for the complete project plan and deliverables and project management methodology.

#### a) Project Management

- i. SI will assign Project Managers (for NEA) who will provide the management interface facility and has the responsibility for managing the complete service delivery during the contractual arrangement between NEA and the SI.
- ii. Project Manager will be responsible for preparation and delivery of all monthly/ weekly reports as well as all invoicing relating to the service being delivered.
- iii. Project Manager's responsibilities shall essentially cover the following:
  - Overall responsibility for delivery of the Statement of Works (SOW) and Service Level Agreement (SLA)
  - Act as a primary interface to NEA for all matters that can affect the baseline, schedule, and cost of the services project
  - Maintain project communications through NEA's Project Leader
  - Provide strategic and tactical recommendations in relation to technology related issues
  - Provide escalation to SI's /NEA's senior management, if required
  - Resolve deviations from the phased project plan
  - Conduct regularly scheduled project status meetings
  - Review and administer the Project Change Management with NEA Project Leaders
  - Identify and resolve problems and issues together with NEA's Project Leaders



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- Responsible for preparation and delivery of all weekly/ quarterly/ monthly reports as well as all invoicing relating to the services being delivered

#### 2.3.18.10 Vendor Management Services

As part of this activity the SI's team will:

- a) Manage the vendors for escalations on support
- b) Logging calls and coordination with vendors
- c) Vendor SLA tracking
- d) Maintain a database of the various vendors with details like contact person, Telephone Nos., response time and resolution time commitments. Log calls with vendors Coordinate and follow up with the vendors and get the necessary updates/supports/spares exchanged
- e) Analyze the performance of the vendors periodically. (Quarterly basis)
- f) Provide MIS to NEA regarding tenure of completion of ATS with outside vendors for the ERP in order that NEA may take necessary action for renewal of ATS. SI shall also provide MIS regarding performance of said vendors during existing ATS
- g) SI shall provide SI with contact details of individual vendors

#### 2.3.18.11 Anti-Virus Management

This service includes virus detection and eradication, logon administration and synchronization across servers, and support for required security classifications.

##### 1. Security Management

The protection from unauthorized usage, detection of intrusions, reporting as required and proactive prevention actions are to be provided by the SI.

##### 2. Resources for Project and Service Management

As mentioned in the Minimum resource requirement section in the Tender.

##### 3. Preventative Maintenance Activity

The preventive maintenance activities shall be performed by the SI to keep the system running at optimum level by diagnosis and rectification of all IFMIS failures and would broadly include:

- a) Configuration routine checking as part of a preventive maintenance which would include checking of functionality IFMIS software,
- b) Monitoring of the performance of the system and doing necessary tuning for optimum performance to accommodate any changes such as addition of new components.
- c) Providing all necessary assistance to NEA for addition and modification of database and user interface & consumer portal displays and Database sizing activities.
- d) Take Backup of the system at regular interval



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- e) Restoration of the systems upon its failure and to restore the functioning of the various systems.

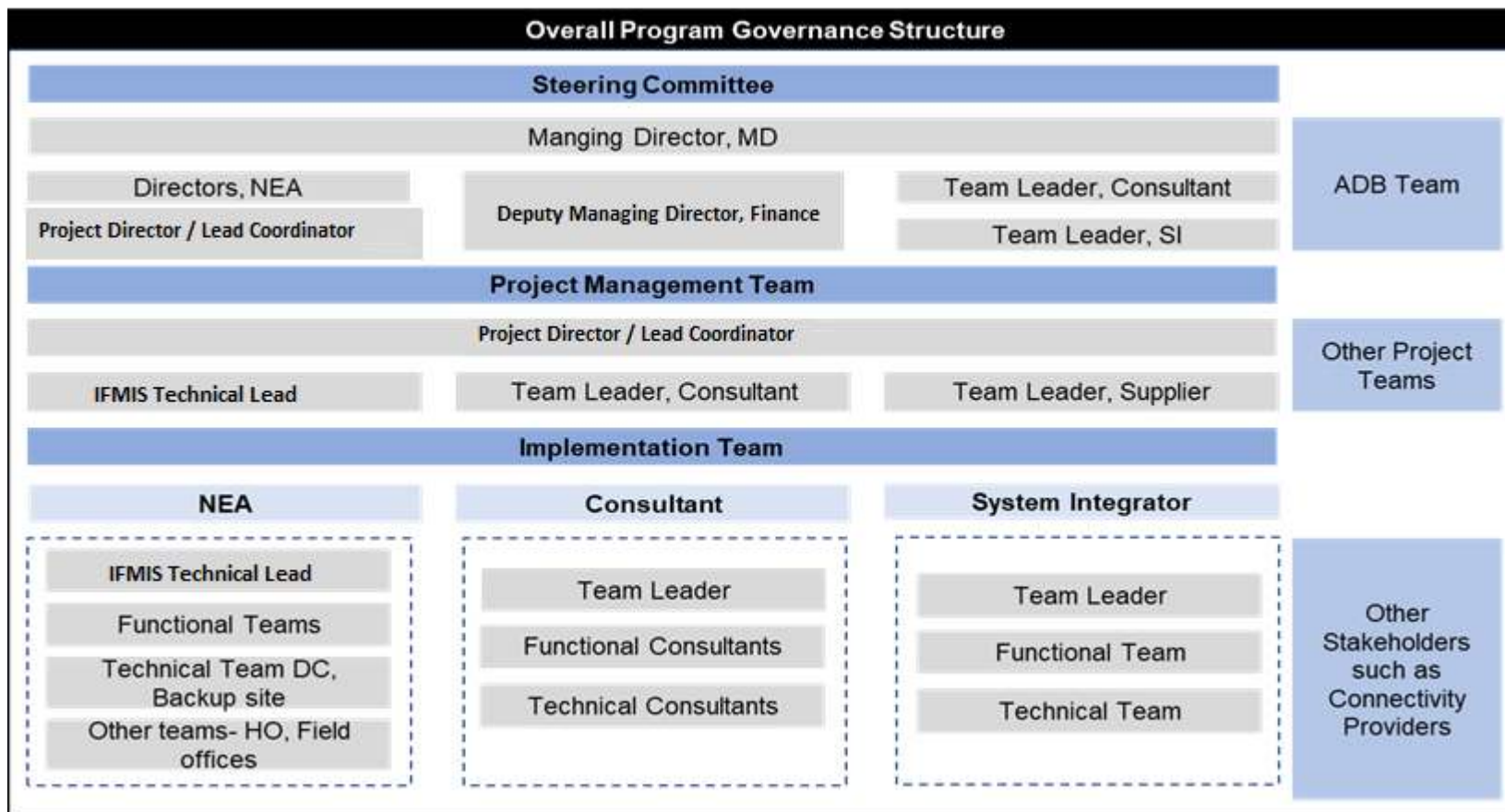
#### 2.3.18.12 Annual Technical Support (ATS)

- a) All software should be supplied with applicable OEM warranties and support for the entire duration of the project. The OEM must provide necessary updates and patches during the support period. The System Integrator must ensure the required updates and patches.
- b) Annual Technical Support (ATS) should be provided for the entire duration of the project. ATS should cover 24x7 support from OEM for software products to be provided through Phone, Email or Onsite visit depending on the criticality and nature of the problem. The required support must be ensured by SI.
- c) SI shall provide and apply regular patches to the licensed software including software, operating system, databases, and other applications.
- d) SI shall provide for software license management and control. SI shall maintain data regarding entitlement for software enhancements, refreshes and maintenance.
- e) SI to ensure audits are done to measure license compliance against the number of valid end-user software licenses consistent with the terms and conditions of site license agreements, volume purchase agreements and other mutually agreed upon licensed software terms and conditions and report to NEA on any exceptions to SI's terms and conditions, to the extent such exceptions are discovered.
- f) SI shall manage complete OEM technical support for all the licensed software problems and/ or questions, technical guidance, defect, and non-defect related issues. The SI shall provide a single-point-of-contact for software support and provide licensed software support including but not limited to problem tracking, problem source identification, problem impact (severity) determination, bypass and recovery support, problem resolution and management reporting etc.
- g) SI shall be responsible for procuring and annual reconciliation of the License.
- h) SI shall undertake regular preventive maintenance of the licensed software. If the Operating System or additional copies of Operating System are required to be installed/ reinstalled/ de-installed, the same shall be performed by the System Integrator.



### 2.3.19 Project Governance Structure and Institutional Framework

For the success of the project, it is imperative to put an appropriate Governance Structure in place. The roles and responsibilities of governance & implementation are identified to ensure clarity of strategic control through the project implementation and beyond. The below 3-tier project governance structure has been envisaged to monitor and control the project implementation.



### 2.3.19.1 Steering Committee

The Steering Committee would guide and oversee the assignment. The responsibility of the Steering Committee would include reviewing the reports submitted by the consultants/ supplier and making recommendations and suggestions. This Committee should include, inter alia, representatives from;

- Managing Director as Chairman
- Directors of NEA
- Project Managers of IFMIS
- PMU (Program Leader from Consulting and Implementation Team)
- Representatives of other Stakeholders (as applicable)

The key objectives of Committee are:

- To provide regular and consistent oversight of the program/project at the executive level
- To recommend policy level decision
- To help track, monitor and mitigate risk
- To remove project obstacles such as personnel, budget and facility issues
- To ensure decisions are “value-managed” – aligned with the approved business case

Steering committee meeting should happen at least every month.

### 2.3.19.2 Project Management Team

To ensure the success of the project, a Project Management Team should be formed. This team shall be responsible for end-to-end management of the project. The Board will have senior members from NEA, supervisory team members including full time Program Leaders from Consulting and Implementation teams, and senior members from other stakeholders.

The key objectives of the team are:

- To oversee the progress of the project and timely provide suggestions to the implementation team on resolving the issues/challenges.
- To identify policy level interventions
- To take process level decision
- To track, monitor and mitigate risks

The indicative members and their responsibilities include follows:

#### Project Manager - NEA

- Overall supervision of the entire project
- Conducting monthly review meetings
- Keep the key stakeholders of the Project, fully informed of key project issues on a fortnightly basis.
- Assist in resolving critical issues.
- Organize Steering Committee meetings as per the agreed frequency.
- Attend all Steering Committee meetings and present an executive summary on the Project
- Resource Planning
- Risk Management pertaining to risk affecting the project progress
- Policy level inputs
- NEA Counterpart Team Management

**Project Management Consultant**

- Key interface between NEA and SI
- Initiate engagement between NEA and SI
- Conduct meetings with NEA team members and SI to discuss the project progress, issues to be addressed, way forward, review the project milestones, etc.
- Assist NEA in conducting meetings, preparing progress reports, review of the deliverables submitted by SI, monitor project progress, quality monitoring, etc.
- Assist in work plan management
- Assist in scope management
- Assist in project governance and issue management
- Assist in addressing the issues affecting the project progress

**Project Manager/Team Leader – Supplier / System Integrator**

- Resource mobilization, planning and deployment
- Participation in the regular meetings including steering committee meetings, meetings with the project management team, etc.
- Keep the project on track
- Ensuring timely and quality deliverables
- Making client presentations on these deliverables
- Co-ordinate with NEA for delivery, testing and acceptance schedules for solution
- Planning and responding to contingencies
- Monitoring/ review project progress and its team member's work
- Managing the entire project end to end.

The Project Management team should meet on a weekly basis to oversee the project.

**2.3.19.3 Implementation Team**

The project would be implemented by the implementation team that shall comprise of resources from NEA, PMU, and other stakeholders, as applicable.

We propose that NEA will identify a nodal office for the project who will be a single point of contact from NEA supported by the core team of NEA. Core team should be deployed on the project dedicatedly and have adequate knowledge of business functions of NEA. Core team can be assisted by the support team of NEA. This support team will assist the core team on various aspects such as coordination with other stakeholders. In addition, each location should constitute a nodal person from NEA who would report to the core team at Head office. Nodal officers from location will monitor the project activities carried out at respective locations as applicable.

The key activities to be performed include the following;

- Analyze the technical and functional requirements
- Design & customize the solution in line with requirements
- Prepare/ develop the project deliverables
- Impart training and conduct change management workshop
- Implement the project
- Provide operation & maintenance support
- Escalate to the project steering committee, if any issue, in project execution & delivery.

### 2.3.20 Training and Capacity Building

The main objective of capacity building and change management is to build the capacity of NEA personnel to make them capable of using the IFMIS in their day-to-day activities and smooth and effective implementation of IFMIS. The System Integrator shall prepare a capacity building plan, which includes the methodologies adopted by System Integrator to build the capacity of NEA for successful implementation of IFMIS, training schedule (including duration, batches, number of participants, type of training, brief training content, etc.). The System Integrator must submit this capacity building plan to NEA. The System Integrator must execute capacity building exercises based on a signed-off capacity building plan.

The minimum training to be provided by System Integrator for IFMIS Modules are given below:

Training Type	Participants	Minimum no. of Participants
Sensitization Training	Senior Officials	15
On-the-Job training for IFMIS	Users	1300
Application administration training	IT Team	50
Functional and Configuration training to Power Users including visit abroad	Power User	60
Note: Batch size for all types of training should not exceed 30 people per batch.		

SI shall develop a change management strategy to manage changes keeping in mind the changes and implications likely to occur at NEA after the implementation of the IFMIS.

Followings are the minimum training to be provided by System Integrator:

- Management Training
- Application User Training
- Technical User Training

**Management Training:** SI shall conduct Management Training for senior officials of NEA as nominated by departments. These sessions will be primarily focused on monitoring and reporting features provided by the System.

**Application User Training:** SI shall provide training to users, as nominated by the departments of NEA, for operation of various services and software applications incorporated in the system.

It may be brought to the attention of the System Integrator that the serving manpower at NEA is moderately IT literate with fair knowledge of common office software (like MS office, Adobe, etc.) and common Internet services etc. Hence, the System Integrator may not require planning for any basic level of training for the users. It may be recommended to conduct these trainings in batches classifying them into different groups. The training would be designed and developed by the System Integrator to help end users understand how effectively usage of IT will facilitate delivery of their work in the shortest time possible. The training should propose to bring in detailed understanding of revised processes and procedures for the various business functionalities, as covered under the project. The process training should detail out the steps of the process along with the roles and responsibilities to the concerned end users and acquaint them with the revised processes. The training should be proposed to acquaint and train the users with IFMIS thus giving the end users the skill to conduct their work through the new applications. Contents of the training must be prepared by System Integrator in consultation with NEA.

- a) **Technical and Administration Training:** SI shall conduct separate technical training courses to train the technical/administration staff of NEA. The System Integrator shall provide training about operation & maintenance of IFMIS. System Integrator shall provide IFMIS application administration training about user management, role definition, access management, etc.

### Change Management

SI shall be required to prepare change management strategy and conduct change management workshops as detailed in subsequent paragraphs.

### Change Management Strategy

SI shall develop a change management strategy to manage changes keeping in mind the changes and implications likely to occur at NEA after the implementation of the IFMIS. NEA will take all necessary steps to facilitate the organization wide role out of the strategy, once approved. It is expected that the Change Management Plan proposed by the System Integrator clearly defines the following:

- Communication plan that will help in managing perceptions of all the stakeholders and creating awareness about the dimensions of change
- Operational plan that will help in developing change management team and implementing the overall change management strategy in a phased approach
- Risk mitigation plan that will help in identifying and developing risk contingency plans

### Change Management Workshop

The objective of the Change Management Workshop would be to generate awareness about the project and acquaint the staff at NEA with the new changes that would take place as a part of IFMIS Implementation. Its aim would be to address the attendees with a formal introduction to the project and address their fears, if any, that they might have of the new system. The emphasis of the orientation-cum-workshop would lie on getting the user acceptance for the project from the end users of the system and making them comfortable with the change with the implementation of IFMIS. SI shall be required to conduct minimum 10 such Workshops (Within the Country) during the performance of the Contract.

### Training feedback:

- a. Training without completion of feedback procedure shall not be considered as valid.
- b. SI needs to obtain at least an average of 3 rating on a scale of 5 rating (5 being the highest) to be **termed as successful training**. SI should obtain the feedback immediately after the end of each training session and submit it to NEA's training coordinator, for online training sessions SI needs to develop an online form to get the feedback.  
(for example: if 100 attends the training at least 70% of trainee should give at least 3 or more rating)
- c. SI needs to obtain approval from NEA of Feedback form before commencement of Training schedule.
- d. For any **unsuccessful training**, SI needs to conduct the training again without any additional cost.

### 2.3.21 Service Level Agreements

Service Level Agreement (SLA) is the agreement between NEA and SI submitting bid for the project. NEA would monitor SI's compliance of the SLA. SLA defines the responsibility of the SI in ensuring the performance of the IFMIS Project based on the agreed performance Indicators as detailed in the Agreement. This section defines Service Level Agreement for IFMIS Project.

The purpose of this SLA is to clearly define the levels of service to be provided by SI to NEA for the duration of the contract.

1. **Definitions:** Below is explained the definition of critical terms used in service level requirements.
  - a. “Scheduled Maintenance Time” shall mean the time that the System is not in service due to a scheduled activity as defined in this SLA. The scheduled maintenance time would not be during 12X6 timeframe. Further, scheduled maintenance time is planned downtime with the prior permission of Purchaser.
  - b. “Scheduled Operation Time” means the scheduled operating hours of the System for the month. All scheduled maintenance time on the system would be deducted from the total operation time for the month to give the scheduled operation time. The total operation time for the systems and applications will be 24X7X365.
  - c. “System or Application downtime” means accumulated time during which the System is totally inoperable within the Scheduled Operation Time but outside the scheduled maintenance time and measured from the time the NEA and/or its employees log a call with the Helpdesk team of the failure or the failure is known to the Supplier from the availability measurement tools to the time when the System is returned to proper operation.
  - d. “Availability” means the time for which the services and facilities are available for conducting operations on the System including application and associated infrastructure. Availability is defined as:  

$$\{(Scheduled\ Operation\ Time - System\ Downtime) / (Scheduled\ Operation\ Time)\} * 100\%$$
  - e. “Helpdesk Support” shall mean the support center, which shall handle fault reporting, trouble shooting, ticketing, related enquiries and other tasks.
  - f. “Incident” refers to any event / abnormalities in the functioning of the System/Services that may lead to disruption in normal operations of the System including Application and other services as per scope of System Integrator (SI).
  
2. **Interpretations:** Interpretation of some important functionalities, activities and terms are explained below.
  - a. The working/Business hours are 9:00AM to 6:00PM on all working days (Sunday to Friday) excluding public holidays or any other holidays observed by NEA or concerned Office. However, NEA recognizes the fact that it may require to work beyond the working hours on need basis or on Saturday/Sunday.
  - b. "Non-Working/Non-Business Hours" shall mean hours excluding “Working/Business Hours”.
  - c. 12x6 shall mean hours between 08:00 AM -8.00 PM on six days of week (Saturday excluded).
  - d. If the operations at DC are not restored from backup site within the stipulated timeframe (Recovery Time Objective), it will be added to the system downtime.
  - e. The SLA parameters shall be monitored on a monthly basis as per the individual SLA parameter requirements. However, if the performance of the system/services is degraded significantly at any given point in time during the contract and if the immediate measures are not implemented and issues are not rectified to the complete satisfaction of NEA or an agency designated by them, then the NEA will have the right to take appropriate disciplinary actions including termination of the contract.
  - f. A Service Level violation will occur if the SI fails to meet Minimum Service Levels, as measured on a quarterly basis, for a particular Service Level. Overall Availability and Performance Measurements will be on a monthly basis for the purpose of Service Level reporting. An “Availability and Performance Report” will be provided by the SI on monthly basis in the NEA’s suggested format and a review shall be conducted based on this report. A monthly Availability and Performance Report shall be provided to NEA at the end of every month containing the summary of all incidents reported and associated SI’s performance measurement for that period.
  - g. Where required, some of the Service Levels will be assessed through audits or reports e.g. utilization reports, measurements reports, etc., as appropriate to be provided by the SI on a monthly basis, in the formats as required by the NEA. The tools to perform the audit will need to be provided by the SI. Audits will normally be done on regular basis or as required by the NEA and will be performed by the NEA or the any third party agencies appointed/designated by NEA.
  - h. A period of 3 months from date of operational acceptance of IFMIS is proposed as



stabilization period. During this period SLAs, which are not affecting availability & operation of solution, will not be considered for any deduction in payment pertaining to stabilization period.

- i. The SI is expected to provide the following service levels. In case these service levels cannot be achieved at service levels defined in the tables below, it shall result in a breach of contract and invoke the penalty clause. Payments to the SI are linked to the compliance with the SLA metrics laid down in the tables below. The penalties will be computed and calculated as per the computation explained. During the contract period, it is envisaged that there could be changes to the SLA, in terms of addition, alteration or deletion of certain parameters, based on mutual consent of both the parties i.e. the NEA and the SI.

### 3. Duration of the Service Level Agreement (SLA)

The service levels described in this section shall remain valid for the entire tenure of the contract or until such time the SLA have been reviewed and revised by NEA.

### 4. SLA Monitoring

The SLA parameters shall be measured on a daily/monthly basis through appropriate SLA Measurement tools to be designed by the SI. For monthly SLA, monitoring average of the day wise availability shall be taken for arriving at the monthly score for the concerned parameter. However, if there is a breach of two days in a month, then the entire parameter for that month would be taken as breached.

SI shall ensure that all relevant events are logged, and such logs are made accessible to the NEA for review/ report through SLA monitoring tool in a readable format.

If the performance of the system/services is degraded significantly at any given point in time during the contract and if the immediate measures are not implemented and issues are not rectified to the complete satisfaction of NEA, then NEA shall have the right to take appropriate corrective actions including termination of the contract.

The SLAs defined, shall be reviewed periodically at the option of NEA after taking the advice of the Supplier. The revised SLAs shall not have any financial implications on the NEA or financial advantage to the supplier.

Following tables outlines the key service level requirements for the system, which needs be ensured by the Supplier:

#### 2.3.21.1 Service Level Agreements Monitoring

#### Service Levels Requirements during Implementation and Operation & Maintenance Period

##### 1. Resource Availability

This service level shall be based on the availability of the resources to be deployed on-site for the project as per agreed & finalized project plan.

S. No.	Leaves / Absence per month per resource	Deductions per resource
1.	1 day	Nil (One Leave allowed per month)
2.	From 2 to 5 days	USD 60 per day
3.	More than 5 days	USD 120 per day (effecting from 2 <sup>nd</sup> day of absence considering entitlement of one leave per month)

- The above penalties would be deducted from the amount payable to the SI for the concerned month. For instance, one of the deployed resources is absent for a period of 7 working days in a month of January, a sum of USD 120 will be deducted from invoice for month of January.
- The penalties shall not include Saturdays except for the ones specifically instructed by NEA in writing or through email.
- The penalties shall not be applicable if a temporary replacement is deployed for the days the resource is not present. However, penalties as given above shall be applicable if the temporary replacement is provided for more than 5 days in a month. In cases, wherever absence/ temporary replacement exceeds 5 days in a month, prior written approval of NEA will be required. In case of any other emergency prior approval of NEA needs to be taken for the waiver of deduction under this penalty if the replacement needs to be provided more than 5 days. In such cases NEA may ask for necessary documentary proof (if required).

**2. Submission of Documents**

Service Level Description	Measurement
Submission of Documents	As per timeline approved in project plan
	Severity of Violation: Medium
	This service level will be monitored and measured every month based on agreed and finalized Project plan
	Each week of delay in submission of document will be treated as one (1) violation.
	The total number of violations will be the cumulative number of violations in the payment period.

**3. Capacity Building**

Service Level Description	Measurement
Capacity Building	At least 80% of the trainees within the training program should give a top 3 rating on a scale of 5 level rating
	Severity of Violation: High
	This service level will be monitored and measured through feedback survey to be provided to each attendee within the program.
	If the training quality in the program falls below the minimum service level, it will be treated as one (1) violation.
	The total number of violations for the payment period will be the cumulative number of violations across all the programs in the payment period.

**Violations and Associated Penalties (From S. No. 2 and 3)**

(a) The primary intent of Penalties is to ensure that the system performs in accordance with the



defined service levels. Penalties are not meant to be punitive or, conversely, a vehicle for additional fees.

- (b) **Penalty Calculations:** The framework for Penalties, as a result of not meeting the Service Level Targets are as follows:
  - (i) The performance will be measured for each of the defined service level metric against the minimum / target service level requirements and the violations will be calculated accordingly.
  - (ii) The number of violations in the reporting period for each level of severity will be totaled and used for the calculation of Penalties.
  - (iii) Penalties applicable for each of the high severity violations is 0.1% of total contract price excluding AMC, ATS and FMS cost.
  - (iv) Penalties applicable for each of the medium severity violations is 0.05% of total contract price excluding AMC, ATS and FMS cost.

**Service Level Requirements during Operation and Maintenance Period**

The Supplier Vendor shall adhere to all the project timelines for the implementation phase as defined above in this bidding document. Failure to complete any project activity as per the agreed upon timelines may result in Liquidated Damages as defined in this bidding document.

**1. System Infrastructure and Application Availability and Performance:**

- (a) **System Infrastructure-** This includes but not limited to:-
  - (i) Hardware/ virtual machines, software, networking & security components supplied by SI at Data Centre
  - (ii) Helpdesk infrastructure & applications
- (b) **Application-** This includes but not limited to:-
  - (i) Application covering all modules
  - (ii) Interfaces and integration
  - (iii) Mobile Application
- (c) These service levels will be monitored on a monthly basis.
- (d) The below tables give details on the Service Levels the SI should maintain.

Service Level Description	Measurement	
System Infrastructure Availability  (This availability is applicable on all ICT components of Data Centre)	Availability of System Infrastructure shall be at least 99.5%	
	Severity of Violation: High	
	Availability over the quarterly period	Violations for calculation of
	< 99.5% & >= 99%	1
< 99% & >= 98%	2	
< 98%	3	
Application Availability	Availability of Application shall be at least 99.9% Severity of Violation: High	



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Service Level Description	Measurement									
	<p>This service level will be monitored on a monthly basis.</p> <table border="1"> <thead> <tr> <th>Availability over the quarterly Period</th> <th>Violations for calculation of penalty</th> </tr> </thead> <tbody> <tr> <td>&lt; 99.9% &amp;gt;= 99.5%</td> <td>1</td> </tr> <tr> <td>&lt; 99.5% &amp;gt;= 99%</td> <td>2</td> </tr> <tr> <td>&lt; 99%</td> <td>3</td> </tr> </tbody> </table>		Availability over the quarterly Period	Violations for calculation of penalty	< 99.9% &gt;= 99.5%	1	< 99.5% &gt;= 99%	2	< 99%	3
Availability over the quarterly Period	Violations for calculation of penalty									
< 99.9% &gt;= 99.5%	1									
< 99.5% &gt;= 99%	2									
< 99%	3									
<p>Application Performance</p>	<p>Average application response time (excluding uploading/downloading of file) during peak usage hours as measured from a user terminal at DC premises (tested on a speed of 2Mbps) shall not exceed 4 seconds.</p> <p>Severity of Violation: High</p> <p>The list of critical business functions and peak usage hours will be identified by the Purchaser during the design/implementation Phase.</p> <p>This service level will be monitored on a monthly basis.</p> <table border="1"> <thead> <tr> <th>Average application response time over the quarterly period</th> <th>Violations for calculation of penalty</th> </tr> </thead> <tbody> <tr> <td>&gt; 4 sec &amp;lt;= 5 sec</td> <td>1</td> </tr> <tr> <td>&gt; 5 sec &amp;lt;= 6 sec</td> <td>2</td> </tr> <tr> <td>&gt; 6 sec</td> <td>3</td> </tr> </tbody> </table>		Average application response time over the quarterly period	Violations for calculation of penalty	> 4 sec &lt;= 5 sec	1	> 5 sec &lt;= 6 sec	2	> 6 sec	3
Average application response time over the quarterly period	Violations for calculation of penalty									
> 4 sec &lt;= 5 sec	1									
> 5 sec &lt;= 6 sec	2									
> 6 sec	3									
<p>Application Performance</p>	<p>Average application response time for report generation/document upload (5MB size)/ document download (5MB size) during peak usage hours as measured from a user terminal at Data Centre premises (with dedicated bandwidth of 2Mbps) shall not exceed 10 seconds.</p> <p>Severity of Violation: High</p> <p>The list of critical business functions and peak usage hours will be identified by the Purchaser during the design/implementation Phase.</p> <p>This service level will be monitored on a monthly basis.</p> <table border="1"> <thead> <tr> <th>Average application response time over the quarterly period</th> <th>Violations for calculation of penalty</th> </tr> </thead> <tbody> <tr> <td>&gt; 10 sec &amp;lt;= 15 sec</td> <td>1</td> </tr> <tr> <td>&gt; 15 sec &amp;lt;= 20 sec</td> <td>2</td> </tr> <tr> <td>&gt; 20 sec</td> <td>3</td> </tr> </tbody> </table>		Average application response time over the quarterly period	Violations for calculation of penalty	> 10 sec &lt;= 15 sec	1	> 15 sec &lt;= 20 sec	2	> 20 sec	3
Average application response time over the quarterly period	Violations for calculation of penalty									
> 10 sec &lt;= 15 sec	1									
> 15 sec &lt;= 20 sec	2									
> 20 sec	3									
<p>CPU Utilisation for each server/virtual machine</p>	<p>CPU utilization of any server/virtual machine during peak usage hours shall not exceed 70%.</p> <p>Severity of Violation: High</p> <p>This service level will be monitored on a monthly basis for each server/virtual machine individually.</p> <table border="1"> <thead> <tr> <th>CPU utilization</th> <th>Violations for calculation of penalty</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table>		CPU utilization	Violations for calculation of penalty						
CPU utilization	Violations for calculation of penalty									



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Service Level Description	Measurement	
	> 70% <= 80%	1
	> 80% <= 90%	2
	> 90%	3

**2. Handholding Support: Helpdesk**

- (e) **Level 1 Calls.** The failure to fix has an immediate impact on the NEA’s ability to provide services, inability to perform critical service delivery and/or back-office functions or a direct impact on the organization.
- (f) **Level 2 Calls.** The failure to fix has an impact on the NEA’s ability to service public, can cause service to degrade if not resolved within reasonable time frames.
- (g) **Level 3 Calls.** The failure to fix has no direct impact on the NEA’s ability to serve its offices, or perform critical back-office functions.
- (h) This service level will be monitored on a monthly basis.
- (i) The below tables gives details on the Service Levels the SI should maintain.

Service Level Description	Measurement									
Helpdesk Performance	95% of the calls shall be answered within 45 seconds. Severity of Violation: High This service level will be monitored on a monthly basis. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Performance over the quarterly Period</th> <th>Violations for calculation of penalty</th> </tr> </thead> <tbody> <tr> <td>&lt; 95% &amp; &gt;= 90%</td> <td>1</td> </tr> <tr> <td>&lt; 90% &amp; &gt;= 80%</td> <td>2</td> </tr> <tr> <td>&lt; 80%</td> <td>3</td> </tr> </tbody> </table>		Performance over the quarterly Period	Violations for calculation of penalty	< 95% & >= 90%	1	< 90% & >= 80%	2	< 80%	3
Performance over the quarterly Period	Violations for calculation of penalty									
< 95% & >= 90%	1									
< 90% & >= 80%	2									
< 80%	3									
Helpdesk Performance	95% of the non-SI supported incidents shall be routed to the appropriate service provider within 30 minutes. Severity of Violation: Medium This service level will be monitored on a monthly basis.									



Service Level Description	Measurement									
	Performance over the quarterly Period < 95% &gt;= 90% < 90% &gt;= 80% < 80%	Violations for calculation of penalty 1 2 3								
Helpdesk Performance	90% of the Level 1 calls shall be resolved within 4 working hours from call received / logged whichever is earlier. However, the maximum resolution time for any incident of this nature shall not exceed 12 hours. Severity of Violation: High This service level will be monitored on a monthly basis. <table border="1"> <thead> <tr> <th>Performance over the quarterly Period</th> <th>Violations for calculation of penalty</th> </tr> </thead> <tbody> <tr> <td>&lt; 90% &amp;gt;= 80%</td> <td>1</td> </tr> <tr> <td>&lt; 80% &amp;gt;= 70%</td> <td>2</td> </tr> <tr> <td>&lt; 70%</td> <td>3</td> </tr> </tbody> </table>		Performance over the quarterly Period	Violations for calculation of penalty	< 90% &gt;= 80%	1	< 80% &gt;= 70%	2	< 70%	3
Performance over the quarterly Period	Violations for calculation of penalty									
< 90% &gt;= 80%	1									
< 80% &gt;= 70%	2									
< 70%	3									
Helpdesk Performance	90% of the Level 2 calls shall be resolved within 8 working hours from call received / logged whichever is earlier. However, the maximum resolution time for any incident of this nature shall not exceed 48 hours. Severity of Violation: Medium This service level will be monitored on a monthly basis. <table border="1"> <thead> <tr> <th>Performance over the quarterly Period</th> <th>Violations for calculation of penalty</th> </tr> </thead> <tbody> <tr> <td>&lt; 90% &amp;gt;= 80%</td> <td>1</td> </tr> <tr> <td>&lt; 80% &amp;gt;= 70%</td> <td>2</td> </tr> <tr> <td>&lt; 70%</td> <td>3</td> </tr> </tbody> </table>		Performance over the quarterly Period	Violations for calculation of penalty	< 90% &gt;= 80%	1	< 80% &gt;= 70%	2	< 70%	3
Performance over the quarterly Period	Violations for calculation of penalty									
< 90% &gt;= 80%	1									
< 80% &gt;= 70%	2									
< 70%	3									
Helpdesk Performance	90% of the Level 3 calls shall be resolved within 16 working hours from call received / logged whichever is earlier. However, the maximum resolution time for any incident of this nature shall not exceed 72 hours. Severity of Violation: Low This service level will be monitored on a monthly basis. <table border="1"> <thead> <tr> <th>Performance over the quarterly Period</th> <th>Violations for calculation of penalty</th> </tr> </thead> <tbody> <tr> <td>&lt; 90% &amp;gt;= 80%</td> <td>1</td> </tr> <tr> <td>&lt; 80% &amp;gt;= 70%</td> <td>2</td> </tr> <tr> <td>&lt; 70%</td> <td>3</td> </tr> </tbody> </table>		Performance over the quarterly Period	Violations for calculation of penalty	< 90% &gt;= 80%	1	< 80% &gt;= 70%	2	< 70%	3
Performance over the quarterly Period	Violations for calculation of penalty									
< 90% &gt;= 80%	1									
< 80% &gt;= 70%	2									
< 70%	3									



### **Violations and Associated Penalties (For S. No. 1&2)**

- (a) The primary intent of Penalties is to ensure that the system performs in accordance with the defined service levels. Penalties are not meant to be punitive or, conversely, a vehicle for additional fees.
- (b) A quarterly performance evaluation will be conducted using the quarterly reporting periods of that period.
- (c) **Penalty Calculations:** The framework for Penalties, as a result of not meeting the Service Level Targets are as follows:
  - (i) The performance will be measured for each of the defined service level metric against the minimum / target service level requirements and the violations will be calculated accordingly.
  - (ii) Penalties applicable for each of the high severity violations are two (2) % of respective quarterly FMS payment to the Supplier.
  - (iii) Penalties applicable for each of the medium severity violations are one (1%) of respective quarterly FMS payment to the Supplier.
  - (iv) Penalties applicable for each of the low severity violations is half percentage (0.5%) of respective quarterly FMS payment to the System Integrator.
  - (v) Penalties applicable for not meeting **a high (H) critical** performance target in two consecutive quarters on same criteria shall result in additional deduction of 5% of the respective quarterly FMS payment to the System Integrator. Penalty shall be applicable separately for each such high critical activity.
  - (vi) Penalties applicable for not meeting **a medium (M) critical** performance target in two consecutive quarterly periods on same criteria shall result in additional deduction of 3% of the respective quarterly FMS payment to the System Integrator. Penalty shall be applicable separately for each such medium critical activity.

In case total of all penalties for not meeting any performance target exceeds more than 20% of respective quarterly FMS payment in two consecutive quarters then NEA may terminate the Contract.

#### **2.3.22 Service Delivery Management**

SI shall provide detailed description for service delivery management for the complete project plan and deliverables and project management methodology.

##### **2.3.22.1 Project Management**

- a. SI will assign a Project Manager who will provide the management interface facility and has the responsibility for managing the complete service delivery during the contractual arrangement between NEA and the SI
- b. Project Manager will be responsible for preparation and delivery of all monthly/weekly reports as well as all invoicing relating to the service being delivered.
- c. Project Manager's responsibilities should essentially cover the following:



- i. Overall responsibility for delivery of the Statement of Work/s (SOW) and Service Level Agreement (SLA)
- ii. Act as a primary interface to NEA for all matters that can affect the baseline, schedule and cost of the services project
- iii. Maintain project communications through NEA's Project Leader
- iv. Provide strategic and tactical recommendations in relation to technology related issues
- v. Provide escalation to SI's/NEA senior management if required
- vi. Resolve deviations from the phased project plan
- vii. Conduct regularly scheduled project status meetings
- viii. Review and administer the Project Change Management with the NEA Project Leader
- ix. Identify and resolve problems and issues together with the NEA Project Leader
- x. Responsible for preparation and delivery of all weekly/quarterly/ monthly reports as well as all invoicing relating to the services being delivered

### 2.3.22.2 Help Desk

Help Desk shall act as a single-point-of-contact for all service problems pertaining to hardware, software & communication infrastructure. The SI shall create and maintain a dedicated centralized online Help Desk specific to IFMIS operations with a telephone number, e-mail and call tracking mechanism that will resolve problems and answer questions that arise from the use of the offered solution as it is implemented at NEA.

Users can log the queries/ complaints, which should be resolved as per the Service Level requirements. The help desk queries/ complaints can be related to connectivity, messaging, security, meters, Software, configuration, and any other issues that arise in the IFMIS.

Help Desk software shall take care of classification, automatic escalation, management, and status tracking and reporting of incidents as expected by the service level requirements. Status tracking should be available to users through telephone numbers as well as online through software.

- a. The Help Desk will respond to and resolve the problems as per the SLA.
- b. Problems shall be classified into various levels of priority mentioned in the SLA. The assigned priority for each problem shall depend upon:
  - i. The extent of the problem's impact on the usability of the system
  - ii. The percentage of users affected by the problem
- c. The initial assignment of priorities is the responsibility of the Help Desk's Problem Manager on the basis of SLA. However, NEA can change the priority assigned to a problem and the procedures that exist for escalating a problem to progressively higher management levels, until agreement is secured.
- d. The precise definition of problem priorities should be documented in the successful SI's SLA.
- e. Helpdesk shall troubleshoot on systems, applications (software), network related issues, multimedia related issues, server administration, security policies, 3rd party coordination.



- f. After problem resolution, the logged problem in the help desk will be closed and notification will be sent to the user for confirmation and rate the customer service on a defined parameter in the helpdesk.
- g. Help Desk shall be responsible for change management like schedule up gradation of meters and software components etc. Help Desk will co-ordinate and take approval from NEA for the same and will inform all users for such an event in advance.
- h. Help Desk shall also be responsible for managing problems/incidents related to Communication Infrastructure and Network Link at each node. Help Desk shall ensure timely response and assign the problem/incident on priority basis.

Following are the SI's Responsibilities regarding Help Desk:

#### **A. Providing Help desk solutions application**

The Service desk / help desk module shall include the Solutions application. A solution record is a predefined response to a problem or commonly asked question. A solution record consists of a symptom, a cause, and a resolution. Solutions can be associated with incident and problem records. Solutions application is used to create, approve, and manage solution records. Search Solutions can be used to search for and view solution records. The Solutions application includes the following features:

- a. Ability to specify which solution records should be available to self-service users in the Search Solutions application
- b. Ability to specify a Classification for the solution
- c. Ability to indicate a Status for a solution. A solution record can have one of the following statuses: DRAFT, ACTIVE, or INACTIVE
- d. Ability to attach documents or Web sites to a solution record
- e. Ability to use the Solutions application to change the status of a solution record
- f. Ability to create, update and delete a solution in Solutions Application.

#### **B. IFMIS solution Services**

- a. Provide Level One Support for IFMIS solution, including incident logging, assigning incident numbers and dispatching the appropriate support personnel or AMC/ ATS vendor to remedy a problem
- b. Prioritize problem resolution in accordance with the severity codes and Service Levels specified
- c. Provide system status messages, as requested
- d. Maintain the defined help desk operational procedures
- e. Notify designated personnel of failure of any component of IFMIS solution, or of an emergency
- f. Initiate a problem management record ("PMR") to document a service outage to include (for example) date and time opened, description of symptoms, and problem assignment (Level Two/ Level Three), and track and report on problem status, as required
- g. Monitor problem status to facilitate problem closure within defined Service Level criteria or escalate, as appropriate
- h. Monitor PMR closure, including documented problem resolution



- i. Provide NEA with complete and timely problem status through the problem tracking system, as requested
- j. Maintain an updated help desk personnel contact listing

### **C. Management Services**

- a. Provide “ownership-to-resolution” of all help desk calls, monitor and report on the progress of problem resolution confirm resolution of the problem with the End User, and log the final resolution via the problem management system
- b. Analyze and report on calls received by the help desk, including
  - Call volumes and duration,
  - Incident & Problem trends,
  - Call resolution time.
- c. Assign priorities to problems, queries, and requests based on the guidelines/SLA provided by NEA
- d. Monitor and report to NEA on maintenance vendor performance
- e. Provide input to NEA on End User training requirements based on help desk call tracking and analysis
- f. Update contact list of users initially provided by NEA

### **D. Install/MAC Services (Install Move Add Change)**

- a. Act as the point-of-contact for install and MAC requests and status
- b. Act as the interface for coordinating and scheduling all installations and MACs

### **E. User oriented Services**

- a. Provide an interface for user requests, such as new user IDs, address changes, routing requests, and password changes
- b. Advise the end user to take reasonable steps to backup information, if possible, prior to attempting to affect a resolution either by phone or hands-on during Desk Side Support Service

### **F. NEA’s Responsibilities regarding Help Desk**

- a. Help SI define help desk call prioritization guidelines
- b. Provide updated contact listing (as a one-time activity) for use by help desk personnel in contacting appropriate personnel of NEA for assistance/ notification
- c. Help SI in the integration of Helpdesk with other NEA applications, if required
- d. Assist SI, as requested, in the resolution of problems outside the scope of SIs responsibilities or recurring problems, which are the result of end user error
- e. Provide an adequate level of system authority for IFMIS solution and resources for which SI has problem resolution responsibility and communications access
- f. Assist SI in the development of help desk operational procedures by providing input to, and review and approval of such procedures (this shall be a one-time activity)

### **G. Vendor Management Services**

As part of this activity the SI’s team will:



- a. Manage the vendors for escalations on support
- b. Logging calls and co-ordination with vendors
- c. Vendor SLA tracking
- d. AMC Tracking
- e. Management of assets sent for repair
- f. Maintain a database of the various vendors with details like contact person, Tel. Nos., response time and resolution time commitments. Log calls with vendors Coordinate and follow up with the vendors and get the necessary spares exchanged.
- g. Analyze the performance of the vendors periodically (Quarterly basis)
- h. Provide MIS to NEA regarding tenure of completion of AMC/ATS with outside vendors for the IFMIS in order that NEA may take necessary action for renewal of AMC/ATS. SI shall also provide MIS regarding performance of said vendors during existing AMC/ATS.
- i. NEA shall provide SI with contact details of individual vendors.

#### **H. Anti-Virus Management**

This Service includes virus detection and eradication, logon administration and synchronization across servers, and support for required security classifications.

#### **I. Messaging System management**

SI will provide management of messaging systems, including administration of messaging servers and monitoring performance.

#### **2.3.22.3 Incident Management**

The SI must have:

- a. Ability to create an incident record to document a deviation from an expected standard of operation
- b. Ability to create other ticket from the incident, if resolving the incident involves creating a service request, problem, or work order
- c. Incident could be created automatically from sources such as email, system-monitoring tools
- d. Ability to have ticket template containing data that agent can automatically insert in common, high-volume records. Instead of manually entering standard information each time, implementing partner can apply a template that contains information such as owner, service group, service, classification, internal priority, activities, labour requirements, and activity owners
- e. The template can add the following information, but can be modified to include - Priority, Owner or Owner Group, Service Group or Service, Classification; for Activities: Activity, Sequence, Job order, Site, Organization, Description, Owner or Owner Group, Priority, Vendor, and Classification
- f. Ability to assign ownership of an incident either to a person or a person group who is responsible for managing the work associated with that record
- g. Ability to assign ownership via workflow or an escalation process
- h. Ability to associate an asset for an Incident record, if the issue you are reporting or working on involves an asset
- i. Ability to view a list of related records and view the work and communication logs for all related records on one screen, on the global record



A handwritten signature in blue ink, appearing to be 'S.A.', is written over the bottom right portion of the NeGC logo.

- j. Ability to create a service request from an incident with a relationship between the two records
- k. Ability to create a Problem from Incident application to record an unknown, underlying cause of one or more issues.
- l. Ability to create a release in the Incident application when resolving the Incident involves releasing a set of bundled changes to users.
- m. Ability to relationships between Incidents
- n. Ability to identify a global incident, which is the root cause of many other issues or that is something affecting many users
- o. Ability to automatically assign one or more SLAs via Workflow or Escalation process based on SLA's criteria
- p. Ability to apply an incident template which contains activities that can be viewed and edited
- q. Ability to find and attach Solution record containing information on resolving to an Incident record
- r. Ability to record Solution containing information on the symptom, cause, and resolution
- s. Ability to create and submit a draft solution from the Incident application screen which an agent can approve the solution for general use later
- t. The communication log stores inbound and outbound messages and attachments sent between users and agents
- u. Ability to view communication entries associated with a record
- v. Ability to use as communication template to fill in default data

#### 2.3.22.4 Ticketing Management

- a. Ability to specify an Owner or Owner Group and Service Group or Service for the ticket.
- b. Ability to specify a Classification for the ticket.
- c. Ability to specify both a Reported Priority and an Internal Priority for the ticket.
- d. Ability to list related assets on a ticket.
- e. Ability to track time spent on a ticket
- f. Ability to apply one or more service level agreements (SLAs) to a ticket.
- g. Provide Self-Service Service Requests module to allow users to submit and view service requests.
- h. Ability to create another ticket from the service request, if resolving the service request involves creating an incident, problem, or work order.
- i. Ability to relate existing tickets to the service request.
- j. Service requests could be created automatically from sources such as email, system monitoring tools.
- k. Ability to add a classification to enable workflow processes, escalations, and service level agreements
- l. Ability to have a ticket template containing data that agents can automatically insert in common, high-volume records. Instead of manually entering standard information each time, agents can apply a template that contains information such as owner, service group and service, classification, and internal priority. The template can add the following information, but you can modify it; Priority, Owner or Owner Group, Service Group or Service, Classification, Vendor, and Organization.



- m. Ability to assign ownership via workflow or an escalation process
- n. Ability to select related asset by hierarchical view
- o. Ability to filter the related asset list by value list: All, Public, or User/Custodian. The default User/Custodian is the affected person specified on the record.
- p. Ability to show similar tickets to search for and relate other tickets to the current record. The purpose is for information only.
- q. Ability to automatically assign one or more SLAs via Workflow or Escalation process based on SLA's criteria

#### 2.3.22.5 Problem Management

SI must develop an effective problem management system to reduce the impact of problems that occur and minimize its reoccurrence. It should help in identifying the root cause of the problem and proper recording and tracking of the problem till its resolution. In order to systematically capture, record, track and resolve the calls, robust application tools with following functionalities / features should be provided. The tools shall have following features:

- a. Ability to apply a template to a Problem. The template contains common data such Priority, Owner or Owner Group, Service Group or Service, Classification, Vendor, and Organization
- b. The Problem template also can contain activities, labor requirements, and activity owners
- c. The Problem template also can contain Problem activity common data such as, Sequence number, Job Plan, Site, Organization, Description, Owner or Owner Group, Priority, Vendor, and Classification
- d. Ability to associate an asset for a Problem record, if the issue you are reporting or working on involves an asset
- e. Ability to select related asset by hierarchical view
- f. Ability to relate other tickets and work orders to a Problem
- g. Ability to show similar tickets to search for and relate other tickets to the current record
- h. Ability to show similar tickets, Problems to search for and relate other tickets, Problems to the current record
- i. The similar ticket search results only list service requests, incidents, and problems having the same Classification. Records are not included in the results if they either are global records or history records
- j. Ability to identify a Problem as a global record. A global record captures information about an issue affecting many people. The record might be a created for a shared asset i.e. the root cause of many other issues, such as a failed network server
- k. Ability to relate a Problem to a Global record
- l. Ability to create a service request from a problem, creating a relationship between the two records
- m. Ability to create a Release in the Problem application when resolving the Problem involves releasing a set of bundled changes to users. The created Release will be related to the originating Problem.
- n. Ability to identify a global Problem, which is the root cause of many other issues or that is something affecting many users. A global record might have many other records related to it
- o. Ability to automatically assign one or more SLAs via Workflow or Escalation process based on SLA's criteria



- p. When you apply an SLA that includes a response commitment to a Problem, value in the Target Start date field is set based on that SLA .and when an SLA that includes a resolution commitment to a Problem, value in the Target Finish date field is set based on that SLA
- q. Ability to relate existing service requests, incidents and problems to a global record and manage them via the global record
- r. Ability to manage the tickets via the global ticket, when linked with global relationships, so the statuses of related tickets can be changed by changing only the status of the global record
- s. Ability to change status of each activity individually
- t. Ability to apply a template, which contains activities that can be viewed and edited
- u. Ability to select labor for activities on a Problem
- v. Ability to report labor time either for a Problem as a whole, for activities on the Problem, or for both types of labor time
- w. Ability to enter start and stop times
- x. Ability to select an owner for each Activity individually
- y. Ability to find and attach Solution record containing information on resolving to a Problem record
- z. Ability to record Solution containing information on the symptom, cause, and resolution.
- aa. Ability to create and submit a draft solution from the Incident application screen which an agent can approve the solution for general use later
- bb. Ability to use the Work Log in the Problem application to document work that needs to be done or that was done to resolve the issue
- cc. Ability to modify or delete Work Log with authorization protected
- dd. Ability to create Communication action in Problem application to send communications about a record to a requestor or other user
- ee. Ability to use a communication template to fill in default data, such as the identifier, subject from the originating record when create a communication

#### 2.3.22.6 Change Management

The primary objective of change management is to:

- i. Manage each change request from initiation through to closure
- ii. Process change requests based upon direction from the appropriate authority
- iii. Determine the Roles and Responsibility of the accountable personnel
- iv. Communicate the impact of changes to appropriate personnel
- v. Allow small changes to be managed with a minimum of overhead

The change control and management process shall be followed by the stakeholders constituting the 'Change Advisory Committee (CAC)'. This committee shall comprise of the key stakeholders who shall be involved from the stage of identification of a Change Request to its closure. SI shall detail its change management methodology and activities for IFMIS implementation in its proposal. SI shall be evaluated based on its dedication to methodology and ability to stay focused on the business process change and expected outcomes / benefits.



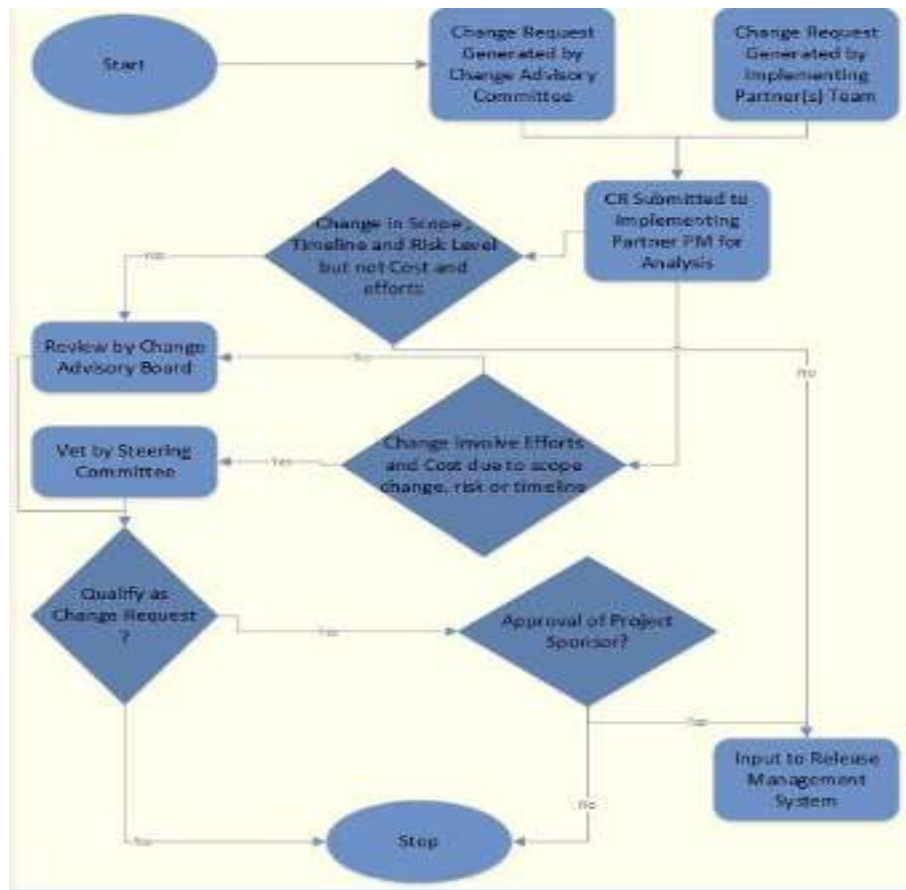
In case the NEA defines additional requirements or changes in a functionality, the SI and the NEA shall mutually decide the price to be paid to the SI for the services to be rendered. In addition, a maintenance window shall be provided to the SI for incorporating the additional requirement or changes in a functionality.

Change Order describes the labor, materials, tools, services, and tasks that the SI needs to complete a Change. The SI is expected to be able to carry out the below functionalities under change management;

- a. Ability to enter, modify the change order
- b. Ability to select a predefined change order (job order) and modify it as needed. The job order shall have all details of the change order copied to it
- c. Ability to create a ticket or work order from an existing ticket or work order (or change order)
- d. Ability to create follow-up work orders. A follow-up work order is for when you complete a job but notice that additional work is needed on the same asset or location.
- e. Ability to create a change from a change. It is needed when, for example, a technician completing a change discovers that additional work not specified on the change, such as a software upgrade, is required to solve a problem.
- f. Ability to create an Incident, problem, release & work order from a change.
- g. Once a change is approved, it cannot be deleted or modified.
- h. Ability to change the status of the Changes to complete which indicates all the physical work is finished.
- i. Ability to execute the move or modification of assets under change order.
- j. Ability to view information about previous status changes.
- k. Ability to change the status of the Change order's task.



Indicative change management process is depicted below:



### 2.3.22.7 Release Management

The primary objective of Release Management procedure is to deliver, distribute and track one or more changes for/during release into the live environment and;

- a. O1 – To plan and oversee successful rollout of software releases
- b. O2 – To communicate and manage expectations of the NEA during the planning and rollout of new releases
- c. O3 – To ensure that software being changed is traceable, secure and that only correct, authorized and tested versions are installed.
- d. The policy or procedural requirements arising out of the agreements signed or agreed between the System Integrator (SI) and NEA would supersede the procedural requirements stated in this document. The applicability of the current procedure is for personnel or process deploying releases of software and/or IFMIS components into the production or live environment. While the responsibility to provide staffing (roles used as per rate card, effort required by role, effort by months or weeks as applicable) and timeline for a change request rests solely with the SI.



This is a broad level of scope of work of SI with respect to the software applications.

- a. Release of new software, hardware, systems and services into live environment
- b. Release of changes to IFMIS solution and services in the live environment
- c. Quarterly release of functionalities
- d. Publishing calendar for release – to be published by SI in consultation with the NEA
- e. Decision on packaging and distribution of releases
- f. Implementation of changes to software, hardware, systems and services
- g. Building the change request.
- h. Provide staffing (roles used as per rate card, effort required by role, effort by months or weeks as applicable) and timeline for a change request.
- i. Any change which is not as per the specifications mentioned in the Bid Document or as per the agreed design of the IFMIS and not a bug fix in the system would result in commercial implication and the implementing partner would submit the commercial proposal for the same. Development of this change would be taken up only once revised DWA approving the change is issued to the SI.

#### 2.3.22.8 Software Change Control

During the contract duration, there will be instances where NEA will require the SI to implement functional requirements not envisaged in the Bid Document.

Instead of seeking an effort estimate for the envisaged change in software as it is normally NEA will pay the SI basis the agreed person month rates for the resources estimation on the change request. The SI will have to give a proposal to NEA regarding the utilization of the resources at the rate quoted as part of the Bid for a particular change request and NEA will evaluate the same.

NEA will accept a functional requirement as a change when there is no reference to the functional requirement in the Bid Document. Any changes in page layouts, minor modifications of reports included in scope and page navigational requirements will not be constituted as a change.

#### 2.3.22.9 Performance Management

The recording, monitoring, measuring, analyzing, reporting, and forecasting of current levels, potential bottlenecks, and enhancements of performance characteristics for the services, networks, applications, system software, and equipment within the scope shall be required. System tuning, and optimization is an inherent part of this contract. Where warranted, the SI will utilize capacity management data in combination with performance management data to identify ways to improve performance levels of the resources, extend their useful life, and request NEA to approve revisions/upgrades to the computing and communications hardware, software and other equipment such that higher levels of performance of the resources are obtained.

#### 2.3.22.10 Capacity Management

The continuous monitoring, periodic analysis, and forecasting of the changes necessary to quantify capacity and configuration of finite resources comprising the computing and hardware/software infrastructure supported under this initiative by the implementing partner. Categories of resources to be capacity managed include but are not limited to servers & system software.



**2.3.22.11 DC Operations**

SI shall:

- a. Monitor, log & report entire equipment & module operation on 24x 7 x 365 basis
- b. Perform periodic health checkup & troubleshooting of all systems & modules installed by consortium members & implement proactive rectification measures

**2.3.22.12 Server Administration/ Management**

SI shall;

- a. provide the server administration and monitoring service to keep servers stable, operating efficiently and reliably.
- b. provide administrative support for user registration, creating and maintaining user profiles, granting user access and authorization, providing ongoing user password support, and providing administrative support for print, file, and directory services.

SI's responsibilities shall include the below but are not limited to;

- a. Setting up and configuring servers
- b. Installation of the server operating system and operating system utilities
- c. reinstallation on event of system crash/failures
- d. OS Administration for IT system
- e. Manage Operating system, file system and configuration
- f. Ensure proper configuration of server parameters, operating systems administration and tuning
- g. Regularly monitor and maintain a log of the performance monitoring of servers including but not limited to monitoring CPU, disk space, memory utilization, I/O utilization, etc.
- h. Regular analysis of events and logs
- i. Apply OS Patches and updates
- j. Monitor & verify logs files and periodically clean up log files
- k. Ensure proper running of all critical services on the servers. Schedule and optimize these services
- l. Maintain lists of all system files, root directories and volumes
- m. Resolving all server related problems
- n. Escalating unresolved problems to ensure resolution as per the agreed SLAs
- o. Responsible for periodic health check of the systems, troubleshooting problems, analyzing and implementing rectification measures
- p. Logical access control of user and groups on system
- q. Responsible for managing uptime of servers as per SLAs



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**2.3.22.13 Database Administration Services**

SI shall:

- a. Undertake end-to-end management of the database on an ongoing basis to ensure smooth functioning of the same.
- b. Undertake tasks including managing changes to database schemes, disk space, storage, and user roles.
- c. Setting and tuning system parameters
- d. Building appropriate indexes, specifying large enough buffers and caches, aligning the database implementation with IT infrastructure, monitoring databases and applications, reorganizing databases, etc.
- e. Manage database upgrade or patch upgrade as and when required with minimal Downtime

**2.3.22.14 Backup/ Restore Management**

SI shall perform backup and restore management in accordance with mutually agreed to backup and restore policies and procedures, including performance of daily, weekly, monthly quarterly and annual backup functions (full volume and incremental) for data and software maintained on Servers and storage systems including interfacing with NEA's specified backup media storage facilities; SI shall ensure:

- a. Backup and restore of data in accordance to defined process/ procedure
- b. 24 x 7 support for file & volume restoration requests
- c. Maintenance and Upgrade of infrastructure and/or software as and when needed
- d. Performance analysis of infrastructure and rework of backup schedule for optimum utilization
- e. Generation and publishing of backup reports periodically
- f. Forecasting storage requirements for backup
- g. Ensuring failed backups are restarted and completed successfully within the backup cycle
- h. Monitor and enhance the performance of scheduled backups
- i. Real-time monitoring, log maintenance and reporting of backup status on a regular basis
- j. Management of storage environment to maintain performance at optimum levels
- k. Periodic Restoration Testing of the Backup
- l. Periodic Browsing of the Backup Storage
- m. Management of the storage solution including, but not limited to, management of space, volume, RAID configuration, configuration and management of disk array, SAN fabric / switches, etc.
- n. Interacting with Process Owners in developing/ maintaining Backup & Restoration Policies/ Procedures
- o. To provide MIS reports as per agreement



### 2.3.23 Exit Management and Knowledge Transfer

At the end of Contract period, the SI will be required to provide the necessary handholding and transition support including all information as may be necessary and reasonable to effect as a seamless handover as practicable in the circumstances to NEA or designated staff or any other agency that is selected for maintenance of IFMIS post completion of Contract with the SI.

The SI will provide all information, hand holding and support for all the activities and information in its possession or control at any time during the exit management period. Anything in the possession or in the control of SI, associated entity, or sub-OEM is deemed to be in the possession or control of the SI. The transition and handholding process will include but not be limited to, conducting a detailed walkthrough and demonstrations of the IFMIS, handing over all relevant documentation, addressing the queries/clarifications with respect to the working/performance levels of the DC/DR, Software Licenses, handover of customized source codes, policies and procedure document, conducting training sessions etc.

The Knowledge transfer activity is an integral part of the scope of work assigned to SI. This knowledge transfer activity will have to be carried out effectively, even in the case of end of Contract with the SI or is terminated before the planned timelines.

Please note that this is an indicative list, any other activity, over and above these, as may be deemed necessary by the NEA or designated staff or any other agency that is selected for maintenance of IFMIS to meet the service levels and requirements specified in the contract are also required to be performed by the SI at no additional cost.

In the case of closure or termination of the project, the Parties shall agree at that time whether, and if so during what period, the provisions of this schedule shall be applied. The Parties shall ensure that their respective associated entities will carry out their respective obligations set out in this Exit Management Schedule.

#### 2.3.23.1 Transfer of IFMIS

- a. NEA shall be entitled to serve notice in writing on the SI at any time during the Exit Management period requiring the SI and/or its sub-contractors to provide the NEA with a complete and up to date list of the assets and System configurations, License details, Customized Code within 30 days of such notice.
- b. NEA shall also be entitled to serve notice in writing on the SI at any time prior to the end of Exit Management period requiring the SI to transfer the overall control to NEA or its nominated agencies.
- c. In case of a contract being terminated prematurely by NEA, the NEA reserves the right to ask SI to continue running the project operations for a period of 3 months after termination orders are issued. In case of a contract being terminated by SI, NEA reserves the right to ask selected SI to continue running the project operations for a period of 6 months after termination notice is served by SI.
- d. Upon service of a notice under this Article, the following provisions shall apply:



- i. All title to the assets shall be transferred to NEA, on or before the last day of the exit management period.
- ii. Payment to the outgoing SI shall be made to the tune of the last set of completed services/deliverables, subjected to the approval and compliance on contractual and SLA terms & conditions.

### 2.3.23.2 Transfer of Agreements

On the request of NEA or its nominated agency the SI shall effect such assignments, transfers, licenses and sub-licenses as NEA may require in favor of the NEA or its replacement implementation agency in relation to any equipment or service, maintenance or service provision agreement between selected SI and third party lessors, service providers, and which are related to the services and reasonably necessary for the carrying out of replacement services by the NEA or its nominated agency or its replacement SI .

### 2.3.23.3 Exit Management Plan

The SI shall prepare an Exit Management Plan for transfer of operations to the NEA or its nominated agency or its replacement SI. In the event of termination or expiry of contract with NEA, without affecting services to stakeholders adversely. The SI shall get this process approved by NEA. The Exit Management Plan shall include, but not be limited to, the following:

- a) A detailed program of the transfer process that could be used in conjunction with a replacement SI including details of the means to be used to ensure continuing provision of the services throughout the transfer process or until the cessation of the services and of the management structure to be used during the transfer;
- b) Plans for the communication with such of the SI 's subOEM, Bidder, staff, suppliers, customers and any related third party as are necessary to avoid any material detrimental impact on Project's operations as a result of undertaking the transfer;
- c) Plans for provision of contingent support to NEA and Replacement SI for a reasonable period after transfer.
- d) The SI shall re-draft the Exit Management Plan annually thereafter to ensure that it is kept relevant and up to date.
- e) Each Exit Management Plan shall be presented by SI to the Competent authority at NEA and approved by NEA or its nominated agencies.
- f) In the event of termination or expiry of Agreement, Project Implementation, or Service Levels, each Party shall comply with the Exit Management Plan.
- g) During the Exit management period, the SI shall use its best efforts to deliver the services.
- h) Payments during the Exit Management period shall be made in accordance with the Terms of Payment Schedule and Contractual conditions or as mutually agreed between the SI and NEA.
- i) An Exit Management plan shall be furnished by the SI in writing to the NEA or its nominated agencies within 180 days from the date of signing the contract.



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### 3 Section III: Functional & Technical Requirements Specification

#### 3.1 Functional Requirement Specifications

##### 3.1.1 Functional requirement specification evaluation methodology

- Availability of full functionality as part of the solution proposed through in-built features/functionality or software configuration (i.e. no customization) would be given higher weightage.
- The proposed IFMIS should have minimum 70% “Standard” functionality against each of the Functional Requirements.
- Whereas a part of functionality is available, or the required functionality is met with the customization OR an add-on/bolt-on software including any bespoke development would be given a lower weightage.
- The response against each mentioned requirement will be evaluated as following:

Response	Points
Standard(S):	3 Points
Customization(C):	2 Points
Third Party (T)/ Workaround (W):	1 Points

- FRS must be demonstrable. Random sample verification may be conducted during demonstration.
- All line items as mentioned in FRS would be considered along with weightage as mentioned above.
- Reclassifying or Reordering or altering the FRS compliance in any form is not permitted and shall render the bid as non-compliant.
- The total marks will be awarded based on the cumulative response and total points for each requirement.
- **The following is an indicative list of Functional Requirement Specifications (FRS) for the IFMIS system but shall not be limited to these only. The SI shall be requested to do a detailed study of business processes and requirements at NEA to finalize the Functional Requirement Specifications (FRS) for the IFMIS system in consultation with all stakeholders.**

##### 3.1.2 Finance and Accounting

S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
1	<b>Accounts Payable</b>	Ability to comply with financial management rules and HR rules/Act/Bylaws of NEA.		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
2		<ul style="list-style-type: none"> <li>List of cancelled and void cheques</li> <li>Details of unpaid invoices (payment proposal exception listing)</li> <li>List of realised and unrealised gains/ losses</li> <li>Number of invoices and vendors processed within a payment ru</li> <li>Vendor aging report</li> </ul>		
3		Ability to electronically route the reports to allow users to review reports		
4		Ability to preview report before printing		
5		<ul style="list-style-type: none"> <li>Ability to produce the following payable reports, but should not be restricted to:</li> <li>Invoices selected for payment by period, bank, payment method</li> <li>List of approved invoices</li> <li>List of cheques printed by cheque number and date</li> <li>List of vendors with vendor master details</li> <li>AP Liabilities Listing</li> <li>Invoices under retention</li> <li>List of inactive vendors</li> <li>Outstanding Cheques which are overdue</li> </ul>		
6		Ability to produce vendor payment history including: <ul style="list-style-type: none"> <li>Payment by vendor</li> <li>Payment by period for the current and prior year</li> <li>Total paid by year</li> <li>Total cumulative payments</li> <li>Date, amount and cheque number last paid</li> </ul>		
7		Ability to provide facility to present report in graphs within the system		
8		Ability to provide user defined taxes and other statutory reports		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
9		Ability to: <ul style="list-style-type: none"> <li>- select reports</li> <li>- edit reports (create/change/display)</li> <li>- export reports to a different systems</li> <li>- download data to spreadsheets (e.g. Excel)</li> </ul> generate reports one at a time, multiple reports at a time, ad hoc and regular reports together <ul style="list-style-type: none"> <li>- generate reports at on-line basis</li> <li>- generate reports in background</li> <li>- generate reports via batch allow creation of user-defined reports without need for technical skills</li> <li>- perform calculations (e.g. totalling, percentage)</li> <li>- restrict report selection based on security of database, organisation structure</li> </ul>		
10		Ability of the system to maintain cumulative register of cheques and to generate the cheque register print immediately after printing the cheque		
11		Ability of the system to support multi-location payments. Payments through multiple Offices to be controlled based on payment thresholds and Delegation of Power defined by NEA		
12		Ability of the system to enable centralized payment above defined threshold/payment limit.		
13		System to enable NEA users define the payment threshold beyond which payment will be done centrally		
14		Ability to automatically update the corresponding account codes in the general ledger after posting to the individual vendor account in the sub ledger		
15		Ability to identify the transaction via document number series or document type		
16		Ability to post transactions such as debit and credit memos into vendor account		
17		Ability to provide facility for: <ul style="list-style-type: none"> <li>- Automatic numbering of documents</li> <li>- Allow for multiple document series</li> </ul>		
18		Ability to provide for automatic integration with cash book, general ledger, bank ledger, penalties/ LD account, purchasing, Project-wise, Material management system, TDS account, expense accounts		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
19		Ability to update to the vendor accounts with the following transactions: - Transfer from one vendor account to another - Miscellaneous debit/credit memo for adjustment		
20		Ability of the system to provide collation of purchase orders in the invoice register by PO order type like material PO, Central PO, Local PO, etc. or collation on PO value, location of raising PO wherever applicable		
21		Ability of the system to provide processing against purchase order/ contract/including formal Purchase Orders		
22		Ability of the system to provide processing against purchase order/ contract only with a goods receipt note/service receipt note		
23		Ability to automatically generate debit/ credit memos based on PO, GRN, Quality, Inspections and acceptance tests as per NEA purchase regulation norms		
24		Ability to block posting if invoice amount exceeds balance of capital expenditure budget		
25		Ability to capture the following information, but should not be limited to:- Vendor code, Internal transaction reference, vendor transaction reference, transaction date, due date for payment calculated by the system from the payment terms, posting period, transaction value, order value to which the invoice relates, narrative for purchase ledger entry and multiple tax codes, multiple tax values, Tax details.		
26		Ability to comply with all Tax related requirements		
27		Ability to manage direct payment to vendors by 3rd parties like lenders and posting related accounting entries		
28		Ability to park document before posting in order to verify the correctness and completeness of data		
29		Ability to perform: -Refund retention to the vendor and automatically post the refund to the vendor account -Automatically offset retention paid up Against the Balance outstanding of Vendor account		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
30		Ability to produce payable reports on demand within the system (but should not be limited to): - By invoice date - By vendor type - By DCS/ Province Office		
31		Ability to provide facility for entering invoices for prepaid expenses and apportion the amount between prepaid accounts on periodic basis		
32		Ability to provide facility for entering invoices pertaining to prior periods		
33		Ability to provide functions to block for payment		
34		Ability to provide invoice register facility by which the invoices could be logged prior to entry into the ledgers		
35		Ability to provide manual entry for non-material related expenses		
36		Ability to refund to the vendor using various payment methods such as: - Cash - Cheque - Bank Transfer		
37		Ability to trigger a warning if invoice amount exceeds balance of operating expenditure budget		
38		Ability to trigger automatic alerts prior to due dates of statutory requirements like tax payments/ return filings etc.		
39		Flexible to record payable: Automatically record payable entry from other system such as procurement module		
40		Flexible to record payable: Manually (direct record by the user)		
41		Ability to:- - Carry out payment using the proposal list that has been approved - Create the payment documents and prepare data for printing the forms, payment advice notes, payment summaries or creating tape or disk		
42		Ability to allow invoices to be released for payment prior to due date as per user defined authorisation		
43		Ability to allow recurring payment to be deleted or edited within its period of payment		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
44		Ability to automatically clear items based on user criteria after payment has been made:- - By account - By document number		
45		Ability to automatically post to general ledger: - Cash discounts received - Gains or losses from underpayment or overpayment - Various applicable taxes - Bank Charges - Gains or losses from exchange rate differences		
46		Ability to capture the recurring payment information:- - Name of the vendor - Invoice Number -Recurring number/Bill Register number -Accounting Information -Start and end payment date -Frequency of payment indicator to identify the frequency of the recurring payment (e.g.: weekly, monthly, quarterly, biannually, annually)		
47		Ability to change payment methods or banks, payee, block items or cancel payment blocks		
48		Ability to create a proposed payment list by determining:- -Item to be paid - items to be paid are selected and grouped for payments based on user-defined rules -Payment amount - based on user needs (e.g.: due date of the items) -To whom the payment is made - by specifying the payee -Payment Method - based on the payment method (e.g.: cash/cheque/ Third Party) according to the rules defined by the user -Payment through - the payment is made - based on the specified bank and a bank account for the payment		
49		Ability to display changes made and by whom		
50		Ability to display or print exception listing. The exception listing should contain blocked items and all outstanding items which the payment program did not propose for payment (items that could not be settled despite being due)		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
51		Ability to divide the task of editing the payment proposal between various users and enable several users to edit large payment runs at the same time		
52		Ability to make partial payments		
53		Ability to make payment in foreign currency:- - Specify the bank account to which the payment is made from -Specify whether it is possible to use the payment method to pay in foreign currency - Specify particular currencies per payment(by default NPR)		
54		Ability to mark the reprint copy with the word 'DUPLICATE'. The payment voucher should include vendor invoice number, cheque number, addresses and other user-defined information		
55		Ability to match single payment with multiple invoices		
56		Ability to over-write minimum and maximum value range and specify another payment method during the payment run Ability to specify a minimum and a maximum amount for a single payment in order to identify the payment method to be selected by the payment program		
57		Ability to perform payment approval functions to enable certain payments to have prior approval		
58		Ability to post payments for update to the Vendor Account		
59		Ability to print cheque online and perform the following functions:- -Define void reasons (used during test print, page overflow and other user-defined reasons such as printed incorrectly, unusable) -Determine the next free cheque number and store the allocation of payment document number to cheque number		
60		Ability to print Tax certificates and print Tax report compliant with regulations, and in file-formats which support e-filing		
61		Ability to print the vendor name on cheque for payment of miscellaneous invoice, where vendor records have not been created		
62		Ability to provide access to payment cancellation information based on user defined selection criteria and print report on cancelled cheques		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
63		Ability to provide access to projected cash requirement information based on selected items to notify head office of funds required to be transferred to the paying account		
64		Ability to provide facility to print and reprint payment voucher together with cheque		
65		Ability to provide full audit trails for cancelled cheques and payment vouchers		
66		Ability to provide the facility to offset balances of vendor accounts in AP with balance of customer accounts in AR (for vendors who are also customers)		
67		Ability to request for authorisation of transaction exceeding maximum or transaction limits by user-defined authorities		
68		Ability to split payment to more than one payee (e.g.- payment involving withholding tax)		
69		Ability to display cheque payment information on-screen based on cheque number or payment document number. The information includes: - Details of cheque recipient - Details of the cheque issuer - Corresponding payment and invoice documents		
70		Ability to perform various display functions within a vendor account such as search, sort, display additional details (e.g. vendor master information), total, view by currency, obtain total purchase per posting period etc.		
71		Ability to provide online enquiry capability to vendor information via user defined selection and sorting criteria (e.g. all vendors that are on hold)		
72		Ability to view the account balances. In summary (opening balance, transaction per posting period and closing balances) - By line items (drill down from summary) Drill down to document detail (e.g. purchase requisition, purchase order, invoice, expected delivery date)		
73		Ability of automated invoice generation with applicable taxes from accepted material. Automated accounting of purchase returns to supplier.		
74		Ability to allow for specified fields in the master data to be made mandatory or optional entry		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
75		Ability to allow for the incorporation of a check digit as a security feature to ensure accuracy of data entry		
76		Ability to approve or validate the payables invoice in system prior to it being available for advance-adjustment/ payment.		
77		Ability to arrange for release of Security Deposits, bid bonds, guarantees, etc. at appropriate time by generating alerts for the Purchase personnel.		
78		Ability to automatically check Indents for budget and facilitate proposing/ generating sanction for capital items etc.		
79		Ability to automatically generate letter for balances of vendors, after proper authorization.		
80		Ability to calculate taxes (including VAT) in invoices, either item wise or as a whole		
81		Ability to capture the (details of short term & Long-term agreement) invoices from suppliers.		
82		Ability to capture the following information, but should not be limited to :- Vendor account number, vendor type (SME/ non-SME; etc), vendor name, address, fax, telephone, email, contact person, payment terms, payment methods, payment charges to be recovered, vendor bank details, paying bank details, tax details, payment location and payment lead time		
83		Ability to carry out Price Verification, Bill calculation online.		
84		Ability to carry out Standard Costing & Average Costing.		
85		Ability to check whether Work Completion Report is received before final payment is released.		
86		Ability to control the creation and change of vendor master data according to user security status		
87		Ability to create the invoice as per the supplier's bill		
88		Ability to ensure that final bill of Project contract is passed after receipt and evaluation of previous bills. raised, billing schedule, work completion certificate,		
89		Ability to generate age wise analysis reports & various other vendors related reports for a period/ as on date e.g. Standard, analytical, summary reports, Report on payments made to the vendor,		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
		supplier wise/ PO wise outstanding, etc.		
90		Ability to generate bill register for bill passed.		
91		Ability to generate prepayment invoice & ability to track the advances paid to suppliers/ contractors/employees etc. Generate auto-alerts for unadjusted advances, for any location for respective vendors.		
92		Ability to generate Report on Work Order wise bills passed as & when required		
93		Ability to generate the transaction history report, like drilldown report for PO to accounting, vendor-wise reconciliation across locations etc.		
94		Ability to handle Security Deposit, EMD, BGs, Performance Bank Guarantees etc. through accounts payable & make available the Security Deposit details at other locations for the same vendor, in a multi-location environment.		
95		Ability to incorporate changes in taxes and duties/ tariff from times to time and make payment as per revised rates, if any and if applicable.		
96		Ability to link contractor's payment with certified bills, billing schedule, approved note sheet, analysis report, measurement book, BG, Interim Payment Certificate, for contract works payment processing		
97		Ability to perform a consistency/ outstanding amount check on the account balance based on user defined specification before account is marked for deletion		
98		Ability to print vendor master data and select by new account, vendor account, status		
99		Ability to process supplementary bills raised on account of changes in prices, errors in previous bills, etc.		
100		Ability to prompt for adjustment of standing advance(s), if any.		
101		Ability to provide a list of the blacklisted vendors so that they are debarred for any future transactions		
102		Ability to provide advance ledger, ageing analysis of advance ledger.		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
103		Ability to provide list of the Guarantees, Security Deposits, bid bonds, etc. and track to monitor claims against them, expiry of guarantees/ bonds, etc.		
104		Ability to provide setting up of "infrequent vendors" account for processing transactions for rarely used vendors so as to obviate the need to set up individual master file records		
105		Ability to provide various standard reports, e.g. inventory reports, consumption reports, quantitative reports, etc.		
106		Ability to restrict access to master record to unauthorized changes from being made		
107		Ability to set default values when posting items to the account. e.g.: the term of the payment specified in the vendor master data are defaulted in during document entry		
108		Ability to specify, if there are any third-party payments involved, in case of PO based invoices		
109		Ability to support online financial postings during		
110		Ability to track over-invoicing, goods return, price changes etc.		
111		Availability of Purchase Order/ Contract for bill passing		
112		Centralized Vendor Master with appropriate vendor classification/ categorization flag and provision to capture PAN, other registration No. etc.		
113		Flexibility to provide account numbers: - Automatically - Manually upon creation of a new Vendor account (Vendor identification number (VIN))		
114		Linking of supplier's payments with receipt of materials through materials management module.		
115		Process payment voucher for payment after deduction of recoveries as per contract like liquidated damages, hire charges, material issue, risk cost etc. and recovery intimation from NEA office/ site, if any.		
116		System check to ensure Security Deposit from party exists at the time of approval/ validation of the payables invoice.		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
117		System control to ensure that Security Deposit is refunded only after the complete Order and as per the terms and conditions of Work order.		
118		System control to ensure work is executed only against an open and active Order.		
119		System should be able to close works order/ contract.		
120		System should be Integrated to Nepal Government RMIS system for the automatic posting VAT		
121		System Should be able to process Centrally VAT and TDS amount monthly.		
122		Integration with Banks/Corporate Pay/Online Payent Vendors for the digital Payment branch wise.		
123		Ability to support comprehensive bill entry, validation, approval workflows, and automated document management for seamless financial transactions.		
124		Ability to account the Collections remitted to respective banks.		
125		Ability to adjust the funds received from the Government with the consumer bills in existing Metering, billing and Collection module and finance module.		
126		Ability to capture the consumer category wise Collections made against consumer bills.		
127		Ability to capture the details of Collections other than sale of power with appropriate accounting.		
128	<b>Accounts Receivable</b>	Ability to capture the Metering, billing and Collection information into the finance module through integration/ interface with existing Metering, billing and Collection module		
129		Ability to generate age wise analysis reports & various other customer related reports (for e.g. Standard, analytical, summary reports, Report on payments made to the customer etc.)		
130		Ability to generate daily Collection & various other consumer related reports including Collection realization (instruments collected, deposited, realized, unrealized and bounced, etc.), Collection categorization (against current bills, arrears, advance, etc.)		
131		Ability to monitor the Collections made at various locations and remitted to banks for Collections, recording status of realized, unrealized & bounced		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
		Collections, reversing the same in books. Ability to record type of receipt, whether advance/ invoice/ arrears etc. Ability to automatically adjust receipts against invoices/ debit/ credit notes, advances etc. Ability to also record, details of person receiving cash in receipt.		
132		Ability to refund the security deposit against bank guarantee.		
133		Ability to support automatic reconciliation of consumer ledger in existing Metering, billing and Collection module with control ledger in finance module by the system.		
134		Automated accounting of transactions to control manual errors		
135		Ability to capture reasons for dishonour of a cheque and maintain customer's payment default history		
136		Ability to charge penalty to the customer account based on user-defined conditions		
137		Ability to manage: Post adjustment into the customer account. e.g.: reverse the original payment transaction to reinstate the original debt import dishonoured cheque details in an electronic media supplied by the bank		
138		Ability to re-charge penalty imposed by bank to the customer account (if any)		
139		Ability to automatically link incoming payment posted to the general ledger by:- - On-line processing - Batch processing		
140		Ability to display incoming payment details and produce incoming payment reports on demand from the system - - By customer amount - By collection date - By method of payment - By location - By type of payment		
141		Ability to override the payment method proposed by the system in exceptional cases		
142		Ability to refund the customer and automatically post the refund to the customer account		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)	
143		Ability to refund to the customer using various payment methods such as: - Cash - Cheque - Bank Transfer			
144		Ability to: -Accept various payment methods - cheque, bank draft, all online transaction like RTGS, neFT, e-sewa, Khalti etc. - Bank transfer - Offset with other expense or GL account			
145		Ability to fully integrate account receivables to the general ledger and the cash book and to allow transactional entries for customer invoices/bills, adjustment journals, collections, and employee related bills			
146		Ability to restrict access to master record to unauthorised changes from being made			
147		Ability to set default interest rate or surcharge			
148		Ability to set default values when posting items to the account. e.g.: the term of the payment specified in the customer master data are defaulted during the document entry			
149		Ability to automatically link receivables posted to the general ledger by on-line/batch processing			
150		Ability to create debit and credit memos into customer account			
151		Ability to generate periodic billing reports based on different parameters and consolidated report on total receivables at any point of time			
152		Ability to link with payment gateway			
153		Ability to provide recording non-sales related receivables like borrowings, deposits, sale of investment, sale of assets, outstanding receivables considering payment terms, interbank transfers, rent from quarters, selling of tender forms, advertisements etc.			
154		Ability to reference multiple invoices in single debit/ credit memos			
155		<b>Banking Operations</b>	Ability to control the limit of issuing cheque as per delegation of power		
156			Ability to inform receipt details to party through e-mail		
157	Ability to prepare cheque containing party's bank				



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
		details		
158		Availability of section-wise receipt voucher details of concerned sections for preparation of pay-in slip		
159				
160		System should be able to generate file as per the respective bank format for bulk file upload in bank portal.		
161		Ability to cancel and reprint cheque		
162		System should be able to check Party address before preparation of cheque.		
163		System should be able to prepare check in bulk mode also.		
164		Ability for correcting entries to be created and posted to their respective sub-ledger and the general ledger		
165		Ability to alert in case actual cash holding exceeds the insurance limit		
166		Ability to automatically load bank statements for reconciliation		
167		Ability to generate all unique transaction reports pertaining to cash bank including daily cheque issue report, cheque received report, state cheque and bounce cheque report, cheque cancelled/ revalidated report, bank wise payment and receipt report, unreconciled items report, cheque inventory report.		
168		Ability to generate budget centre wise cash/ bank book/ ledger as well as consolidated book/ ledger at regional office/ business group/ head office level.		
169		Ability to inform payment details to party through e- mail		
170		Ability to maintain all the banks master data in the system.		
171		Ability to manage bank deposits and track bank deposits for requisite action for renewal, premature liquidation, interest accrual, etc.		
172		Ability to monitor the bank balances (bank wise)		
173		Ability to perform automatic bank reconciliation for entry and maintenance of payment items from Payables		
174		Ability to perform automatic bank reconciliation for entry and maintenance of receipt items from Receivables		
175		Ability to perform manual bank statement entry		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
176		Ability to prepare cash/ bank book on daily/ monthly basis with valid accounts codes in local currency/ foreign currency (in case the bank account is a foreign currency bank account).		
177		Ability to provide information to concerned sections as soon as cheque/ drafts are credited by bank or cancellation of cheque/ draft/ e-payment mode. Auto generation of reversal entry by the section along with online information to cash & Bank section		
178		Ability to provide standard on-line inquiry features as well as reports to track and manage all unreconciled items.		
179		Ability to receive payment from parties through e-receipt		
180		Ability to transfer of credit to party's employee's account through e-payment		
181		Ability to update the GL once any transaction is triggered		
182		Auto generation of reminders for replenishment of cheque stationery		
183		<p>Automated cheque payments functionality shall comprise of:</p> <ul style="list-style-type: none"> <li>· Availability of section-wise payment voucher details of concerned sections for cheque preparation</li> <li>· System should be able to prepare check in bulk mode also.</li> <li>· System should be able to check Party address before preparation of cheque.</li> <li>· Ability to prepare cheque containing party's bank details</li> <li>· Ability to transfer of credit to party's/ employee's account through e-payment</li> <li>· System should be able to generate file as per the respective bank format for bulk file upload in bank portal.</li> <li>· Ability to inform payment details to party through e-mail.</li> </ul>		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
		<ul style="list-style-type: none"> <li>· Auto generation of reminders for replenishment of cheque stationery</li> <li>· Ability to cancel and reprint cheque</li> <li>· Ability to provide information to concerned sections as soon as cheque/ drafts are credited by bank or cancellation of cheque/ draft/ e-payment mode. Auto generation of reversal entry by the section along with online information to cash &amp; Bank section</li> <li>· Ability to control the limit of issuing cheque as per delegation of power</li> <li>· Provision for making a single Cheque to a payee against multiple payments</li> <li>· Produce journal entries automatically and post it into GL.</li> <li>· Ability to alert in case actual cash holding exceeds the insurance limit</li> <li>· Availability of database of employees along with signature</li> </ul>		
184		<p>Automated receipt of cheque functionality shall comprise of:</p> <ul style="list-style-type: none"> <li>· Availability of section-wise receipt voucher details of concerned sections for preparation of pay-in slip</li> <li>· Ability to receive payment from parties through e-receipt</li> <li>· Ability to inform receipt details to party through e-mail</li> </ul>		
185		Automatic reconciliation of transactions in system with the Bank statement.		
186		Availability of database of employees along with signature		
187		Availability of section-wise payment voucher details of concerned sections for cheque preparation		
188		Provision for making a single Cheque to a payee against multiple payments		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
189		System should have ability for Preparation of online bank reconciliation by downloading bank statement electronically and upload in Finance Module through file upload method.		
190	<b>Capital Budget</b>	Ability of Corporate Budgeting process to be integrated with the budgeting and planning of the individual units and support functions		
191		Ability of the system to auto convert the individual budgets into a common budget for a budgeting period		
192		Ability to aggregate and disaggregate total budget and balance utilization		
193		Ability to allow authorized personnel to generate Project code. Hierarchy mentioned in the delegation of power or the Competent Authority for each level needs to be checked.		
194		Ability to approve budgets, change in budgets etc. as per the workflow.		
195		Ability to capture daily exchange rate for calculation/evaluation of proposals for imports to be made.		
196		Ability to capture different approved proposals by NEA/ GoN for future/ running schemes from Capital Planning and Monitoring Department.		
197		Ability to capture investment in capital projects along with details like cost of project, expected date of capitalization etc.		
198		Ability to carry forward budget outstanding from projects to the following fiscal year		
199		Ability to carry forward commitment amount from projects to the following fiscal year		
200		Ability to check/ control the budget by automatically checking the budget limits during the execution.		
201		Ability to consider escalated material prices (during the project period) for budgeting.		
202		Ability to create project budget based on task or work breakdown structure or both.		
203		Ability to enable the creation of project budget items to include the following information: Budget number, Budget description, Budget amount, Budget status (approved or budget assigned to any project)		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
204		Ability to generate the complete capital budget based on all budget request submission.		
205		Ability to maintain history/ records of projects budget and estimate variations with respect to a base-line case scenario.		
206		Ability to prepare the milestone wise (Billing schedule- wise) budget		
207		Ability to print reports that facilitate checking and monitoring of budget and project status and detail information.		
208		Ability to provide “what if” with multiple options and must track various scenarios evaluated		
209		Ability to provide comparative report between actual and any version of the budget		
210		Ability to provide multiple views of the project like material budget, labour budget, Subcontracting budget etc.		
211		Ability to provide online analysis of Project budget Vs. Actual. Also the expenses would be booked to the appropriate project codes.		
212		Ability to provide past & present expenditure collected for preparation of estimate for budget		
213		Ability to provide the option to reflect changes to amounts in a new budget version or without indicating budget as a new version (i.e., overwrite original budget).		
214		Ability to reject budget request and to track the person who deleted the budget request and be able to capture the reason for the deletion/ cancellation.		
215		Ability to support multiple budgets by revenue accounts and expense accounts. For example, to provide for at least two sets of budgets such as Annual (Original) and Revised Budgets for each accounting entity.		
216		Ability to support various analysis options on budgets and project costs: Budget listing		
217		Ability to update budgets on-line, either individually or in batches		
218		Ability to use multiple currency for capital expenditure budget		
219		Ability to view budget balance after the closure of a project; Ability to release this budget to another project that is seeking additional funds to close. The budget is only released upon approval of the		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
		requested additional funds.		
220		Ability to: • Disallow posting into a GL account prior to approval of budget • Allow posting into a GL account only after approval of budget		
221		Ability to: Provide for flexible user-defined budgeting period, e.g., 1 year, 3 years or 5 years Provide for sub-period budgets, e.g. monthly, quarterly, semi-annually, or annually		
222		Additionally, a variety of different budgets may be required such as cash and reforecast. It shall be possible to create and approve these budgets via workflow with the status of the budget re-forecasted.		
223		Budget and its associated projects with budget balance		
224		Deprecation budget should be based on existing assets and budgeted capital expenditure		
225		Should be able to capture GoN funding in terms of grant/ loan for a particular financial year as per the GoN budget.		
226		Ability to commit budget, after posting purchase requisition in purchasing system		
227		Ability to define disallow posting when commitment and actual transaction exceed budget		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
228		Ability to define tolerance limits either as a percentage or absolute value, depending on the amount exceed, automatically perform the following: <ul style="list-style-type: none"> <li>• Trigger warning to user</li> <li>• Trigger warning to user and mail to budget owner</li> <li>• Disallow posting</li> <li>• Ability to classify budget control type, such as</li> <li>• Cost/ Expenditure budget</li> <li>• Ability to define trigger warning to user when budget exceed</li> <li>• Capital Expenditure budget (Project)</li> </ul>		
229		Ability to define trigger warning to user when commitment transaction exceed budget, but disallow posting when actual transactions exceed budget - Capital Expenditure budget (non-project)		
230		Ability to generate document number separately when create/change budget		
231		Ability to integrate with the following modules at on-line basis, but should not limited to; <ul style="list-style-type: none"> <li>• Payroll Accounting: usage budget when post salary, bonus and wages etc. transactions</li> <li>• Account Payable: usage budget when post expenses transactions via AP</li> <li>• General Ledger: usage budget when post expenses transactions via GL</li> <li>• Inventory Management: usage budget when issue to cost centre/project</li> </ul>		
232		Ability to perform automatic budget availability checks during transaction posting.		
233		Ability to provide annual approval budget report		
234		Ability to transfer budget between cost centre/ projects, according to the authorization level defined by users		
235		Ability to automatically check and highlight abnormal data i.e. actual exceed budget more than 10% or less than 10%		
236		Ability to check fund availability real-time basis (for capital budget)		
237		Ability to download budget information to spreadsheet (e.g. Excel) for user analysis		
238		Ability to generate budgeted financial statements for the accounting units		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
239		Ability to generate variance analysis (Actual/ Budget) reports by user- defined parameters (e.g., time period, level of detail, activity, etc.). Ability to print the report and electronically route the reports to allow users to review reports.		
240		Ability to provide exception reports for responsible areas (e.g., Area Office, zones) that exceeded budget with details such as: - Revenue/ expenditure (according to chart of accounts) - Actual to date - Budget - Variance (i.e. amount in excess of budget)		
241		Ability to provide facility to present budget data in graphs or charts within the system		
242		Ability to provide over/under budget reports		
243		Ability to provide the flexibility to inquire budget information on responsibility area by user- defined parameters (e.g., time period, level of detail, activity, etc.). For example, variance calculations on month to month, year to year, year-to-date actual of specified balance sheet or profit/ loss items (for a particular year) against relevant budgeted values		
244		Ability to provide the following information in the form of reports/ for on-line viewing at multiple levels within the budget hierarchy (should not be restricted to): -Comparison of actual against budget figures (in terms of quantity and value) • Budgeted Balance Sheet for 10 years • Budgeted Profit/ Loss account for 10 years • Budgeted Cash flow for 10 years • Budgeted Financial ratio for 10 years • Forecast Retained Income • Other forecast information		
245		Ability to spread budget over the financial periods based on: - Even spread - Seasonal spread - Fixed spread - Variable spread - Manual allocation (i.e. to enter budget figure to specific month)		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
246		Ability to view source of fund for each project in capital expenditure budget report		
		<b>Cost Accounting</b>		
247	<b>General Ledger</b>	Facilitate apportionment/ allocation of overheads		
248		Facilitate expense and income accounting cost centre/ profit centre/ revenue centre wise		
249		Facilitate standard costing/ job costing/ activity based costing/ other costing method		
250		Generate Costing statements for the business groups/ support functions		
251		Generate Costing statements for the Capital Works in Progress (CWIP) projects		
252		Generate various Costing report to calculate per unit generation cost, transmission cost and distribution cost		
253		System accommodates both fixed and variable costs.		
254		System maintains cost account financial information that is consistent and reconcilable with related general ledger and budget accounts.		
255		System provides a set of system assurance reports and control totals that reconcile with data source systems.		
256		System provides a summary report that groups detailed direct expenditures and indirect (allocated) costs by any combination of fund, agency, project, grant and organization.		
257		System provides departmental reports broken down by cost accounting codes, fund, department, and organizational unit.		
258		System provides for multiple user defined cost reports.		
259		System reports expenses, statistics, and revenue by any element in the chart of accounts.		
260		System should allocate, based on user defined criteria, a difference between selected revenue and expense accounts, leaving the corresponding revenue in place.		
261		System should allow for the processing of a preliminary allocation process for “what if” analysis purposes before the results of the allocation are officially recorded as final.		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
262		System should allow user to determine which indirect costs are to be allocated, including the time period in which those costs occurred (e.g. Effective start and end dates).		
263		System should compute and use system-generated rates; ability to compare and report past actual to standard allocations, compute the variance, and calculate new allocation rates; for user-specified categories and criteria.		
264		System should integrate with HRMS to extract actual payroll costs and codes (including Earnings and Bonus Codes) by employee, cost centre or position number.		
265		System should perform allocations for reporting purposes only.		
266		System should provide multiple standard cost allocation reports.		
267		System should provide reversal of actual allocation and spread based on overall rates at the end of the year.		
268		Ability to allocate expenditure of HO, Work shop, Stores, Civil and other common service providing services to other locations.		
269		System should report cost information through a set of predefined parameters (no programming necessary on part of user) and report formats.		
		<b>Financial intelligence</b>		
270		Ability to: Drill to detail on receivables and payables invoices Drill to Purchase Order for payables invoices View detail assets information by major and minor asset categories Drill from aggregation to source transaction		
271		Ability to generate high level aggregated data and drills into the most granular level i.e. the transaction.		
272		Analysis of financial information Pre-Built capability to analyse revenue and expense information in detail and against budget and forecast		
273		Compare current performance with the prior period or same period year ago		
274		Easily configurable and extensible Pre-built capability to view daily revenue and expense information at every level of management		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
275		Identify which specific transactions contributed to the key performance indicators. Complete the full cycle from summary to detail		
276		Monitor information across multiple dimensions like company, cost centre, manager, line of business, financial category, or user defined Make informed decisions in near real time		
277		Observe trends over time periods of weekly, monthly, quarterly or yearly		
278		Perform detailed analysis using several filtering parameters		
279		Pre-Built Standardize information at every level in the organization		
280		Provide pre-built ETL to extract data from ERP operational tables and allow for federated query across multiple systems		
281		The following financials key performance measures shall be monitored: Revenue, Expenses, Budget, % of Budget, Operating Margin, Operating Margin %, % of forecast, Forecast vs. Budget, Expenses per head, T & E per head, Headcount		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
282		<p>The following key financial reports shall be generated by the System:</p> <ul style="list-style-type: none"> <li>• Expenses trend by account detail</li> <li>• Revenue trend by account detail</li> <li>• Cumulative expense trend</li> <li>• Expense summary</li> <li>• Expense trend</li> <li>• Expense by category detail</li> <li>• Expense by journal source</li> <li>• Expense detail by invoice</li> <li>• T &amp; E Expense trend</li> <li>• Expense report listings</li> <li>• Expense report inquiry</li> <li>• Expenses per head</li> <li>• Headcount and expenses trend</li> <li>• Employee directory</li> <li>• Expenses by source</li> <li>• Revenue by source</li> <li>• Payables invoice</li> <li>• Journal entry details</li> <li>• Journal line details</li> <li>• Depreciation expense major categories</li> <li>• Depreciation expense minor categories</li> <li>• Depreciation expense listing</li> <li>• Open Payables Summary - View unpaid invoices by operating unit, supplier or supplier across operating unit.</li> <li>• Invoices Due Aging Summary - View an aging summary of unpaid invoices due</li> <li>• Invoices Past Due Aging Summary - View an aging summary of unpaid invoices past due</li> <li>• Paid Invoices - View paid invoices by operating unit, supplier or supplier across operating unit</li> </ul>		
283		The reporting shall have enterprise-wide dashboards at least for revenue management, expense management, project expenditure, cost of services and fund management. Pre-Built capability to Drill from aggregation to transaction in the source application		
284		The system should have provision to capture all financial transactions between NEA and subsidiary companies such as investment and return on investment		
		<b>Financial Reporting</b>		
285		Ability for providing variance analysis reporting (cost- centre variance).		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
286		Ability to address the IFRS requirements identified for NEA's compliance. Also comply with the accounting policies adopted by NEA as per IFRS/ NAS.		
287		Ability to generate comparative statements based on user defined periods and for user defined Requirements		
288		Ability to generate information & reports for Statutory, supplementary, tax & Internal audit purpose		
289		Ability to generate JV Book, Cash/ Bank Book, General Ledger & Trial Balance along with drill down facility, asset ledger, responsibility code wise expenditure report, Income statement and Balance Sheet with Schedules, Cash flow statement, notes to account, management report, etc.		
290		Ability to generate statutory returns, e.g. Withholding Tax returns etc., Withholding Tax certificates, under all statutory Acts		
291		Ability to generate the report of accounts balances on a particular date.		
292		Ability to have the reports in spreadsheet also, to facilitate analysis		
293		Ability to provide previous year figures in current year financial statements and provision for regrouping of previous year figures as per the statutory requirement/ accounting standard requirement.		
294		Ability to provide statutory reports and account balances as per the statutory Requirements e.g. NEA act, accounting standards, etc.		
295		Ability to report (e.g., Balance sheet, Income Statement and associated schedules), with user defined period		
296		Availability of Financial Statements for multiple years & all defined locations, including schedules (all value details and possible quantity details) from the system in accordance with IFRS/ NAS and regulatory requirement.		
297		Availability to record and report annual tax filing details under Self Tax Assessment procedure.		
298		Preparation of Tax books of accounts as required by Income Tax Act 2058 and its amendments		
		<b>Manage Accounting Year-end Closing</b>		
299		Ability to automatically initiate a new financial year		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
300		Ability to automatically net off the expense and revenue accounts closing balances to retained earnings account and carry the same to the following accounting year		
301		Ability to automatically update the closing balance of the previous period and opening balance of the current period with prior period transaction postings for all ledger balances. (e.g.: - actual, budget)		
302		Ability to automatically, at period end: - Post accruals - Reclassify credit and debit balances for reporting purposes		
303		Ability to perform month-end (soft closing) and year-end closing.		
304		Ability to perform unlimited closing cycles		
305		Ability to process the following types of transactions: - Current period transactions in the current period - Prior year transactions for the previous accounting period posted in the current period		
		<b>Manage Calendar</b>		
306		Ability to close an accounting period to prevent any entries in that period		
307		Ability to control users to access past period for adjustments (e.g. to reopen a period that has been closed).		
308		Define calendar based on organisations accounting and reporting requirements		
309		Facility to open multiple accounting periods i.e. open the next accounting period before closing the current accounting period		
		<b>Manage charts of account</b>		
310		Align profit centre/ cost centre with account codes		
311		<i>Mapping of current chart of accounts with revised chart of accounts</i>		
312		Tracking of account codes to financial statements schedules and groups		
313		Tracking of general ledger with subsidiary ledger		
314		Ability to control access/ usage of account codes based on roles/ responsibilities.		
315		Ability to have parent-child hierarchy in chart of account values. Addition /deletion of any account		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
		code should be restricted.		
316		Ability to inactivate/ end-date the account code while maintaining historic transactions.		
317		Ability to maintain parameters as mandatory for certain type of expenses.		
318		Ability to manage Multiple foreign currency transactions		
319		Ability to provide facility to amend and delete the entities (e.g.: department, Area Office) and its relationship		
320		Ability to provide facility to define and relate the following logical grouping structure and numbering convention to the chart of accounts: - Entities - Corporate - Core-business/ non-core business - DCS/Provinces - Voltage - Project - Activity - Cost Element		
321		Ability to record the following information for each account code: - Entities - Corporate - Core-business/ Non-core business - DCS/Provinces - Expense/ Income/Assets/liabilities -Debit/credit/both -Transaction based on basic principles of accounts -Activity based on Voltage Classification		
322		Ability to transfer account from one office to another in case of change of area, for e.g., if a sub Area Office is moved from one Area Office to another		
323		<i>Capability to store legacy account code mapping vis-a-vis the ERP chart of accounts in the system.</i>		
324		Capture short as well as long description of accounts		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
325		Facilitate multilevel structuring (nesting and parallel both) of chart of accounts including: <ul style="list-style-type: none"> <li>• Tracking of account codes to financial statements schedules and groups</li> <li>• Tracking of general ledger with subsidiary ledger</li> <li>• <i>Mapping of current chart of accounts with revised chart of accounts</i></li> <li>• Align profit centre/ cost centre with account codes</li> </ul>		
326		<i>Flexibility to accommodate current and any proposed chart of accounts structure and corporate/field organization structure maintaining historical transaction.</i>		
327		Only valid and business relevant account codes shall be allowed to be created and used; with flexibility to revise the valid/ permissible account codes description.		
328		Centralized account maintenance of chart of account value		
		<b>Manage Consolidation</b>		
329		Ability to: <ul style="list-style-type: none"> <li>-Consolidate at multi levels</li> <li>-Consolidate actual and budget at balance sheet, profit/ loss account, cash flow statement, expenses and revenue account levels</li> <li>- Automate generation of elimination transactions</li> <li>- Automatic generation of inter Office/ Department balances</li> <li>-Any other requirement</li> </ul>		
330		Ability to allow for user-defined rules to facilitate consolidation for similar and dissimilar chart of accounts		
331		Facility to change consolidation logic from time to time		
332		Facility to make adjustment/provision entries to the consolidated Trial Balance without impacting individual unit's Trial Balance(Only in HO)		
333		Facility to re-run consolidation multiple times after making adjustments to the unit's accounts		
334		Automate data consolidation from subsidiary entities, including inter-company eliminations, to generate accurate, comprehensive group financial statements.		
		<b>Manage GL Account Enquiry</b>		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
335		Ability to allow enquiry by: - account codes and names - wild search - specific range of period, year and month - batch entry number		
336		Ability to control creations, amendments and deletion of GL Master data by user-defined authorization.		
337		Ability to create GL master data in hierarchy		
338		Ability to display GL account balance in multiple views as follows: - Statutory - Responsibility (e.g. Cost centre, Area Office/departmental reporting) - Geographical		
339		Ability to hold balances for multiple ledger types such as: - Actual - Budgeted - Forecast - Taxation		
340		Ability to immediately put across the electronic notification to relevant users after creation or change of master data.		
341		Ability to maintain the following master data records to store control information on how postings done into the general ledger account: - Name of the account - Description - Type of account (e.g. revenue/asset/liability/expenses) - Tax posting - Reconciliation account in nature (e.g. Debtors' Control account) - Level of transaction details to be maintained within the GL Account - Alternative account number to store NEA existing GL account (easier for user to search new account code) - Automatic posting to prevent manual posting to accounts (e.g.: - Accounts Receivable, Account Payable)		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
342		Ability to provide audit trail to log the creation, amendments and deletion of each GL account code.		
343		Ability to: - Copy accounts between entities. - Automatically renumber account codes. - Closed accounts - block/ mark for deletion. - Add accounts. - Delete accounts. - Change description of accounts.		
344		Ability to: - Assign an activity status to accounts (e.g. - active/inactive) - Retrieve an account master record via account alias		
345		Capability of the system to display: - online at least 10 years of history for account balances and posted transactions - account activity including opening balance, movement for the period, closing balance and year to date balance - breakdown of balances by drilling down to source document - GL account master data - ability to store balances for future years		
346		Provide facility for mass creation of GL accounts that includes: - Copying entire chart using another chart of accounts as reference. - Copying single account. - Copying multiple accounts - Performing data transfer using program for GL account master data from legacy system - Allowing deletion of inactive accounts or accounts with no outstanding balance.		
<b>Manage GL Transaction Posting</b>				
347		Ability of auto alert for adverse-balances (debit/credit)		
348		Ability of the system to support the following types of journal - - Accrual journals, which automatically reverse themselves in the following accounting period.		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
		- Skeleton journals where the bulk of information is pre-coded, only the date and amount to be entered. - Recurring journals which are similar to skeleton journals but with the values pre-entered, though capable of modification.		
349		Ability to allow for multiple accounting entries (debits and/ or credits) for each transaction type		
350		Ability to assign unique number to journal entry		
351		Ability to automatically generate the provisions for administrative expenses, materials/services received but invoice not received		
352		Ability to control journal posting function by user-defined authorization		
353		Ability to electronically route journal for approval to an authorised user before posting to the general ledger. If rejected, the journal should be automatically routed back to the originator for correction.		
354		Ability to ensure that all necessary postings from various other modules are posted to the ledger before starting the closing run		
355		Ability to enter journal entries manually or interface journals from non-ERP applications, either individually or in batch. The information contained in a journal should include the following sub-levels: - Header Level anticipated transactions are for voucher series, transaction reference and accounting period. - Line level transactions will include account code, debit/credit amounts and analysis codes.		
356		Ability to integrate with payroll		
357		Ability to perform batch processing as follows:- Update by batch mode while other users are still active in the system- Provide exception report for batch update- Post through overnight batch- Provide information on batch status (e.g.- posted, processing, error)- Automatically assign document or batch number after journals are posted- Provide a journal edit listing on screen and printed. The information should contain but should not be limited to the following:* Batch Number, Journal Posting date, Journal Creation date, journal type, source of journal, journal text, G/L account code, G/L account name and description, debit/credit amount, batch total and number of transactions.		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
358		Ability to post allocation journals with user-definable rules (e.g. Apportionment of expenditure)		
359		Ability to prevent inactive accounts from appearing on reports and financial statements		
360		Ability to prevent posting to control accounts of subsidiary ledger		
361		Ability to provide facility of Look up accounts number and descriptions during journal entry		
362		Ability to provide facility to: - Allow storing (park) incomplete documents without carrying out extensive entry checks. - Allow amendment or deletion to recurring transactions prior to posting - Perform the posting automatically according to user-defined specification		
363		Ability to provide function to reverse documentation-individual or in mass, after posting by reference document number		
364		Ability to provide running total of debit/credit amount		
365		Ability to request for authorization of transaction exceeding maximum or transaction limits by user-defined authority		
366		Ability to restrict access to certain accounts by user-defined groups.		
367		Ability to search account code, account name or responsible area during posting of documents		
368		Ability to suspend and resume, at a later time, entry of journal that are incomplete or imbalance		
369		Ability to update on-line with real time update		
370		Alert for action for vouchers pending at different level		
		<b>Manage Inter-office transactions</b>		
371		Ability to automatically create relevant accounting entries at both units on acceptance of the inter-unit accounting by the recipient unit		
372		Ability to generate a report of pending, responded and unresponded Inter Unit Transfers (IUTs)		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
373		Ability to provide an electronic platform for units to record inter-unit transactions, with provision to view scanned documents		
374		Ability to provide for electronic acceptance or rejection of inter-unit accounting by the recipient unit with provision for comments		
375		Automatic alerts/reminders in inter-unit accounting		
376		recipient unit that an entry pertaining to the unit has been made		
		<b>Manage Ledger Relationships</b>		
377		Ability for each General Ledger (GL) to be capable of supporting and be fully integrated with other modules		
378		Ability to open Memorandum Accounts for recording non-financial information		
379		Ability to provide the facility to have multiple, independent general ledgers/ schedules		
		<b>Manage Year-end Reporting</b>		
380		Ability to circulate the details required from various users across the organisation from ERP/Non-ERP databases for the purpose of accounts closing/auditing and also ability to receive information in response to the said circular and automatically generate accounting entries and MIS		
381		Ability to compare actual data to budgeted data and/ or budgeted data to actual data in: -Annually -Semi Annually -Quarterly, and -Monthly		
382		Ability to comply with all tax related statutory requirements in force in Nepal and applicable to the company and the system should be upgraded with the latest tax laws on a regular basis before the amendments to tax laws come into force		
383		Ability to create multiple versions of financial statement report and ability to customise reports as required by the user		
384		Ability to export reports to standard PC applications (e.g. Excel spreadsheet, .txt/.csv format)		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
385		Ability to generate all statutory reports applicable to the company as per prevailing laws		
386		Ability to generate comparative statements for various periods as defined by the user		
387		Ability to maintain Contingent Liability/Asset register Transaction listing -By Account -By Date -By Voucher Series -By Voucher Number -By User		
388		Ability to print various reports as required by users and management		
389		Ability to produce user defined TDS, Income Tax etc. statutory Reports		
390		Ability to show financial data in thousands, millions etc. without creating rounding problem - Store the report format for later use - Produce reports in graphical form for presentation purposes.		
391		Ability to split schedules into multiple sub schedules		
392		Ability to support computation of various financial ratios as defined by users and ability to compare the same with the previous year and year to date		
393		Ability to track Government Audit Comments and replies thereto with facilities to maintain additional relevant details and string search facility		
394		Ability to facilitate centralized tracking of internal and final audit processes, including planning, findings, follow-ups, and reporting for transparency		
		<b>Revenue Budget</b>		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
395		Provide flexible Report Writer with the following minimum features: - Specify the format and layout of reports - Summarize and total the information to be reported- Select records to be included in the report- Select details from each record to be included Perform arithmetic calculation on the information selected or totals - Ability to add narrative comments to reports		
396		Ability to capture budget estimates under different heads by different segments/ departments/ sections for preparation of operation budget		
397		Ability to capture manpower cost details including scale-wise manpower, basic pay, DA, incentive and others for budget estimates.		
398		Ability to capture/ comply NEA guidelines for preparation of budget		
399		Ability to automate tax calculations, statutory filings, and compliance reporting across multiple jurisdictions		
400		Ability to extract either automatically or manually financial information for budgeting of revenue and expenditure items from: • Within the system • Other external systems • Information required includes: • Revenue from transmission charges • Expected increase in requisition for higher transmission capacity • by existing customers (e.g. based on trend or customer forecast) • New customers (supported by agreements) • Loan information • Salaries and wages • Historical and projected payroll cost and number of staff for user- • defined period • Repairs and maintenance • Preventative maintenance schedule • -Depreciation (provision for computation of depreciation as per applicable rules		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
401		Ability to forecast gratuity, leave encashment, medical benefits, pension, etc. required for preparation of budget considering the actuarial valuation.		
402		Ability to generate Budget books comprising of budgeted financial statements, GL level budget, cash flow statements, purchase budget, etc. for each budget centre, province office, entire business group and NEA as a whole.		
403		Ability to generate the report stating the PO/ work order/ Service order raised and budget is drawn on the same without encumbrance/ provisional budget.		
404		Ability to incorporate algebraic, mathematical and logical formulas into cost allocation formulas at the lowest budget level e.g. allocate sick and annual leave budgeted costs to a responsible area based on percentage of budgeted basic salary		
405		Ability to prepare budget considering activity based/ norm based budget estimation e.g. cadre information, actuals for previous periods, sensitivity analysis, materials purchases, etc.		
406		Ability to prepare Standard Cost		
407		Ability to provide a text editor function up to the lowest budget level (i.e. revenue/ expenditure accounts) to capture supporting workings that derive the budget amount		
408		Ability to provide edit functions to create, insert, copy, delete responsible area or revenue / expenditure item within the hierarchy.		
409		allocate via automatic pro-rate apportionment to user-specified detail accounts		
410		Allow for manual override of apportioned amounts automatically pro-rated by the system		
411		manually allocate amounts to detail level based on user-specified methods		
412		Perform the rolling over budget for multiple periods		
413		Produce budget by fixed/ variable or combination of parameters.		
414		Provide multiple level of approvals for budget at various level of offices for final approval/ consolidation at Budget Division e.g. DCS Provincial office to approve budget for DCS budget centre, DCS GM office to approve budget for Provincial office and its DCS budget centres,		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
		etc		
415		Should be able to incorporate and keep a trail of subsequent change in budget proposals on real time basis		
416		Transfer the forecast into the budgeting process		
417	<b>Treasury and Cash Management</b>	Ability to allocate the calculated capitalization of expenses to various expenses.		
418		Ability to capture the details of funds received from funding agencies.		
419		Ability to capture the details of the claims by contractor or supplier in to the system.		
420		Ability to collect the claims amount from funding agencies & disburse the claims to budget centres as per their requirement		
421		Ability to generate Daily and up to date Cash flow statement		
422		Ability to generate performance report based on revenues, expenses & revenue losses		
423		Ability to generate the invoice for payment as per claims by contractor or supplier		
424		Ability to handle financial lease as well as operating lease of asset and their accounting & payments		
425		Ability to integrate with project accounting module to monitor the material consumption at particular project.		
426		Ability to link cash flow projections to P&L, Budgets, Purchase Orders, ageing, outstanding Account payables and payroll, contracts, projects etc.		
427		Ability to monitor & reconcile the Collections made at field offices with the data received by Head Office.		
428		Ability to monitor/ generate the report for claims paid to contractor/ supplier and claims received from funding agencies.		
429		Ability to run automated cash forecasting in system capturing inflows and outflows as per data in system. And safeguard liquidity		
430		Flexibility in system to define cash forecasting templates as per requirement.		
431		Flexibility to include user entered inflows/ outflows in the system generated cash forecast.		
432		Produce cash flow statements as per Accounting		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
		Standards		
433		Provide cash holding pattern based on historical data/ user defined criteria		
434		Provide monthly analysis of current expenditure vis-a- vis monthly forecasts		
435		Ability to forecast cash outflow based on: Liabilities from account payable and borrowings, payroll due within a user specified period User defined level. For example, at HO (e.g. centralized) for Area Office or zone		
436		Ability to provide function to create, change and delete payment advice from sending bank (e.g. main) account to the receiving (e.g. Payment) bank accounts		
437		Ability of the cash book to receive automatic postings from the accounts payable and accounts receivables together with manual postings of other payments and receipts		
438		Ability to generate daily incoming report and daily outgoing report (Cash analysis)		
439		Ability to provide daily balances from the Cash Book		
440		<p>Ability to allow for medium- and long-term planning from sources affecting the liquidity position. This includes:</p> <ul style="list-style-type: none"> <li>- Receivables as expected incoming payments</li> <li>Payables as expected outgoing payments (e.g. materials, project and capital expenditure)</li> <li>• Planned payments of wages and salaries</li> <li>• Investments and borrowings</li> <li>• Planned dividend payment</li> <li>• Planned tax payment</li> <li>• Ability to forecast these cash outflow and inflows based on: <ul style="list-style-type: none"> <li>• Trends in fees and charges for providing transmission services based on estimates and collection due dates (Accounts Receivable)</li> <li>• Expenditure trends based on payment due dates (Accounts Management)</li> <li>• Fixed deposit and borrowing terms</li> <li>• Consolidated forecast of capital projects expenditure from Project Management</li> </ul> </li> </ul>		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
441		<p>Ability to produce forecast cash flow statement for at least 12 months with the following minimum details:</p> <ul style="list-style-type: none"> <li>- Opening balance</li> <li>- Cash outflows for: <ul style="list-style-type: none"> <li>- Loans</li> <li>- Capital projects</li> <li>- Revenue expenditure</li> <li>- Interest payment</li> <li>- Tax</li> <li>- Dividends</li> </ul> </li> </ul> <p>Cash inflow from:</p> <ul style="list-style-type: none"> <li>- Customers</li> <li>- Interest received</li> <li>- Loan draw down</li> <li>- Net excess/surplus</li> <li>- Closing Balance</li> </ul>		
442		Ability to provide drill down capabilities to view details of outflows and inflows. For example, payment from capital projects can be further analysed by projects/ jobs.		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
443		<p>Flexibility to provide for:</p> <p>Cheques deposited Vs Cheques credited into bank</p> <p>Dishonoured checks by bank account number and identifying issuer of cheque</p> <p>Dishonoured checks by bank account number and identifying issuer of cheque(duplicate)</p> <p>Total cheques issued Vs Bank debits</p> <p>Total cheques issued Vs Bank debits by bank account number</p> <p>Total cheques issued Vs Bank debits by bank account number(duplicate)\</p> <p>Total Collections into Bank Vs Total Confirmations From Bank</p> <p>Total Transfers to HO account by bank account number and transaction</p> <p>Total Transfers to unit HO account by bank account number and transaction</p> <p>Un-reconciled statement</p> <p>Un-reconciled statement at the Area Offices</p> <p>Un-reconciled statement at the Zonal Office</p>		
444		Ability of the system to maintain the funds released to the units and received from the units by the respective heads and automatically post the ledger entries against inter unit account		
445		<p>Ability to allow for short term planning from sources affecting the cash position. This includes:-</p> <ul style="list-style-type: none"> <li>- Bank balances</li> <li>- Maturing deposits and loans</li> <li>- Notified incoming payments posted to the bank accounts</li> <li>- Incoming payments (e.g.. cheques) with a value date</li> <li>- Outgoing cheques posted to the bank clearing account</li> <li>- Post dated cheques</li> </ul>		
446		Ability to generate the advise for the unit to pass the journal entry to inter-unit account post receipt of funds		
447		Ability to provide function to overview cheque deposit processing status online		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
448		Ability to:- - record stop payment of cheques, enable the matching of multiple receipts in the system with a single receipt transaction on the bank statement		
449		Ability to:- • Allow update of bank balance by bank accounts • Group bank accounts in a logical hierarchy by the type of account • Display bank accounts by group or in more details by bank accounts via drill down • The system should automatically reverse items outstanding for more than three months upon approval • Cheque register • The system will maintain records of all cheques • Cash Register • The system will maintain details of all cash		
450		Ability to adjust the amounts received from GoN against payables to GoN as per the GoN resolution, if any.		
451		Ability to calculate the interest capitalization amount based loans received from the GoN/ funding agencies/ financial institutions & execution of loans.		
452		Ability to capitalize the interest on loan as per the NEA's requirements.		
453		Ability to capture the details of letter of credit & Bank guarantees in to the system.		
454		Ability to capture the details of loans/ grants received from GoN & others sources.		
455		Ability to generate the invoice for the payments due against loans.		
456		Ability to generate the projections/ analysis report of the loans.		
457		Ability to generate the receipt for the loan/ grants received & automated accounting of the same.		
458		Ability to generate the report stating the number of LC's & BG's transactions during the period.		
459		Ability to generate the reports stating the outstanding invoice, payments made during the period etc.		
460		Ability to link the loan information to project accounting module as loan is issued on project basis. Each project is having many sub-projects.		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
461		Ability to link the loans information to individual assets for monitoring purpose.		
462		Ability to maintain the following information in the loans and deposit master, but should not be limited to: - Lender - Agreement date (If any) - Loan Term, Moratorium - Instalment amount - Interest rate, reset clause - Loan type (Borrower's note loans, Policy loan, General loan, etc.) - Loan Source (Government or Private) - Security Details, charge created details, mortgage details - Other loan details and conditions		
463		Ability to provide function for handling the complete loan process for loan given and loan taken e.g. calculation of repayment schedule, Instalments due, Interest calculation, payment of instalment and interest, liability calculation and posting into books and reversal and vice versa.		
464		Ability to support the letter of credit & Bank guarantees functionality.		
465		Ability to view the details source of loan report (local and foreign loan)		
466		Ability to integrate with Revenue Management Information System (RMIS) of the Government of Nepal		
467	<b>Fixed Asset</b>	Ability to print asset listing for physical count based on user-definable criteria The following information should be generated for each asset: - By owner unit - By using unit - By location - By asset class / asset category - By Date - By Retirement date - With asset ID - With asset Class - With asset description - With location - With quantity - With value		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
468		Ability to support below functions: 1. Scrapping and write off of asset 2. Asset disposal and sale 3. Scrap sale 4. Revaluation of assets 5. Calculation of depreciation increase due to revaluation 6. Asset impairment.		
469		Ability to capture physical count manually or automatically via data upload (e.g. using bar code scanning device, spreadsheet)		
470		Ability to process the results of the inventory manually or automatically by: - Making comparison with information in the database - Retiring the asset if asset is confirmed missing - Change location if asset has changed location		
471		Enter the inventory date in the assets counted and assets identified as missing		
472		Ability to capture the following information for all types of adjustments such as: - Date of adjustment - Cost, accumulated depreciation and net book values adjusted - Adjustment reference document (if any) and authorization		
473		Ability to manually or automatically adjust the acquisition cost and corresponding depreciation for the missing assets to the General Ledger upon update of Fixed Asset system		
474		Ability to ensure that no duplication of the equipment/asset can occur. In other words an item of equipment, once defined, cannot be duplicated within the system.		
475		Ability to define continuous assets/equipment applicable to NEA's transmission assets. The system is to provide facility to allow an item of equipment to be defined as a function of its length.		
476		Ability to record any environmental issues or regulations required in the operation of the equipment / asset.		
477		Ability to record the physical location of each fixed assets		
478		Ability to provide for automatic integration with General Ledger, Accounts Payable, Accounts		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
		Receivable, Project Management and Budget, including the following capability: - Automatic interfacing of accounting entries to the G/L module; -Drill-back capability to Account Payable (e.g. Invoice, Purchase Order etc)		
479		Ability to display asset description at individual asset level, summarised levels (e.g. asset class, asset group, by balance sheet) and by particular asset (e.g. asset number)		
480		Ability to provide drill-down from asset descriptive details to: - Balances - Depreciation - GL account code		
481		Ability to provide asset information via screen and print report, but should not be limited to: - By date, year (e.g. by year of capitalisation, year of disposal) - By type of transaction (e.g. acquisitions, transferred, retirement, written-off, etc.) - By asset location - for small assets which are portable - By owner unit or using unit (e.g. department, zones, Area Offices) - By asset class (main asset group, sub group, asset number) - By user-specified rules		
482		Ability to produce reports for various reporting, flexible report writing tools and on-line enquiry facilities for (but should not limited) to the following: - Financial reporting (e.g. audit and taxation) - Management reporting - Examples of standard reports are listed, but should not be limited to, as follows: - Assets at gross separately from accumulated depreciation – for period and year-to-date - Asset master at summary and detail level - Asset additions - Asset retirements		
483		Asset valuation - gross asset values, accumulated depreciation and NBV - Assets by source of funds (e.g. capital contribution, own funds) - Assets by acquisition method (e.g. purchasing, donation)		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
		<ul style="list-style-type: none"> <li>- Depreciation expense using flexible user selection criteria</li> <li>- Depreciation forecast</li> <li>- GL posting summary</li> <li>- Assets not found at location</li> </ul> Asset found at location other than that assigned in the asset record		
484		Ability to provide ad hoc listings via screen and/or print listings based on user defined specifications such as (but not limited to): <ul style="list-style-type: none"> <li>- Select and sort by asset category</li> <li>- Select and sort by asset class</li> <li>- Select or exclude fully depreciated assets</li> <li>- Select or exclude retired assets</li> <li>- Select by GL account codes</li> <li>- Select by business units</li> <li>- Select by asset status</li> <li>- Select by asset location</li> <li>- Select by asset life within asset book</li> </ul>		
485		Ability to provide reports that can analyse asset information: <ul style="list-style-type: none"> <li>- By owner unit or using unit (e.g. Province, Area Office)</li> <li>- By time period (e.g. year)</li> <li>- By company, asset type, department and location.</li> <li>- By movement (such as addition, transfer or disposal) by account, current month or year-to-date activity</li> </ul> -Assets taken/given on lease, buy back of assets, assets acquired under Self execution works, deposit contribution works, assets given on gift, assets maintained by others utility but right to utilise the asset by NEA		
486		Provide for complete asset history, for example: depreciation, depletion and amortisation current period, year-to-date, accumulated net book value and residual value for finance, tax and regulatory requirement <ul style="list-style-type: none"> <li>- remaining life</li> <li>- history transactions with line-item</li> <li>- repair and maintenance tracking</li> <li>- warranty claims and settlements tracking</li> <li>- insurance claims and settlements tracking</li> <li>- acquisition and retirement date</li> </ul>		
487		Ability to provide the following details or reports for taxation purposes:		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
		<b>Additions</b> - Qualifying cost - Non-qualify cost - Year of assessment of acquisition <b>Disposal/ write-off</b> - Qualifying cost - Non-qualify cost - Sales proceeds -Year of assessment of disposal <b>Year of assessment of expiry Adjustments/ transfers</b> - Qualifying cost - Year of assessment of adjustment/ transfer <b>Reconciliation of fixed asset movements</b> - Opening balance - Additions - Disposals - Transfer in/ out - Adjustments - Qualifying costs - Non-qualifying costs - Closing balance		
488		Generate reports on fixed assets at specific location		
489		Ability to generate reports related to Capital WIP capturing (but should not be limited to) the following - Description of Work - Account Code - Letter of Award - Scheduled date of Completion -Total Estimated Cost and break-up in terms of material, labour, interest during construction, indirect expenses, etc - Payment - Date of Commissioning Source of Funding (Lender's name, loan amount, loan identification, Equity Contribution, etc)		
490		Financial / MIS Reporting Requirements		
491		Ability to generate report on Financing of Capital Expenditure		
492		Ability to generate report on Revenue Expenditure on O&M		



S.No	Module	Description	Compliance (S/C/T/W)	Comments (if any)
493		Ability to generate report on Rate of Return on Net Fixed Assets		
494		Ability to generate report on Outstanding Dues to the Govt. & Others		
495		Ability to generate report on Efficiency Improvement Parameters		
496		Ability to generate report on Financial Statements of Load Despatch Centre		
497		Ability to generate report on Rate of Return on equity capital		
498		Ability to generate report on Loans and Advances to the Employees		
499		Ability to generate reports confirming to technical, operational, regulatory, statutory and other business requirements		
500		Balanced Score Cards for monitoring of Key Performance Indicators		
501		Ability to meet all Tariff related processes/reporting requirements of NEA		
502		Ability to meet all Internal Audit related processes/reporting requirements of NEA		
503		Ability to support the requirements of Tax Audit and facilitate the preparation of various statements and annexures required therein		
504		Ability to capture and treat for the Asset Revaluations periodically.		
505		System should be capable to include the changes provided by Asset Revaluation.		
506		Ability to interunit transfer the asset and also to the subsidy company of NEA and maintain in the GL.		
507		Ability to segregate the NEA/GoN/Public Participation in Fixed Asset and segregate the cost and depreciation for NEA/GoN/Public Participation also for the same Asset.		

### 3.1.3 Human Resources



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
1	Core HR	System should sub-modules to include Manpower Planning, HR Records and Information Management, Recruitment and Onboarding, Time & Attendance, Leave of Absences, Payroll, Compensation & Benefits Administration, Employee Relations, Performance Management, Training and Employee Life Cycle processes (Probation, Confirmation, Transfer, Promotions, and Separation etc.)		
2		Ability to define organization hierarchy, organization structure of corporate, Province, Area Office, Sub Area Office & Sub-station		
3		Facilitate Advanced search schemes for the employee data base with categorization		
4		Ability to define functions, sub-functions and positions. Including defining Group/subgroup of employee/ provision of province – For reporting (Hierarchy during customization)		
5		Ability to maintain reporting structure (hierarchy of positions)		
6		Ability to define administrative powers for organizational units position-wise		
7		Ability to tightly integrate administrative power definitions to work flows and approvals		
8		Ability to maintain all clauses under NEA employees' service regulations, time to time circulars and office orders		
9		Ability to maintain all clauses under various laws, rules and Regulations pertaining to NEA's Employees and contractual workers		
10		The system shall be able to automatically generate the Employee Code. The Employee Code will contain a predefined, scalable, user defined mix of optional number (numeric), group of letters (alpha characters) or alphanumeric that must be unique assigned to each employee. System shall have the ability to record and capture the following personnel details but not limited to: <ul style="list-style-type: none"> <li>○ Name, Former name if any,</li> <li>○ Gender,</li> <li>○ Employee ID</li> <li>○ Department code,</li> <li>○ Work Location,</li> <li>○ Home address, Mailing address, E-Mail address,</li> <li>○ Marital status,</li> <li>○ Religion,</li> <li>○ Nationality,</li> <li>○ Date of birth,</li> <li>○ Dependent Information</li> <li>○ Contact phone numbers,</li> <li>○ Emergency contact information,</li> </ul>		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
		<ul style="list-style-type: none"> <li>○ Permanent Account Number(PAN),</li> <li>○ Bank account number,</li> <li>○ Date of appointment</li> <li>○ Passport number,</li> <li>○ Driver’s license number,</li> <li>○ Salary history,</li> <li>○ Declaration of personal assets,</li> <li>○ Educational &amp; Professional qualifications,</li> <li>○ Bilingual skills by language,</li> <li>○ Competencies,</li> <li>○ Pay Periods,</li> <li>○ Job Information</li> <li>○ Employment Status,</li> <li>○ Active</li> <li>○ Terminated</li> <li>○ Leave with and without pay</li> <li>○ Retired</li> <li>○ Voluntary retired</li> <li>○ Workers Compensation</li> <li>○ Disability</li> <li>○ Other user defined criteria</li> <li>○ Pay status: Hourly/Salary,</li> <li>○ Minimum/Maximum pay,</li> <li>○ Pay Rate,</li> <li>○ Overtime pay,</li> <li>○ Allowances,</li> <li>○ Deductions:</li> <li>○ Description</li> <li>○ Frequency</li> <li>○ Amount</li> <li>○ Limit on deduction amount</li> <li>○ Start and ending dates</li> <li>○ Deductions to third parties,</li> <li>○ Pension payments,</li> <li>○ Non cash benefits,</li> <li>○ Leave by types and hours,</li> <li>○ Medical plan &amp; coverage,</li> <li>○ Retire date,</li> <li>○ Any other user defined fields or categories.</li> </ul>		
11		Ability to seek confirmation after every change made in the structure, changes to be made permanent only on authentication by the controller of the authorized person.		
12		Ability to change/restore/rollback changes to a previous (given) date and report inconsistencies		
13		Ability to issue orders advising to take additional charge and		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
		charge allowance		
14		Ability to maintain a Master Employee Database		
15		HRMS should be designed so as to capture the entire gamut of Human Resource operations in NEA. HRMS should be highly flexible to accommodate and incorporate any new policies / procedures / processes that an organization can put into practice.		
16		System should have integration/interface with other modules		
17	<b>Manpower Planning</b>	Capability to issue alerts before any position falling vacant due to retirement/term of temporary or contractual employee		
18		Capability to integrate with the recruitment/ performance management module for filling up of vacancies		
19		Recruitment facility to include the entire process of recruitment in the system including the budget involved in it.		
20		Facility to define positions for internal or external recruitment (define vacancies based on sanctioned strength and existing employee strength for each department/unit/section etc)		
21		Facility to define the terms and conditions for recruitment of deceased dependents		
22		Facility to record the details of the applicants of deceased dependents		
23		Facility to furnish the list of applicants of deceased dependents found eligible for being called for interview/selection		
24		Facility to carry out recruitment for different grade/rank of employees and Part time employees		
25		Facility to record the time taken to assess the financial condition of the deceased dependent applicants and accordingly take decisions on the eligibility of the application		
26		Support vacancy and post based roster system for recruitment required, additional certifications / professional qualifications, etc.		
27				
28		Facility for managing recruitment for special categories requiring relaxation in norms		
29		Facility to draw recruitment schedule in accordance with the requirement plan		
30		Facility to indicate that an applicant has applied for the post through another hiring process within the organization		
31		Facility for generating advertisement for recruitment for internal / external candidates for publication on HRMS portal, Media and websites		
32		Support provision for approval of advertisement from Competent Authority		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
33		Facility to receive on-line responses		
34		Facility to attach documents / credentials in soft form as a part of the application or at any other time as decided by the institution		
35		Facility to auto generate unique identity number for each new applicant		
36		Facility to create workflow for approval of application through various levels		
37		Facility to capture details of the Recruitment Policy and to alert users if there is any violation of the policy		
38		Facility to route recruitments through various levels of approvals and review. Audit trails of the entire approval process should be available		
39		Facility to report generation for all the above functionalities with a provision for dynamic querying		
40		Ability to re-induct a person into the organisation after a gap in service		
41	<b>Recruitment</b>	Facility to define the specifications of the vacancy in terms of qualifications, work experience, location considerations, skills /competencies required, additional certifications / professional qualifications, etc.		
42		System shall have the ability to record historical data of employees from the date of joining / entry into NEA. System shall have the capability to maintain check list for authentication and acknowledgement of various aspects related to joining viz., medical reports, testimonials, caste certificates, other relevant certificates, etc.		
43		Facility for generation of call letters for written test/interview with allocation of Roll numbers		
44		Generation of merit list of candidates on user configurable criteria such as category-wise, centre-wise, alphabetically, roll no.-wise, score-wise etc.		
45		Ability to record payments made to the panel members/ invigilators etc.		
46		Generation of system driven regret letters and/ or offer / appointment		
47		Ability to issue orders of appointment on contract basis		
48		Ability to issue orders of re-engagement (or extension) of retired officers, on contract basis with re-employment terms		
49		Ability to issue order on completion of probation period		
50		Facility to maintain checklist for verification and acknowledgement of various aspects related to joining viz., medical reports, testimonials, other relevant certificates, etc.		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
51		Should allow for maintaining a checklist of details to be mentioned in each employee's personnel file		
52		Facility for the office area selection for short listed candidates		
53		Facility for Provisioning id card for all the NEA employee and to provide the same on the day of induction training for new recruitment		
54		System shall allow generation of lists of permanent/temporary posts at any time. It shall also facilitate in generating list of contractual/ outsourced employees, daily wagers etc.		
55		Draw recruitment schedule in accordance with the requirement plan		
56		Linkage to resumes received from the extranet (careers page on websites or homepages on external job sites)		
57		Ability to import resumes from external job sites into the resume database		
58		System shall have the ability to record historical data of employees from the date of joining / entry into NEA. System shall have the capability to maintain check list for authentication and acknowledgement of various aspects related to joining viz., medical reports, testimonials, caste certificates, other relevant certificates, etc. System shall facilitate in maintaining & auto updation of service records that should contain all details as per the entries in Service Book, including entries regarding pay fixation from time to time, grant of annual increments, nominations made for Provident Fund, Gratuity etc. besides having provision for verification of service at regular intervals.		
59		Provision to record comments of interviewers at various levels of interviews		
60		Ability to integrate with payment gateway for processing of Application Fees received against Recruitment Notification/Application Form		
61	<b>Confirmation</b>	Facility to change employment status from probation to confirmed/not confirmed after probation period (Different for different categories of employees) from the date of joining		
62		Facility to integrate with the PAR (Performance Appraisal Report) of the employee on probation		
63		Facility to attach scanned copy of the clearance certificate after one year of the employee's joining		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
64	<b>Transfer Posting &amp; Deputation</b>	Facility to attach service continuity certificate for checking unauthorized attendance of the employee on probation		
65		Facility to attach scanned copy of the police verification certificate and medical fitness certificate of the employee hired on probation		
66		System should generate electronic transfer letter with all relevant fields including latest time stamp value to join the assign department, however SI will study the requirement in detail prior to implementation		
67		System shall have the provision of matching the position requirement with the employee profile (skillset matching)		
68		System shall generate circulars for deputation vacancies		
69		System shall receive nominations for deputation Vacancies		
70		System shall shortlist nominations for deputation based on: <ul style="list-style-type: none"> <li>● Educational Qualifications</li> <li>● Current Roles &amp; Responsibilities</li> <li>● Scale of Pay</li> <li>● Hierarchical Grouping of Post</li> </ul>		
71		System shall prepare post-wise seniority list of employees applying for deputation.		
72		System shall allow recording of deputation details such as: Start date and end date of deputation period <ul style="list-style-type: none"> <li>● Post Deputed to</li> <li>● Office Deputed to</li> <li>● Section Deputed to</li> <li>● Deputation Pay Scale</li> <li>● Deputation Allowance</li> <li>● Deputation Terms &amp; Conditions</li> </ul>		
73		System shall issue letters relieving & joining letters to employees on deputation.		
74		Ability to record the transfer orders cancelled, approved or deferred		
75		Ability to generate lists of transfer requests/recommendations received to be reviewed by the Competent Authority for deciding on transfers with/without promotions. The office may also transfer an employee without any request/recommendation as per the Transfer Policy		
76		Ability to integrate with list of workmen exempted from transfer for being medically incapacitated, being office bearers of recognized unions and association		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
77		Ability to integrate with compensation and benefit module		
78		Ability to update new designation, change of cadre/class, salary details etc. in Transfer Database		
79		Ability to maintain complete history of employee transfers since recruitment and Integrate with Employee Master, Promotion Module		
80	<b>Leave &amp; Attendance Management</b>	Ability to apply for NOC for abroad tour		
81		Ability to approve or cancel leaves of subordinates		
82		Ability to intimate the controlling officer when an employee goes on unauthorized leave (unmarked attendance) / returns back from unauthorized leave/ extends leave/reports in the middle of the sanctioned leave period (along with appropriate reduction in sanction)		
83		Ability to provide reports to subordinates and HR&A in ESS on attendance & leave details		
84		Provision to define rules & conditions for leave encashment, accrual of leave, lapsing of leave, ceilings for accumulation of leaves, rules for combination of leave types, minimum and maximum number of days of leave per spell etc		
85		Provision for e-attendance including 1. Daily attendance 2. Overtime calculation		
86		Facility to keep track of holidays and to define weekly holidays and other holidays as per Government notifications		
87		Facility to keep track of holidays and to define weekly holidays and other holidays as per NEA rules such as Meter Readers get holidays on 7th, 14th, 21st and 28th every month instead of Saturdays		
88		Provision for specifying leave schemes		
89		Provision to define, alter and configure types of leaves based on detailed study of current practices at NEA.		
90		Allow automatic credit of leave with provision for manual credit / debit / modification / cancellation based on rules etc.		
91		Facility to apply for leave, view leaves eligibility and leaves availed.		
92		Provision to define hierarchical workflows for recommendation and approval of leaves		
93		Provision to record the approval/ rejection of applied leaves and update the employee leave account and service records accordingly.		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
94		Provision to allow selection of general reasons of refusal of leave from a dropdown menu and provide a text box for inserting other specific reasons		
95		Provision for leave cancellation, leave amendments, extension, advancement or postponement of leave.		
96		Ability to trigger alerts & capture required supporting documentation based on use of leave (e.g. doctor's notes, medical leave certificate, fitness certificate etc.)		
97		Ability to automatically warn and display messages for employee leave balance or entitlement when their leave balance reach a defined threshold value		
98		Should manage the leave of the employees, automatic deduction of the leave, and maintain the carry over leave for the next year.		
99		Should be able to define the shift time period for an employee for a day, week or more as per the rule of NEA		
100		Provision to maintain record of unauthorized absence		
101		Provision that salary is automatically stopped if a person is absent for duration exceeding pre-defined rules without proper sanction or as per rules and policies.		
102		Ability to integrate with data of biometric attendance from all biometric devices at branch and head office level. Currently NEA has deployed about 400 biometric devices in all NEA offices throughout the country.		
103		Ability to add /delete the device. (Device and the software integration)		
104		Ability to consolidate attendance data from sub-branches/branches at branch unit and head office level		
105		Provision of Integration /uploading of attendance data from branches to head office		
106		Provision for creating privileges /roles and assigning corresponding rights to system		
107		Able to download/upload the user information and fingerprint at corresponding unit level and higher administrative offices		
108		Facility to register fingerprint at branch unit and higher administrative offices		
109		Able to download the attendance logs on real time basis		
110		Should also able to import the attendance log through email and USB		
111		Should able to define the employee schedule and maintain the timetables (first half and second half)		
112		Should be configurable to comply with employees		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
		attendance regulation approved by NEA management and amendments thereafter		
113		Should be able to calculate over time working period of the employees		
114		Should be able to generate daily attendance report, monthly attendance report, leave report, over time calculation report.		
115		Should be able to search and print the attendance record. There should be the facility of filtering the record by the exceptions like normal, late, leave early, not in, not out, absent, scheduled.		
116		Facility to individual employee to view their attendance with their login credential		
117		Should have the facility of appending employee's forgot clock in or clock out (if employee attendance is missing through finger print by their own can be entered via the operator as per NEA regulation.		
118		The system should have option to add field work related to office such as training		
119		Integration of attendance data with payroll		
120		Ability to provide reports to HR&A and HoD on employees presently on leave in the department		
121		Ability to provide the Manager consolidated status of present/absent employees working under him/her		
122		Ability to provide report on attendance details & leave quota/balances		
123		Ability to handle making online application for sanction of Leave Travel Concession/other entitlements through ESS and approval through workflow		
124	<b>Travel Management</b>	Ability to automate the process of Travel Request		
125		Ability to define Travel Request (Rail/Air/Road) Forms		
126		Ability to define & select <ul style="list-style-type: none"> <li>· Calendar and time schedules for travel planning</li> <li>· Country/state/city for travel planning</li> <li>· Type &amp; mode of Travel (Local/Domestic/International Travel)</li> </ul>		
127		Ability to raise Travel Requisition for Local/Domestic/International Travel		
128		Ability to select the cost centre while raising travel requests		
129		Ability to define approving authority and reviewing authority for checking / approving/ declining travel requests		
130		Ability to recommend Train Name & Number, Flight Number / Name of Carrier		
131		Ability to add number, name, age, department, function of		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
		travellers		
132		Ability to check status of approval/decline of travel requests		
133		Ability to create, change, display, review and release travel advances		
134		Generation of reminder letters if tours and travels final bill is not submitted by employee within the prescribed time		
135		Ability to select approving and reviewing authority for approval of travel requests		
136		Ability to provide any additional comments before submitting the travel request (lowest fare/berth preference)		
137		Ability to approve/decline/modify travel request of employees by approving authority		
138		Ability to resubmit travel requests if declined		
139		Ability to provide expenditure reports for separate cost department wise.		
140		Ability to provide reports on employees for whom travel request has been approved/declines/modified		
141		Ability to provide reports on all past travel requests with details on travel advance cleared/per-diem/allowances claimed and actually paid		
142	<b>Training &amp; Career Development Management</b>	Provision for standard format for proposal creation, training plan, budget preparation and allocation of training budget to field units		
143		Facility for online uploading of draft, receiving comments /suggestions on draft training policies and uploading final Training policy		
144		Provision to perform training needs analysis by allowing employees to fill-up online questionnaires.		
145		Facility to employees to select optional (professional & development) training programmes and uploading request to participate		
146		Facility to nominate resources for specific training requirements.		
147		Provision to allow definition of hierarchical workflows for approvals (plan & budget)		
148		Facility to create master of training provider with their necessary specialization		
149		Facility to schedule training & send alerts concerned officials informing about, location, course details etc.		
150		Facility to generate reminders/ escalation reports in case the training plan is not adhered by the employee		
151		Facility to register learners and enrol learners for specific e-learning events		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
152		Provision for training catalogue showing details like learning activity type [Computer Based Training (CBT), Web based Training (WBT), classroom, seminar etc.], curriculum, prerequisites, certification etc. and calendar features with search features to query courses and schedule.		
153		Facility to monitor progress of e-learning activity of the employee & generate reports on learning history, skill gaps and learning events registered / taken		
154		Facility to employees to view the status of employee's training requests.		
155		Facility to record learner feedback on learning event, faculty, facilities, course material etc.		
156		Provision for online updation of employee records, service records on the basis of training results.		
157		Ability to approve/reject the Training requests for specific programmes which were not included as training needs		
158		Ability to provide reports on training calendar of present/past years		
159		Provision to define training - short-term, long-term, trainable and non-trainable training needs and Provision to capture ad-hoc courses offered by various entities		
160		Ability to design selection criteria for various in-house/ external trainings especially higher studies		
161		Grading training institutions (external) by the training dept. professionals		
162		Ability to issue permission for acting as examiner/faculty member/guest lecturer in different technical/management institutes		
163		Ability to capture Training needs of employees met/not met during the quarter/year		
164		Ability to formulate and update Annual Training Calendar with list of Training Programmes, Batch size, target group etc.		
165		Ability to provide input to Finance & Accounts Module for payment to Trainers/Institutes		
166		Ability to notify HoD/employees about the nomination for training programme		
167		Ability to define and print training nomination letters to be sent to employees for invitation		
168		Ability to customize training feedback form, effectiveness form and training nomination letters		
169		Ability to analyse training feedback		
170		Ability to book training rooms by departments for specific training programmes, for in-house programmes.		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)	
171		Ability to capture course content of all training programmes along with list of Target group, batch size for in-house programmes.			
172		Ability to support the process of Induction Training for new recruits by integrating with the recruitment module			
173		Ability to maintain topic/subject-wise database of internal & external faculty, number and details of courses conducted by them quarterly, half-yearly, yearly and cumulative			
174		Ability to maintain training budget (for each category of training) - cost of training - actual expenses. Link the Travel Allowance /Dearness Allowance/Hotel expenses payment records to find out total cost of training. (The TA bill passing system should be linked to the Training system to ensure feedbacks)			
175		Ability to maintain data for internal training exam and certification obtained by staff			
176		Ability to maintain data on external certifications obtained by the staff			
177		Ability to upload external brochures or training programme received from external institutes			
178		Ability to raise Requisition / Purchase Orders (PO) for clearing professional fees of Trainers/Institutes/Stationery/Photocopy of training course content/material etc.			
179		Ability to monitor Planned Training against actual training conducted based on user defined parameters such as number of trainings, budget, participants etc.			
180		Ability to raise requests for guest house booking for guests & other field employees nominated for training			
181		Ability to view status of requests for guest house booking for guests & other field employees nominated for training			
182		<b>Reporting Requirements</b>	Ability to produce individual and departmental training reports		
183			Ability to provide report with the participant list and total training hours for each employee during specific period		
184	Ability to calculate total Training Cost in a year against the T&D Budget				
185	Ability to provide reports on training programmes nominated for but not attended during employment (reasons for not attending)				
186	<b>Performance Management &amp; Appraisals</b>		Facility to define/ alter NEA specific relevant promotion and increment rules & eligibility criteria in the system		
187		Provision for system generated timely triggers indicating the employees due for promotion, increments, etc. as on			



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
		prescribed rules and regulation		
188		Facility to allow employee to online complete Performance Self – Appraisal		
189		Provision to allow definition of hierarchical workflows for processing of appraisals and role-based access rights & strict security control features to safeguard privacy & confidentiality of appraisal records		
190		Provision for online processing for Appraisals and time bound reminders for disposal of appraisals of all employees		
191		Provision for a mandatory checklist such as completion of defined trainings etc. before allowing promotions/increments		
192		Facility to record details of promotion declined for employees considered earlier		
193		Facility to generate on-line promotion order & have facility to communicate the same to the relevant employees.		
194		Facility for automatic sanction of increments in case of promotion of employee based on pre-defined rules and regulation		
195		Facility to process normal increments for each employee, and special increments (Stagnation Increments/ Advance Increments, etc.) based on pre- defined rules and regulation		
196		Facility for automatic updation of payroll information & service records in case of promotion / regularization.		
197		Facility to auto-recalculate allowances effected due to increments		
198		Ability to enforce relaxations in eligibility norms to reserved category candidates, allocating certain percentage of vacancies for these categories		
199		Ability to define grade advancements within a channel (seniority/merit/time based)		
200		Ability to carry out the entire promotion process through work flows including online preparation/printing of Promotion Appraisal Forms/ Booklet recording of Recommending Authorities Comments/generation of scores/status regarding pending vigilance cases		
201		Ability to process cases suitable or unsuitable for promotion as well as pending cases if any based-on performance, in interview and other		
202		Ability to generate single page bio-data report for each employee due for promotion		
203		Ability to arrive at the surplus and vacant positions		
204		Ability to handle Back Dated promotions with respect to Promotion Policy		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
205		Ability to approve promotion list by appropriate ordering/approving authority		
206		Ability to enforce deferred dates of promotion under CPS due to punishment imposed.		
207		Ability to draw a competency matrix in the system and define the competencies/ skills/rolls/responsibilities required at each level/position for the purpose of promotion.		
208		Ability to intimate the outcome of various stages of promotion (interview, first shortlist etc.) to the employees through ESS Module		
209		Ability to record transfer option of an employee at the time of promotion and generate reports for the management for making transfers on promotion		
210		Ability to generate list of pending cases of promotions with requirement of particulars		
211		Ability to generate reports on status of officers/staff whether released or not released or whether joined/not joined (along with dates) as per transfers/promotion orders as on particular date or cross section of time is available readily from this system		
212		Ability to generate seniority list of all officers and staff (with particulars like dob, doj, qualifications) on any date/time		
213		Ability to provide reports on total employees promoted during specific period, category wise, unit wise, designation wise (all details)		
214		Ability to define the various authority in Performance Appraisal process		
215		Ability to define Performance Rating Scale		
216		Ability to initiate target setting by employee		
217		Ability to approve target setting by employee's senior officer		
218		Ability to initiate mid-year appraisal by employees and record any changes in Targets		
219		Ability to review mid-year performance of employees by employee's senior and record his feedback and performance ratings		
220		Ability to review year-end performance of employees by employee's senior and record his feedback and performance ratings		
221		Ability to compute annual performance ratings of employees automatically based on mid-year and year-end performance ratings		
222		Ability to review completion of target setting, mid-year review and year- end review by Performance Appraisal Coordinating Officer		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
223		Ability to define self-assessment form		
224		Ability to fill Training Needs in the appraisal form by employees		
225		Design Performance Appraisal database to capture annual performance ratings of employees of all classes		
226		Ability to record annual performance ratings of employees in Performance Appraisal Database		
227		Ability to maintain appraisal records and ratings of employees for all appraisal years		
228		Ability to route the Appraisal form / Evaluation sheet through the respective levels for each of the employees		
229		Ability to group employees based on categories of performance appraisal ratings		
230		Ability to generate memo letters / mails /SMS workflows for the employee in case of unsatisfactory performance		
231		Ability to scan appraisal documents manually filled by employees (on field etc.)		
232		Ability to generate report on employee ratings in the last three years		
233		Ability to provide reports on count/list of total employees completing the target setting, year-end appraisal		
234		Online entry of Karya sampadan mulyankan form		
235		Ability to provide reports on count/list of total employees for whom target setting and year-end review has been completed/pending		
236		Ability to provide reports on count/list of employees based on categories of performance appraisal ratings		
237		Ability to generate reports for vigilance clearance and detailed status of vigilance/energy proceedings as well as submission of declaration of assets		
238		Ability of generate performance reports and detailed status		
239	<b>Departmental / Disciplinary Actions</b>	Facility to define/ alter categories of misconducts and rules under which Departmental/ Disciplinary Enquiry could be initiated.		
240		Facility for Employee asset description from the related offices and verified by the concerned department		
241		Facility to define/ alter the eligible grades, which can raise file charge-sheet for every grade of employees.		
242		Facility to allow authorized users to generate charge- sheet against an employee		
243		Provision for system generated unique ID for each case and maintenance of case history for every Charge Sheeted Department Case.		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)	
244		Facility to record online case proceeding			
245		Facility to employees to submit their responses/ replies online			
246		Facility to generate statement of pending cases on a periodic basis and generate alerts based on pre-defined criteria			
247		Provision for automatically effect on payroll compensation/ employee progression based on pending enquiry/ decision.			
248		Facility to allow employees to online file appeal against the decision of a case			
249		Facility to enter Case Decisions such as warnings/displeasures/ censures communicated to the employee			
250		Facility to generate letters/ Orders pertaining to Suspensions/ Revocation of suspensions.			
251		Facility to record details of date of Suspensions/ date of revocation of suspension/ misconduct/ cause of suspension/ treatment of period of suspension with communication to related module (i.e. HRMS)			
252		Facility for Disciplinary action for rewards and penalty			
253		Facility to initiate and record Investigation and verification of certificates by disciplinary action department			
254		Facility to keep record of employees who have submitted 'Sampati Bibaran' (property details of employee) in each Fiscal Year.			
255		<b>Employee Grievance Redressal</b>	Facility to allow employees to raise their grievances		
256			Provision to allocate unique number for grievance tracking and maintain case history with essential data		
257			Provision to generate auto alerts at pre-defined intervals for all pending grievances to concerned officer		
258	Provision to auto escalate the grievance to the higher officer in case the person to whom the grievance is marked failed to respond in a pre-defined interval				
259	Facility to employees to track the status of his grievance online				
260	In case employee is dissatisfied with the response of his grievance, facility to allow employee to file appeal against the response.				
261	Provision to generate periodic reports for number/ nature of grievances addressed, Official-wise pending cases, Delayed responses, etc.				
262	Facility to store and update Grievance Redressal Policies & Procedures				
263	Facility to edit the policies by specified level of authorities				



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)	
264		Facility to define composition of the GR committees			
265		Facility to list various techniques to facilitate communication			
266		Facility to maintain checklist of the documents that employees need to submit as part of the procedures			
267		Number of court cases filed at court, tribunal & other competent authority			
268		Number of grievances disposed per year			
269		Facility to generate reports on the total number of complaints docketed for a specified period			
270		Facility to generate reports on the total number of grievances handled during a specified period			
271		Facility to generate reports on the various types of grievances handled during a specified period			
272		Facility to generate reports on the average time taken to resolve a grievance.			
273		Facility to maintain database of empanelled lawyers and arbitrators and their fees structure.			
274		Facility to maintain and update all engagement orders, hearing and outcomes			
275		Facility to maintain lawyers.			
276		<b>Employee Exit Management</b>	Facilitate e-Exit process for employees at the time of exit. For retirement, send reminder of the retirement date to the employee one year in advance		
277			Ability to fill exit interview form by superior & HR (for resignation)		
278	Ability to process NDC (No Demand Certificate)/ clearance from various departments at the time of Exit through E-Exit process				
279	Ability to notify (flag) individuals of any outstanding balances from various departments such as payroll, time office, purchase, establishment procurement- whichever applicable) when employee exits				
280	Ability to generate and print Leaving Certificate /Experience Certificate once all approvals are granted				
281	Ability to maintain case details of the employees reinstated/reappointed after being terminated				
282	Nominee selection provision after the death of employee				
283	Ability to retrieve details of terminated employees in case he/she is reinstated or reappointed				
284	Ability to calculate entitlements of the exiting/ retiring employees.				
285	Ability to initiate for NDC at the time of transfer				



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
286		Ability to record request for transfer through employee self-service and indicate appropriately at the time of transfer exercise. Record of such request wherever acceded to be maintained		
287		Ability to provide promotion letter/increment letter through the system		
288		Ability to view clearance request approved/ rejected by department and the reason for the same		
289		Ability to generate reports on the total number of employees applied for transfers, number approved/rejected/pending		
290		Ability to view HR Policies & Procedures Handbook including list of infrastructure facilities for particular level of employees, authority for various approvals (DoP), special or additional powers for authorization		
291		Ability to provide links to the important items hosted in various in-house websites/ intranet e.g. important circulars/ instructions/ policy documents etc.		
292		Ability to define VRS guidelines		
293		Ability to request for VRS as per the rules defined for the scheme		
294		Ability to generate reports on the total number of employees applied for VRS, number processed/rejected/pending per year		
295		Ability to Provide workflows. Accommodates multiple levels of review and approval		
296		Facilitate administrator to create new self-service transactions as and when required.		
297		Ability to view clearance request approved/rejected by department and the reason for the same		
298		Ability to generate reports on the total number of employees applied for resignations/VRS, number approved/rejected/pending ability to view the complete report on the exit formalities which would be available whenever it wants to be seen		
299	<b>Payroll, Loans and Retirement Benefits</b>	Maintenance of employee database		
300		Pensioner database		
301		System should maintain Pensioner database for all employees before 2063BS and retirement fund for others.		
302		Generation of pay bill and pension bill		
303		Facilitate tracking and accounting of Medical reimbursements, leave encashment, gratuity, other retirement benefits, etc.		
304		Tracking and clearance of employee liabilities		
305		Monitoring and recovery of employee advances –		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
		disbursement, recovery, interest, etc.		
306		Facilitate leave management		
307		Facilitate transfer of employee liability on transfer –interface with Finance module		
308		Generation of pay slips and tax slips		
309		Issue of salary certificate for tax purpose		
310		Facilitate full and final settlement of employee		
311		Issue of pension payment order to manage pension payments.		
312		Ability to maintain nominee details and payment to nominee in case of death of an employee (Integrate with Employee Master)		
313		Ability to prepare statutory dues statement details & bank clearance month wise as per statutory scheme and remittance activity to the designated bank account		
314		Ability to process the statutory pension cases at the time of retirement/death/resignation/transfer		
315		Ability to support pooling the monthly contribution of PF in to the online PF management system		
316		Allows differentiation of employees (e.g. PF not deductible based on eligibility criteria)		
317		Ability to Support PF settlement process including generation of settlement sheets and relevant vouchers for accounting		
318		Ability to support process of taking GPF advance online from the centralized GPF section		
319		Ability to support calculation of periodic interest and crediting the amount to the accounts		
320		Ability to perform PF application processing, loan sanctioning, loan disbursement, modification of loan installments, loan short closure, recovery through payroll, final settlement during closing/transfer for different type of PF loans (support linkage with loans against PF)		
321		Ability to deduct loan installments (& separately track deductions, loan balance etc)		
322		Ability to Generate all types of MIS reports as per request of Bank (like PF ledger, PF loan ledger, Pension rule, PF rule, Gratuity rule (online) etc.)		
323		Ability to provide PF Returns and other statutory forms		
324		Ability to adjust PF deductions (& other allowances) between lending company and NEA (applicable for employees on deputation)		
325		System should generate all types of reports/registers related to PF management		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
326		Ability to allow multiple user-defined messages to be printed on Cheques		
327		Ability to generate various information as to be required time to time by the statutory authority relating to PF settlement, PF loan, trustee activity information, statutory pension information and information as pertaining to contractual employees, etc		
328		Ability to generate various information as required by the statutory authority from time to time regarding awarding contract to the contractors with job details , payroll information, compliance to statutory authority in respect of contractors' employees, etc.		
329		Ability to perform gratuity calculation, provision & accounting employee- wise as per user defined rules		
330		Ability to perform forfeiture of Gratuity in case of dismissals etc.		
331		Ability to generate gratuity payment cheques/ bank A/c.		
332		Ability to maintain nominee details and payment to nominee in case of death of an employee		
333		Ability to generate all types of reports/registers related to Gratuity management		
334		Ability to intimate the employees three months before their retirement about their PF subscription, PF Loan, Gratuity and Pension claim forms etc.Calculate, sanction and authorization of pension, gratuity & family pension		
335		Ability to perform pension sanctioning and authorization process.		
336		Ability to maintain nominee details to facilitate pension processing		
337		Ability to support pension disbursement and support multiple payment modes for pension		
338		Ability to calculate family pension and payment		
339		Ability to support all related accounting procedures including generation of vouchers and related reports		
340		Ability to perform Income tax calculation and deduction for pension payment as per Government of Nepal guidelines		
341	<b>Pension Payment Management</b>	Ability to define norms for calculation of monthly pension /family pension/ approval of rolls for payment		
342		Ability to capture the details of pensioners from existing pension disbursing Units		
343		Ability to capture basic details of pensioners/family pensioners whenever new pensioner/family pensioner is added from ERP software		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
344		Ability to migrate data from existing system to new system		
345		Ability to edit pensioner/family pensioner details by the pension disbursing offices with at least two level of checks/approvals		
346		Ability to Generate regular pension roll based on the data available in the database		
347		Ability to generate fund requisition note of Commutation of Pension and Gratuity and onward submission to concerned corporate offices.		
348		Ability to maintain pension schedule on par with scale register maintain in the units		
349		Ability to generate pension arrears/DA arrears/supplementary rolls		
350		Ability to perform Income tax calculation		
351		Ability to revise DA from the applicable date centrally and generation of DA arrears		
352		Ability to revise pension whenever pension is revised and calculation of arrears		
353		Ability to stop disbursement of pension/family pension at the time of death of pensioner/Family pensioner or at the time of non-production of life certificate and re-start the generation of pension/family pension once life certificate is produced and also calculation of pension/family pension for the months stopped by providing provision for generation of supplementary rolls		
354		Generation of digital Life certificate and integrating the same with the pension/Family pension roll.		
355		Ability to generate enhanced family pension for death while in service and restore to normal family pension after the date of restoration to normal family pension amount		
356		Ability to restore normal pension after the date of restoration of commutation		
357		Ability to transfer the pensioner/family pensioner to other divisions wherever he/she requests		
358		Ability to receive the pensioner/family pensioner transferred from other division		
359		Ability to sanction Family pension due to death of existing pensioner		
360		Ability to maintain nominee details and payment to nominee in case of death of pensioner/family pensioner		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
361		Ability to delete unapproved pension rolls/bills		
362		Ability to deduct deductions from Pension while generating pension/family pension roll and preparation of deduction statement		
363		Ability to set alert whenever life certificate is due / at time of normal restoration of pension/family pension		
364		Ability to send reminder message to pensioner/family pensioner for life/re-marriage certificate via e-mail/sms/ apps like whatsapp, viber etc		
365		Ability to generate fund requisition statement and fund requisition letter based on rolls generated.		
366		Ability to arrange payment of monthly pension/family pension to all disbursing divisions by PENSION TRUST.		
367		Ability to generate all reports in connection with pension payment		
368		Facility to send message regarding payment made to individual pensioners via e-mail/sms/ apps like whatsapp, viber etc		
		Reporting Requirement		
369		Ability to view and take printouts of monthly pension rolls/supplementary bills/ pension arrears/DA arrears bills at Disbursing Unit		
370		Ability to generate report of stopped pensioner due to various reasons like non-production of life certificate/death		
371		Ability to generate Report for alerting restoration of pension/family pension every month or for stopping the pension for the want of life certificate		
372		System should generate all types of reports every month in connection with pension management like providing details of pensioners whose pension has been stopped for various reasons like transfer out, death or for want of life/re-marriage certificate and for addition of pensioner/ family pensioner by superannuation/VR etc.,		
373		Report showing all disbursements pertaining to single person from the date of commencement till the date specified.		
374		Disbursing Unit has to get Monthly report showing details of basic pension, DA, deductions and net amount to be payable		
375		Ability to take print out of fund requisition statement by the Units		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
376		Ability to view the reports even by Audit wing		
377	<b>Reimbursement of commutation and gratuity paid by office</b>	System should maintain Pensioner database for all employees before 2063BS and retirement fund for others.		
378		Generation of rolls for reimbursement of amount requested by corporate office of NEA after the payment from their side		
379		Ability to generate fund requisition letter and fund statement at Trust office		
380		Arranging payment of commutation and gratuity to Corporate office of NEA by Trust		
381		Reporting Requirement		
		Month-wise reports showing the details of amounts paid to Corporate office of NEA by Trust towards reimbursement of commutation and Gratuity with bifurcation among GoN.		
382	<b>Pension Trust and Gratuity Trust Accounts</b>	Ability to capture receipts in the form of contribution from NEA and employee to both Pension Trust and Gratuity Trust		
383		Maintenance of Cash book		
384		Capturing payments of Pension/Family pension, Commutation of Pension from pension module and Death cum retirement gratuity payments from gratuity module		
385		Generation of cash analysis, Trial Balance, Bank Reconciliation Statements, Cash flow/receipts and payments statements periodically		
386		Preparation of Annual Accounts of both Trusts including balance sheet, P&L account and schedules		
387		Maintenance of various schedules like investments, contributions, disbursements of pension and gratuity		
		Reporting Requirements		
388		Monthly cash book reports		
389		Ability to show cash analysis, Trial Balance, Bank Reconciliation Statements, Cash flow/receipts and payments statements periodically		
390		Ability to display of Annual Accounts of both Trusts including balance sheet, P&L account and schedules		
391		Reports showing the investments, contributions disbursements of pension and gratuity periodically		
392		<b>Loans &amp; Advances</b>	Facility to define/ alter multiple types of loans and Advances as per the applicable rules and regulations.	



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
393	<b>Management</b>	Facility for on-line application of loans, via self-service functionality		
394		Facility to scrutinize of loan applications based on the checks such as available allocation of funds, Basic Pay of individual, duration of service, number of times advance is availed.		
395		Facility to calculate instalment /EMI of various types – simple / compound / monthly reducing and capture repayment conditions		
396		Provision to allow definition of hierarchical workflows for approval of loans/advances		
397		Provision for integration with HRMS module for recovery of loan instalment, etc.		
398		Facility to change any specific instalment/ EMI and define the effect on the remaining EMIs on change in interest rates etc.		
399		Provision for integration with employee service records for check of eligibility of loan and loan amount.		
400		Provision for employee to submit information of Loans / Advances from other than Government Agencies		
401		Ability to support encashment of Leave, Tours and travel and also on retirement with consequent tax adjustments		
402		Ability to release of festival advance and other advances (user defined) against salary		
403		Ability to Employee-wise recovery position, recovery list and outstanding balances list - month-wise or as user defined		
404		Ability for payment of medical reimbursement, allowances, recovery and taxation (if any) thereon		
405		Ability to support Recovery of union/associations contributions		
406		Ability to support payment of educational allowance, transfer allowances and any other user defined allowances		
407		Ability to support recovery of all other types of loans with reports like recoveries made, overdue list etc.		
408		Ability to support calculation of incremental arrears with consequent tax adjustments		
409		Ability to support payment of salary arrears as per the industry level settlements with tax adjustments. Also support payment of arrears calculated in user defined installments or in lump sum		
410		Ability to attach loan sanctioning rules to every loan type		
411		Ability to allow payroll to deduct the amount due from an employee (in case of loans/advances etc.)		
412		<b>Pay Fixation</b>	Provision for pay revision for annual increment	



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
413	<b>and Arrear Management</b>	Provision for Pay fixation and revision on promotion/demotion		
414		Provision to process arrear and backdated payment calculations based on pre-defined criteria		
415		Facility to calculate incremental arrears with consequent tax adjustments		
416		Ability to calculate arrears in case promotion is made with retrospective effect		
417	<b>Employee Claims</b>	Facilitate leave encashment form		
418		Facilitate allowance claim form		
419		Facilitate medical reimbursements, etc. related forms.		
420		Ability to integrate with Fixed Asset Module, Project Accounting Module, Finance Module and Materials Management Module. Employee Management		
421		System should be able to generate and maintain employee turnover data and any other reports it may be Require for official purposes		
422		Ability to issue orders granting Band Pay		
423		Ability to track and record all compensation payment made towards accident related cases under relevant laws of Government of Nepal.		
424		Ability to show details on all aspects, place of accident (office), cause, report on how the accident happened, witnesses, name of investigation officer, and other officers involved in the process at the field, investigation details and determination of compensation amount		
425	<b>Monthly Payroll</b>	Ability to consider all employee income and recoveries at the time of running payroll.		
426		Ability to prepare statutory returns and certificates pertaining to employee benefits including salary slip, tax slip, PF, Gratuity, etc.		
427		Ability to maintain the employee-wise sub-ledger for advances & receivables		
428		Ability to prepare bank payment vouchers for payment of salary to employees		
429		Ability to capture salary details according to cost centre wise, responsibility centre-wise, element wise, account code wise, etc. for costing appropriation		
430		System should be able to maintain information for all employees with respect to the payments made against reimbursement, sick leave, particulars of doctors sanctioning the same, list of approved hospitals, data of medical classification (wherever applicable)		
431		System should be able to monitor the recurrent		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
		reimbursement per employee per disease.		
432		System should be able to produce all medical reimbursement details for indoor, outdoor and special diseases every month.		
433		System should be able to verify the document requirement as per rules for reimbursement.		
434		Ability to capture medical bill, hospital bills, etc. for medical reimbursements.		
435		Ability to check eligibility criteria for various loans and advances. Ability to calculate EMI of the loans and advances for recovery.		
436		Ability to produce TDS certificate for employees		
437		Ability to show & print Employees pay-slip at users end		
438		Support statutory Compliance with local labour laws.		
439		Ability to segregate the purchaser's contribution towards PF and distribute to respective authorities.		
440		Ability to timely prepare and submit various statutory returns like withholding tax.		
441		Ability to process employee recovery data and payment to authorities like PF, etc.		
442		Ability to generate Overtime & Absenteeism Report		
443		Ability to generate deduction report.		
444		Ability to generate all Loans & Advances Ledger.		
445		Ability to prepare Income Tax salary certificate		
446		Ability to prepare PF contribution by employee and same amount contributed by purchaser segregated to PF		
447		Ability to prepare Loan recovery list		
448		Ability to create monthly pension bill for payment to pensioners.		
449		Ability to prepare Annual ledger of each pensioner		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
450		Provision to define and configure types of Welfare Schemes, and types of loans based on study of current practices at NEA.		
451		<p>Provision to define types of Allowances, Currently NEA has following type of Allowances</p> <ol style="list-style-type: none"> <li>1. Health allowance Employee get health allowance as 1 month salary in each fiscal year *Employee recruited before 2054/10/03 BS can get allowance additional as below <ul style="list-style-type: none"> <li>● Level 8 and above 15 month salary</li> <li>● Level 6 and 7 17 month salary</li> <li>● Level 5 19 month salary</li> <li>● Level 1 to 4 21 month salary</li> </ul> </li> <li>2. Festival allowance</li> <li>3. Travel allowance, Daily allowance during field visit can be taken as advance payment</li> <li>4. Special travel allowance and sick caring allowance</li> <li>5. Strong diseases allowance</li> <li>6. Accidental allowance while working</li> </ol>		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
452		7. Local, rent and other allowances 8. Night shift allowance 9. Hardship allowance 10. On call allowance 11. Cash allowance for cashier 12. Electricity subsidy 13. Dress allowance 14. Phone allowances 15. Vehicles subsidy 16. Motivational allowance		
		Ability to generate reports on list of employees for whom system notified error in payroll run		
453		Ability to produce reports on employee cost by employee/ Organization unit/Designation, etc.		
454		Ability to provide for online ad-hoc calculation of employees pay slip / salary amount		
455		Ability to evaluate different scenarios for change in pay-roll structures		
456		Ability to provide an impact analysis tool for analysis of impact of revision of any / all components like pay, allowances, deductions etc.		
457		Ability to display the status of the Payroll calculations		
458		Ability to run Payroll multiple times before finalization to ensure accurate pay computation		
459		Ability to post the amount of salary paid for each element of pay for an employee, based on the relevant GL account code and employee cost centre information to General Ledger. Financial postings include: Element, Amount, GL Account, Cost Centre		
460		Ability to Post salary payment advice including multiple payment methods such as bank, cash and cheque to General Ledger		
461		Ability to generate pay slip with following detail: Taxable and non-taxable components in separate columns, Tax till date, Calculated, Recovered, Projected, Loan balances and no. of installments deducted / left, Provident fund opening balance, interest till date, closing balance etc.		
462	<b>Personal Taxation</b>	Ability to Define tax rules to determine employees tax liability as per changes in statutory legislation for actual tax liability of employee		
463		Ability to capture employee asset details such as various land holdings, investments in shares, any bank deposits and various sources of income		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)	
464		Ability to provide investment declaration form in electronic format. The employee will be required to fill and submit the form electronically so as to automatically updation of salary record and tax calculation by the system			
465		Online entry of Sampati Bibaran			
466		Ability to ensure support for major statutory reports / certificates of taxes in the user defined format			
467	<b>Deductions</b>	Ability to establish deduction limits for each deduction based on various parameters like: Employee, Job Classification, Company, Benefit plan, Salary			
468		Ability to make deductions effective: In the current period, In any pay period or periods selected, In any user-defined frequency selected, Between user-defined start and stop dates, Until an user defined limit is reached			
469		Ability to have Start and stop dates for deductions should be maintained: On the Employee Master file, On employee level			
470		Ability to reverse deduction to be included in next pay check if incorrectly withheld / Option with user			
471		Ability to determine deduction amounts by: Amount of earnings, Percent of earnings, Number of hours			
472		Ability to prioritize deductions: Using the deduction code, Using a separate priority number			
473		Ability to be prompted by system when employee status changes to leave to determine how deductions will be paid while on leave: take when return lump sum			
474		Ability to apply or stop various deductions based on employee status changes			
475		<b>Communications along with gist of the orders</b>	Facility to maintain compliance of the orders of different courts		
476			Facility to maintain record of category of court cases at high court such as writ, civil revisions, appeal, contempt of court etc.		
477	Facility to maintain details of appeals filed by the company against different orders				
478	Facility to maintain all relevant database for all courts, tribunals, Compensation court, gratuity tribunal including appellate forums				
479	Facility to maintain database regarding arbitration				
480	Facility to maintain database regarding conference with different legal professionals/bodies/associations				
481	Facility to maintain legal opinions given by different legal professionals/legal cell				
482	Facility to maintain database regarding cases for out of court				



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
		settlement through empowered committee		
483		Facility to check/monitor status of all pending cases including cases on service matters related to employees and contract/ outsourced labourers		
484		Facility to maintain checklists for defending any case filed against the company		
485		Facility to record bills of the advocates and compare that with their charge rates and appearance dates		
486		Facility to maintain checklists of the supporting documents that an advocate needs to submit while raising bills		
487		Facility to alert users if advocate bills are stored into the system without all supporting documents		
488		Facility to generate reports on total number of awareness programs conducted on legal issues during a specified period		
489		Facility to generate reports on the total amount of payout on litigation cases during a specified period		
490		Facility to generate report on review of court cases		
491		Facility to generate reports on the total number of legal cases filed against the company by employees (per year) against disciplinary actions /non settlement of terminal dues/other issues		
492		Facility to generate reports on the total number of legal cases filed against the company by others during a specified period		
493		Facility to generate reports on the total number of employee court cases decided in favour of the company		
494		Facility to generate reports of pending cases allotted to particular advocates by any office		
495		Facility to generate reports of pending cases according to involvement of outstanding dues		
496		Facility to generate reports of pending cases according to date/month of filing the cases		
497		Facility to generate reports on amount of revenue allowed by court in favour of company after disposal of cases		
498		Facility to generate reports advocate wise and office wise legal expenditure		
499		Facility to generate reports on amount realised through out of court settlement		
500	<b>E-Payment</b>	Ability to raise request for expenses such as medical reimbursement/travel reimbursement/stationery/local conveyance etc.		
501	<b>Conference Room</b>	Ability to automate conference room / seminar hall / auditorium booking		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
502	<b>Booking</b>	Ability to raise requests for conference room booking based on availability		
503		Ability to cancel/modify conference room booking		
504		Ability to approve/decline conference room booking		
505		Ability to add/remove approving authority for approval of conference room booking		
506		Ability to add/delete list of conference rooms		
507		Ability to integrate with finance to generate bill for providing conference hall on rent		
508		<b>Guest House Room Booking</b>	Ability to automate Guest House / Inspection Bunglow / Circuit House booking	
509	Ability to raise requests for booking of rooms			
510	Ability to add/delete list of rooms			
511	Ability to show availability of Guest Houses/rooms on a specific date, time and by the concerned employee/department and purpose			
512	Ability to raise requests to cancel/modify room bookings			
513	Ability to approve/decline request for room bookings			
514	Ability to add approving authority for approval for room booking			
515	Ability to accommodate request of extending/shortening booking period for already booked room			
516	Ability to approve/decline request for extending/shortening booking period for already booked room			
517	Ability to raise requests for guest house booking for guests & other field employees			
518	Ability to view status of requests for guest house booking for guests & other field employees			
519	Ability to approve requests for guest house booking for guests & other field employees by administrator			
520	Ability to integrate with finance to generate bill for providing Guest House on rent			
521	<b>Departmental quarter allotment</b>	Ability to maintain and update the policies regarding departmental quarter allotment		
522		Ability to process application for quarter allotment		
523		Ability to view/update the list of present occupants of the quarters, and list of vacant quarters		
524		Ability to deduct the quarter rent from the salary of the occupants (integrate with the Payroll module)		
525		Ability to issue the No Demand Certificate when occupants vacate the quarters and consequently stop deducting rent from salary (integrate with Payroll module)		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
526		Ability to provide reports on the list of present occupants of the quarters, quarters they are occupying, and list of vacant quarters		
527		Ability to provide reports on the total number of applications processed regarding quarter allotment in a year		
528	<b>Employee welfare and CSR</b>	Ability to maintain the history of employee welfare and CSR initiatives undertaken over time, separately		
529		Ability to calculate the amount spent on employee welfare and CSR initiatives separately		
530		Ability to provide separate reports on the total number of employee welfare and CSR initiatives undertaken within a specified time with amount spent on each		
531	<b>Miscellaneous requirements</b>	Facility to generate Appreciation Letter and to record the outstanding work done by the employee for which the Appreciation Letter is being awarded.		
532		Ability to process time bound scale like 10- 14.		
533		Facility to issue NOC for purchasing property, going abroad, making passport, etc.		
534		Ability to record the process of giving a gift to the employee at retirement		
535		Employee should have the ability to increase/decrease the deductions in respect of his GPF, Club Fee, etc.		
536		Ability to process for cashless medical claim provision with authorized hospitals		
537		System should provide facility for probation management (On training and on promotion)		
538	<b>Performance Linked Incentive (PLI) Scheme</b>	Ability to take input from the corporate and departmental scorecards to update data such as target setting etc for computing the PLI for NEA		
539		Ability to calculate the amount disbursable for PLI for all employees in each department and unit of NEA		
540		Ability to calculate and maintain the history of PLIs earned by each employee in a year		
541		Ability to make comparisons of year wise PLIs earned by functions/departments		
542		Ability to provide reports on the total amount disbursed as PLIs in each year (department wise as well as employee wise within a department)		
543	<b>Departmental Exam</b>	Ability to capture all the employee's details who are appearing for departmental exam.		
544		Ability to Capture marks obtained in offline exam.		
545		Ability to generate the results.		
546		Ability to generate various reports such as Hall-Ticket, Result Register, Result OM etc.		



### 3.1.4 Maintenance Management

In NEA, maintenance work is carried out in hydropower plants, substations and transmission and Distribution line. The components covered in the inspection checks in hydropower plants are civil structures (Dam/Weir and Headwork Structures, Conveyance System, Powerhouse Structures), maintenance of Hydro-turbine & Auxiliaries, Maintenance of Generator & Auxiliaries, Routine Maintenance of Power/Distribution Transformers, Routine Maintenance of Hydro-Mechanical Equipment etc. Similarly, maintenance of transmission lines includes conductor repair/ replacement, pole replacement, conductor joining, insulator washing, vegetation management on the RoW etc. Inspection and test are out for individual equipment in the sub- station.

SI No	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
1	<b>Generator, Substation and Transmission and Distribution Line Maintenance</b>	Ability to interface with other modules of NEA like Financial Management Module, HR Management, Materials Management Module and Project Management Module		
2		Ability to receive work orders from Materials Management Module		
3		Ability to group the work order based on the nature of work like: 1) Planned Maintenance 2) Breakdown / Emergency Maintenance		
4		Ability to send online request to higher Official for execution of work order		
5		Ability to receive online approval from higher Official to carry out a particular work		
6		Ability to view steps and milestones of a work order to be executed		
7		Ability to meet reporting requirements of approved documents like: Standard Operating Procedures, Maintenance Schedule, Safety Manual, Transmission System, Planning Procedures, Procurement Policy & Procedures, Budget Policy & Procedures, Standard project reporting formats.		
8		Ability to provide necessary information to generate predefined Score Cards for monitoring of Key Performance		



SI No	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
		Indicators		
9		Ability to capture testing related parameters of equipments whose tests are carried out		
10		Ability to integrate with SCADA system and transfer information from SCADA. Ability to collect real time parameters of key elements across multiple locations.		
11		Ability to view precautionary steps/safety instructions to be followed for executing every work order as per NEA rules and regulatory requirements		
12		Ability to create equipment master list that includes elements such as: power station, unit, main system, sub-system, sub-system identification, equipment number, equipment identification, equipment group, sub-assembly, equipment description, the parent child relationships between equipment and other acquisition details such as cost, manufacturer, model, Original installation, purchase details, and warranty date etc, BOM (parts list), spare parts data, and suppliers, Record of movement of an equipment from one location to another during a given period of time.		
13		All technical documents should be stored into DMS and to be linked with concerned asset under ERP module		
14		Ability to identify defects against the equipment master list.		
15		Ability to send alerts to- concerned users, when a breakdown defect is reported, using but not limited to the following: email, SMS.		
16		Ability to define codes for each defect		
17		Ability to flag break-down job which requires shutdown and request for shut down for a specified duration be generated		
18		Ability to Support shift management including but not limited to: - Continuation staff in various shifts to ensure the continuity of maintenance work - Provision for absences		
19		Using a project plan for overhauling/Annual Maintenance, ability to prepare a detailed maintenance schedule including the list maintenance activities.		
		<b>Reports</b>		
20		Ability to generate exception reports – List of works carried out by not complying with the defined service and execution standards of NEA		



SI No	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
21		Ability to generate reports confirming to technical, operational, regulatory, statutory and other business requirements		
22		Ability to generate zone wise or area wise reports for energy loss, outage list, monthly work program, material stock position and line patrolling schedule		
23		Operation and Maintenance manuals be stored in all common formats including Microsoft Word, Excel, scanned images, AutoCAD drawings, PDF etc		
24		Ability to define comprehensive user defined reports be defined covering all maintenance information including but not limited to: - Percentage of preventive maintenance - Percentage of total breakdowns - Percentage of predictive maintenance - Percentage of proactive maintenance - Mean time between failure (MTBF) - Mean time to repair (MTTR)		
25		Capturing the break-up of the maintenance cost. This includes the details such as: - Percentage cost of preventive, break-down and conditions-based maintenance - Function wise break-up of maintenance cost		
26	<b>Manage Routine Maintenance</b>	Ability to upload the list of routine maintenance plan on system		
27		Ability to view the list of pending routine maintenance plans		
28		Ability to raise maintenance execution orders pending list as SMS alerts at defined intervals to concerned officials to assist proactive work plans		
29		Ability to raise the flags to the concerned officials assigned for the Routine work orders and Execution orders		
30		Ability to help reviewing Routine Maintenance Schedules execution orders as per geographic locations		
31		Ability to keep track of skill wise location of manpower for assigning jobs based on proximity, skill and availability		
32		Ability to allocate online, particular work to concerned department /group of personnel/ individual		
33		Ability to view job allocations for individual resources		
34		Ability to reallocate field resources as per job requirement both for internal Employees of NEA or contract laborers		
35		Ability to view job wise special tools requirement for carrying out an execution order		



SI No	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
36		Ability to view the real time location wise material availability		
37		Ability to raise requisition to stores for issue of the material required for carrying out execution order.		
38		Ability to highlight in the requisition, the location wise material availability		
39		Ability to send a purchase request to procurement department if work needs purchase of material (This should be raised after viewing the availability of the material online)		
40		Ability to upload the receipt of material required for work		
41		Ability to generate a requisition for PTW (Permit To Work) in order to isolate equipment for maintenance and forward the same online for Authorized Person's approval		
42		Ability to receive approvals including PTW online from the Authorized Persons		
43		Ability to view all PTW issued/outstanding on a piece of asset or a system itself		
44		Ability to capture details of accidents required for further proceedings		
45		Ability to share accident related information with HR Management & General Administration module for legal requirements		
46		Ability to view past details of accidents along with actions taken		
47		Ability to close all work permits issued on a particular asset after completion of the job on it and inform about the same to all the concerned Officials online		
48		Ability to record and archive all executed work permits		
49		Ability to update the details of work carried out on a particular job in the system		
50		Ability to update the details of material consumed in execution, in the Procurement and Materials Management Module		
51		Ability to update reasons for delay in executing a particular maintenance job		
52		Ability to graphically depict and manipulate online schedules in the form of GANTT charts by multiple variables like period, time, work group , work order relationship, etc		
53		Ability to generate PO (Purchase Order) for labour contracts		
54		Ability to enter routine testing results into system		



SI No	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
		<b>Reports</b>		
55		Ability to generate the list of maintenance execution orders received for the day / week / month / user defined period		
56		Ability to generate report on the equipment utilization history and statistics of performance		
57		Ability to view the list of pending maintenance execution orders for the day / week / month / user defined period		
58		Ability to view the details or reasons for specific pending maintenance jobs as a report for user defined period		
59		Ability to calculate the cost of resources utilized for carrying out a particular job and generate it as a report		
60		Ability to generate maintenance schedule report		
61		Ability to generate reports for Planned Maintenance Vs Achieved Maintenance for all types of maintenance jobs for user defined periods		
62		Ability to generate cost of maintenance report for each equipment/group of equipment/ types of equipment or user defined sets		
63		Ability to generate Contract Labour Attendance Report		
64		Ability to generate labour requirement report for various maintenance works		
65	<b>Manage Preventive / Predictive Maintenance</b>	Ability to upload the Preventive/Predictive Maintenance Plan for a set of equipment / system		
66		Ability to view the Preventive/Predictive Maintenance Plan for a set of predefined maintenance equipment / system		
67		Ability to raise alerts in form of SMS to do periodical testing of equipment based on certain pre-set parameters (Time based, Meter based, Condition based, and Period based)		
68		Ability to review any outages, overhauls or shutdowns planned for user defined period		
69		Ability to list and raise the flags to the concerned personnel who are allocated the execution orders		
70		Ability to generate a requisition for PTW (Permit To Work) in order to isolate equipment for maintenance and forward the same online for Authorized Person's approval		
71		Ability to receive approvals including PTW online from the Authorized Persons		
72		Ability to view all PTW issued/outstanding on a piece of asset or a system itself		
73		Ability to exchange information with system study software for carrying out load flow study, sensitivity analysis etc.		



SI No	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
74		Ability to aid investigation of issues and update details of the problem specified based on historical information		
75		Ability to allocate resources for carrying out Preventive / Predictive Maintenance activity		
76		Ability to maintain detailed history of the equipment to be maintained		
77		Ability to receive triggers from the system to do maintenance checks on the resources whose warranty period is due for expiry		
78		Ability to view job wise special tools requirement for carrying out an execution order		
79		Ability to view the real time location wise material availability from the Procurement and Materials Management Module		
80		Ability to raise requisition to stores for carrying out execution order		
81		Ability to highlight in the requisition, the location wise material availability as tracked in the Procurement and Materials Management Module		
82		Ability to send a purchase request to procurement / materials department if work needs purchase of material (This should be raised after viewing the availability of the material online)		
83		Ability to capture details of accidents required for further proceedings		
84		Ability to share accident related information with HR Management & General Administration module for legal requirements		
85		Ability to view past details of accidents along with actions taken		
86		Ability to raise requisition to concerned official for issue of mobile vans		
87		Ability to highlight in the requisition, the location wise availability of mobile vans		
88		Ability to store history and detailed results of various tests performed on an asset		
89		Ability to capture all the Preventive /Predictive Maintenance activities carried on an asset. Ability to retrieve these details as and when required for future reference		
90		Ability to automatically rearrange Preventive / Predictive Maintenance Schedules as and when the previous activity is accomplished or due to problems like manpower shortage, other unforeseen circumstances, etc		



SI No	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
91		Ability to generate PO (Purchase Order) for labour contracts		
92		Ability to escalate through a trigger to one's senior Official if a Preventive/Predictive Maintenance activity is not carried out within the specified time frame		
		<b>Reports</b>		
93		Ability to view the list of Preventive / Predictive Maintenance activities to be carried out in a specified period as a report		
94		Ability to generate report on the equipment utilization history and statistics details of its performance		
95		Ability to generate a comparative report detailing the list of Preventive/Predictive Maintenance activities to be carried out and the actual Preventive/Predictive Maintenance activities carried out over a specified period		
96		Ability to view online various reports related with critical equipment like reliability centred maintenance report, risk-based inspection report, etc		
97		Ability to use details of planned Preventive / Predictive Maintenance activities for resource allocation and scheduling		
98		Ability to generate a report of missed out Preventive/Predictive Maintenance activities for a specified period		
99		Ability to view as a report the detailed maintenance history of an asset on which Preventive/Predictive Maintenance activity was carried out		
100		Ability to view the list of all assets which are due for inspection/maintenance based on chronology		
101		Ability to generate a report on common equipment failures based on fault codes		
102		Ability to list as a report the MTBF (Mean Time Between Failures) and the MTBR (Mean Time Between Repairs) for an item of an asset/equipment		
103		Ability to generate a report with historical data of failures on an asset over a set time period		
104		Ability to generate Preventive/Predictive Maintenance Plan and Overhaul Plan		
105		Ability to generate an Annual Maintenance Calendar		
106		Ability to generate Preventive/Predictive Maintenance Report of Transmission Lines		
107		Ability to generate Preventive/Predictive Maintenance Report of Sub-Stations		



SI No	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
108	<b>Manage Emergency / Breakdown Maintenance</b>	Ability to receive the details of Transmission Line or Sub-Station faults in the database		
109		Ability to receive inputs regarding breakdowns of any network component / equipment capturing severity & criticality		
110		Ability to aid in investigation of the inputs regarding breakdown received and update the details of problem in the database		
111		Ability to list and raise the flags to the concerned personnel allocated for handling the complaint		
112		Ability to allocate resources for rectifying / replacing network component / equipment		
113		Ability to intimate to higher authorities about any component/equipment replacement and obtain their approval online		
114		Ability to view the list of special tools required for handling the inputs regarding breakdown		
115		Ability to check for the availability of material (including network component / equipment) in the stores		
116		Ability to view the real time material availability in the Procurement and Materials Management Module		
117		Ability to send request to the competent authority for procurement of equipment		
118		Ability to request issue of material (including network component/equipment) through online to the procurement/material management department with the necessary approvals from the concerned Officials		
119		Ability to upload the receipt of the material required for work		
120		Ability to update the details about job completion		
121		Facility to record and update issues if any faced for maintenance related jobs		
122		Ability to detail out steps of work carried out along with resources in the database		
123		Ability to receive approvals including PTW online from the Authorised Persons		
124	Ability to view all PTW issued/outstanding on a piece of asset or a system itself			
125	Ability to view past details of accidents along with actions taken			
126	Ability to close all work permits issued on a particular asset after completion of the job on it and inform about the same to all the concerned Officials online			



SI No	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
127		Ability to record and archive all executed work permits		
128		Ability to update reasons for delay in executing a particular maintenance job		
129		Ability to graphically depict and manipulate online schedules in the form of GANTT charts by multiple variables like period, time, work group , work order relationship, etc		
130		Ability to raise requisition to concerned official for issue of mobile vans		
131		Ability to highlight in the requisition, the location wise availability of mobile vans		
132		Ability to upload the receipt of mobile van		
133		Ability to capture details of accidents required for further proceedings		
134		Ability to share accident related information with HR Management & General Administration module for legal requirements		
135		Ability to update information of release of mobile van		
136		Ability to generate PO (Purchase Order) for labour contracts		
137		Ability to enter testing results into system		
138		Ability to aid in tracking down the cost incurred in breakdown maintenance		
		<b>Reports</b>		
139		Ability to generate report on the equipment utilization history and statistics details of its performance		
140		Ability to report common equipment / asset failures and repair times based on the failure codes		
141		Ability to generate a report detailing the resources utilized to restore breakdowns in a period of time		
142		Ability to produce statistical report linking the cause of failures and the effects of failures		
143		Ability to generate report detailing MTBF (Mean Time Between Failures) and the MTBR (Mean Time Between Repairs) regarding breakdown		
144		Ability to report equipment down time and group of equipment down time over a period of time including their fault codes		
145		Ability to generate detailed breakdowns reports and costs associated with it		



SI No	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
146		Ability to generate Emergency/Breakdown Maintenance Report for Transmission Lines		
147		Ability to generate Emergency/Breakdown Maintenance Report for Sub-Stations		
148		Ability to generate a Progress Report and Status of Breakdown Maintenance		
149		Ability to generate reports on emergency / breakdown reasons for each equipment / group of equipment / types of equipment for user defined periods		
150	<b>Manage Statutory Requirement</b>	Ability to flag triggers on the statutory maintenance activities to be carried out on certain equipment at specified predetermined period		
151		Ability to view the previous statutory reports prepared on specified assets		
152		Ability to use earlier statutory reports as template for preparing new reports		
153		Ability to update necessary details in the system after completion of statutory maintenance activities		
		<b>Reports</b>		
154		Ability to generate reports as required by statutory authorities for a predetermined period on an asset or on an equipment or on a system		
155	<b>Asset Maintenance Maintain Asset and its Performance</b>	Ability to allow user to enter/define /view/modify and classify assets using internationally accepted nomenclature codes and/or NEA or regulator defined codes		
156		Ability to classify/store/retrieve/update details about assets based on:		
157		Hierarchy to be		
158		· Region in which it is present		
159		· Location where it is present		
160		Ability to develop and maintain a location-based Grid network for Asset mapping		
161		Ability to classify the locations with sub classification and specifications for an asset		
162		Ability to associate a single location with single or multiple assets		
163	Ability to graphically display a productive unit hierarchy displaying the parent and child relationship in the system			



SI No	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
164		Ability to associate assets into hierarchical or network systems (each sub location can have one parent for hierarchical system and multiple parents for network systems)		
165		Ability to modify location hierarchies by moving branches from one parent to another parent		
166		Ability to move the asset from one productive unit of the hierarchy to the other along with all the details of the asset		
167		Ability to keep track of history of location changes done on an asset or a part of the system		
168		Ability to track the location of asset as it is moved between stores, repair shops and vendors		
169		Ability to classify assets as operating assets and in-store assets		
170		Ability to search for a particular asset by providing minimal criteria of the same		
171		Ability to graphically locate and display/map equipment/asset meeting a specific criterion		
172		Ability to store all the details about the asset like Purchase Details, Vendor Details and their Recommendations, Expiry Details, Warranty Details, Name Plate Details, Technical and Engineering Details, etc		
173		Ability to access detail information of Asset from the Procurement and Asset from the Procurement and Materials Management Module		
174		Ability to assign inventory to GL by a respective account code and cross reference of an asset/component/equipment to the Financial and Accounting Management Module		
175		Ability to define and retrieve an asset by specifying a problem class or a problem cause with links to its current location		
176		Ability to track life-to-death accountability for assets		
177		Ability to allow / disallow multiple asset grouping and ungrouping		
178		Ability to allow multiple level grouping / hierarchy of assets (e.g. A transformer might belong to network connectivity hierarchy and also a part of geographically oriented hierarchy)		
179		Ability to roll-up maintenance costs across hierarchical systems, sub systems, and locations		
180		Ability to maintain real-time information associated with lines/equipments		



SI No	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
181		Ability to generate reports by assimilating the data manually logged in from control-room registers		
182		Ability to record the asset usage statistics		
183		Ability to define asset criticality factor for fault and maintenance management		
184		Ability to define failure classes and failure hierarchies to record equipment problems for immediate analysis		
185		Ability to maintain a track for reasons of asset failure (Root Cause Failure Analysis)		
186		Ability to view & update records related to any environmental issues or regulations to be followed in maintaining the asset		
187		Ability to record and maintain useful life of equipment for the purpose of repair and replace decisions along with the previous history of the equipments		
188		Ability to maintain asset manuals, technical drawings, operating instructions, safety instructions, schematics in a document library and ability to retrieve as and when required		
189		Ability to view the warranty details of an asset by any authorised user with ease		
190		Ability to check whether the asset is still under the period of warranty before issue of a work order. Ability to auto triggers and in turn pop up warning to user to take necessary action		
191		Ability to track & locate the real estate / land assets pertaining to NEA		
		<b>Reports</b>		
192		Ability to retrieve details about the performance of an equipment over a period of time		
193		Ability to generate a report on the asset usage statistics such as operating hours, number of operations, etc against the standard conditions		
194		Ability to generate a report detailing the outage hours of an equipment or an asset over a period of time		
195		Ability to generate a report on the operational statistics of an asset like Mean Time Between Failures, etc		
196		Ability to list a report detailing the idle assets in a location in specific period of time		
197		Ability to generate report on an asset based on user defined criteria like asset class, location, etc		
198	<b>Manage BOM / Tools /</b>	Ability to maintain the list of parts of equipment. Ability to maintain the details of real time quantities of parts available		



SI No	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)	
	<b>Spares</b>	in the stores			
199		Ability to maintain history of changes to part list of an equipment			
200		Ability to maintain the drawings of equipment parts along with the recent changes or modifications done on it.			
201		Ability to maintain details of individuals who made modifications for reference			
202		Ability to review the tools and equipment available			
203		Ability to set the ROL (Re Order Level) and ROQ (Re Order Quantity) of various spares required for the equipment			
204		Ability to notify to the concerned personnel once the spares' count reaches ROL (Re Order Level)			
205		Ability to send reminders to the concerned Officials who are in possession of tools if they do not provide the tools beyond the time limits allocated to them			
206		Ability to escalate the issue to higher Officials if the tools are not received from the concerned even after sending them the reminders			
		<b>Reports</b>			
207		Ability to generate a report detailing the list of tools and tackles available with various Sub-Stations/Sub-Area Offices, etc at any point of time			
208		<b>Cost Control of Assets</b>	Ability to automatically integrate an asset with the General Ledger, Accounts Payable, Accounts Receivable, Project Management and Budget of the financial system through an unique account code		
209			Ability to display detailed description about the account code assigned to the asset or equipment to the concerned Official		
210			Facility to capture information about resources such as description of work, unit, location and other fields as required		
211	Ability to update the standard labour/Contractor rates for a particular work to be done				
212	Ability to list the total cost incurred due to internal labour while carrying out a maintenance activity on an asset. This will include both directly entered labour hours and labour overheads				
213	Facility to allow manual keying in of minor project expenses like transport, petty cash, etc				
214	Ability to drill down costs from projects to source transactions				



SI No	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
215		Ability to break down project cost by resource type		
216		Ability to track project expenditures and compare it against the budget allocations		
217		Ability to raise a trigger if the actual expenditure has exceeded budgeted allocation		
218		Ability to list the total cost incurred due to usage of equipment or tools during work		
219		Ability to list the total cost incurred due to work performed by a Contractor		
220		Ability to approve the work performed by the Contractor by the concerned Official before payment of dues to them by the finance department		
221		Ability to establish costing limitations against a piece of asset / equipment or a productive unit		
222		Ability to capture cost expenditure against an asset including procurement, maintenance and disposal		
223		Ability to track asset expenditures and evaluate this against the budget allocations		
224		Ability to track costs/expenditures against an individual asset or a defined group of assets		
225		Ability to estimate cost to be incurred for a maintenance activity and send it to work order management system for invoice generation		
226		Facility to allow the user to project the cash flow for a user defined time period		
227		Allow changes in project expenditures and aid in preparation of revised cash flows		
228		Ability to roll all work order costs to the proper asset		
229		Ability to maintain cost history by location		
230		Ability to generate Sub-Station wise material allotment		
231		Ability to generate Purchase Orders and track their status		
		<b>Reports</b>		
232		Ability to display as a report all the maintenance cost incurred during the life of an asset including the labour, material and Contractor costs, etc		
233		Ability to simulate the life cycle maintenance cost for an item of equipment when different operational conditions and maintenance strategies are entered as parameters		
234		Ability to generate report detailing the total internal labour cost incurred due to maintenance of an asset/equipment or		



SI No	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
		a cost centre		
235		Ability to generate report detailing the total external labour cost incurred due to maintenance of an asset/equipment or a cost centre		
236		Ability to generate report detailing the total equipment usage cost incurred due to maintenance of an asset / equipment or a cost centre		
237		Ability to generate report for material requirement of decentralized items		
238		Ability to generate report for material requirement for centrally purchased items		
239	<b>List of additional reports</b>	Report on details of Tripping/Breakdowns of transmission lines		
240		Report on Shunt Capacitor Operation installed at various Grid Substation		
241		Report on Capacitors installed vs. Planned		
242		Report on replacement of the following (Not limited to the following): · Breakers · CTs · PTs · Las · Batteries · Conductor & Power Cables · C&R Panels · Relays · Disc insulator with Anti-Fog Disc		
243		Report on Civil works carried out for Plant & Machinery		
244		Report on Capital Maintenance of Power Transformers carried out a) Review Report on Failed Transformers b) Report on Transformer repair status shall be made available.		
245		Report on Reliability Index (based on data available for different categories of feeders) for different towns of Nepal		
246		Report on Power Availability Factor Circle-wise		
247		Report on Operating parameters of Transmission organization		
248		Disposal of unserviceable scrap		



SI No	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
249		Report on Audit Paras		
250		Report on Court Cases		
251		Report on Arbitration Cases		
252		<b>Reports on</b> <ul style="list-style-type: none"> <li>• Weekly, Monthly, Annual Outage program</li> <li>• Daily, Weekly, Monthly Declaration on hour-to-hour basis</li> <li>• Daily Generation Log</li> <li>• Monthly Generation Report Form</li> <li>• Monthly Outage and Reduced Output Report</li> <li>• Maintenance Outage Report Form</li> <li>• Force outage of Transmission and Distribution lines and System Failure</li> <li>• Transformer Maintenance Reports</li> <li>• Other reports as required.</li> </ul>		



### 3.1.5 Material Management

Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
1	<b>Material Records Management (Material Master)</b>	Ability to record and maintain item master list with availability of material number/code/part code as primary identifier for various material types including spares and consumables		
2		Ability to generate material code automatically for item entry to item master as well as support manual entry		
3		Ability to support alphanumeric material codes		
4		Ability to capture detailed material information including the categories of data to support core material management transactions like goods receipt, goods issue etc. 1) Basic data like Material No, Item Description, UoM, status, origin, type, conversion factors, ownership details etc. 2) Inventory management data i.e. material history, ABC classification, inventory location, safety stock, ROL etc. 3) Purchasing data i.e. purchase rule, tax/duties rule, ordering batch size etc. 4) Costing data i.e. standard price, moving average price etc.		
5		Ability to support item groups or categorization of material into material groups, type and location etc		
6		Ability to support approval workflow and automatically trigger material data authorization upon material data entry		
7		Ability to modify material details and resubmit for approval		
8		Ability to track material authorization status pre and post approval		
9		Ability to track changes made to material record with details of changes made, changing entity and approver of changes		
10		Ability to reject material record and update material record status with reasons		
11		Ability to record whether material is moving or fast moving or slow moving or non-moving		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
		personal obsolete delete a material record which are moving, obsolete		
12		Ability to link material to vendor / supplier details		
13		Availability of search functionality based on material numbers, wild card entries, partial item description, shelf life, warranty period, specifications, etc		
14		Ability to display partial or full material master information to users across functional areas and restrict display of all information based on user roles/display authorization levels		
15		Ability to support multiple Units of Measure (UoM) for an item along with conversion factors		
16		Ability to create catalogues for different material types, spares and miscellaneous items		
17		Ability to capture details regarding insurance of the materials		
18		Ability to generate detailed item wise report of material information		
19		Ability to generate report on revaluation of materials and display valuation history		
20		Ability to generate report on material performance e.g. material history report, supplier blacklist report, damage during warranty period		
21		Ability to generate material reports for separate material type, material group, location etc		
22		Ability to handle tax variations in calculation of material pricing		
23		Ability to conduct material valuation according to a) Accounting norms; as well as b) Regulatory norms		
24		Ability to assign authority to declare scrap material based on the Delegation of Power		
25		Each item should be linked with its approved technical drawing and equipment with their manufacturer's		
26		Ability to classify inventory under capital items, consumables, OEM spares and disposables.		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
27		Ability to perform inter store material transfer		
28	<b>Manage Inventory</b>	Ability to record multiple physical store locations, capturing individual store physical description details		
29		Ability to support multiple inventory status for individual items across all storage locations including the following:		
30		Available for Issue vis-à-vis Order Position Scrapped Obsolete In Transfer/ Under Inspection Blocked Restricted Use Under Repair Special Project Stock Reserved Stock		
31		Ability to record and track inventory status for Turnkey Contracts (these stocks are not held in stores, but materials are recognized by issuing SR and immediately transaction is completed by issuing SRV to Contractor)		
32		Ability to track material movement for each store including: Receipts Issues Inter Store Transfers Transfer to Scrapped Stock Transfer to Obsolete Stock Consignment movements Quarantines Stock Returns Under Repair		
33		Ability to track and monitor stock at various divisional stores at individual store level and at aggregate level		
34		Ability to plan for inventory based on consumption pattern, present stock, procurement lead times, projected requirements etc		
35		Ability to perform various kinds of inventory analysis like ABC analysis, XYZ analysis, Fast/Slow/moving analysis, Min-Max analysis, etc.		
36		Ability to analyse inventory in terms of 'items reached re-order/ safety level' and 'critical' items and generate appropriate alerts when		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
		inventory reaches predefined re-order points		
37		Ability to store shelf-life details for items and display alerts when items reach end of life (user defined) and remains un-used.		
38		Ability to store material movement history in each store and for each item e.g., fast, slow moving and moving.		
39		Ability to classify inventory based on various inventory analysis like ABC Classification, etc. for various actions e.g., Stock taking, Criticality etc		
40		Ability to classify inventory under bulk material, finished goods, capital items, job work and disposables		
41		Ability to assign a service level to an inventory item e.g., 100% for critical items and this will be linked to re-order levels		
42		Ability to schedule stocktaking as per predefined business rules e.g. A Level Items will be counted once every month and freeze inventory for stocktaking		
43		Ability to support in stock replenishment for all stock items based on parameters like reorder point, safety stock level, consumptions patterns etc. The system should estimate ordering quantity and delivering schedule which can be converted automatically into purchase requisitions		
44		Ability to trigger stock replenishment for all stock items on the basis of various parameters like reorder level, safety stock level, material consumption, maximum stock level, lead time of material		
45		Ability to estimate suggested ordering quantity and delivering schedule for individual items for stock replenishment		
46		Ability to generate purchase requisitions based on re-orders automatically for items based on predefined system configurations		
47		Ability to support inventory valuation methods like Weighted Average, Standard Cost, Actual Cost etc.		
48		Ability to estimate total inventory carrying cost based on inventory valuation method		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
49		Ability to generate report on Stores Accounting capturing the quantity and value information as per the current formats, for e.g., Report on ATD (Accounts Transfer Debit) and ATC (Accounts Transfer Credit)		
50		Ability to generate item wise stock status reports on current inventory status based on goods receipt, goods issue and stock balances on a daily/weekly basis. Also, ability to generate stock status on past date/period		
51		Ability to generate consolidated YTD/MTD inventory report on receipts, issues, stock adjustments, scrap inventory, goods returned to suppliers, etc		
52		Ability to consolidate and generate report on item wise total inventory levels for all stores		
53		Ability to generate stock-out reports		
54		Ability to generate report on inventory analysis e.g., material consumption pattern across stores		
55		Ability to generate report on availability of inventory during requisitioned and actual service level for items		
56		Ability to generate report on age analysis and shelf-life evaluation		
57		Ability to generate report on un-used materials procured for a specific purpose		
58		Ability to track material movement for identification of slow & moving stocks and ability to generate alerts over a periodic basis.		
59		Ability to estimate ordering cost and EOQ for individual items		
60		Ability to support all approvals with digital signature/Bio metric of the approver		
61	<b>Goods Receipt</b>	Ability to record receipt of inventory items received from vendors/suppliers and generate Goods Receipt Note including record of place/location of receipt and goods details (unit, weight, specifications etc)		
62		Ability to record receipt of commercial documents received with goods like excise invoice duplicate for transport copy along with goods		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
63		Ability to record receipt of technical documents like quality certification report received along with goods.		
64		Availability of control functionality for goods receipt i.e., receiving in excess/shortfall of Purchase Order (PO) quantity, quantity tolerance functionality or PO revision functionality		
65		Ability to support quality inspection after goods receipt and before introduction of goods to inventory and generate quality inspection report and record the inspection results for the goods		
66		Ability to support three-way matching of Good Receipt Note with Purchase Order (PO), Quality Inspection Report (QC) and Delivery Instruction		
67		Ability to club multiple lorry receipts (LRs) / consignments into single SRV		
68		Ability to record partial delivery of items and track different lots of supply from suppliers for the same PO		
69		Ability to automatically trigger evaluation of goods receipt and initiate payment process		
70		Ability to raise bill for payment with workflow-based approval hierarchy for evaluation of payment		
71		Ability to record receipt of goods and track inter store transfers		
72		Ability to receive goods without P.O. or without proper documents and subsequent adjustment/regularization with approval of competent authority		
73		Ability to display updated inventory status after goods receipt for individual items, item groups and across stores		
74		Ability to receive advance shipment notice and attach scanned documents		
75		Ability to record receipt of inventory items purchased at different levels of hierarchy like Head Office Purchase and Area Office Purchase		
76		Ability to generate intimation notice to purchasing authority in case of return or replacement of rejected goods		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
77		Ability to generate report on all Goods Receipt Note created over a period i.e. weekly\monthly for a storage location		
78		Ability to generate inventory status report based on goods received over time opening balance, goods received, goods issued, closing over time opening balance, goods received, goods issued, closing i.e. daily, weekly and monthly status report.		
79		Ability to generate report for all Goods Receipt Note and bill payments against individual PO		
80		Ability to generate exceptions during Goods Receipt including rejected quantity, items not as per P.O etc		
81		Ability to generate report on bills raised against SRV over a periodic basis in a store		
82		Ability to generate list of items with guarantee clauses, in particular guarantee period along with Delivery Instruction (DI) date		
83		Ability to enter consignee wise details of material received/payment made.		
84		Preparation of security/EMD/PEMD ledger		
85		Issue of PEMD certificate for deposit of PEMD with NEA		
86		Ability to generate list for refund of EMD for unsuccessful vender/refund of part EMD after retaining security of the P.O.		
87		Ability to generate list of statutory deductions i.e. income tax/GST		
88		Ability to generate item wise (Towers, ACSR, T/F etc) list of pending bills firm wise/payments made during months.		
89		Ability to generate list of updated rates of each item purchased PO wise.		
90	<b>Goods Issue</b>	Ability to create material issue request/store requisition (SR) for material including spares and miscellaneous items. The requisition record should have a reservation number, date of reservation, requestor name, stock location, material part number, quantity required, delivery address, accounting and costing information etc.		
91		Ability to generate SR manually and also automatically based on maintenance work		



SI. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
		orders, capital works project requirements estimated in system		
92		Availability of control functionality for goods issue i.e. issuing in excess/shortfall of SR quantity, quantity tolerance functionality or SR revision functionality		
93		Ability to modify material issue requests/SR based on approver update		
94		Ability to track changes made to SRs and display reservation history		
95		Ability to delete SRs automatically based on cancellations in work orders, capital works project etc and record reasons for cancellation		
96		Availability of configurable approval workflow for SR approval		
97		Ability to display material issue requests awaiting approval		
98		Availability of material control functionality to check against SR available inventory and approval status for issue of goods		
99		Ability to display availability of issuing material in each store before goods issue		
100		Ability to issue goods and generate goods issue slip		
101		Ability to support and create pick lists for those items awaiting issue to a capital works project, plant maintenance job, customer job, transfer request or over the counter issue		
102		Ability to configure the information details in the pick lists based on item details		
103		Ability to display updated store inventory status based on goods issued and available inventory at the store		
104		Ability to consolidate pick lists for items to be supplied to the same destination, user or job		
105		Ability to track that the pick list has been picked packed and issued and display the status of the pick list e.g. being picked, being packed, issued etc.		
106		Ability to capture delivery information within the system e.g. transportation type, carrier details, dimensions, weight etc.		
107		Ability to generate Gate Pass for material movement based on Goods Issue note		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
108		Ability to modify goods issue information details e.g. quantity, material number if required and track modification history		
109		Availability of dual unit of measure i.e. UoM for storage e.g. units and UoM for issue e.g. kg and a defined relation between them leading to enable to issue exact quantity as requested in issue slip.		
110		Ability to record controlled issue of goods without reference document or store requisition e.g. goods issue for scrap (during emergency without SR)		
111		Ability to generate record on goods issued against approved SRs on an item wise and generate exceptions on a periodic basis		
112		Ability to generate report on the goods issued per store over a configurable periodic basis i.e. weekly/monthly		
113		Ability to generate report on aggregated goods issued for a particular item over a periodic basis i.e. weekly/monthly		
114		Ability to generate stock overview report showing goods received, goods issued and inventory status for all items in a store		
115		Ability to generate stock consumption statistics based on goods issue for the items over time		
116		Ability to block the requisitioned quantity in the system		
117		Ability to keep check on material issue depending on submission of timely utilization certificate or previous materials from end users (in totality or in parts)		
118		Ability to Provision of good issue return Provision of inventory issue memo Provide alert when stock reaches to minimum specified quantity Provision of Goods received return		
119	Ability to record and track inter-store transfer of materials			
120	<b>Inter-Store Transfer</b>	Ability to support physical movement of stock between stores i.e. inter-store transfers		
121		Ability to record order for inter-store transfer by pre-configured authorized entity in the system		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
122		Ability to generate material issue request/store indent form/ store transfer note (SIN) based on order for inter-store transfer from the material requesting store to the material issuing store		
123		Availability of configurable approval workflow for SIN approval for inter-store transfer		
124		Ability to modify SIN based on approver update		
125		Ability to issue goods and generate Goods Issue Note for inter-store transfer		
126		Ability to post material transfer and update inventory status of issuing store		
127		Ability to generate Delivery Challan and Gate Pass based on Goods Issue note for inter-store transfer		
128		Ability to record receipt of goods at receiving store and generate Good Receipt Note		
129		Ability to display updated inventory status after goods receipt in receiving store		
130		Availability of material control functionality to check goods issued from issuing store with goods received in receiving store and post transfer of goods		
131		Availability of capture the Rate Contracts for Inter Store Transfer and rationalize the transportation linkage to Finance Module		
132		Ability to generate report on item wise inter-store transfer consolidated across stores		
133		Ability to generate report on all items received and issued for inter- store transfer for a storage location on a periodic basis		
134		Ability to generate exceptions and item quantity mismatches arising out of inter-store transfer		
135		Ability to report on trends of regular item shortages in a store resulting in inter-store transfers Store Return		
136		Ability to record and support workflow for return of un-used or excess material from field/sub-station to stores		
137		Ability to record and segregate dismantled material into scrap and healthy		
138		Ability to generate Store Return Warrant (SRW) on goods to be returned from field		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)	
139		Ability to record receipt of goods at receiving store, generate Goods Receipt note and track its SR when goods are returned to store with separate code for used and damaged material			
140		Ability to display updated inventory status after goods receipt in receiving store			
141		Ability to generate accounting adjustments on a consolidated basis at Area Office level for all the Store Return Warrant (SRW) generated for that period			
142		Ability to generate report on materials returned to a store over a periodic basis e.g. weekly, bi-weekly			
143		Ability to generate summary report of Store Return Warrant (SRW) generated by the system over a periodic basis or location wise scrap/obsolete items (as declared by appropriate authority) returned to the store from the field operations in NEA to the store from the field operations in NEA			
144		Availability of material control functionality to check goods issued from issuing store with goods received in receiving store and post transfer of goods.			
145		Ability to generate report of payments during the month store wise and the IUT bills.			
146		<b>Verifying Utilization of Materials</b>	Ability to track and monitor the use of goods in execution of work against Erection/Execution Order or letter of Intent		
147			Ability to track and monitor the final booking of goods against Erection/Execution order transferring the earlier booking against Lol		
148			Ability to track and monitor the particulars of use of goods i.e. date/period, location, name of work etc.		
149			Ability to generate list of statistically analysed samples of locations of goods utilization for the purpose of verifying the use of goods by the Verifying/Supervising officers		
150			Ability to record the results of verification by the concerned officer		
151			Ability to generate report showing the particulars of use of goods like date/period, location, name of work, erection/execution order or Lol		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
152	<b>Scrap Disposal/ Sales</b>	Ability to generate report showing list of statistically analysed samples of locations of goods utilization		
153		Ability to generate report showing locations, name of work, date of verification, name of verifier and findings of the verification		
154		Ability to compile periodic report of scrap goods returned to the stores		
155		Ability to show scarp inventory with value		
156		Ability to provide approval workflow for scrap approval and capture the recommendation of the scrap committee		
157		Ability to identify declared scrap items in system and its location		
158		Ability to display scrap requests awaiting approval		
159		Ability to generate alert to initiate material disposal workflow with the scrap goods report completion as the trigger		
160		Ability to post scrap issue once it is sold		
161		Ability to generate material list for auction/sale by Stores based on material disposal report		
162		Ability to record auction/ sale result for scrap disposal including buyer information and material disposal details		
163		Ability to generate Goods Disposal note (GDN) after checking against payment information		
164		Ability to generate report on scrap items available in a storage location over a periodic basis e.g. weekly, bi-weekly etc.		
165		Ability to generate exception report for goods disposal process i.e. goods which are not being disposed on time, auctions not as held planned		
166		Ability to generate report on auction results and record auction sale information		
167		Ability to consolidate Goods Disposal note and generate completion report of sale based on goods disposed and payment terms		
168		Ability to account for receivables against scrap items sold		
169		Ability to generate account statement for scrap customers		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
170		Ability to record and support workflow for material disposal of scrap items returned to the store from the field operations and the materials declared scrap at store.		
171	<b>Physical Inventory Verification</b>	Ability to support periodic physical stock verification process and update inventory status in system based on stock verification		
172		Ability to schedule physical stock verification in the system		
173		Ability to freeze inventory in the system for physical stock verification		
174		Ability to generate item master list for physical stock verification		
175		Ability to generate stock count sheets having detail information like Item No, Item description, Stock Location, Bin Location, Units of Measurement, etc to capture results of stock verification		
176		Ability to record the results of stock count in the system and record stock verification details		
177		Ability to analyse of stock count i.e. compare system stored inventory with physical count and generate exception report/ list of inventory difference		
178		Ability to record and capture approval for recount of the stock items which are at variance in the system prior to correcting system values		
179		Ability to record possible reason for variance in the system and record root-cause analysis		
180		Ability to support approval workflow for stock count results and variance, and support authorization hierarchy based on value of discrepancy, type of items etc for approval of variances		
181		Ability to update and modify inventory status, material master information based on physical stock verification after proper authorization		
182		Ability to and generate stock verification report with quantity and value information		
183		Ability to generate report on discrepancy for inventory items counted		
184		Ability to generate trend for variance items		
185		Ability to generate exception report for those		



SI. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
		items not counted in a storage location		
186		Ability to support periodic physical stock verification process, update and modify inventory status in system and modify material master information based on stock verification with authorization.		
187		Ability to generate Physical Inventory Document for any base storage location having detail information like Item No. Material Code, Material description Storage Location, Bin Location, UoM etc. And blank space to capture results of stock verification		
188		Ability to and generate stock verification report showing details of materials counted, Difference, date of posting the count document reference of the difference in amount.		
189		Ability to generate report on the number of times PI has been done on an item in a storage location		
190		Ability to intimate the respective Transmission Zonal Chief Engineer as per performance by the stores		
	<b>Procurement</b>	Procurement consists of the following sub-processes:		
191		Vendor Records Management		
192		Procurement Planning		
193		Purchase Requisition		
194		Purchase Order Management		
195		Turnkey Procurement		
196		Service Procurement		
197		Contract Management		
198		RFQ / Tendering		
199	<b>Vendor Records Management</b>	Availability of centralized vendor master records facilitating single vendor description and code across the organization		
200		Ability to record vendor records including alternate / short name for vendor, contact person for each vendor address, vendors bank account information		
201		Ability to record TDS details, PAN number and Tax details required for ensuring compliance with Tax laws considering both direct& Indirect taxes, Default currency for invoice/payment		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
202		Ability to record vendor specific information relating to an item/vendor relationship. The details should include vendor name, address, payment terms, price & quantity, free form comments, delivery information, item no. & description, discounts, vendor performance, after sales service performance and other text information etc		
203		Ability to support multiple addresses against each vendor		
204		Ability to support automatic vendor numbering		
205		Ability to define different vendor types e.g. domestic vendors, international vendors		
206		Ability to maintain vendor list details e.g. company history, saleable model, shipment, payment method		
207		Ability to maintain vendor lists for OEM vendors and trade vendors		
208		Ability to modify vendor records e.g. bank account information and support authorization of changes made		
209		Ability to support vendor classification (multiple parameters required to meet reporting, preferential treatment like waiver of EMD etc. payment prioritization and other needs) e.g. stationary suppliers, electrical suppliers, service suppliers etc		
210		Ability to classify vendors with regards to : supplier, Contractor, sub-Contractor, transporter, approved/ registered, blacklisted/active/not active, dormant, under trial, etc.		
211		Ability to support all kinds of sub-contracting activities like goods issue, goods receipt etc		
212		Ability to display vendors based on vendor grouping/ classification		
213		Ability to block vendors from being used due to a specific reason e.g. vendor bankruptcy, vendor reliability with effective date, with facilities to re-activate the vendor with due authorization from competent authority		
214		Ability to record vendor transactions history including purchasing history, payment history, penalty deduction record etc		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
215		Ability to record evaluation of vendor credentials to qualify vendors as preferred vendors for specific items w.r.t. stated qualifying requirements		
216		Ability to generate vendor registration certificate indicating eligible item groups online.		
217		Ability to evaluate vendors based on multiple parameters like quality of material, quantity of material and adherence to delivery schedule, prices quoted by the vendor, vendor response time, performance of material in field and other user defined parameters		
218		Ability to restrict maintenance / access to vendor master record to specific users		
219		Ability to merge / correlate vendor details (e.g. one vendor taking over another vendor). Enabling tracking change of status from a date		
220		Ability to pay each invoice individually or multiple invoices together for same vendor and manage outstanding balances accordingly by linking payment to invoices.		
221		Ability to link every payment to invoice(s) and manage outstanding balances for individual vendors and PO wise		
222		Ability to generate alert for predefined vendors/POs/WOs before payment		
223		Ability to support payment options (Bank attachment cases, Power of attorney cases, etc)		
224		Ability to print cheques as per payment instruction		
225		Ability to support payment through LCs		
226		Ability to support predefined approval hierarchy and authorization workflow for payment to vendors based on amount, vendor category		
227		Ability to display period-to-date, quarter-to-date, year-to-date vendor balances		
228		Ability to block payments to vendors by competent authority only		
229		Ability to integrate with finance functions e.g. accounts payable, general ledger		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)	
230		Ability to track vendor/ supplier performance against pre-defined parameters set by NEA or regulator such as delivery period, inspection failure, material shortages, material faulty, material failure etc.			
231		Ability to generate periodic report on vendor alterations to vendor master			
232		Ability to generate vendor account statement to be sent to the vendors			
233		Ability to generate report on individual vendor performance and produce vendor delivery report on instances of rejected materials, missed delivery, incorrect location, incomplete delivery, returns due to damage, over supply etc, average no. of delay, other user defined criteria defined by NEA			
234		Ability to generate Vendor analysis reports for spend analysis, performance in terms of on-time in-full delivery, rejections, etc.			
235		Ability to generate reports by outstanding orders, orders shipped but not received, overdue outstanding orders, orders not fulfilled on time etc			
236		Ability to generate report on goods returned to vendor that shows the items returned to supplier by Location, Vendor, PO, Category, Product Code, Reasons for return, Value of Goods return etc			
237		Ability to generate timeline-based communication history with the vendor regarding various services like delivery, payment, field service, etc.			
238		Ability to generate age vendor outstanding balance report i.e. balance due to / from vendors			
239		Ability to enter B/G details, alerts for renewal to firms & encashment if B/G not renewed			
240		Ability to appropriate / adjust advance payments against multiple contracts/invoices subject to approval of competent authority			
241		<b>Procurement Planning</b>	Ability to support annual procurement planning and budgeting		
242			Ability to support annual material plan for individual area offices/ procurement/ projects/O&M departments/ purchase departments/ stores etc		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
243		Ability to optimize individual requirements coming from business/ projects before generating procurement plan		
244		Ability to specify products or services after analysing the optimized requirements		
245		Ability to receive inputs from key partner suppliers/ vendors regarding products and service requirements planning		
246		Ability to generate the requirement of funds for next 3/6/12 months		
247	<b>Purchase Requisition</b>	Ability to display budget available before initiating purchase requisition		
248		Ability to display lead time for purchasing material by material number/ material group before creating purchase requisition		
249		Ability to create purchase requisition / indent for various types of purchases e.g. stock materials, stock materials, services, assets, contract labour etc		
250		Ability to support approval hierarchy for authorization and release of purchase requisitions electronically		
251		Ability to set approvals levels based on norms recommended by NEA like items classifications, procurement value etc		
252		Ability to provide purchasing rights of routine items to end users of the items along with hierarchy-based spending limit		
253		Ability to record user defined instructions/ requisition details as part of the purchase requisition		
254		Ability to assign unique purchase requisition number and restrict creation of duplicate purchase requisitions through inbuilt checks etc		
255		Ability to track the authorization status and generate alerts based on purchase requisitions awaiting approval		
256		Ability to configure requisitions based on predefined criteria e.g. value, department, type of purchase etc		
257		Ability to modify purchase requisitions and resubmit for approval		
258		Ability to cancel purchase requisition and automatically return commit budget		
259		Ability to track and record the status of a requisition e.g. not approved, approved		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)	
260		Availability of search functionality of previous purchase requisitions			
261		Ability to link the purchase requisition to a valid project or cost centre			
262		Ability to configure the release procedure for purchase requisitions based on type of line item e.g. as part of standard item list, requiring specialized documents and approvals etc			
263		Ability to track changes of purchase requisitions and generate audit trail history			
264		Ability to generate report of the purchase requisitions created over a periodic basis for the department / Area Office			
265		Ability to generate report on status of purchase requisitions			
266		Ability to generate report on purchase requisitions based on user defined criteria e.g. requisition number, status, date, material number, description, originator etc			
267		Ability to display report on search results on purchase requisition details based on key fields like purchase requisition numbers			
268		Ability to generate exception report on purchase requisitions rejected, not approved cancelled etc			
269		<b>RFQ/ Tendering</b>	Ability to create RFQ/Tender document manually or automatically through authorized requisitions		
270			Ability to create RFQ/Tender document including terms and conditions, item, with quantity and shipment schedules etc (commercial specifications)		
271			Ability to track and maintain repository of tender related transactions details such as number of tenders received, initial price offered by vendors, number of tenders received, negotiated price (multiple) and final price etc		
272			Ability to support automated Bid/Tender document creation through pre-configured standard Bid/Tender document templates with pre-configured mandatory fields		
273	Ability to select vendors either manually or automatically based on vendor criteria for limited tenders				



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
274		Ability to support approval hierarchy for Bid/Tender document for authorization and release		
275		Ability to hold a RFQ/Tender document awaiting authorization and generate alert of Bid/Tender document awaiting approval		
276		Ability to record details of sale of tenders. E.g. Name of vendor, date of purchase, etc.		
277		Ability to electronically authorize the RFQ/Tender document for release		
278		Ability to modify RFQ/Tender document and resubmit for approval		
279		Ability to track and record all changes / amendments made to a Bid/Tender document and maintain change history		
280		Ability to track and record the status of an RFQ/Tender document e.g. not approved, approved		
281		Ability to record item wise specifications which will be part of tenders		
282		Ability to modify item wise specifications and support authorization levels for approval of modifications		
283		Ability to send notifications to the regular vendors for the RFQ/Tender document once the tenders are floated and send the tender document (fax/e-mail) and also enable web-access to the tender documents		
284		Ability to capture the vendor response and bids against the tenders and generate comparative statements for analysis		
285		Ability to attached scanned documents for vendors responses		
286		Ability to support configurable workflow for RFQ/Tender document response evaluation, selection and approval		
287		Ability to perform best fit Bidder analysis based on user defined parameters		
288		Ability to record earnest money deposit (EMD) against tenders		
289		Ability to generate alert for returning EMD for successful/un- Successful Bidder		
290		Ability to generate purchase orders manually and automatically from the approved bids		
291		Ability to interface with PPMO e-tendering applications		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
292		Availability of search functionality of previous Bid/Tender documents generated through the system		
293		Ability to analyse historical data of tenders		
294		Ability to initiate, process & finalize & record service contracts with vendors		
295		Ability to convert approved bid to a customer order or contract in the application		
296		Ability to issue repeat tenders		
297		Ability to integrate all the provisions of the adopted Procurement Policy and Procedures		
298		Ability to maintain record of EMD/PEMD of the firms		
299		Ability to maintain record of BGs on PO/WO basis and issue alerts for their extension		
300		Ability to capture the details of special provisions, terms and conditions, etc. in the Proposal		
301		Ability to evaluate the technical proposal on-line by the tender evaluation committee		
302		Ability to generate report on a RFQ/Tender document showing history of all changes		
303		Ability to generate consolidated report showing RFQ/Tender document status e.g. awaiting approval, Cancellation, approved for all Bid/Tender documents created over a time period		
304		Ability to generate report to track RFQ/Tender document progress		
305		Ability to generate report on all RFQ/Tender document closed over a period of time for a division / department		
306		Ability to generate reports by user defined criteria e.g. RFQ/ Tender document number, vendor, item no, originator department etc		
307		Ability to generate reports on RFQ/ Tender document evaluation results		
308		Ability to generate report on variance analysis of Budget vs. Actuals for procurement through tendering		
309		Ability to take out comparative statement based on defined format		
310		System should be able to define different loadings while taking out comparative statement		
311		Availability of search functionality of previous		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
		RFQs generated through the system		
312		Comparative statement of Bids		
313	<b>Purchase Order Management</b>	Ability to create purchase order (PO) directly or with reference to a Bid/Tender document, a contract, purchase requisition, or another purchase order.		
314		Ability to create PO for different types of purchases e.g. stock materials, stock materials, services, assets, contract labour etc		
315		Ability to create PO with multiple delivery addresses and staggered delivery		
316		Ability to have the following as part of the PO:		
317		Ability to provide for ship-to address, bill-to address, invoice-sent-to address in the Purchase Order		
318		Ability to specify on order, shipment-from, bill-by/payment to be released, report-to (agents), etc. vendor address in PO		
319		Ability to capture payment terms in distinct parametric form e.g. full/part/advance, mode of payment, etc./address to release the payment		
320		Ability to capture inspection requirements, acceptance criteria, etc. in PO		
321		Ability to specify packing, shipping, scheduling instruction against item for PO (if desired unit wise packing may be asked for)		
322		Ability to record standard documents of latest version like Standard Terms and Conditions of Indigenous/Import procurement, PBG, Bankers List, EMD, BG for Adv, etc		
323		Availability of multiple UOM for items for inventory and for placing order		
324		Ability to support approval hierarchy for PO authorization based upon preconfigured criteria (also for repeat orders)		
325		Ability to track the authorization status and generate alerts based on PO awaiting approval		
326		Ability to modify the PO and resubmit for approval		
327		Ability to consolidate multiple purchase requisitions into single PO for the same		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
		vendor		
328		Ability to create multiple PO s from single requisitions for different vendors		
329		Ability to split PO between vendors based on user defined parameters		
330		Ability to distribute the costs for individual items in a PO to multiple accounts based on user defined distribution proportion to be charged to 'valid' accounts or project codes		
331		Ability to display budget available for the purchase and generate alert if no budget is available or PO value exceeds budget during PO creation		
332		Ability to refer to the type of procurement for an item during PO creation. The type of procurement for the item will be part of the item master data detailing whether the item: Requires a material number Requires an account assignment (i.e. whether you are required to enter an account assignment category) Needs to be kept in stock Requires a goods receipt and/or invoice receipt etc		
333		Ability to get the regular vendor list for the items selected in the PO		
334		Ability to refer to previously existing contracts with the selected vendors while creating PO		
335		Ability to generate notification on request for vendor acknowledgement for a PO		
336		Ability to record PO acknowledgement against the PO from vendors in the system		
337		Ability to capture Purchase Order receipt/ Acceptance and Planned delivery date given by the vendor in the system.		
338		Ability to follow up on the vendor for delivery by sending reminders/ risk & cost notice		
339		Ability to amend Purchase Order with user's approval/ financial concurrence and approval of Competent Authority and to keep track of all past amendments.		
340		Ability to attach documents and specifications to PO		
341		Ability to record delivery and shipping information relating to a PO		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
342		Ability to record vendor performance data for deliveries against a PO upon inspection		
343		Ability to enable three/ four-way matching of PO, Goods Receipt, Quality Inspection Report and Invoice generated in the system		
344		Ability to generate notifications to vendors based on overdue PO		
345		Ability to release schedules against a Purchase order for staggered delivery		
346		Ability to provide for taxes and duties for various/individual items in the Purchase order		
347		Ability to record specific terms of trade or payment in a PO e.g., Payment Terms and Due Dates etc		
348		Ability to record vendor discounts in the PO details		
349		Ability to search and display previously created PO by vendor, item code, PO number, MPR No, indent number		
350		Ability to generate alerts for PO about to become due to the originators		
351		Ability to track PO due dates and generate report to originators on overdue POs		
352		Ability to PO creation based on standard templates for regular purchase items		
353		Ability to follow-up on the vendor for order delivery		
354		Ability to display transactions history against the PO		
355		Ability to automatically calculate LD based on PO terms		
356		Ability to generate report on purchase order history for an item		
357		Ability to generate report on change history for a particular PO		
358		Ability to generate reports on PO by user defined criteria e.g., PO numbers, Vendors, Material numbers, originator, Area Offices		
359		Ability to generate report on POs due or overdue		
360		Ability to generate report PO status		
361		Ability to generate report on user defined exceptions on PO e.g., delivery exceptions, payment exceptions etc		
362		Ability to create PO automatically based on		



SI. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
		preconfigured conditions in the application		
363		Ability to deduct penalty with reference to delivery schedule		
364		Ability to link price payable after material received beyond CDP with rates of new tender enquiry.		
365		Ability to generate report on PO outstanding payment history		
366	<b>Turnkey Procurement</b>	Ability to create Letter of Award (LoA) directly or with reference to a Bid/Tender document, a contract, purchase requisition, or another LoA		
367		Ability to have the following as part of the LoA: Assign LoA number both automatically and manually Requisition originators name and details as applicable Item details with document attachment options to enable viewing item details - text fields for user defined special instructions		
368		Ability to capture payment terms in distinct parametric form e.g. full/part/advance, mode of payment, etc./address to release the payment		
369		Ability to capture inspection requirements, acceptance criteria, etc. in LoA		
370		Ability to record standard documents of latest version like Standard Terms and Conditions of Indigenous/Imported procurement, PBG, Bankers List, EMD, BG for Adv, etc		
371		Ability to support approval hierarchy for LoA authorization based upon preconfigured criteria		
372		Ability to track the authorization status and generate alerts based on LoA awaiting approval		
373		Ability to display budget available for the project and generate alert if no budget is available or LoA value exceeds budget during LoA creation		
374		Ability to refer to previously existing contracts with the selected vendors while creating LoA		
375		Ability to generate notification on request for vendor acknowledgement for a LoA		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
376		Ability to record LoA acknowledgement against the LoA from vendors in the system		
377		Ability to capture LoA receipt/ Acceptance, PBG given by the vendor in the system and Execution of Contract Agreement.		
378		Ability to follow up on the vendor for delivery by sending reminders/ risk & cost notice		
379		Ability to amend LoA with user's approval/ financial concurrence and approval of Competent Authority and to keep track of all past amendments.		
380		Ability to attach documents and specifications to LoA		
381		Ability to record vendor performance data for deliveries against a LoA upon inspection		
382		Ability to record specific terms of trade or payment in a LoA e.g. Payment Terms, Penalty/LD and Due Dates etc		
383		Ability to search and display previously created LoA by vendor, LoA number, and other user defined parameters		
384		Ability to display transactions history against the LoA		
385		Ability to make detailed estimates for civil, mechanical, electrical, instrumentation works, etc		
386		Ability to support multiple type/modes of tendering		
387		Ability to create a schedule of rates for various service items that would be used for all cost estimation for service procurement		
388		Ability to generate automatic alerts/ reminders when a contract is about to be expired or requires renewal		
389		Ability to monitor the LoA execution with respect to time and cost budgeted vs. the time and cost left		
390		Ability to calculate deviations in scope and time and levy penalties/ liquidated damages and deduct the same from final payment to Contractor		
391		Ability to amend/cancel /offloading of contracts/ LoAs		
392		Ability to track LoA wise performance guarantee, Bank guarantee expiry dates		
393		Ability to track LoA history, search work orders by Contractors, nature of job, etc		



SI. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
394		Ability to record payment terms and actual payments made, LD deducted, statutory deductions.		
395		Ability to link payment to the Contractor with the status of the contract execution for real-time monitoring		
396		Ability to send alerts at defined period/ status for a contract when specified parameter value is reached		
397		Ability to generate report on change history for a particular LoA		
398		Ability to generate reports on LoA by user defined criteria e.g. LoA numbers, Vendors, originator, etc		
399		Ability to generate report on LoAs due or overdue		
400		Ability to generate report on LoA outstanding payment history		
401		Ability to generate report on exceptions based on delivery slippages, deviations and cost overruns		
402		Ability to generate report on LoA/ Detailed Work award status		
403		<b>Service Procurement</b>	Ability to support procurement of services through recording details of list of service items, bill of services, estimated rates etc	
404	Ability to make detailed estimates for civil, mechanical, electrical, instrumentation works, etc			
405	Ability to revise estimates, if required, during the execution of the order			
406	Ability to support multiple type/modes of tendering for service procurement like RFQ, direct PO etc			
407	Ability to create a schedule of rates for various service items that would be used for all cost estimation for service procurement			
408	Ability to create a service requisition/ proposal from an existing requisition			
409	Ability to capture terms and conditions information for each contract proposal or Execution Order			
410	Ability to direct the tender to the appropriate authority fund allocation/ approval as per defined hierarchy			
411	Ability to generate Execution orders from the tender and the services chosen			



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
412		Ability to create multiple execution orders from one requisition		
413		Ability to compare the current offer with previous offers on another Execution Order		
414		Ability to record execution order receipt confirmation from the vendor		
415		Ability to generate unique execution order number		
416		Ability to specify staggered job completion pattern		
417		Ability to create a blanket execution order/ rate contracts with or without quantity commitment and with or without schedule		
418		Ability to generate automatic alerts/ reminders when a contract is about to be expired or requires renewal		
419		Ability to generate work schedule for various activities along with service item number, description, completion date, status updation etc		
420		Ability to monitor the order execution with respect to time and cost budgeted vs. the time and cost left		
421		Ability to record acceptance/ rejection/ partial acceptance of the service provided		
422		Ability to monitor the order execution with respect to materials issued, payments made to the Contractor, materials returned by the Contractor		
423		Ability to calculate deviations in scope and time and levy penalties/ liquidated damages and deduct the same from final payment to Contractor		
424		Ability to provide a source list of various jobs with job codes and the related list of vendors attached to it		
425		Ability to capture details like original bid reference, value of work, date of commencement, contract period (completion date), scope of work BOQ, statutory requirements GCC conditions, special conditions of contract, etc.		
426		Ability to amend proposals and get on-line approvals for amendments		
427		Ability to amend/cancel execution orders/offloading of contracts		



SI. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
428		Ability to track execution order wise performance guarantee, Bank Guarantee expiry dates		
429		Ability to track execution order history, search execution orders by Contractors, nature of job, etc		
430		Ability to record payment terms and actual payments made, LD deducted, statutory deductions.		
431		Ability to link material issues, returns against a execution order (including recovery against Free Issue of Material not returned/used) with material reconciliation contract wise		
432		Ability to track execution order status in terms of time and cost budgeted		
433		Ability to track execution order wise material and manpower usage versus the budgeted quantity and highlight any deviations		
434		Ability to link payment to the Contractor with the status of the contract execution for real-time monitoring		
435		Ability to send alerts at defined period/ status for a contract when specified parameter value is reached		
436		Ability to generate report on status of a service execution order		
437		Ability to generate report on service execution orders for a department		
438		Ability to generate report to evaluate vendor performance on user defined criteria		
439		Ability to generate report on exceptions based on delivery slippages, deviations and cost overruns		
440		Ability to generate reports on service procurement execution order status e.g., completed, vendor acknowledged		
441		Ability to evaluate the Contractor performance based on pre-defined parameters, record and provide feedback		
442	<b>Contract Management</b>	Ability to support contracts both manually or automatically based on Bid/Tender document results and authorizations		
443		Availability of contract templates for regular items based on previous contracts for efficient contract creation		



SI. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
444		Ability to integrate contract creation with other functionality like Bid/Tender document Vendor Management and PO management		
445		Ability to define delivery schedule containing precise information on the delivery e.g. quantity, dates as part of the contract		
446		Ability to support approval workflow for contract management with authorization hierarchy for approval and release of contract based on predefined user criteria		
447		Ability to generate alerts for contracts requiring approval to authorized users		
448		Ability to request for authorization in the next hierarchy if there is no response on the approval request by preset time horizon		
449		Ability to record and display the status of the contract i.e. awaiting approval, approved or rejected		
450		Ability to reject the contract during authorization, record the reason for rejection and return to the originator through the workflow		
451		Ability to assign vendors to the contract either manually or based on Bid/Tender document results		
452		Ability to modify the contract and resubmit for approval		
453		Ability to record contract related information like: Contract Number Contract Type Terms and Conditions of the Agreement Expiry Date Contract Value Related Information/ Supporting documents		
454		Ability to record all changes to the contract and track contract history		
455		Ability to search and retrieve contract information including contracts for materials or services that are no longer active		
456		Ability to attach documents e.g., specifications for contracts		
457		Ability to generate alerts for contracts nearing expiry to trigger renewal process		
458		Ability to check the contract value with procurement budget for the department		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
459		Ability to record vendor acknowledgements to the contract		
460		Ability to track the contracts which have not been acknowledged		
461		Ability to track contract performance bank guarantees based on vendor, contract, and PO		
462		Ability to generate alerts based on expiry of bank guarantees/warranty for items/Defect Liability period		
463		Ability to generate extension letters for BG's		
464		Ability to generate extension letters by correlating the terms and conditions of the contract with the progress of work/contract		
465		Ability to generate report on all changes made to a contract		
466		Ability to generate report on contract status - approved, awaiting approval, expired etc		
467		Ability to generate report on user number, vendor, originator, authorizer, item etc		
468		Ability to generate report based on expiry of contracts/warranty for items/Defect Liability period		
469		Ability to generate report on vendor performance on contracted terms		
470		Ability to view historical transactions for a contract		
471		Ability to generate report on expected receiving date, payment date - item wise for a given time horizon e.g., monthly, quarterly, annual basis		
472		Ability to generate consolidated report of contracted values per vendor over a time horizon		
473		Ability to generate reports for contracts that are nearing expiry		
474		Ability to enter approval of RTC TTC and process payments accordingly.		
475		Ability to enter approval of Guaranteed Technical Parameters (GTP) and Quality Assurance Plan (QAP)		
476		Ability to enter approval of Drawings and design review.		
477		Ability to vendor approvals for supply of materials to Turnkey works.		
478		Ability to enter approval of Inspection of		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
		materials for Turnkey works		
479		Ability for approvals of work slips with audit verification and authorization for turnkey works.		
480		Ability for approvals of delay condonation with audit verification and due authorization.		
481		Ability for approvals of Final Quantity variation with audit verification and authorization for turnkey works		
482		Ability for taking back the excess unused materials by the Turnkey contractors		
483		Ability to request for vendor acknowledgement of the contract after sharing the contract with the vendor		
484	<b>Purchase Order Receipts</b>	Ability to generate purchase order (PO) receipts in the system		
485		Ability to generate and record consignment receipts. The consignment receipt needs to have the following (but not limited to): Item serial numbers, item batch numbers etc Item wise quality inspection criteria.		
486		Ability to generate weekly, monthly, quarterly supply position		
487		Ability to generate instantaneous report of supplies against POs		
488	<b>Inspection and Testing</b>	Ability to record dates of offer for inspection & Testing, submitted by the supplier and actual date of Inspection		
489		Ability to record particulars such as quantity inspected, quantity failed during testing, quantity accepted, whether calibrated equipments were available during testing, other observations of the inspection team		
490		Ability to generate Dispatch instructions incorporating names of consignee stores etc.		
491		Ability to record particulars of DI issued NEA		
492		Ability to record details of actual delivery made by the supplier		
493		Ability of generate inspection requisition		
494	<b>General</b>	Ability to generate reports confirming to Regulatory, Technical etc. requirements		
495		Ability to maintain record of EMD/PEMD of the firms		
496		Ability to maintain record of BG's on P.O./W.O. basis and on any other general basis		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)	
497		To maintain record of audit para's and their replies on P.O./W.O. basis and on any other general basis			
498		To maintain record of court cases/arbitration cases along with details such as lower/higher H.C./S.C. case, counsel name, fee, alert for next date, capture proceedings, decisions etc.			
499		Ability to have sub-module for Inspection Call Management (ICM)			
500		Interface with supplier online			
501		Request to be given by supplier online			
502		Ability to maintain record of the damaged goods, i.e DGR			
503		Ability to take into consideration the consultancy work.			
504		Ability to maintain PRO on PO/WO basis			
505		<b>List of required Reports</b>	Record of the Damaged Goods (DGR)		
506					



### 3.1.6 Project Planning

Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
1.	<b>Project Planning</b>	Ability to Communicate to members after Project Initiation Ability to provide planning & engineering support being a repository of documents & data like: a) Existing Power Map and Single Line Diagrams b) Data on loading of all existing transformers & lines c) To-do sheets (for lines) d) Information on upcoming generation capacities e) Information on upcoming industries f) Government & regulatory information g) Land Utilization Plan h) Structure Layout Diagrams i) Technical specifications j) Risk & effective mitigation strategies k) Previous projects information l) Learning from other projects m) Open access applications n) Land information (availability, ownership, cost, etc.) o) Other historical information, etc.		
2.		Ability to performance investment analysis with similar project		
3.		Ability to store details of statutory clearances, e.g. forest clearance, clearance from aviation authority, etc.		
4.		Ability to incorporate security measures, to limit changes by project owner / manager to only their respective projects		
5.		Ability to provide Project Management Tools for developing project plan		
6.		Ability to revise project plans		
7.		Ability to tie-up all documents related to a project in project control		
8.		Planning Support - Ability to create planning support repository which will consist of documents related to standard templates of resources, risk & effective mitigation strategies, learning from other projects, other historical data etc.		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
9.		Ability to create project profile - Name, type, capacity, mode of funding, project cost Centre, location, beneficiaries, major milestones, technical details, financial details, etc.,		
10.		Ability to provide Indexation and categorization of proposals for new projects / schemes		
11.		Ability to record project cost estimates, during project setup		
12.		Ability to provide index and categorize various proposals for new projects /schemes. This is needed to keep track of the stage at which a new proposal is presently or to get a view of all the proposed projects or any one of the projects or cumulative.		
13.		Ability to highlight total plan budgets, based on five-year plan		
14.		Ability to identify projects for each year, for each office		
15.		Ability to provide template-based feasibility reports		
16.		Ability to maintain vendors database and standard rates		
17.		Ability to create and link projects, sub projects, activities and tasks		
18.		Ability to create a Ad hoc project, where a work break down structure is not required		
19.		Change in individual task completion dates, should reflect in overall project milestone dates		
20.		Ability to assign project owner, project manager, accountable person and key stakeholders		
21.		Ability to classify type of projects turnkey/modular at project planning stage itself.		
22.		Ability to maintain a database stating technological options available in the market with financial cost involved		
23.		A suitable mechanism to index and categorize various proposals for new projects/schemes. This is needed to keep track of the stage at which a new proposal is presently or to get a view of all the proposed projects or any one of the projects or cumulative		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
24.		Project planning to include schedule for material requirement		
25.		Project Planning steps should cover user defined work-flow with the ability to modify and approve the work-flow		
26.		Ability to index, record, capture and track every single document (file) associated with the project in Project Control Folder		
27.	<b>Project Scheduling</b>	Ability for create pre-award schedule (timeline for finalisation of specs, NIT, bid evaluation timelines, contract)		
28.		Ability to revise the pre-award schedule including splitting, stretching and crashing of activities		
29.		Ability to support for attachments such as drawings, specs, instructions etc., in formats such as PDF, CAD, Visio, text/flat files, PPT, XLS, DOC, RTF, TIF, GIF, JPEG etc.,		
30.		Ability to balance resource usage in a given timeframe, to ensure optimal usage		
31.		Ability to Import/Export data to industry standard project management software applications such as Primavera/Project Scheduler/MS Projects etc.,		
32.		Ability to create project wise and department wise budgets for various projects/sub modules		
33.		Ability to define milestones with categorizations like HOLD point, CHECK point, etc., required actions at the milestones, and authority responsible for action		
34.		Ability to restrict/allow progress based on completion of required actions at HOLD point, CHECK point, etc.		
35.		Ability to link between projects, activities and tasks		
36.		Ability to schedule payments against key milestones		
37.		Status of projects awaited for order		
38.		Ability to generate report on key project milestones and scheduled payments		
39.		Ability to generate report on estimate time-based expenditure on each project/scheme		
40.		Ability to generate report on critical paths in projects		
41.		Ability to generate reports confirming to technical, operational, regulatory, statutory		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
		and other business requirements		
42.	<b>Project Execution</b>	Ability to track the status of every item in the project package		
43.		Ability to record vendor deliverables inspection and results		
44.		Ability to issue compliance certificate, post quality inspection		
45.		Ability to record and track quality deviations		
46.		Ability to reconcile quality check against quality plans/checklists		
47.		Ability to update physical and financial progress		
48.		Ability to track completion of each module/activity, leading to the overall commissioning of project		
49.		Ability to track deliverables against individual vendors, leading to respective contract closure		
50.		Ability to generate, record and manage contract closure certificates		
51.		Submission control mechanism to set deadlines to receive budget requests		
52.		Ability to track changes made to the budgets, after budget approvals		
53.		Ability to setup a billing plan, that allows the release of payments upon achieving set milestones		
54.		Ability to break projects into activities, sub-activities indicating milestones with commonly used methods like PERT, CPM		
55.		Ability to change milestones pre and post facto		
56.		Ability to track / record "Issue Slip" by the designated authority to allot materials to be issued by the store for works at desired location		
57.		Ability to maintain online quality assurance during project execution		
58.		Ability to record and track quality deviations		
59.		Enable management to achieve organization-wide compliance and greater efficiencies in project delivery by capturing and deploying best practices and continually improving processes.		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
60.		Enable project managers to gain insight into the performance of overall projects/schemes by identifying relevant project trends and problem areas using powerful analysis tools.		
61.		System should enable online project management process by enabling team members to easily manage, track, and report on their project activities through familiar tools, like the Web		
62.		Ability to incorporate security measures, to limit changes by project owners to only their respective projects and simulations.		
63.		Ability to track changes, with reasons, time and moderator.		
64.		Ability to record and track Bank Guarantee information		
65.		Ability to generate alert on Bank Guarantee expiration		
66.		Ability to generate note on Bank Guarantee extension/encashment/return		
67.		Ability to setup a billing plan, that allows the release of payments upon achieving set milestones.		
68.		Ability to record manpower deployment by contractors		
69.		Store baseline and revised plans		
70.		Report on activity-wise material consumption		
71.		Report on quality and quantity deviation		
72.		Report on status of the contracts		
73.	<b>Project Monitoring</b>	Ability to monitor each activity/task in the project		
74.		Ability to monitor variations from schedules and send alerts		
75.		Ability to generate alerts for slippages at all levels (post and anticipatory)		
76.		Ability to generate alerts for delay in payments		
77.		Ability to generate alerts for delay in starting/completion major activities/milestones		
78.		Ability to generate Gantt charts, PERT, CPM, histograms, tables, charts etc.,		
79.		Ability to monitor project, resource wise, timeline wise, department wise and funding agency wise		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
80.		Ability to monitor estimates versus actual : money amounts, services, labour, time span, vehicles used, plants used etc.,		
81.		Ability to monitor all projects consolidated, individual projects and individual tasks		
82.		Ability to capture all the project management activities for the entire cycle of construction projects i.e. from the point of proposal of a new project to final testing & commissioning of the project.		
83.		Ability to track every document in the project - to trace with who is the current owner of the file/document, for how long and why		
84.		Provide a central tracking system that enables project teams to record, assign & resolve issues and capture related risks pertaining to project.		
85.		Ability to store baseline and revised plans		
86.		Ability to maintain project percentage completed status (financial as well as physical) based on work to date		
87.		Ability to record delay in activities attributed to externalities (Legal cases etc.)		
88.		Ability to raise alerts for requirements for liaison with local authorities to solve out some external issues		
89.		Ability to check adherence to material availability with provision of alert generation in case of deviation		
90.		Ability to carry out resource tracking across projects		
91.		Ability to incorporate feedback from random inspection teams from corporate for major projects		
92.		Ability to generate alerts for delay in payments		
93.		Ability to record and monitor data on accidents during the project execution project and resources linked to each vendor		
94.		Ability to support NPV (Net Present Value) and SVA (Shareholder Value Added), analysis, IRR for projects and subprojects		
95.		Progress reports to funding agencies, management, regulatory bodies and others as per requirement		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
96.		Slippage reports for all major milestones		
97.		Drill down facility and Ad-hoc reports, with filter, sort, query, charts etc.,		
98.		Ability to display project activities in Gantt charts, pie charts, histograms, tables, etc. Illustrating 'actual' to 'originally planned' projects progress in-terms of schedule and cost		
99.		Ability to define project related checklist / steps and issue alert for deviation/non-compliance		
100.		Ability to make reports to funding agencies		
101.		Ability to display project total, accumulated costs in terms of actual, revenue, capitalization costs, future commitments etc.		
102.	<b>Project Accounting</b>	Ability to maintain database of vendors and standard rates including labour rates		
103.		Record the costs for each major project or a set of activities under investigation; cost for each major milestone		
104.		Provide an analysis of resources used on a project compared to the estimate for different categories, i.e. money, time, materials, overheads etc with cost implications for all		
105.		Maintain all the cost records for the duration of the project;		
106.		Ability to reflect inflation in project costs		
107.		Ability to record information on payment terms, milestones, etc.		
108.		Ability to support alpha-numeric characters for project codes- no limit in length		
109.		Support for auto-generation and manual-generation of project codes and preserve uniqueness in project codes		
110.		Ability to review completeness/ correctness of invoice and certify completion of milestone		
111.		Ability to approve invoice and send information to Finance Deptt. For payments (hierarchy-based approval)		
112.		Ability to integrate with Financial Management System to view real time information on status of payments against unique project codes and invoice number		
113.		Ability to maintain payment records for the		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
		duration of the project against unique project codes		
114.		Ability to transfer data from Capital Work in Progress to completed capital works.		
115.		Ability to transfer data relating to completed capital works to the Fixed Assets system.		
116.		Ability to conduct project wise cash flow analysis for a minimum of 5 years		
117.		Cash flows to be monthly, quarterly, yearly and user defined as well		
118.		Ability to incorporate interim cash flow from a partially commissioned project to calculate its final IRR of the total project		
119.		Ability to establish security measures to ensure that the personnel are allowed to review/edit projects they are involved with ensuring proper authority and access control		
120.		Ability to notify all appropriate personnel regarding project closure		
121.		Ability to integrate with Standard accounting journals for areas such as interest capitalization and overheads, transportation etc.		
122.		Ability to provide security measures, to ensure that the project closure is done by authorized personnel only		
123.		Ability to generate reports confirming to technical, operational, regulatory, statutory and other business requirements		
124.		Ability to generate reports on current accumulated cost of a project vis-a-vis estimated cost		
125.		Provide up to date cost reports to management- project wise, activity wise as well as meeting customized requirements		
126.	<b>Integration with other programs</b>	The system will use data captured by the Stores, finance, Payroll and Purchasing systems and pass the information to the General Ledger;		
127.		Data relating to completed capital works will be transferred to the Fixed Assets System.		
128.		Integration with stores control for stock items used		
129.		Ability to record Direct purchasing of goods and services (purchase orders; goods received notes etc for goods and services which do not pass through the stores system)		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
		through the Purchasing system		
130.		Ability to integrate with Standard accounting journals for areas such as interest capitalization and overheads etc into the General Ledger		
131.		Final costs transfer to general ledger only on project completion certification		
132.		Ability to link with revenue accounting on completion of the project		
133.		Index project cost codes to relevant general ledger account.		
134.		General Ledger accounts to be updated directly from the project accounting system as an associated function		
135.		Assets created through works under project cost control must be identified on completion for entry to the asset register.		
136.		All data must be identified to its correct financial year and month in that financial year so that any queries over the accuracy of charging resources to the project can be properly investigated. Consolidated data for each year is not adequate.		
137.		Capitalization of Projects (Capital work in progress). From projects to Assets Management.		
138.		Possible to link Purchase Order number of contracts (with contractors) with the project number		
139.		Integration with the Materials Management module to ensure material availability in site based on current stock and requirement of the project.		
140.		General Requirements		
141.		Ability to build a comprehensive project database to capture the data pertaining to all aspects of projects		
142.		Ability to do Resource tracking across projects		
143.		Provision of Timesheets to facilitate time booking by project personnel		
144.		Ability to store and retrieve technical / financial qualifications of all suppliers and contractors and their past performance history		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
145.		Ability to generate technical / financial specifications for projects and to analyse and evaluate the bids received		
146.		Enabling what-if modelling scenarios		
147.		Ability to record the costs for each major project or a set of activities under investigation;		
148.		Ability to provide an analysis of resources used on a project compared to the estimates for different categories, i.e., money, time, materials, overheads etc.;		
149.		Ability to provide management reports.		
150.		Ability to highlight and correct errors, if detected in project management with proper notifications and authorization controls		
151.		Full data on any project must be kept throughout the life of a project and must be able to be printed out and/or reviewed on screen at any time.		
152.		Ability to create secure project codes		
153.		Ability to support alpha-numeric characters for project codes - no limit in length		
154.		Ability to support for auto-generation and manual-generation of project codes, and preserve uniqueness in project codes		
155.		Ability to capture documentation related to execution of various projects (existing & old) for retrospective analysis in future.		
156.		Ability to enable project managers to gain insight into the performance of overall projects / schemes by showing relevant project trends and problem areas using powerful analysis tools.		
157.		Enable project managers with what-if modelling scenarios to understand the impact of trade-offs and evaluate strategies to mitigate risk for projects /schemes.		
158.		System should enable online project management process by enabling team members to easily manage, track, and report on their project activities through familiar tools, like the Web		
159.		Ability to incorporate security measures, to limit changes by project owners to only their		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
		respective projects and simulations.		
160.		Ability to track changes with reasons		
161.		Ability to conduct cash flow analysis for a minimum of 5 years		
162.		Cash flows to be monthly, quarterly, yearly and user defined as well		
163.		Ability to establish security measures to ensure that the personnel are allowed to review/edit projects they are involved with.		
164.		Prevent further transaction processing/transfers against finalized jobs/projects		
165.		Capability to re-open closed projects		
166.		Ability to notify all appropriate personnel, that a project is closed		
167.		Ability to provide security measures, to ensure that the project closure is done by authorised personnel only		
168.		Ability to print project reports at summary level and detailed level		
169.		Ability to provide Drill down facility and Adhoc reports, with filter, sort, query, charts etc.,		
170.		Ability to integrate seamlessly with enterprise project structure/hierarchy and individual project structures		
171.		Ability to calculate schedule parameter uncertainty, perform probabilistic schedule risk analysis, probabilistic cost risk analysis, risk simulations, risk analysis reports		
172.		Ability to record Direct purchasing of goods and services		
173.		Ability to integrate with Standard accounting journals for areas such as interest capitalisation and overheads etc into the General Ledger		
174.		System should ensure Final costs transfer to general ledger only on project completion certification.		
175.		General Ledger accounts to be updated directly from the project as an associated function.		
176.		Assets created through works under project cost control must be identified on completion for entry to the asset register.		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
177.		All data must be identified to its correct financial year and month in that financial year so that any queries over the accuracy of charging resources to the project can be properly investigated. Consolidated data for each year is not adequate.		
178.		Possibility to link Purchase Order number of contracts (with contractors) with the project number		
179.		Capture documentation related to execution of various projects (existing & old) for retrospective analysis in future.		
180.		Prevent further transaction processing/transfers against finalized jobs/projects-No post fact editing		
181.		Ability to generate Gantt charts, histograms, tables, charts etc.		
182.		Ability to send SMS alerts to concerned officials at defined milestones for actions to be taken (e.g. payments) and deviations from schedules		
183.		Ability to provide necessary information to populate predefined Balanced Score Cards for monitoring of Key Performance Indicators for Planning, Engineering and Project function		
184.		Ability to provide necessary information to populate predefined Balanced Score Cards for monitoring of Key Performance Indicators		
185.		Ability to reflect inflation in project costs		
186.		Ability to maintain the records for the duration of the project and up to at least 5 years after completion		
187.	<b>List of required Reports</b>	Ability to generate status report on: <ul style="list-style-type: none"> <li>• Each project</li> <li>• Each vendor &amp; sub-vendor</li> <li>• Projects started/ scheduled to end (as per LoA) in particular financial year</li> <li>• Projects funded by particular funding agency</li> <li>• Type of project (Greenfield/ Brownfield/ Renovation &amp; Modernization</li> <li>• and lines/ substations/ bays/ transformer/ augmentation), etc.</li> </ul>		
188.		Ability to generate proposals for new projects / schemes for approval by relevant authority		
189.		Ability to generate report on prioritised list of schemes to be undertaken based on Load		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
		Flow Study results, cost benefit analysis and budgetary constraints		
190.		Ability to generate Preliminary and Detailed Project report for new projects / schemes for approval by relevant authority		
191.		Ability to generate report on the current status of new proposals		
192.		Ability to generate report on status of clearances for each project		
193.		Ability to generate report on BOM/ BOQ		
194.		Ability to generate report on cost estimates for particular projects / scheme		
195.		Ability to generate reports confirming to technical, operational, regulatory, statutory and other business requirements		
196.		Ability to generate report on revised cost estimates during execution		
197.		Ability to generate report on key project milestones and scheduled payments		
198.		Ability to generate report on estimated time based expenditure on each project / scheme		
199.		Ability to export relevant project data into MS Excel for relevant reporting and analysis.		
200.		Ability to generate pre-customized report formats corresponding to the requirements of various funding agencies like ADB, WB, etc		
201.		Ability to generate report on project percentage completed status (financial as well as physical) based on work to date		
202.		Ability to generate reports confirming to technical, operational, regulatory, statutory and other business requirements		
203.		Ability to generate reports on current accumulated cost of a project vis-à-vis estimated cost		
204.		Ability to categorize and generate report on cost incurred in all projects in a particular year		
205.		Ability to categorize and generate report on costs incurred in all projects supported by a particular funding agency		
206.		Ability to categorize and generate report on cost incurred in all projects w.r.t. other details like substation or line projects, greenfield/ brownfield projects, etc.		
207.		Ability to generate report on budgeted cost of a project (against each unique code) vis-à-vis		



Sl. No.	Sub Module	Description	Compliance (S/C/T/W)	Comments (if any)
		actual cost on a quarterly basis for capital budget monitoring		
208.		Report on Audit Paras		
209.		Report on Court Cases		
210.		Report on Arbitration Cases		
211.		Report on Material For Annual Report		



### 3.1.7 Document Management System and Workflow Management System

S.No	Sub-module	Requirement Description	Compliance (S/C/T/W)	Comments (If any)
1	<b>Document Management System &amp; Workflow Management System</b>	DMS should have multiple Admin users		
2		The functionality of creating and end-dating users		
3		User Access through password		
4		User password change		
5		Unlimited user creation		
6		MIS report on Users, their activities and volume of scanned pages and count of data entry fields		
7		Authority Hierarchy Management with Password security system		
8		Create multiple roles for users		
9		Can assign roles to users		
10		Uploading of documents		
11		Uploading bulk document		
12		Audit Trail		
13		Appending in an existing file		
14		Searching for the digital document using Document Search Type		
15		Searching for the digital document using Same File Search		
16		Searching for the digital document using Keyword Search		
17		Document Download Interface		
18		The system should able to handle multiple file format (PDF, PDF/A, PNG, JPG, MS-Office etc)		
19		There should be the user-defined size for the document to be uploaded		
20		The system should allow users based on security to access the data		
21		The system should allow users to create a folder (or similar functionality) to group data		
22		The system should allow users to share a file through a hyperlink		
23		There should not be any database size limitation.		
24		Index files systematically for quick, easy retrieval later on given its file key		



S.No	Sub-module	Requirement Description	Compliance (S/C/T/W)	Comments (If any)
25		Allow users to see all the versions made and alerts every member of the most up-to-date version.		
26		Access your files even when you are using a tablet or mobile device		
27		Capability to hosts on-premise		
28		System can be available on internet and intranet		
29		The system should have the functionality to archive a file or folder		
30		Ability of Document Management System & Workflow Management System function to interface with the all other modules/sub-modules under the scope.		
31		Ability for hierarchy-based document review and approval system		
32		Ability to capture for bringing documents into the system		
33		Ability for storing and archiving documents		
34		Ability for indexing and retrieval tools to locate documents		
35		Ability of distribution for exporting documents from the system		
36		Ability to ensure security to protect documents from unauthorized access		
37		Facility to write notes on the document		
38	<b>File Management and Tracking System</b>	The solution should have automated File Processing system.		
39		The solution should enable file tracking		
40		The solution should include workflow capability to move files between approvers within the organization & outside		
41		The solution should have provision for noting with unique numbering, provides record of reviews		
42		The solution needs to be configurable for easy implementation rather than development from scratch.		
43		It should enable new file creation		
44		It should enable customized numbering of files		
45		The solution should have provision for document Storage & Retrieval		



S.No	Sub-module	Requirement Description	Compliance (S/C/T/W)	Comments (If any)
46		The solution should enable department specific workflow.		
47		The solution should be able to integrate with digital signature		
48		The file can be moved and shared in a secured manner within and different departments		
49		The access should be role-based and on SSO basis		
50		The solution should give provision to create different file types.		
51		The configuration of workflow should be easy and enable drag and drop facility.		
52		It should have the audit trail for noting and attributes in the file		
53		The solution should have the capability to print digital files		
54		The solution should be integrated with other modules like procurement, human resource etc.		
55	<b>Authorization and Single Sign on</b>	Solution must provide access to only those applications/ resources that the user is authorized to.		
56		Once a user has been authenticated to the sign on system, access to all authorized Web applications and resources must be handled by this system		
57		Solution must provide capabilities to ensure dual factor authentication for re-authentication or sensitive resource access.		
58	<b>Extraction Transformation and Loading</b>	The solution should include an ETL tool that can be used to extract, transform and load data from disparate source systems and perform the necessary transformations to establish a common format		
59		The solution should support batch data extraction, transformation and loading		



S.No	Sub-module	Requirement Description	Compliance (S/C/T/W)	Comments (If any)
60		The solution should have a user-friendly GUI for the users to handle ETL processes, such as: a) Modify data feeds b) Change of Business logic used for data ETL c) Modify ETL parameters d) Create, edit and execute a large number of transformation rules		
61		The solution should support import & export wizard and supporting connections with source and destination adapters including OLEDB, ADO .Net, Flat files, and XML formats		
62		The solution should include a data mining tool that provides bottom-up, discovery-driven data analysis		
63		The solution should provide data mining algorithms which help discover patterns and uncover business data to reveal hidden trends		
64		The solution should support analysts by creating analytic starting points including graphs, key performance indicators (KPIs), data grids and advanced visualizations like Decomposition Tree, Performance Map and Perspective View.		
65	<b>Dataware House</b>	Should be able to connect and extract data from the ERP solutions and do transformations before loading		
66		Should be able to connect to any Non - ERP solution and extract data and do transformations before loading		
67		Should be able to extract in Real - Time and in batch from ERP & Non - ERP systems		
68		Should have pre-built extraction process for most of the ERP standard process		
69		Should have pre-built data models for most of the ERP modules		
70		The solution provided should work on a in-memory database		
71		The solution should provide Slowly changing dimensions support with integrated time dependency		



S.No	Sub-module	Requirement Description	Compliance (S/C/T/W)	Comments (If any)
72		Should have built-in Currency and unit conversion		
73		Should have Complex hierarchies support		
74		Should have Time & date hierarchies including all fiscal year features		
75		Support for detailed Analysis Authorizations		
76		Should have Predefined modeling patterns for transaction & master data optimized		
77		Should be able to Comparable performance tracking over time		
78		Should have Integrated data processing and error monitoring/handling across systems		
79		Should have Scheduling framework for all DWH processes		
80		Should have Fine-grained security model with mass handling capabilities		
81		Should have Object and Hierarchy level security		
82		Should have Access-control at row level		
83		Should have Analytic Privileges grant different users access to different portions of data in the same view based on their business role.		
84		Should have Auditing & Access statistics including identity handling		
85		Should have Possibility to trace on application logic, database access and effect of authorizations		

### 3.1.8 BI and BW with AI functionalities

Sl. No.	Requirement Description	Compliance (S/C/T/W)	Comments (If any)
1	The solution should be capable of scheduling a report for execution refresh and or distribution and or publish		
2	The solution should be capable of distributing reports through email as Body or Attachment		
3	The solution should permit viewing of reports through web		
4	The solution should permit prioritizing reports during		



Sl. No.	Requirement Description	Compliance (S/C/T/W)	Comments (If any)
	execution		
5	The solution should be capable of publishing reports to a central store for access by different users		
6	The solution should allow users to send report to specified user(s) at scheduled times		
7	The solution should have interface to search and filter the data of the report		
8	The solution should provide exception reporting mechanism		
9	The solution should provide Senior Management Dashboards		
10	The solution should be capable of drill down and drill up with the report tool		
11	The solution should be capable of creating ad-hoc queries and reports for analysis		
12	Should not require knowledge of SQL or database to create self-service adhoc reports		
13	The solution should be able to convert reports to MS- Excel, MS- Word & PDF format directly		
14	The solution should provide the following display formats in the reports a) Sections b) Tables c) Pivots d) Charts		
15	The solution should permit display of multiple result sets in the same document		
16	The solution should permit the user to browse through metadata for detailed information on objects to build adhoc reports		
17	The solution should facilitate the user to create custom objects formulas for repeated use in reporting tool		
18	The solution should provide graphical interface for creating custom formulas		
19	The solution should have a GUI tool with drag and drop features to build reports		
20	The solution should permit conditional formatting based on thresholds or data ranges for any cell in the report		
21	Solution should provide pre-built templates which can be used for report designing		
22	The solution should restrict access to data and report based on user responsibilities		
23	The solution should have the ability to allow users the following for creating their own views or reports with ease: a) Select column b) Apply filters and sort orders c) Summation d) Drill down, drill up e) Averaging		



Sl. No.	Requirement Description	Compliance (S/C/T/W)	Comments (If any)
24	The system shall provide the ability to drill down, drill across, and slice-and-dice.		
25	The system shall enable role-based access to information.		
26	Identifies and clearly describes what business information, analytical tools and techniques, and decision support is required by the business to realize BI-driven improvement opportunities regarding management processes, customer processes, and/or operational processes;		
27	Provides the essential input to the process of defining specific BI projects and prioritizing those projects based on key criteria such as business impact and time to-market;		
28	Provides the means of aligning BI, business process improvement, and balanced scorecard initiatives;		
29	Drives key data architecture decisions;		
30	Provides the basis for end-to-end traceability between BI requirements approved by business users and the delivered data stores and BI applications		
31	Provides a key baseline against which the performance of the BI initiative can be measured.		
32	Identifies and clearly describes what business information, analytical tools and techniques, and decision support is required by the business to realize BI-driven improvement opportunities regarding management processes, customer processes, and/or operational processes;		
33	<b>AI functionalities shall be added for the analytics of different data.</b>		

### 3.1.9 Mobile Application

Sl. No.	Requirement Description	Compliance (S/C/T/W)	Comments (If any)
1	App for view Time Events (Punch in/out) requests		
2	Search for an employee in an organization		
3	Check My Addresses data		
4	Check My Bank data		
5	Check My communication data, such as your Telephone Number, Fax and E-mail		
6	Check My family data, such as your spouse, child, father, Mother		
7	Employees to create and submit leave requests quickly		
8	Enable employees to check and manage a digital version of all their paystubs/Payslips (Monthly)		



Sl. No.	Requirement Description	Compliance (S/C/T/W)	Comments (If any)
9	Check My Personal data, such as your name, birth date, marital status etc.		
10	Can view the upcoming leaves and work schedule of direct reportee employees		
11	Can display and submit your travel expenses (Reimbursements)		
12	Approve employee requests such as leave, Travel etc.		
13	Display/Change		
14	Structure Overview		
15	Project Costs - Plan/Actual/Commitment/Remaining Planned/Assigned		
16	Project Budget - Budget/Actual/Commitment/Remaining Planned/Assigned		
17	Display Purchase Requisitions by Project		
18	Display Purchasing Documents by Project		
19	Display List of Stock Values - Sales Order and Project Stock		
20	Post Goods Receipt		
21	Post Goods Issue		
22	Create Entry Sheet for PO		
23	Display/Change Service Entry Sheets		
24	Display Actual Costs and Revenues		
26	Display Commitments		
27	Display Asset Value		
28	Display Material Document List		
29	Change Network Activity Status		
31	Create Purchase Requisitions		
32	Manage Purchase Requisitions Centrally		
33	Display Purchase Requisitions by Project		
34	Create Purchase Order Centrally		
35	Manage Purchase Orders		
36	Monitor Purchase Order Down Payments		
37	Display Purchasing Documents by Project		
38	Purchase Order Items by Account Assignment		
39	Display List of Stock Values - Sales Order and Project Stock		
40	Post Goods Receipt for PO		
41	Post Goods Issue		
42	Create Entry Sheet for PO		
43	Display/Change Service Entry Sheets		
44	Display Material Document List		



Sl. No.	Requirement Description	Compliance (S/C/T/W)	Comments (If any)
45	Supplier Invoices List		
46	Count Physical Inventory		
47	Procurement Overview Page		
48	Physical Inventory Analysis		
49	Create Physical Inventory Document		
50	Financial Statement – Grid-Based		
51	Display G/L Account Balances		
52	Display Line Item Entry		
53	Post General Journal Entries		
54	Display Line Items in General Ledger		
55	Actual Cash Flow		
56	Reconcile GR/IR Accounts		
57	Accounts Payable Overview		
58	Asset Transactions		
59	Bank		
60	Budget Analysis		
61	Cash Flow - Detailed Analysis		
62	Clear G/L Accounts		
63	Clear Incoming Payments		
64	Clear Outgoing Payments		
65	Cost Centres – Actuals		
66	House Bank		
67	House Bank Account		
68	Journal Entry		
69	Manage Bank Accounts		
70	Manage Commitment Items		
71	Manage Bank Statements		
72	Manage Funds		
73	Overdue Payables		
74	Overdue Receivables		
75	Post General Journal Entries		
76	Post Incoming Payments		
77	Post Outgoing Payments		
78	Profit Centres - Plan/Actual YTD		
79	Projects – Actuals		
80	Trial Balance		

### 3.1.10 ESS & MSS



Sl. No.	Requirement Description	Compliance (S/C/T/W)	Comments (If any)
1	Ability to maintain a database for HR policies, transfer orders, promotion orders, increment and pay fixation, disciplinary action reports, approved- permissions and personnel document etc.		
2	Ability to capture HR Policies		
3	Ability to define all clauses under TA regulations, 2009		
4	Ability to define delegation of powers to different authorities		
5	Ability to issue NOC for obtaining passport/visa /study abroad or for outside employment		
6	Ability to maintain and view employee leave details		
7	Ability to process House Building Loan or any other loan for the land purchase, house/flat purchase, construction of the residential house, addition/alteration of constructed house and repair of the house		
8	Ability to issue Release Orders to release the loan money by the respective accounting unit against sanction order		
9	Ability to provide details of employees applying for higher education		
10	Ability to submit and declare assets by employees		
11	Ability to issue orders advising to take additional charge and charge allowance		
12	Ability to apply leave from outside office network.		
13	Approval workflow for leave management		
14	Ability to mark attendance and fill time sheets		
15	Ability to apply for leave under the appropriate category and state the reasons for it		
16	Ability to apply for NOC for abroad tour		
17	Ability to Check the status of the leave request		
18	Ability to approve/cancel/modify leave requests by employees		
19	Ability to view accrued leave balances		
20	Ability to approve or cancel leaves of subordinates		
21	Ability to provide reports to subordinates and Human resources in ESS on attendance & leave details		
22	Ability to provide the Manager consolidated status of present/absent employees working under him/her		
23	Ability to record requests by employees for passport/visa /study and outside employment and permission granted/rejected thereof		
24	Ability to submit / update declarations for Income Tax calculation		
25	Ability to view compensation and benefit details (Pay Slip)		
26	Ability to view the Performance Linked Incentives (PLI) earned during a year		
27	Ability to apply for Loans & Advances and Check the status of approval (Integrate with Payroll Module)		
28	Ability to display and print payslip information for each pay period, including gross pay, taxes, other deductions and net pay, with pay nperiod and year-to-date totals		



Sl. No.	Requirement Description	Compliance (S/C/T/W)	Comments (If any)
29	Ability to view Income tax computations		
30	Ability to handle making an online application for sanction of LTC/HTC/other entitlements through ESS and approval through workflow		
31	Ability to view Insurance related details for self		
32	Ability to apply for a medical advance, HTC / LTC / Transfer TA / Transfer grant / advance / reimbursements		
33	Ability to enter and approve general claims and expenses through the system		
34	Ability to provide a report on past salary slips & income tax statements		
35	Ability to provide a report on month- wise insurance premium payment receipt		
36	Ability to view the history of past trainings attended		
37	Ability to apply for higher education		
38	Ability to record requests by employees for pursuing higher education and permissions granted/rejected thereof		
39	Ability to issue orders granting higher studies without pay		
40	Ability to support Employee Exit and Full and Final process		
41	Ability to request for VRS (integrate with Employee Master for the status of disciplinary proceedings and HBL)		
42	Facilitate employee to fill exit interview form (for resignation)		
43	Ability to apply for NDC (No Demand Certificate)/clearance from various NEA's units at the time of Exit		
44	Ability to initiate for NDC at the time of transfer		
45	Ability to check the status of selection for promotion after the interview		
46	Ability to record request for transfer through employee self-service and indicate appropriately at the time of transfer exercise. Record of such request wherever acceded to be maintained		
47	Ability to view clearance request approved/ rejected by NEA and the reason for the same		
48	Ability to view HR Policies & Procedures Handbook including a list of infrastructure facilities for a particular level of employees, authority for various approvals (DoP), special or additional powers for authorisation		
49	Ability to view administration handbook for guidelines on aspects such as Travel, Local Conveyance, empanelled car agency, Guest Houses, Conference Rooms etc.		
50	Ability to provide links to the important items hosted in various in-house websites/ intranet, e.g. important circulars/ instructions/ policy documents etc.		
51	Ability to request for VRS as per the rules defined for the scheme		
52	Ability to approve for VRS as per the rules defined for the		



Sl. No.	Requirement Description	Compliance (S/C/T/W)	Comments (If any)
	scheme (Integrate with Payroll & E-Exit)		
53	Ability to Provide workflows. Accommodates multiple levels of review and approval		
54	Facilitate administrator to create new self-service transactions as and when required.		
55	Ability to fill exit interview form by superior & HR (for resignation)		
56	Ability to process NDC (No Demand Certificate)/clearance from various NEAs at the time of Exit		
57	Ability to notify (flag) individuals of any outstanding balances from various NEAs such as payroll, time office, purchase, establishment procurement- whichever applicable) when employee exits		
58	Ability to view clearance request approved/rejected by NEA and the reason for the same		
59	Ability to generate reports on the total number of employees applied for resignations/VRS, number approved/rejected/pending ability to view the complete report on the exit formalities which would be available whenever it wants to be seen		
60	Approval limits for expense reimbursement should be configured based upon the hierarchy limits		
61	Ability to require approval before a specific payment is made to an employee		
62	Ability to forward the overtime schedule to the top management for approval if the amount of overtime is over a defined percentage of the basic salary		
63	Ability to provide investment declaration form in electronic format. The employee will be required to fill and submit the form electronically to automatically updation of salary record and tax calculation by the system		
64	Ability to provide for the online ad-hoc calculation of employees pay slip/salary amount		
65	Ability to automate Transfer process		
66	Ability to record Transfer Policy & Procedure		
67	Ability to request transfers by employees (subject to minimum eligibility criteria specified in transfer policy) and approve/reject transfer requests of employees		
68	Ability to process NDC, obtain clearance from other NEAs/sections and issue the same		
69	Ability to generate lists of transfer requests/recommendations received to be reviewed by the Competent Authority for deciding on transfers with/without promotions. The office may also transfer an employee without any request/recommendation as per the Transfer Policy		
70	Ability to record request for transfer through employee self-service and indicate appropriately at the time of transfer exercise. Record of such request wherever acceded to be		



Sl. No.	Requirement Description	Compliance (S/C/T/W)	Comments (If any)
	maintained		
71	Ability to maintain the compensation and benefits policies of the organisation		
72	Ability to handle making an online application for sanction of LTC/HTC/other entitlements through ESS and approval through workflow		
73	Ability to process an application for medical advance, HTC/LTC reimbursements		
74	Ability to approve general claims and expenses through the system		
75	Ability to track loan requests made by employees and send reminders, Feedback & Grievances		
77	Ability to show details on all aspects, place of the accident (office), cause, report on how the accident happened, witnesses, the name of investigation officer, and other officers involved in the process at the field, investigation details and determination of compensation amount		
78	Support for Grievance Redressal (GR)		
79	Facility to store and update Grievance Redressal Policies & Procedures		
80	Facility to edit the policies by the specified level of authorities		
81	Facility to list various techniques to facilitate communication		
82	Facility to store various GR forms for printing		
83	Facility to maintain a checklist of the documents that employees need to submit as part of the procedures		
84	Facility to design surveys		
85	Facility to alert the users periodically when a deadline is approaching nearer		
86	Facility to track/monitor the status of a pending case		
87	Ability to show & print Employees pay- slip at users end		

Bidder has to submit the summarized sheet of FRS as in the format below.

Components	Total No. of Points	Standard(S)	Customization(C)	Third Party(T)/ Workaround(W)	Compliance %
Finance and Accounting					
Human Resource					
Maintenance Management					



Material Management					
Project Planning					
Document Management System and Workflow Management System					
BI and BW with AI Functionalities					
Mobile Application					
ESS and MSS					

Overall Compliance: \_\_\_\_\_

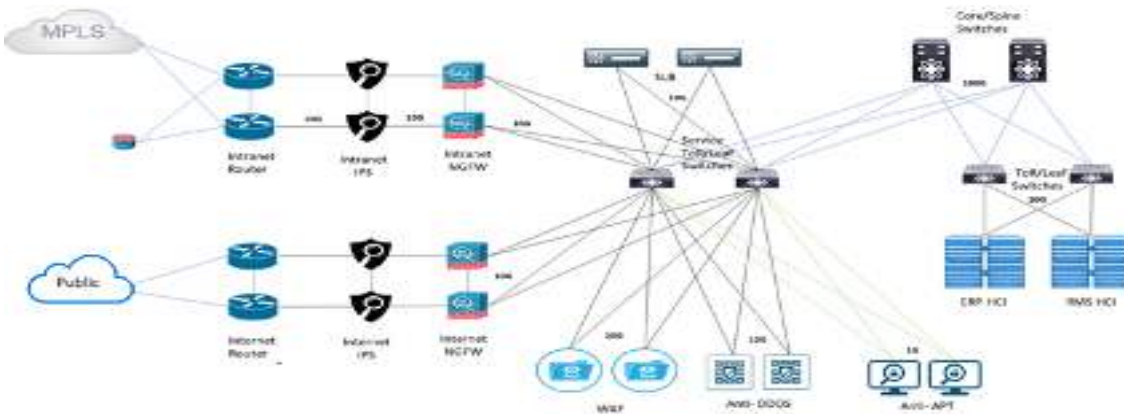
### 3.2 Technical Specification for IT Infrastructure

#### 3.2.1 Design Consideration for Proposed Solution

The design considerations for the deployment of proposed IT Infrastructure at the Data Centre of NEA.

1. It is to be emphasized that NEA is looking to have a holistic IFMIS system implementation and not just the supply of hardware and software. The mentioned Bill of Material (BOM) indicated in the Bid Documents are minimum requirements. The SIs are expected to focus on the objectives of the Project and should consider both performance and scalability along with SLAs of this project and formulate their solution offering in a manner that enables achieving those objectives both in letter as well as in spirit.
2. SI shall provide system integration services along with supply, installation and commissioning of the required hardware, software etc. at the NEA Data Centre to deploy the IFMIS application. SI’s scope would include procurement of hardware, relevant software licenses, and installation and commissioning at NEA’s DC. The following services will be made available to the SI at the NEA Data Centre by NEA:
  - Space for Racks
  - Power and Cooling
  - UPS, DG set power backup
  - Internet Connectivity at DC.
  - Fire prevention
  - Physical security surveillance
  - Network Operation Centre
  - DC facility maintenance and support





3. SIs are required to visit the NEA’s Data Centre Site to understand the deployment scenario along with Physical, Civil Electrical & Cooling Solutions available to them for the proposed services and understand key requirements and develop the required solution with respect to the functional requirements, configuration and customization specific to NEA.
4. SI is required to consider the proposed services and must consider the key requirements of NEA and develop the required solution with respect to the functional requirements, configuration and customization specific to NEA.
5. The proposed solution must have the highest degree of interoperability, and the solution components should be standard based and adopt an open approach rather than support a specific technology or vendor.

**NOTE:** *The scope of work under this RFP does not include the implementation of the Disaster Recovery (DR) solution, as NEA is separately undertaking the selection of an agency for the Design, Supply, Installation, and Commissioning of the Disaster Recovery Centre (DRC). However, NEA reserves the right to award, at its sole discretion, any additional work related to the DRC to the selected System Integrator (SI) under this RFP. Such additional work, if awarded, shall be executed by the SI at the applicable discovered rates for the relevant items/services as per the SI’s financial proposal, and shall be governed by the terms and conditions of this RFP.*

### 3.2.1.1 Service Oriented Architecture (SOA)

IFMIS solution components must follow SOA principles to provide specific services using well defined interfaces. Identify opportunities for cross-functional components or subsystems and implement them in such a way that there is an opportunity for reuse. This defines integration architectures based on the concept of a service and becomes relevant especially when there are multiple applications in an enterprise and point-to-point integration between them involves complexity.

### 3.2.1.2 Integration Support

NEA envisages IFMIS System as a system API driven architecture at the core of it. IFMIS system features can be accessed via any user interface (internal or 3rd party applications) which shall work on top of these

APIs. Adoption of open API, open standards are of paramount importance for the NEA IFMIS system. Data access must be always through APIs, no application will access data directly from the storage layer or data access layer. For every internal data access also (access between various modules) there will be APIs and no direct access will be there. This will ensure the IFMIS system is scalable and secure. Openness must be supported by open standards and vendor neutral APIs and interfaces for components.

- a) The integration middleware should be based on Service Oriented Architecture (SOA) and other forms of Application Program Interfaces (API) and use publish / subscribe mechanism.
- b) The integration mechanism adopted must have minimal impact on the existing systems
- c) The access to data will only be through business rules i.e. the applications will not access data directly without going through APIs managed by business rules/validation/workflow.
- d) The integration middleware/interface must validate the data to be integrated
- e) It must maintain integration logs that confirm the success or otherwise of the interface, complete with control totals

### 3.2.1.3 Ease of Management

The solution must factor capabilities and features that allows for ease of management and trouble-shooting. The underlying technology needs to be user friendly. By having easy to use principle, training can be kept to a minimum thereby aiding IT change management and the risk of using a system improperly can be minimized. The solution should provide support:

- a) Support maintenance, enhancement and refactoring the solution without architectural changes.
- b) Administering the solution with minimal user intervention and using role-based administration, well defined user interfaces and access policies.
- c) Implementation of Changes should be done quickly without even if architectural / DB Schema changes are required.
- d) Ability to log and report at a sub-system level state, health of the solution. It shall also log different events encountered by the subsystem.

### 3.2.1.4 N-Tier / Modular Design

The application user interface, logic, and data must be separate. The logical design of components, subsystems, application systems and databases will be ideally partitioned. These partitions shall have well-defined interfaces established. Logical boundaries are needed to separate components from each other. Modular design is more adaptive to changes in internal logic, platforms, and structures. It is easier to support, is more scalable and supports interoperability.

### 3.2.1.5 Scalability

Scalability is the most important aspect of DC. It is envisaged that the users and geographic locations may increase over in coming years with further enhancement. The system architecture and the network design should have the ability to handle the growth with respect to functions, users, load, and geographic sites. Also, applications must evolve to support new business requirements and make use of new technologies. SI must factor both vertical and horizontal scalability in the design and deployment of IFMIS solution.



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### 3.2.1.6 High Availability, Failover, and Load Balancing at DC

The solution shall be hosted at Data Centre location approved by NEA. The solution tier for critical applications should consist minimum of two nodes clustered on a fail-over configuration for the critical components like Web, application & database servers at the Data Centre site. Proposed components shall have adequate redundancies with no single point of failure for the solution at the Data Centre site. On failure of the primary application server, the 'failover' server shall take over the processing. Similarly, on failure of a database server, the other server shall continue seamlessly, thus providing the desired availability.

All network & security equipment / devices shall have the capability to failover to a redundant or secondary unit upon failure of the primary unit. Likewise, the load on the primary unit shall be shared with a secondary unit upon the primary unit reaching its capacity.

### 3.2.1.7 Zoned Deployment

The IT Infrastructure will have multiple security layers to secure the infrastructure from threats. The proposed deployment has different security zones as briefed below and all zones should have separate firewall in addition to the external (Perimeter security appliances). The firewall policies should be configured based on zone-based requirements.

- i. Militarized security Zone for Production Servers (Database and Application Server Farm (MZ):  
Militarize Zone (MZ) will securely host all critical applications, Database server, Storage etc. The Zone shall not be accessible from the Internet directly. All user traffic will to enter in this security zone after firewall only. The proposed solution will have provision of dedicated Internal Firewall to secure the critical production (Database and Application) environment.
- ii. Demilitarized Security Zone (DMZ) Web server Farm Zone:  
This security zone will host all servers that can be accessed from external users after authentication and traffic filtering. This zone shall host the Web servers, Access control & sign on servers, Antivirus Server etc.
- iii. Test, development & Staging zone (TDSZ):  
This zone will host all servers required for test and development for applications. This zone will have limited access and it will not have any direct access to the Production zone (PZ) and the activity shall be monitored.
- iv. IT Infra Management Zone:  
The technical manpower proposed by Service Provider for DC infrastructure will use this facility and will be able to access the infrastructure from this zone only. This can be based at NEA Head Quarters or DC/ DR site. Traffic for this zone will be virtually segregated / zoned by firewall.

### 3.2.1.8 Information Security: Log monitoring

All Servers / sub systems / network devices / appliances as proposed by SI should have capability and throw logs to the log server. The Logs and events generated by network & hardware component / devices of the system shall be monitored. Service Provider must design the solution in such a manner



that it can be integrated with Security information and event management (SIEM) solution for the same which should be capable to provide various security alerts, events, logs generated from various IT infrastructure (Hardware/Software) components. Service Provider would need to ensure the IT security compliance and therefore monitor the threats/logs generated by various equipment's / sub systems.

### 3.2.1.9 Backup and Recovery

Data is an asset, just as personnel, physical resources, and financial resources are assets. Data and information are resources that are extremely valuable for the organization; hence data management processes must be in place to maintain the data. SI needs to prepare a backup policy which shall be approved by NEA. SI would be required to design detailed backup and recovery policies which shall be implemented at the time of deployment. The responsibility of taking backups and testing the backups as per the backup policy shall be of SI for the entire project period. **Service Provider shall ensure that the data is replicated at the Backup Site to the NEA team. Service Provider shall be responsible for safe & secure storage of complete data.**

### 3.2.1.10 Policy & Documentation

SIs will have to develop, document, and implement the following:

- Data Backup, Archival & Retention Policy
- Security Policy

All the policy and procedure which will ensure availability & security at all times, these policies have to be updated in every six months (twice a year) or as per requirements of NEA. Service Provider MUST design and implement the policy (with NEA inputs) in compliance to the ISO standards (such as Information security ISO 27001). Design of Information Security Policy should necessarily include but not limited to the following policies to ensure IT security in NEA:

- IT Risk Management Policy
- Information Classification Policy
- Access Control Policy
- User ID and Password Management Policy
- Internet Access Policy
- Asset Management Policy
- Incident Management Policy
- E-mail Security Policy

### 3.2.1.11 Virtualization

SIs should use virtualized deployment and all the Servers should be virtualized from the day 1. SI is requested to propose a deployment strategy keep in mind both logical and physical segregation of Application, Database & other services without any overlap and compromising design parameters like High Availability etc.

#### a) Virtualization Design Considerations

- SI should separate and Isolate Management and De-Militarized network zones.
- SI should utilize partition trust zones as: Core application zone, Public Interface services & Database Zone.



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- SI must use Harden the virtual Infrastructure according to security best practices for virtualization and should secure virtual machines like physical servers. (such as Antivirus etc.)
- SI should strictly control administrative access (such as Use roles-based access control to limit administrative capabilities) and enforce separation of duties.

### 3.2.1.12 Sizing of Hardware

Sizing is the most important aspect of the project in this phase the user base is 1300 full user licenses based out 214 offices, but this can be scaled up for other offices and users in future. SI must size the applications for entire Nepal for the entire project period. However, their current scope of work shall remain for 1300 full user licenses based out 214 offices only. SI must propose hardware sizing based on their sizing of peak load considering 50% concurrency they must highlight all the assumptions taken in consideration for sizing.

### 3.2.1.13 Utilization of Hardware

SI must propose hardware sizing considering that Hardware utilization should never cross **70%** at the peak load during the entire project period.

### 3.2.1.14 Technical Obsolescence

SI should not provide any solution in IFMIS which is at the verge of sun set and becoming obsolete. The IFMIS including ancillary stack, which are at a risk of technical obsolescence over the next few years and over the operating life of the system should be identified and reported. The compatibility between the various elements of the system need to be considered and mitigation options, not be limited to periodic update from OEM/system supplier/SI, shall be indicated in detail.

## 3.3 IT infrastructure Hardware Technical Specifications

Bidder shall submit mandatory compliance (Yes/No) for all hardware technical specifications mentioned in the Bid Document. NEA reserves the right to treat bids with non-compliance to hardware technical specifications 'non-Responsive'.

### 3.3.1 General Requirement

Sl. No.	Description	Documentary Evidence
a)	The OEM of all the supplied components should provide 2 years warranty and 5 years of AMC/ATS.	The bidder should submit the attested letter of OEM confirming the 2 years warranty and 5 years of AMC/ATS.
b)	The OEM of all the products should submit individual certificates, certifying that all the components/parts/assembly/ software quoted/ used in the material would be original/new components/ parts/ assembly/ software, and that no refurbished/ duplicate/ second hand components/ parts/ assembly/ software would be used.	The bidder shall furnish a Self-Declaration along-with OEM attested letters.



c)	The OEM of proposed HCI, Security and Network equipment's shall establish an authorized service centre or service partner in NEPAL for ease of support after contract signing.	Details of offices on letter head of OEM
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### 3.3.2 Hyperconverged Infrastructure, Software Defined Network and Cloud Orchestrator

Hyperconverged Infrastructure, Software Defined Network and Cloud Orchestrator		
S.N	Product Names/Items	Description of requirements
1	Brand	To be mentioned by the bidder
2	Model	To be mentioned by the bidder
3	Country of origin	To be mentioned by the bidder
4	Manufacturing Country	To be mentioned by the bidder
5	Quantity	As per the Solution Minimum 6 Nodes at DC
Technical Specifications for Virtualization		
S.N	Requirements	Compliance (YES/NO)
Hardware Specifications		
1	Proposed Infrastructure Solution should come with fully redundant field replaceable components.	
	Proposed Infrastructure Solution should have independent hot swappable components which can be replaced and serviced without having the need to power down.	
	Proposed Infrastructure Solution should include x86 Nodes of following specifications.	
	Proposed Infrastructure Solution shall be compatible with the NEA Private Cloud Solution	
Computing and RAM Pool		
2	Total useable cores at DC: Database Compute node with 64 cores, Min. Intel Gold 5th Generation 3.0GHz Processor or Above, and Web, Application and Other Compute 624 Cores, Min. Intel Gold 5th Generation 2.1GHz Processor or Above with Min. 35 Mb Cache. Latest Generation processor across Cluster (should support different HCI clusters)	



	Total RAM: Database Compute with at least 24 GB per CPU Core, and Web, Application and Other Compute with at least 16 GB per CPU Core DDR5 4800 MHz across Cluster	
<b>Storage Pool</b>		
3	Boot Device for hypervisor: Mirrored 200GB or higher Flash Modules per Node. Each flash module should be no less than 200GB.	
	Storage: 80 TB Useable across Cluster (20% should be SSD) Note: Should be hot swappable and field replaceable.	
<b>Power Supplies and RU</b>		
4	Redundant power supplies and Fans to be proposed.	
<b>Network Interface</b>		
5	Network Interface: 4*10G/25G SFP+	
<b>Warranty and Maintenance</b>		
6	The bidder should provide comprehensive warranty till end of contract period with 24 x 7 x 365 for all equipment and software included in the proposed solution.	
<b>Reports to be included</b>		
<b>Hyper Converged Solution Requirements</b>		
7	The proposed solution should come with preinstalled various software including SDS with management and associated hypervisor. It should include all hardware and software necessary to ensure high availability mode of operation. The proposed solution should have Single Management Console to manage integrated Compute, Storage and Hypervisor. The solution must come with bundle/customer license, which must be clearly mentioned in OEM's license portal. The platform and environment should be customizable as per the requirement of User. The proposed HCI solution should be able to leverage SSD not only for caching but for capacity also to optimized read IO's and there should not be any limitation on SSD overall caching on software defined storage. The proposed solution should be completely software defined.	
	The HCI solution should include Hypervisor License and should support at least one of the industry leading hypervisors.	
	Dashboard to manage and provision virtual machines, network, storage, monitor performance and manage events & alerts. It should also contain a dashboard for monitoring & generate reports. The solution should provide a log analytical tool which will show all the logs available in one single management console and a single location to collect, store, and analyze unstructured data from OS, apps, storage, network devices, etc. to make troubleshooting easier. Solution provide OEM should be able to provide the Virtualization software for both End Point and Server.	
	Technology must be software defined and the solution should provide enterprise-class storage services using latest x86 server infrastructures without dependence on a separate Storage Area Network & associated component such as SAN Switches & HBAs. The solution should have	



	data locality.	
	The solution must be able to survive single node failures and it should in no way affect/degrade the production services & usable resources to the end user application. Solution must support all the mentioned industry Leading protocols NFS, iSCSI & SMB.	
	Solution should include an application and infrastructure performance management tool quoted as part of the solution to improve operations and provide deep infrastructure performance insight.	
	Proposed solution should cater virtualized core based licensing for products like (but not limited to) Oracle, MSSQL and etc. The solution must support RDMA or equivalent for better performance.	
	It should be possible to use different storage policies on VMs and container level with Storage QoS.	
	Solution should support live migration of running virtual machines from one physical node to another with zero downtime and continuous service availability.	
	The solution should provide enterprise data services such as de-duplication, encryption & compression without dependence on any proprietary hardware. This should be delivered in all flash or as hybrid solution. These functionalities should be part of the proposed solution and licensed. The proposed HCI solution should be able to create multiple logical unit (LUN's) for storage with multiple policy for deduplication and compression across storage logical unit. The Proposed HCI solution should support Erasure Coding for archival data storage.	
	The proposed solution must support connectivity ( Storage extension) to 3rd party bare metal servers (for optimized DB licensing on physical servers) to storage cluster & use the cluster capacity like( but not limited to) iSCSI, NFS target.	
	The proposed solution should support Hybrid and All Flash Nodes in the same cluster. Proposed SSD should be used for both storing Data and Caching. (If OEM uses SSD/NVMe dedicatedly for caching then additional SSD should be proposed). It should be possible to Pin IOPS hungry VMs on SSD only	
	Solution should support Server/application Load Balancing	
	Proposed solution should have inbuilt Data at Rest Encryption (DARE) and should also include Key Management Solution.	
	The solution should support to connect external storage devices (like NAS, SAN etc.) and should be useable as part of the Solution, for the purpose of Backup. There should not be any hardware vendor locking while connecting the external storage/s and this can be accessed over IP (No proprietary protocol should be used).	
<b>Scalability</b>		
<b>8</b>	The Proposed Solution shall support minimum 32 nodes in a same cluster	



	without any federation.	
	The solution should be able to scale by support of adding additional nodes to the cluster at a later point of time to handle compute, Memory & Storage requirements. Solution should support cluster expansion with zero down time. The proposed solution should support hybrid or all flash nodes in same cluster for future scalability. HCI solution must have capability to support HCI nodes with different models, different CPU Generations & Memory, Disks configurations in the same cluster without any impact on enterprise class storage services/functionalities.	
	Data compression, deduplication, erasure coding techniques should be available with licenses (if applicable) in the Software Defined Storage (SDS) layer for use without additional cost.	
<b>Data Protection</b>		
9	Ability to provide Replication of Virtual machine backup (VM level Mirroring) to protect selected VM's. If licensing module is there, bidder should provide licensing details. Should come with solution and should implement from Day 1 of operation.	
	Solution should be able to take App and database consistent snapshot and should be able to schedule the same.	
	Shall be able to restore VM from the backup.	
<b>Remote Replication</b>		
10	HCI solution should support file level recovery of user's data from VM's without Storage/VM's admin involvement	
	HCI solution should support VM's snapshot at storage level, it should not impact guest OS performance during snapshot. Each VM should provide minimum 30 VM snapshots.	
	HCI solution should be able to take VM's snapshot/Storage snapshot at any time irrespective of VM's state (Power ON/Power OFF/Suspended) with retention policy	
	HCI solution should support crash consistent and application consistent backup within cluster or for the proposed HCI Solution.	
	HCI solution must support two copies of data across cluster and should have capability for supporting three copies for critical data and it should be available on workload level.	
	HCI solution should support data replication across sites with customized RPO i.e. 0 mins/5 mins/15 mins and grouping of Virtual machine as per application architecture	
	HCI solution should support WAN Bandwidth optimizer along with defined schedule across two sites and only increment data should be replicated post one time data sync	
<b>Hypervisor</b>		
11	The solution shall provide a purpose-built hypervisor with minimal footprint that installs directly on the 64 bit bare metal x86 dual socket servers	
	Hypervisor should support container and openstack integration for cloud native application	
	Virtualization Manager should have integrated Physical Host/ Node and Virtual Machine performance monitoring with high availability construct. No single point of failure for Virtualization Manager	



Single view of all virtual machines, allow Monitoring of system availability and performance and automated notifications with alerts. Monitor, analyze virtual machines, server utilization availability with detailed performance graphs and greater visibility into object relationships	
High Availability capabilities for the VMs in the sense if in case one server fails all the Virtual machines running on that server shall be able to migrate to another physical server / node running same virtualization software	
Ability to thin provision disks to avoid allocating all storage space upfront. Full monitoring capabilities & alerts to prevent from accidentally running out of physical storage space should be there	
Hypervisor should support virtualization guest tools inside guest for optimized performance for video/network/performance and disk reclaim options from guest OS's	
Hypervisor should support OVA/OVF image import and export	
Hypervisor must have capability for OS Catalogue/template and OS provisioning with role based access to virtual machine	
Capability for creating Virtual machine templates to provision new servers and also allow taking point in time snapshots of the virtual machines to be able to revert back to an older state if required	
Bidder should provide integrated snapshot-based backup, schedule backup/restore and configure multiple copies of backup on periodic interval either inbuilt with hypervisor or 3rd party solution.	
Proposed hypervisor should support standard features like non-disruptive migration of workload across hosts, High Availability and Distributed resource scheduling during resource constrain	
Hypervisor shall provide automated live migration for initial placement and balancing of available resources with the rules to define affinity and / or anti-affinity of workloads	
Hypervisor solution must allow seamless migration across different CPUs with Enhanced vMotion Compatibility mode per-VM during migrations across hosts in a clusters and during power cycles	
Hypervisor shall provide the ability to hot add CPU and memory, hot-plug disks and NICs (provided the same is supported by guest OS )	
Hypervisor should provide ability to grant / ensure resources to virtual machines as they need for hosting critical workloads. Also, the initial placement of workloads should consider CPU, Memory and Storage contentions / hotspots	
Hypervisor shall provide zero downtime host patching with maintenance mode to move running workloads to other hosts on the platform with a consistent audit trail of the patching process	
Hypervisor should support UEFI or equivalent bios for supported virtual guests OS.	
Virtualization Manager should automatically check cluster components, hosts, storage, network, hardware and cause of performance issue on configurable schedule with results on designated email.	
Virtualization Manager should be able to identify out of the box top 10 VM's basis on their high resource utilization (CPU/Mem/Storage/Network)	



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	on single dashboard	
	Virtualization Manager must support Directory based/OpenLDAP and SAML based authorization for management	
	Virtualization manager should keep at least 90 days historical performance data for VM's/Storage and partnering host	
	Hypervisor/management must should be able to disable SSH based login to cluster for security and should have support for ssh key based login	
	Hypervisor and Management must support SNMP version 3 and SMTP for proactive alerting and email configuration	
	Hypervisor must provide centralized interface from which virtual machine access switching for the entire virtual datacentre can be configured, monitored and administered	
	The Virtualization manager should provide a virtual switch which can span across a virtual datacentre and multiple hosts should be able to connect to it. This in turn will simplify and enhance virtual-machine networking in virtualized environments and enables those environments to use third-party distributed virtual switches	
	Virtualization Manager should provide feature which can perform quick, as-needed deployment of additional virtualized hosts. When the service is running, it can push out update images, eliminating patching and update without impacting production	
	3rd party support for endpoint security to secure the virtual machines with offloaded antivirus, antimalware, firewall and hips solutions	
	Hypervisor should support Rest API and Command line management along with GUI interface.	
	Required Hypervisor License and Hypervisor Management should be included into the solution	
<b>HCI Management</b>		
<b>12</b>	HCI solution should support automated and zero touch upgrades for hardware/storage/hypervisor with no major impact on production.	
	HCI solution should provide all key operation management and performance management from a single console for Hardware/Storage/Hypervisor and VM 's management using HTML 5 internet browser	
	HCI solution management pane should integrate with Active Directory /LDAP	
	HCI solution must support monitoring via SNMPv3 and email alerting via SMTP	
	HCI solution should have analytics on capacity behaviour and should have capability of showing all under and over utilized VM's with their right sizing information after current VM's usages	
	HCI solution should be capable of creating custom dashboard with reporting as per customer ease and requirements, solution should be able to scan/search objects with advanced search option for faster access to require information for troubleshooting	
	HCI solution should have capability for finding object anomalies from standard behaviours and report this before major bottleneck for solution.	



	HCI solution should have codeless automation native engine to create troubleshooting for alert and remediation as per policy	
	HCI solution should have capability for managing multiple sites/clusters from one HTML5 based browser with single sign on	
	HCI solution should support rest API for third party integration and customized workflow for automation using rest API	
	HCI solution should have call home capability for remote log collection and proactive support for predictive failure hardware component	
	HCI solution should provide seamless upgrade for Firmware, Hypervisor, Storage OS, BIOS and other such functions which are required in the HCI platform. The upgrade should be online and should not be done from one single pane of management	
	Offered solution should have inbuilt analysis for VMs and should be able to give report of VM performance for minimum 90 days. It should be possible to view constraint and overprovisioned VM from single GUI, it should be possible to create Customized Dashboard as per requirement.	
<b>Networking</b>		
13	Solution should provide Virtual Network visibility with application-centric protection from network threats and automation of common networking operations	
	Solution should be able to integrate with provided orchestration layer and cloud management platforms using programmable REST APIs/OpenFlow/Netconf to provide end to end automation of network and security services.	
	Solution should integrate with 3rd party physical network & security solutions (or their managers) from leading OEMs using programmable REST APIs/OpenFlow/Netconf/Device packages to provide integration with proposed Spine-Leaf switches and existing Perimeter devices (network & Security)	
	Solution should offer comprehensive flow assessment, analytics, security groups and firewall rules suggestion for the purpose of implementing micro level segmentation to achieve zero trust security within the data-centre	
	Solution should provide micro segmentation (Restricted access between VMs in the same VLAN/ VXLAN as well as across VLANs/ VXLANs) using integration with proposed stateful virtual firewall	
	Solution should support integration with Hyper Converged Infrastructure (HCI) hypervisor, Containers (running on Docker, Kubernetes) and any of public/private cloud	
	Solution should provide a single centralized dashboard for managing, monitoring and provisioning of entire network & security infra inside Hyper Converged Infrastructure (HCI) cluster	
	Solution should provide creation of security groups and security policies/rules based on parameters like virtual machine name/OS type/IP addresses/Security Tags etc.	
	Solution should provide granular control and governance across VM to VM traffic or VMs pre-defined Group/Department	



	Solution should Support for layer-2 VLAN for networking and integrated VM IP's Management capabilities	
	Solution must ensure that only permitted traffic between application tiers or other logical boundaries is allowed and protects against advanced threats propagating within the virtual environment	
	Solution must leverage virtualized network functions from third-party software (eg. virtual firewalls, load balancers, threat detection, and application performance monitoring etc.), which can be inserted in-line or in tap-mode with VM traffic, and can be easily enabled for all traffic, or deployed only for specific network traffic.	
	Solution should integrate with L2/L3 network device with API call function for all required network configuration(L2/L3) with VM Life cycle.	
	Solution should support VM's life cycle policy-based firewall rules for east west traffic across VM's through one management console without any third party software	
	Solution should integrate with third party network function software like virtual load balancers, virtual firewall etc	
	Solution should provide a single centralized dashboard for managing, monitoring and provisioning of entire network & security infra	
	Solution should have zero trust policy model for connected systems or hosts.	
	Should offer control and tracking of operational user activity to meet audit and compliance requirements	
	Solution should support traffic flows visualization with context of end-to-end Network Visibility. from the VM, to the virtual NIC all the way to the top-of-rack switch port with health and performance of the network	
	Solution should provide network analysis solution to collect and analyze network flows in real time and put them in the context of the VMs and applications which are originating from or terminating to. Users should easily understand who is talking to whom and what flows need to be allowed or blocked.	
	Solution should respond faster to security incidents and breaches by automating remediation processes, such as quarantining suspicious applications by integration with leading security vendors.	
	Solution should provide the functionality to remove all the network & security policies assigned to an application/VM whenever that application is decommissioned.	
	Solution should integrate (send, receive events, alerts to & from) with existing Network and Security monitoring tools like Network Management System (NMS), SIEM etc.	
	Solution should integrate with SMTP for sending appropriate email related to different type of events/alerts for the cluster environment	
<b>Firmware Code and Patch Management</b>		
<b>16</b>	The solution should provide seamless upgrade for (but not limited to) Firmware, Hypervisor, Storage OS, SDS software, BIOS and other such functions which are required in the solution.	



	All patches for the complete hardware and software solution must come from a single validated source. It should be possible to apply and upgrade all software and Hardware related firmware and patches from the same GUI that is used to manage the HCI (It should not use the hardware management console for doing firmware upgrade of hardware)	
<b>Proactive Maintenance and Support</b>		
17	Proposed Appliance should come with a single proactive incident reporting and alerting which covers both Hardware components and full Software stack.	
	Proactive Maintenance feature should have ability to automatically send all hardware and hypervisor related alerts to the 24 x 7 Call centre of the Vendor.	
	Original Equipment manufacturer should have online 24 x 7 support for any hardware or software related issue	
	Proposed solution should have one window support solution for all the components including hardware, firmware and software used. The support should be from OEM.	
	HCI solution must have direct OEM, L1, L2 and L3 support, 24x7x365 days with unlimited incident support (Telephonic/ Web/ Email) and technical contacts/contract with 60 mins or less response time including the unlimited upgrades and updates.	
18	The proposed solution should be a Leader/Challenger in latest available Gartner Magic Quadrant Report or equivalent for Hyper Converged Infrastructure (HCI) or Distributed Hybrid Infrastructure	



**Private Cloud Database Life Cycle Management Tool**

<b>S. N</b>	<b>Requirements</b>	<b>Compliance (YES/NO)</b>
	<b>Private Cloud Database Life Cycle Management Tool</b>	
1.	The tool must provide automated provisioning of standalone or clustered databases.	
2.	The tool must support all the leading databases, like Oracle, SAP HANA, MS SQL, My SQL, Postgress, Maria DB etc.	
3.	The offered DB tool must support online copy data management, with a simplified snapshot and cloning process.	
4.	The Database provisioning tool should be capable of handling Database schema deployment post /pre provisioning of Database.	
5.	It must allow provisioning of customised images which are tailor-made as per organisation need.	
6.	The integrated copy data management must eliminate any wasteful copy data cost, as in automated deletion of old snapshots and clones as per retention policy.	
7.	Must provide customizable database profiles for software, compute, networking, and database parameters	
8.	The tool must provide the ability to define recovery SLA's as per customizable RPO.	
9.	The tool must be able to recover the DB copy from the past point-in-time to the granularity of any second, minute and hour of the day from the past. There must be daily, weekly and monthly point-in-time copies also available beyond this continuous "per-second" recovery as per the defined schedule.	
10.	This point-in-time DB image must provide user the ability to restore the database on an existing DB server, or automatically create a new VM(s) and restore the DB. This must be an automated process, and user should not go through VM creation process manually.	
11.	The user must be able to manage multiple DB engines, like Oracle, SAP HANA, MS SQL, MySQL etc using the same interface and tool.	
12.	The DB tool must alert the operator with any new DB patch availability, and provide an easy way to test and implement the patch on the production DB.	
13.	The tool must maintain the event logs of any major activity and changes and auditing.	
14.	The tool should have integration with AD/identity management.	
15.	The tool must be able to integrate with the user preferred self-service tool using the API's.	

**3.3.3 DC Switching Specifications**

<b>Specifications for Core/Spine Switch</b>		
<b>S. No.</b>	<b>Detailed Technical Specifications</b>	<b>Compliance (YES/NO)</b>
<b>A</b>	<b>Solution Requirement</b>	
	The Switch should support non-blocking Layer 2 switching and Layer 3 routing	



	There switch should not have any single point of failure like power supplies and fans etc. should have 1:1/N+1 inbuilt level of redundancy	
<b>B</b>	<b>Hardware and Interface Requirement</b>	
	Switch should have at least 30 x 40/100G QSFP28 Ports, switch should be populated with 8x100G and 8x40G ports.	
	Switch should have 16GB DRAM and 32GB internal Flash/Storage	
	Switch should support Configuration roll-back	
	Switch should support for different logical interface types like loopback, VLAN, SVI/RVI, Port Channel, multi chassis port channel/LAG etc.	
	The switch should support 100,000 IPv4 unicast routes and 100,000 IPv6 unicast routes entries in the routing table including 48,000 multicast routes	
	The switch should support hardware-based load sharing at wire speed using LACP and multi chassis ether channel/LAG	
	Switch should support minimum 6.4 Tbps of switching capacity	
	The proposed solution should be a Leader/Challenger in latest available Gartner Magic Quadrant Report or equivalent for Data Center Networking	
	<b>Specifications for Distribution/ToR Switches</b>	
<b>A</b>	<b>Solution Requirement</b>	
	The Switch should support non-blocking Layer 2 switching and Layer 3 routing	
	There switch should not have any single point of failure like power supplies and fans etc. should have 1:1/N+1 inbuilt level of redundancy	
<b>B</b>	<b>Hardware and Interface Requirement</b>	
	Switch should have the 24 x 1/10/25G SFP and should have 4 x 40G/100G QSFP28 ports. The switch should be scalable to additional 50% of the asked above ports, switch should be populated with 16x10G Multimode SFP and 2x100G ports.	
	Switch should have 16GB DRAM and 32GB internal Flash/Storage	
	Switch should support Configuration roll-back	
	Switch should support for different logical interface types like loopback, VLAN, SVI/RVI, Port Channel, multi chassis port channel/LAG etc.	
	The switch should support 80,000 IPv4 unicast routes and 80,000 IPv6 unicast routes entries in the routing table including 40,000 multicast routes	
	The switch should support hardware-based load sharing at wire speed using LACP and multi chassis ether channel/LAG	
	Switch should support minimum 3 Tbps of switching capacity	
	The proposed solution should be a Leader/Challenger in latest available Gartner Magic Quadrant Report or equivalent for Data Center Networking	
	<b>Specifications for ToR (Border/service Leaf Switch)</b>	
<b>A</b>	<b>Solution Requirement</b>	
	The Switch should support non-blocking Layer 2 switching and Layer 3 routing	
	There switch should not have any single point of failure like power supplies and fans etc. should have 1:1/N+1 inbuilt level of redundancy	
<b>B</b>	<b>Hardware and Interface Requirement</b>	



	Switch should have the 12 x 1/10G-T, 12 x 1/10/25G SFP and should have 4 x 40G/100G QSFP28 ports. The switch should be scalable to additional 50% of the asked above ports, switch should be populated with 12x10G Multimode SFP and 2x100G ports.	
	Switch should have 16GB DRAM and 32GB internal Flash/Storage	
	Switch should support Configuration roll-back	
	Switch should support for different logical interface types like loopback, VLAN, SVI/RVI, Port Channel, multi chassis port channel/LAG etc.	
	The switch should support 100,000 IPv4 unicast routes and 100,000 IPv6 unicast routes entries in the routing table including 48,000 multicast routes	
	The switch should support hardware-based load sharing at wire speed using LACP and multi chassis ether channel/LAG	
	Switch should support minimum 2.4Tbps of switching capacity	
	The proposed solution should be a Leader/Challenger in latest available Gartner Magic Quadrant Report or equivalent for Data Center Networking	
	<b>Common Specifications for Core/Spine, ToR and ToR(Border Leaf Switch)</b>	
<b>C</b>	<b>Layer2 Features</b>	
	Spanning Tree Protocol (IEEE 802.1D, 802.1W, 802.1S)	
	Switch should support minimum 256,000 no. of MAC addresses	
	Switch should support 8 Nos. of link or more per Port channel (using LACP) and support 64 number of ports per Link Aggregation Group	
	Support for broadcast, multicast and unknown unicast storm control to prevent degradation of switch performance from storm due to network attacks and vulnerabilities	
<b>D</b>	<b>Layer3 Features</b>	
	Switch should support static and dynamic routing like Static, OSPF and BGP	
	Switch should support a datacentre Fabric build on mature standards and protocols such as BGP EVPN/VXLAN to normalize datacentre and fabric operations. No proprietary solutions are to be deployed for fabric	
	Should support BGP, MBGP, IS-IS for IPv4 and IPv6	
	Switch should support multicast traffic reachability using PIM-SM and SSM	
<b>E</b>	<b>Availability</b>	
	Switch should provide gateway level of redundancy in IPv4 and IPv6 using HSRP/ VRRP	
	Switch should support for BFD For Fast Failure Detection	
<b>F</b>	<b>Quality of Service</b>	
	Switch system should support 802.1P classification and marking of packet CoS, DSCP etc.	
	Switch should support for different type of QoS features for real time traffic differential treatment using WRED and SP Queuing	
	Switch should support Flow control of Ethernet ports to control traffic rates during congestion by allowing congested nodes to pause link operation at the other end for receiving traffic as per IEEE 802.3x	



<b>G</b>	<b>Security</b>	
	Switch should support for deploying different security for each logical and physical interface using Port Based access control lists of Layer-2 to Layer-4 in IP V4 and IP V6 and logging for fault finding and audit trail	
	Switch should support control plane i.e., processor and memory Protection from unnecessary or DoS traffic by control plane protection policy	
	Switch should support AAA using TACACS+ / Radius	
	Switch should support for Role Based access control (RBAC) for restricting host level network access as per policy defined	
<b>H</b>	<b>Manageability</b>	
	Switch should support for RMON/RMON-II for central NMS management and monitoring	
	Switch should provide remote login for administration Telnet, SSHv2	
	Switch should support for management and monitoring status using different type of Industry standard NMS using SNMP V2 and V3	
	Switch should support for basic administrative tools like Ping and traceroute	
	Switch should support central time server synchronization using Network Time Protocol NTP V4	
	Switch should be IPv6 Certified (IPv6 Logo Ready or USGv6)	
	Switch should be EAL3/ NDPP /NDcPP or above Certified under common criteria	
<b>I</b>	<b>Out of Band Management</b>	
	The DC Switches should have the capabilities for Out of Band Management.	
	OOB Management Tool should provide full lifecycle management of the network including Design, Build, Deployment and Validation and support Zero Touch provisioning that takes a device from initial boot to a point where it is managed by the Fabric Manager.	
	OOB management Tool should support DC switching design with industry standard protocols like Ethernet, IP, BGP in the physical/underlay and EVPN-VXLAN in the overlay of the proposed architecture with visualizations for path analysis, heat maps and bandwidth	
	Should support Network Virtualization Overlays with VXLAN data plane, EVPN control plane, Edge-Routed Bridging Overlay and Proxy ARP and ND	
	Should support deployment of 3-Stage and 5-Stage leaf-spine IP fabrics with Multihoming by using industry standard EVPN ESI with multi-tenancy and workload isolation at Layer-2 and Layer-3 using VLAN, VXLAN, EVPN, VRF (Routing Instance) and Group Based Policies	
	Should support anycast gateway that configures every SVI/IRB interface that participates in the stretched L2 service with the same IP/MAC address	



	Should provide full network-centric DC Switching Infra health view to operations and NOC teams using built-in Dashboards which presents contextualized information on a wide range of categories including BGP status, Physical Layer-1 Visualizations, Interface Expectations, Configuration compliance, Revenue facing Servers, Deployment Anomalies, Routing Anomalies, Hardware (CPU, TCAM, Memory, Power), Configuration Deviation	
	Solutions should provide Advanced telemetry that can collect streaming telemetry data from switches and monitor and get alerts on data transfers across a fabric	
	Should support creation of Service Level Agreements in one central location and alert anytime there is a deviation from defined properties. Should have ability to check the compliance of devices and services across the entire fabric.	
	Should support Role-based Access Control (RBAC) for logging into OOB Management tool. Should support LDAP, AD, TACACS+, and RADIUS for authenticating and authorizing users and should support Restful APIs for 3rd Party Integrations.	
<b>J</b>	<b>Warranty and Maintenance</b>	
	The bidder should provide comprehensive warranty till end of contract period with 24 x 7 x 365 for all equipment and software included in the proposed solution.	

### 3.3.4 Management Switch Specifications

S. No.	Detailed Technical Specifications	Compliance (YES/NO)
1	Minimum 24 x 10/100/1000 Base-T and 4 x 1/10G ports (with required transceiver modules)	
2	1 U Rack mountable and should provide stacking of minimum 8 switches with 120Gbps of dedicated stacking/ equivalent bandwidth (All the stacking accessories should be included from day 1).	
3	The Switch should have 2GB DRAM and 2GB internal Flash	
4	128 Gbps or higher Backplane capacity and minimum 95 Mpps of forwarding rate	
5	Should support non-blocking hardware architecture	
6	All interfaces should provide wire speed forwarding for both Fiber and copper modules	
7	Support for at least 2000 VLANs & 32k MAC address	
8	It should support IGMP snooping v1, v2 & v3	
9	It should have static IP routing from Day 1 and should be upgradable to support OSPF and PIM	
10	Switch should support 8 hardware queues per port	
11	Dynamic Host Configuration Protocol (DHCP) snooping	



S. No.	Detailed Technical Specifications	Compliance (YES/NO)
12	Switch should support LLDP capabilities	
13	Should support IP Source Guard, DAI and IPv6 Security feature like IPv6 RA Guard and IPv6 Neighbour Discovery Inspection	
14	Should support Secure Shell (SSH) Protocol and Simple Network Management Protocol Version 3 (SNMPv3).	
15	Switch needs to have console port for administration & management	
16	Management using CLI, GUI using Web interface should be supported	
17	FTP/TFTP for upgrading the operating System	
19	Should support Energy Efficient Ethernet	
20	IEEE 802.1x support, IEEE 802.1D Spanning-Tree Protocol, IEEE 802.1p class-of-service (CoS) prioritization, IEEE 802.1Q VLAN, IEEE 802.3 10BASE-T specification, IEEE 802.3u 100BASE-TX	
21	Switch should have internal redundant power supply and Hot swappable fans from day 1	
22	Switch should be able to support management via CLI, Web interface	
23	SNMP v1, v2,v3	
24	Switch should be manageable through both IPv4 & IPv6.	
25	Switch should be UL-UL60950-1, FCC Part 15, VCCI Class A, EN 55022, EN 55024, EN 300386, CAN/CSA 22.2 No.60950-1, Reduction of Hazardous Substances (ROHS) certified	
26	Switch should be IPv6 Certified (Ipv6 Logo Ready or USGv6)	
27	Switch should be Common Criteria NDPP/NDcPP certified	
28	<b>Warranty and Maintenance</b>	
1	The bidder should provide comprehensive warranty till end of contract period with 24 x 7 x 365 for all equipment and software included in the proposed solution.	
2	The proposed solution should be a Leader/Challenger in latest available Gartner Magic Quadrant Report or equivalent for Data Center Networking	

### 3.3.5 Core Router

S. No	Detailed Technical Specifications	Compliance (YES/NO)
<b>A</b>	<b>Form Factor</b>	
	Rack Mountable with minimum 6 Slots	
<b>B</b>	<b>Architecture</b>	
	The router should be modular in architecture with single chassis solution	
	The router should support hardware based redundant Route processors / Routing engines	
	The router should have minimum 32GB of RAM/DRAM to support large routing tables & other memory intensive processes and minimum 32GB of internal flash memory to support multiple software images for backup purposes, log report and future scalability	



S. No	Detailed Technical Specifications	Compliance (YES/NO)
	<p>The Router throughput of minimum 500 Gbps from day 1</p> <p>Traffics handling capacity should be minimum 500 Mpps from Day 1</p> <p>The router should have Redundant Power supply from day one</p> <p>All modules, fan trays &amp; Power supplies should be hot swappable</p>	
<b>C</b>	<b>Interfaces</b>	
	The router should have minimum 8 x 1/10 Gigabit Ethernet routing ports with 4 x RJ-45 transceivers and 4 x SM/MM SFP from day 1	
	The router should have 4 x 10G Ports with SM/MM optics scale to 6 x 10G Ports	
	The router should support Network Address Translation (NAT) and Firewall features	
	Should support at least 1M Ipv4 and 1M Ipv6 routes and 48k Multicast Routes	
<b>D</b>	<b>Protocols</b>	
	Should have RIPv2, OSPF, IS-IS and BGP4, LDP, BFD routing protocols & IP multicast routing protocols: PIM, IGMP, VxLAN, EVPN and DCI (Data Centre Interconnect)	
	Should support Enterprise Services feature set with support for protocols like Multiprotocol Label Switching (MPLS), PWE3, MoFRR, Layer2 circuits, VPLS and NGMVPN	
	The router should support multiple level of privileges and authentication for user access	
	Should support RADIUS and TACACS+	
	Should be capable of supporting 802.1q VLANs and VLAN trunking	
	Should support port aggregation for higher bandwidth and redundancy	
	Router should support 64k Queues	
	Router should support hardware-based IPsec with 4Gbps throughput with 2000 tunnels	
	The router should support congestion management techniques like Priority Scheduling, WRED	
	Should support Non-Stop Forwarding/Non-Stop Routing support to ensure data forwarding during software switch-over or upgrade	
	The router should support out of band management	
	Should be possible to boot the router from a remote system or USB ports	
	Should support SNMP v1, v2 and v3	
	Should support TFTP for downloading of OS software	
	The router should be able to support multiple OS images for smoother up gradation.	
Should support online and extensive debugging features		
The router should be EAL 3/NDPP/ NDcPP certified under Common Criteria.		
The proposed solution should be a Leader/Challenger in latest available		



S. No	Detailed Technical Specifications	Compliance (YES/NO)
	Gartner Magic Quadrant Report or equivalent for Data Center Networking	

### 3.3.6 Internet Router

S. No	Detailed Technical Specifications	Compliance (YES/NO)
<b>A</b>	<b>General requirements</b>	
	Router should have a modular architecture	
	Minimal performance degradation when running advanced services such as stateful firewall, NAT, and IPSec.	
<b>B</b>	<b>Hardware and interface requirements</b>	
	Router should have at least 6 x 10/100/1000 and 4 x 1/10G SFP ports support both LAN and WAN protocols.	
	Router should have 4GB RAM and 16GB internal Flash/ Storage	
	Router should have at least 3 free LAN/WAN slots	
	Router should support modular LAN and WAN connectivity options Like 4G/LTE	
	Router should have internal redundant Power Supply.	
<b>C</b>	<b>Performance requirements</b>	
	The Router should have a minimum routing performance of 1500Kpps or 2.5 Gbps	
<b>D</b>	<b>Quality of Service (QoS) requirements</b>	
	Routers should support Class-based queuing with prioritization	
	It should be possible to configure maximum bandwidth and guaranteed bandwidth	
	Routers should support 802.1p, DSCP and EXP	
	Routers should support Marking, policing, and shaping	
	Routers should support congestion management features like WRED	
<b>E</b>	<b>Routing protocol support</b>	
	The Router should support Ipv4 and Ipv6 routing	
	The Router should support VRRP	
	The Router should support Static Routes	
	The Router should support RIPv1 & RIPv2	
	The Router should have OSPF, IS-IS and BGP	
	The Router should support Policy Based Routing	
<b>F</b>	<b>Multicast Features</b>	
	Multicast Listener Discovery (MLD), IGMP v1/v2/v3 and PIM-SM, Source Specific Multicast (SSM)	
<b>G</b>	<b>MPLS Features (From Day 1)</b>	
	Layer 2 and Layer 3 VPN, LDP, RSVP and mVPN/ NGMVPN	



S. No	Detailed Technical Specifications	Compliance (YES/NO)
H	<b>Security features (From Day 1)</b>	
	Routers should support AAA using RADIUS or TACACS	
	Routers should support Packet Filters/ACL	
	Routers should have Stateful Firewalling	
	Routers should support Tunnels (GRE and IPSec)	
	Routers should have DES (56-bit), 3DES (168-bit), AES (256-bit) encryption	
	Routers should support MD5 and SHA-1 authentication	
	Routers should have role-based access mechanisms.	
I	Routers should support Network address translation (NAT).	
	<b>Management and Troubleshooting</b>	
	Router should have Console, Telnet and Web for management	
	Routers should support Software upgrades through Web	
	Routers should support SNMPv2 and SNMPv3	
	Extensive debugs on all protocols	
	Real-time traffic-interface/sub interface statistics.	
J	IPSLA/ Real-Time Performance Monitor	
	<b>Certifications</b>	
	Safety certifications UL 60950-1	
	EMC certifications FCC Class A	
	The router should be EAL 3/NDPP/ NDcPP certified under Common Criteria.	
The proposed solution should be a Leader/Challenger in latest available Gartner Magic Quadrant Report or equivalent for Data Center Networking		

### 3.3.7 Intranet Next Generation Firewall

SL. No.	Technical specifications	Compliance (YES/NO)
	<b>General</b>	
1	The vendor must attain ISO 9001:2000 certification that covers scope of the Quality Management System which includes the design, development and manufacturing of network security products and the delivery of associated security services and support	
2	The device should be from a family of products that attains ICSA or NSS Labs Certifications or equivalent for Antivirus, Corporate Firewall, Ipsec and SSL VPN.	
3	The proposed system must attain Phase-2 Ipv6 Ready Logo Certification and successfully fulfilled all requirements for Ipv6 Phase-2 Core Support as a router product.	
4	The proposed system shall support dual hot-swappable power supplies.	



5	The proposed solution must be recognized as a Leader/Challenger in the latest Gartner Magic Quadrant for latest Network Firewalls	
7	Upgradeable via Web UI or TFTP	
8	Be easily backup or restored via GUI and CLI to/from local PC, remote centralized management or USB disk	
9	Provide CLI to troubleshoot.	
10	Have option for encrypted backup file	
11	The proposed system shall have option to implement local administrator password policy enforcement including:	
12	a) Minimum length	
13	b) Character requirements – Upper case, lower case, numbers and special character	
14	c) Disallow password reuse	
15	d) Password expiration	
16	The administrator authentication shall be facilitated by local database, PKI & remote services such as Radius, LDAP and TACACS+	
17	The proposed system shall support profile base login account administration, offering gradual access control such as only to Policy Configuration & Log Data Access	
18	The proposed system shall be able to limit remote management access:	
19	a) From certain trusted network or host with corresponding administrator account	
20	b) To certain (virtual) interfaces	
21	The proposed system shall allow GUI configurations to external services that includes External threat feeds: URL list, IP list, domain name list and malware file hash	
	<b>Firewall</b>	
22	The Firewall should be Hardware based, Reliable, purpose-built security appliance with hardened operating system that eliminates the security risks associated with general-purpose operating systems	
23	Firewall appliance should have at least 16 x 1GE RJ45 interface, 8 x 1GE SFP slot, 4 x 10G SFP+ slot, 8 x 10GE SFP+ and scalable to additional 2x40 GE QSFP+ in future within the same appliance.	
24	Firewall Throughput should be 80 Gbps	
25	Firewall should have minimum 40 Gbps of VPN throughput	
26	Firewall should have 50000 site-to-site & client to site VPN Tunnels.	
27	Firewall should have minimum 8000 concurrent SSL VPN users.	
28	Firewall should have 450,000 new sessions per second	
29	Firewall should have 8 million concurrent sessions	
30	The solution should have minimum 9 Gbps of NGFW throughput for Mix / production traffic	



31	The solution should have minimum 7 Gbps of Threat Prevention throughput for Mix / production traffic	
32	The Firewall solution should support NAT64, DNS64	
33	The proposed system shall be able to operate on either Transparent (bridge) mode to minimize interruption to existing network infrastructure or NAT/Route mode. Both modes can also be available concurrently using Virtual Contexts.	
34	The proposed system should have integrated Traffic Shaping functionality.	
35	The proposed system should support	
36	a) IPSEC VPN	
37	The device shall utilize inbuilt hardware VPN acceleration:	
38	a) IPSEC (DES, 3DES, AES) encryption/decryption	
39	b) SSL encryption/decryption	
40	The system shall support the following IPSEC VPN capabilities:	
41	a) Multi-zone VPN supports.	
42	b) IPSec, ESP security.	
43	c) Supports NAT traversal	
44	d) Supports Hub and Spoke architecture or equivalent	
45	e) Supports Redundant gateway architecture	
46	The system shall support 2 forms of site-to-site VPN configurations:	
47	a) Route based IPSec tunnel	
48	b) Policy based IPSec tunnel	
49	The system shall provide Ipv6 IPSec feature to support for secure Ipv6 traffic in an IPSec VPN.	
	<b>Virtualization</b>	
50	The proposed solution should support Virtualization (Virtual Firewall, Security zones and VLAN). Minimum 10 Virtual Firewall license should be provided.	
	<b>Antivirus</b>	
51	Firewall should have integrated Antivirus solution	
52	The proposed system should be able to block, allow or monitor only using AV signatures and file blocking based on per firewall policy based or based on firewall authenticated user groups with configurable selection of the following services:	
53	a) HTTP, HTTPS	
54	b) SMTP, SMTPS	
55	c) POP3, POP3S	
56	d) IMAP, IMAPS	
57	e) FTP, FTPS	
58	The proposed solution should be able to detect and prevent advanced Malware, Zero-day attack, spear phishing attack, drive by download, watering hole and targeted Advanced Persistent Threat without relying on just Signature database.	



59	The proposed solution should be able to perform dynamic real-time analysis of advanced malware on the appliance itself to confirm true zero-day and targeted attacks. Cloud infrastructure system for analysis and detection of Malware.	
60	The proposed system should be able to block or allow oversized file based on configurable thresholds for each protocol types and per firewall policy.	
	<b>Web Content Filtering</b>	
61	The proposed system should have integrated Web Content Filtering solution without external solution, devices or hardware modules.	
62	The proposed solution should be able to enable or disable Web Filtering per firewall policy or based on firewall authenticated user groups for both HTTP and HTTPS traffic.	
63	The proposed system shall provide web content filtering features:	
64	a) which blocks web plug-ins such as ActiveX, Java Applet, and Cookies.	
65	b) Shall include Web URL block	
66	c) Shall include score-based web keyword block	
67	d) Shall include Web Exempt List	
68	The proposed system shall be able to query a real time database of over 110 million + rated websites categorized into 70+ unique content categories.	
	<b>Application Control</b>	
69	The proposed system shall have the ability to detect, log and take action against network traffic based on over 2000 application signatures	
70	The application signatures shall be manual or automatically updated	
71	The administrator shall be able to define application control list based on selectable application group and/or list and its corresponding actions	
	<b>Data Leakage Prevention</b>	
72	The proposed system shall allow administrator to prevent sensitive data from leaving the network. Administrator shall be able to define sensitive data patterns, and data matching these patterns that will be blocked and/or logged when passing through the unit.	
	<b>High Availability</b>	
73	The proposed system shall have built-in high availability (HA) features without extra cost/license or hardware component	
74	High Availability Configurations should support Active/Active or Active/Passive	
74	The proposed system shall support high availability by setting up a cluster with the following characteristics:	
75	Supports up to 4 cluster members	
76	Supports 2 HA modes; active-passive (failover HA) and active-active (load balancing HA)	
77	Cluster units communicate with each other through their heartbeat interfaces	
78	Uses a combination of incremental and periodic synchronization to make sure that the configuration of all cluster units is synchronized to that of the	



	primary unit	
79	Provides device failover in the event of hardware or software failure	
80	Provides link failover when a direct link is not available on one/more monitored interface(s)	
81	Provides remote link failover when connectivity with IP addresses of remote network devices, for example, a downstream router is not available	
82	In the event of a failover, log messages about the event and can be configured to send log messages to a syslog server. The cluster can also send SNMP traps and alert email messages	
83	Supports session failover (also called session pickup) which during cluster operation the primary unit informs the subordinate units of changes to the primary unit connection and state tables, keeping the subordinate units up to date with the traffic currently being processed by the cluster. During cluster operation the primary unit informs the subordinate units of changes to the primary unit connection and state tables, keeping the subordinate units up to date with the traffic currently being processed by the cluster.	
84	Supports the option to automatically failback in the event the original unit recovers	
85	Supports widely separated cluster units installed in different physical locations	
86	The proposed system shall support active-passive virtual clustering that uses virtual unit partitioning to send traffic for some virtual units to the primary cluster unit and traffic for other virtual units to the backup cluster units. If a failure occurs and only one cluster member continues to operate, all traffic fails over to that physical unit, like normal HA.	
87	The proposed system shall support full mesh HA configuration where one can connect an HA cluster consisting of two or more cluster members to the network using 802.3ad Aggregate or Redundant interfaces and redundant switches	
88	The proposed system shall support out-of-band management for each cluster member where a management interface is reserved with its own configurations and are not synchronized to other cluster units.	
89	The proposed system shall support the upgrade of the firmware without interrupting communication through the cluster	
	<b>Logs and Report</b>	
90	Should have 900 Gbps of Hard Drive Capacity for logging and reporting if not please quote separate appliance	
91	Real-time display of information allows you to follow real-time trends in network usage such as the source IP address and the destination URL for HTTP traffic.	
	<b>Warranty and Maintenance</b>	
92	The bidder should provide comprehensive warranty till end of contract period with 24 x 7 x 365 for all equipment and software included in the proposed solution.	





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### 3.3.8 Intranet Intrusion Prevention System

Sr no	Minimum Requirements Description	Compliance (Yes/No)
2	The Proposed solution should be a Dedicated appliance (NOT a part of Router, UTM, Application Delivery Controller, Proxy based architecture or any Stateful Appliance).	
3	Legitimate throughput handling: 10Gbps from day-1 and scalable up to 40Gbps on same appliance. Attack Concurrent Sessions: Unlimited Inspection Ports supported: 6 x 10G SFP+ and 6 x 1G SFP from day-1. Option for additional 4 x 10G SFP+ for future use (Break-Out should not be used to accommodate port) SSL CPS: 90,000 on RSA-2k Key The appliance should have dedicated RJ45 Out-of-band Management Port and RJ45 Console Port. *Data should be publicly available	
4	System should support horizontal and vertical port scanning behavioural protection.	
5	System must be able to detect and block SYN Flood attacks	
6	System must have IPS filters categories for security: - Exploits, Identity Theft/Phishing, Reconnaissance, Security Policy, Spyware, Virus, Vulnerabilities, Network Equipment, Traffic Normalization, Peer to Peer, Internet Messaging, Streaming Media and must have at least 20K + signatures from day one.	
7	System should support HTTP Challenge Response authentication without Scripts	
8	System should support In-Line, & Out-of-Path deployment modes from day 1 and must support VA scanners out of box integration (Qualys, Rapid 7, Nessus) to fine tune the IPS policy as per vulnerabilities without manual intervention.	
9	Solution should be transparent to control protocol like MPLS and 802.1 Q tagged VLAN environment. Also, it should be transparent to L2TP, GRE, IP in IP traffic.	
10	The proposed Solution should protect against Packet Anomalies based attack such as	
	Unrecognized L2 Format, Invalid IP Header or Total Length, Inconsistent Ipv6 Headers, Invalid L4 Header Length, Invalid GRE Header etc.	
11	Tunnelling Protocols: VLAN Tagging, L2TP, MPLS, GRE, GTP, IpinIP	
12	The proposed solution should detect and mitigate recursive domain name system attacks by analysing the monitored DNS traffic using detection function to detect an anomaly based on the baseline learnt; and upon detection of anomaly, should perform mitigation action to filter out incoming DNS queries to a domain name under attack.	
13	13. System should have action set such as Block (drop packet), Block (TCP Reset), Permit, Trust, Notify, Trace (Packet Capture), Rate Limit and Quarantine & proposed IPS solution must support signatures, protocol anomaly, vulnerabilities, and traffic anomaly filtering methods to detect attacks and malicious traffic.	
14	• Server-based vulnerabilities:	
	— Web vulnerabilities & Mail server vulnerabilities	



	— FTP server vulnerabilities & DNS server vulnerabilities	
	— SQL server vulnerabilities	
	• Worms and viruses	
	• IRC bots & Trojans, and	
	• Spyware & backdoors	
	• Phishing	
15	The proposed Device should use the following Block Actions: Block (drop packet), Block (TCP Reset), Permit, Trust, Notify, Trace (Packet Capture), Rate Limit and Quarantine & proposed IPS solution must support signatures, protocol anomaly, vulnerabilities, and traffic anomaly filtering methods to detect attacks and malicious traffic along with virtual patching.	
16	The IPS should provide protection against Zero Day attacks with automatic signature within 20 seconds without human intervention. It should have anti-scanning functionality from day 1.	
17	Appliance should have anti-scanning functionality from day 1.	
18	System should have capability to allow custom signature creation along with inbuilt signature of 5000+. Custom signature should be different than inbuilt signature	
19	The proposed Solution should have Connection limit Profile to protect against session-based attacks, such as half-open SYN attacks, request attacks, and full-connection attacks.	
20	The appliance should support SSL inspection capabilities from day one and device must have functionality of hardware-based fail-open & Software (memory dump issue) based fail Open.	
21	The proposed Solution should protect against Packet Anomalies based attack such as	
22	Unrecognized L2 Format, Invalid IP Header or Total Length, Inconsistent IPv6 Headers, Invalid L4 Header Length, Invalid GRE Header etc	
23	The solution should have Signature Update, Geo-Location Blocking and Attacker based feeds from day 1	
24	Bidder should propose Separate Centralized Management & Reporting Solution from Day 1.	

### 3.3.9 Server Load Balancer

Sl. No.	Minimum Technical Specification	Compliance (YES/NO)
1	<p>The Load Balancer device should be a dedicated Hardware Appliance with the following features:</p> <ol style="list-style-type: none"> <li>1) Should support multiple virtual network functions in which each VNF has a dedicated resources allotted to it like CPU, RAM, Hard Disk, SSL cores and can run 3rd party and open source VNFs on the same appliance for future scalability.</li> <li>2) The appliance shall deliver the high availability required by modern data centers. It should support Active/Passive or Active / Active HA configurations using standard VRRP protocol.</li> <li>3) The Load Balancer shall automatically synchronize configurations between the pair and automatically failover if any fault is detected with the primary unit.</li> </ol>	



	4) The device should support upto 8 virtual instances. Should have internal redundant Power supply with min. 2 TB usable hard disk (bidder should propose a separate management server as a virtual appliance with 4TB storage), 64 GB RAM and capability to host other 3rd party and open-source virtual network functions like SSL VPN, web application firewall etc.	
2	The Load Balancer shall support offloading of SSL connections and should deliver 15 Gbps of SSL throughput on 2048 key.	
3	Proposed device should have minimum 4 x 10G SFP+ ports prepopulated	
4	Proposed device should support upto 8 virtual instances with capability to run multiple virtual network functions like Linux-CentOS/ Ubuntu etc. in same appliance	
5	The server load balancer should deliver minimum 3 million concurrent sessions	
6	The server load balancer should cater up to 40,000 SSL transactions per second on 2K key RSA and upto 25K TPS (ECDSA-SHA256). Device should support minimum 2.5 million L7 RPS	
7	Local Application Switching, Server load Balancing, HTTP, TCP Multiplexing, HTTP Pooling, HTTP Pipelining, Compression, Caching, TCP Optimization, Filter-based Load Balancing, Transparent Deployments, Content-based Load Balancing, Persistency, HTTP Content Modifications, Band Width Management(BWM), Support for connection pooling to TCP request, Support for distributed denial-of-service (DDoS) protection	
8	The solution should support XML-RPC for integration with 3rd party management and monitoring. Should also support SAA, SAML, Hardware binding and AAA support along with SSO. Solution must support machine authentication based on combination of HDD ID, CPU info and OS related parameters i.e., mac address to provide secure access to corporate resources on the same hardware.	
9	Should have secure access solutions for mobile PDAs, Android, Windows and iOS based smart phones and tablets with machine authentication	
10	<b>Warranty and Maintenance</b>	
1	The bidder should provide comprehensive warranty till end of contract period with 24 x 7 x 365 for all equipment and software included in the proposed solution.	

### 3.3.10 Service Desk / Helpdesk Specification

Sl. No.	General Requirement	Compliance (Yes/No)
1.	ITIL v3 2011 compliant For Process like Incident, Problem, Change, Release, SLA, CMDB, KB, Event, Request & Catalogue Management.	



Sl. No.	General Requirement	Compliance (Yes/No)
2.	Provide Web Interface for users, Requester, customers, support staff, 3rd party vendors, Area Managers, Field Engineers, Site Engineers, Supervisors, Managers, (Helpdesk available 24x7 at customer site) etc.	
3.	Provide powerful connectivity to other data sources for data import using REST APIs	
4.	Provide Email to Ticket Feature, Auto Merging of Email based on Context should not create duplicate Incident	
5.	Provide Email inbuilt client for interaction for logging and updating Incident, Service Request, to the user etc. Provide Email Communication Interface and Record all the Email Communication in Chronological Order	
6.	Should provide REST APIs to integrate with IT Infrastructure Management, Configuration Management, Network Management, CRM tools to automate Events to Ticket	
7.	System should be multi-tenant in architecture, The Service desk tool must be provided at DC with High Availability	
8.	Solution should have capability to generate gate pass for entry and exit with customized forms	
9.	Product should be able to Import User data from LDAP, LDAP or any 3rd party system	
<b>Incident Management</b>		
10.	Incident records can be created and changed through web interface, Event Management, Monitoring & Management tools, CRMs, ERPs or any 3rd party system, Mobile App, Email etc.	
11.	Any RE/FW of the Email should not create New Incident, it should automatically merge with original Incident	
12.	Any one from CC/BCC/TO list members reply to the Email should not create new incident instead of it should automatically merge with original Incident	
13.	Incident record should identify & record the source of reporting of the incident (such as event/Alarm trigger, Email, person or group, Phone etc.)	
14.	Incident records are separated from Request, Problem and change request records and should be able to convert, Relate Incident to Problem, Request, Change etc.	
15.	Incident records can be classified according to service category, Impacted Service, Problem Category, Impact, Urgency, Priority	
16.	Incident records contain State, Status information	
17.	Incident records can be linked to Customer/User Information and call back method such as telephone or email	
18.	Incident records can be linked to configuration items (multiple CI in case Incident impacts multiple asset) and Impacted asset detail should be visible	
19.	Incident records can be linked to the caller and should provide previous Incident History of caller while adding the incident	



Sl. No.	General Requirement	Compliance (Yes/No)
20.	Incident records can be linked to and routed to support partners, 3rd Party Vendors, Franchise	
21.	Predefined Escalation Matrix for each business service should be applied to incidents and whenever required it can be defined dynamically for each Incident while working for Incident	
22.	Automatic Incident logging through Event management based on pre-defined rules on rule engine	
23.	Incident can be linked to another Incident, Parent child relation between Incidents can be able to define	
24.	Support for notification and escalation, Business Escalation on tolerance breach, should be able to trigger and update 3rd party web application, or can run scripts	
25.	Must be customizable to include additional information that is required to be logged against incidents e.g., first contact closure	
26.	Able to search similar related incidents that have been previously logged in the system	
27.	Able to have multiple assignments to various groups and analysts (Automatically and Manually)	
28.	Able to attach subsequent tasks and notes to the main incident.	
29.	Should be able to create task within incident to take help from other team members or 3rd party vendors	
30.	It should support tracking of SLA (service level agreements) for call requests within the helpdesk through service types. Should be able to attach multiple SLA profiles, Multiple SLA Metrics, should be able to adjust the SLA based on Authorized workflow	
31.	Should be able to define the Different Business Hour templates for each customer and can be automatically selected for each incident, can be applied for different business services and customers, working teams	
32.	Should be able to define dynamic workflows and process	
33.	System should support Multiple Incident Models, should be able to define different workflow for each department, each Location, for each type of business service. Should be able to define (State, Status, Priority Matrix, Custom Fields, Teams, Escalation Matrix, Dynamic SLA Flow, Services, Requester/ Customers, Role based access control on Fields, Dynamic Notification Templates, Associated Service Asset/CMDB etc.)	
34.	Should be able to define dynamic teams, Notification templates	
35.	Auto assigned incident to the support staff, Field Engineers, Franchise based on pre-defined rules	
36.	It should provide provision for customer Feedback and Rating to assess their service experience and should be able to map different feedback profile for different service, can be able to call on user defined status.	
37.	System should support auto assignment of Incident, should consider auto-assignment based on services, shifts, Load, Staff Leave etc.	



Sl. No.	General Requirement	Compliance (Yes/No)
38.	System should provide option to log the comments or notes (sequentially record diagnostic activities and work done) at each Level of support staff (i.e L1 to L2 to more levels) and should be able to extract it in the report	
39.	System should provide option to record conversation (offline/online chat) between Agent and the Requester and it should be recorded for each incident automatically.	
40.	system should provide option to match incident records to related problem records and known error records	
41.	System should support Incident Functional Escalation	
42.	System should support Incident Hierarchic Escalation; Hierarchic Escalation rules should support based on Severity or Priority. For Ex. Based on Incident Priority the Auto Escalation time to Higher Level should be different.	
43.	Incident Record Access Control (tool allow access controls to open, modify and close incidents based on pre-established conditions)	
44.	There should be an option to Tag the Incidents	
45.	For Any Incident SLA should be calculated based on Asset, Requester/Customer, 3rd Party Vendor, Partner, Service, Service Category	
46.	Audit Trail: system should provide an audit trail of all incident record updates, complete history of Incident progress	
47.	Within Incident there should be a Hop analysis timeline graph for each incident	
	<b>Problem Management</b>	
48.	Have a predefined out-of-the-box process for problem management that is compliant with best practice frameworks such as ITIL Problem records are separated from incident, request and change request records	
49.	Problem Record Date and Time, Problem Source, Contact Detail, Symptoms, Status should be recorded, classified according to priority and category, to be escalated based on pre-established and manually overridden conditions	
50.	Problem records can be linked to configuration items, Change, Incident, Problem, Knowledge Base	
51.	Problem record should have option to add multiple workarounds and solutions	
52.	Problem records can be created from incident record, should be able to link with one or more incidents	
53.	Problems are monitored and tracked against tolerance breach, Support for notification and escalation on tolerance breach	
54.	It should provide detail asset information on hardware and software inventory through seamless integration with asset management tools.	



Sl. No.	General Requirement	Compliance (Yes/No)
55.	incident record contains a field or field(s) to assign an initial incident priority according to pre-established and manually overridden conditions? (SLA, CI type, business services, level of service disruption etc.)	
56.	Allows customization of the workflow to align to business requirement	
57.	Should have option to generate the Root cause analysis report after problem closure on single click	
58.	Tool should allow problem resolution to include a workaround and for that information to be visible elsewhere. (Such as CI records, incident records, knowledge data, service reports).	
59.	Does the tool allow a known error record to be created in the development environment and for that information to be visible elsewhere (incident records, knowledge data)	
60.	Problem Management should have option to review major problem record	
61.	Option to Analyse the problem record	
<b>Change Management</b>		
62.	Change request records can be created separated from incident and problem records, changed, and deleted, Time and date will be automatically recorded, can be classified according to priority and category, records contain state, status information	
63.	Change record can be created by using predefined Change Template	
64.	Change request records can be linked to configuration items, Incidents, Problems, other Change Requests	
65.	Template based Dynamic Task & Activity can be created to define change activity, other stakeholders can be able to provide feedback /comments on the activities	
66.	Assessment information can be recorded against the change request	
67.	Change planning and execution can be build, test, and implemented based on the plan	
68.	Change request records can be linked to and routed to support employees	
69.	Allows customization of the workflow to align to business requirement	
70.	Change SLA can be configured, Tracked, Monitored	
71.	CMDB is pre-integrated with Change Request, any change in CI can be done only by using the Change Request, CI modification can be done with in Change Request and temporary stored and can be updated only after Successful change implementation.	
<b>Knowledgebase Management</b>		
72.	Knowledgebase Management should be integrated with the NMS/EMS system	
73.	Role based, Team Based, User Based Access control on KB articles/FAQ/Information/KE/Solutions etc.	
74.	In FAQ/Solutions type of knowledge, system should allow to add multiple questions/multiple solutions with single knowledge article	



Sl. No.	General Requirement	Compliance (Yes/No)
75.	Knowledgebase suggests solutions, Full text search, Keyword search, should be able to attach files with knowledge articles	
	<b>Service Level Management (Service Desk)</b>	
76.	Facilitates the creation and management of an IT service catalogue, SLA, OLA, UC Templates	
77.	Facilitates the development of custom SLA structures, It should not be just two metrics Response, Resolution, Should be able to define Custom Metrics based Custom Rules.	
78.	Service level agreements (SLA) records can be created, changed and deleted, for the Service defined in the Service Catalogue, For CI, Assets, Customer, Group of customers, Priority.	
79.	Able to create Business Hours, Non-Critical Business Hours, Non-Business Hours, 24x7 SLA, It should support Round the clock SLA Management, Should be able to monitor based on Pre Recurring Period.	
80.	Response time and availability criteria shall be used to determine key thresholds; that managers and technicians can monitor and respond to SLA-based tasks appropriately.	
81.	SLA records contain information on IT provider and customer, services, service levels, etc.	
82.	Multiple escalation points can be created as threshold and escalation can be triggered on breach of threshold	
83.	Able to send notifications when escalation of the SLA is breached	
84.	Able to automatically assign Incident, Task or Process to other user, group or role when escalation is breached	
85.	Service level agreement records can be linked to incidents, Problem and changes.	
86.	SLA should have option to calculate MTTA, MTTR for Field Engineers, Partners, Service Vendors.	
87.	Service level agreement records can be linked to tools for monitoring, measuring and registration of the performance of IT provided services	
88.	Should be able to adjust SLA time and approval must require for the adjustment	
	<b>Service Asset and Configuration Management</b>	
	<b>Service Catalogue</b>	
89.	System should allow to create service categories, product categories etc.	
90.	System should allow to create service hierarchy, User access control on the service items	
91.	Should be able to define the workflow to be to deliver the service	
92.	Should be able to define SLA to be used per customer basis, should be able to offer different SLA to different customer or same SLA to multiple customer	
	<b>Service Asset and Configuration Management</b>	
93.	System should allow to add multiple CMDB classes dynamic	



Sl. No.	General Requirement	Compliance (Yes/No)
94.	System should allow to create dynamic Item types	
95.	System should allow to create dynamic input custom forms for each Item type	
96.	Able to manage Annual Maintenance Contract (AMC) vendors, AMC and provide AMC notification	
97.	Able to manage procurement, Contract details for each Items	
98.	Provide summaries based on total number of servers, network equipment's, OS, Vendor summary etc.	
99.	Provide Expiry notification for AMC dates.	
100.	Should be able to integrate with Customers, Incidents, vendors, Locations	
101.	Should be able to create the relationship with other Item types	
102.	System should provide option to Automatically create the Service assets from Management tools.	
	<b>Reports and Dashboards</b>	
103.	Able to allow changing/customization of fields and time interval, for Incident, Change, Problem, Request, SLA	
104.	Able to export file in the format of PDF, CSV and Word	
105.	Able to provide standard KPI reports	
106.	Provides SLA reports graphs, matrix report, add SQL type report consideration Group by, Order by, Filters etc.	
107.	Private Report features should be available, and the visibility should be able to control based on user & Role	
108.	Auto/Schedule report features should be available	
	<b>Management Features</b>	
109.	Should be able to rollout and Expire surveys within date range	
110.	Should be able to send survey to specific Team, User, customer etc.	
111.	There should be Announcement portal and it should be able to schedule for certain time	
112.	Template based Dynamic Task should be created, it should have option to assign the task, workflow, Assignment, Time recording, attachments, comments etc. It can be utilizing to assign the task to subordinate	
	<b>Warranty and Maintenance</b>	
113.	The bidder should provide comprehensive warranty till end of contract period with 24 x 7 x 365 for all equipment and software included in the proposed solution.	

### 3.3.11 Antivirus Solution for Servers



S. No.	Minimum Requirements Description	Compliance (Yes/No)
1	The solution should have state full Inspection Firewall, Anti-Malware, Deep Packet Inspection with HIPS, Web Reputation Device control and Recommended scan in single module or an in single agent.	
2	The proposed solution must be able to provide Web Reputation filtering to protect against malicious web sites.	
3	The Solution should have featured a high-performance deep packet inspection engine that examines all incoming and outgoing traffic for protocol deviations, content that signals an attack, or policy violations.	
4	The Solution should be able to operate in detection or prevention mode to protect operating systems and enterprise application vulnerabilities.	
5	The Solution should provide detailed events with valuable information, including who attacked, when they attacked, and what they attempted to exploit. Administrators can be notified automatically via alerts when an incident has occurred.	
6	The Solution should have out-of-the-box vulnerability protection for over 100 applications, including database, Web, email, and FTP services etc.	
7	The Solution should include exploit rules to stop known attacks and malware and are similar to traditional antivirus signatures in that they use signatures to identify and block individual, known exploits	
8	The Solution should automatically shield newly discovered vulnerabilities within hours, pushing protection to large number of servers in minutes without a system reboot.	
9	The solution must protect against all kinds of viruses, Trojans and worms including but not limited to boot sector, master boot sector, memory resident, macro, stealth and polymorphism etc.; and any other forms of exploits	
10	The solution shall provide real time integrity monitoring of critical operating system and application elements such as directories, files, registry keys and values to detect and report suspicious activity such as modifications	
11	On detection of a malware infection, the solution should allow removal of traces of malware from the system by cleaning up the following automatically or via remote remediation from a centralized management console: a) Detected malicious file, b) Affected registry entries, c) Any new files dropped by malware, d) Windows services created by malware, e) Any other system settings affected by malware.	
12	The Solution should cover of all IP-based protocols (TCP, UDP, ICMP, GGP, IGMP, etc.) and all frame types (IP, ARP, etc.) with fine-grained filtering (IP and MAC addresses, ports) and basic prevention of denial of service (DoS) attack	
13	The Solution should be able to detect and protect from	



	reconnaissance scans and solution.	
14	The Solution should be able to monitor critical operating system and application files, such as directories, registry keys, and values, to detect and report malicious and unexpected changes.	
15	The Solution should provide virtual protection which shields vulnerable systems that are awaiting a security patch. Automatically shields vulnerable systems within hours and pushes out protection to thousands of VMs/physical servers within minutes.	
16	The solution should support Application control, behaviour monitoring, Ransomware protection & Zero-day threat protection along with simulation engine.	
17	The solution be on premises with Zero-day attack prevention along with customize simulation engine as per infrastructure.	
18	The Solution should support at least Windows 10, Windows Server 2008, 2012, 2016, 2019, 2022, RHEL 32 bit and 64 bit, Solaris, Debian, Ubuntu, Oracle Linux, and SUSE.	
19	The Proposed solution should Offers host-based firewall capabilities for network filtering.	
20	The proposed solution must have capability to control the external devices like USB, LPT ports , Wireless devices ,external storage devices etc. It should have to control full access/read only/block mode.	
	<b>Anti-Malware features</b>	
21	Solution must scan, detect, clean, delete and quarantine the infected files.	
22	Solution must clean/ delete/ block malicious codes/software in real time, including viruses, worms, Trojan horses, bot, spyware, adware, mass mailing worms and Rootkit for Windows based Operating systems /Root kit along with web shell(s) for UNIX/Linux based operating systems	
23	Solution must have capability to scan, detect and clean the boot sector and Master boot record	
24	Solution must have embedded behavioural analysis and protection technology apart from signature based clean/delete/quarantine for unknown threats.	
25	Solution must scan, detect, and clean or delete malicious code for protocols like POP3 /IMAP/FTP etc.,	
26	Solution must provide to install antivirus agent through various techniques like web based, MSI package or other methods in workgroup and Active Directory/LDAP environment.	
27	Solution must provide to scan single file/directory/entire system and detect, clean, delete or quarantine the infected file.	
28	Solution must provide file reputation and web reputation and blocking of intrusion using browsers like Opera, Safari, Chrome , IE etc	
29	Solution must provide scheduled scan configuration for full-disks scan at designated time from central manager for clean,	



	delete or quarantine infected file.	
30	Solution must provide to prevent endpoint users from uninstalling or disabling the managed antivirus services.	
31	Solution must provide to exclude the specified files/directories from real time and manual scan.	
32	Solution must provide a utility program for clean uninstallation process of the corrupted antivirus.	
33	Solution must be fully IPv4 and IPv6 compliant (dual-stackable)	
34	Solution must provide virtualized environment	
35	Solution must submit the suspected files for which signature has been developed	
36	Solution must provide self-learning whitelisting, and block applications attempting to execute on any endpoint, unless explicitly allowed by administrator.	
37	Solution must allow for creating whitelisting of application programs, DLLs and executable files and block all remaining programs, DLLs. executable files for execution.	
38	Solution must provide prevention of tampering and hijacking of applications	
39	Solution must have the capability to classify applications which are attempting network access and block unauthorized connections and data transfers by malicious programs.	
40	Solution must provide to protect against zero-day attacks	
41	Solution must have the capability to accept new software added automatically through authorized processes.	
42	Solution must provide all the supported versions/latest versions of Microsoft Windows Operating Systems.	
43	Solution must have the capability to generate infected systems report with their source and destination IP address.	
44	Solution must provide to generate malware, name-wise reports based on source and destination IP address.	
45	Solution must provide to generate user defined reports from database. In case reports are provided in raw logs, vendor must be able to generate meaningful reports by exporting into a database.	
46	Solution must provide to generate following reports:	
47	Current Virus Definition.	
48	Virus Definition updates.	
49	Report generated must be exported to other applications like HTML, Microsoft Excel, CSV, or PDF.	
50	Graphical Charts for malwares, infected endpoints etc. for managed clients.	
51	Solution must provide to send endpoint logs based on IP and MAC address automatically up to the central manager.	
52	Solution must provide that the managed endpoints must send Antivirus event logs.	
53	Solution must provide to send logs of device control and application control to the central manager	



54	Solution must provide that the managed endpoints must send Antivirus firewall logs i.e., compliance violations and access log.	
55	Solution must provide that the managed endpoints must send Endpoint Based Intrusion Prevention System compliance violations and access log.	
56	Solution must provide to integrate with 3rd Party Log Analyzer Application Software like ArcSight.	
57	Solution must provide a Utility program for all supported Windows operating systems for collecting logs of infected endpoints for analysing and developing signatures.	
58	Vendor must provide log analysis of infected systems and submit required suspected files to OEM lab for new signature	

**3.3.12 Server Hardware**

Technical Specifications for Server at Remote Location	
<b>Requirements</b>	
<b>Hardware Specifications</b>	
Proposed Server Hardware should come with fully redundant field replaceable components.	
Proposed Server Hardware should have independent hot swappable components which can be replaced and serviced without having the need to power down.	
Proposed Server Hardware should include x86 Node of following specifications.	
<b>Computing and RAM Pool</b>	
Up to two Min. 5 <sup>th</sup> Generation Intel® Xeon® Gold Scalable processors, up to 28 cores per processor	
Total RAM: 16 GB per CPU Core DDR5	
<b>Disk</b>	
Front drive bays: Up to 16 x 2.5" SAS/SATA (HDD/SSD) max 122.88TB or up to 8 x 3.5" SAS/SATA HDD max 128TB Optional DVD-ROM, DVD+RW	
<b>Power Supplies and RU</b>	
Redundant power supplies and Fans to be proposed.	
<b>Network Interface</b>	
Network Interface: 4 x 1GbE or 2 x 10GbE	
<b>Warranty and Maintenance</b>	
The bidder should provide comprehensive warranty till end of contract period with 24 x 7 x 365 for all equipment and software included in the proposed solution.	



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# Annexures



## Annexure 1

### IT Infrastructure of Revenue Management System (RMS) project

Revenue Management System (RMS) is under implementation in NEA. The System Integrator needs to ensure that the ERP and the RMS systems smoothly integrates, and ERP & RMS IT Infrastructures should be compatible and interoperable.

Following is the list the IT Infrastructure under RMS project –

S. No.	Product Name	Make	Model
1.	Hyperconverged Infrastructure, Software Defined Network and Cloud Orchestrator	DELL, DELL VMware	<ul style="list-style-type: none"> <li>• Dell VxRail HCI solution (VxRail P670F)</li> <li>• VxRail Software</li> <li>• Private Cloud vRealize Suite and VRA automation</li> <li>• Dell EMC PowerProtect Data Manager Essentials</li> <li>• RecoveryPoints for VMs</li> <li>• Vmware NSX-T Data Centre Enterprise plus Per Processor</li> <li>• Severalnines ClusterControl Enterprise vmWare Software Licenses</li> </ul>
2.	Internet Next Generation Firewall	Fortinet	FortiGate 1801F
3.	Internet Intrusion Prevention System	Fortinet	FortiGate 1801F
4.	Web Application Firewall	Radware	Alteon D-6024SL Secure - 30G
5.	Anti-DDoS	Huawei	Huawei HiSecEngine AntiDDoS1905
6.	Anti-APT	Fortinet	FortiSandbox 1000F(FSA-1000F)
7.	Antivirus Solution for Servers	Trend Micro	Trend Micro Apex One
8.	Multifunction printer cum scanner	HP	HP Laser MFP 135w(4Z883A)
9.	Customer Care Contact center system	Avaya	Avaya Aura
10.	PBX SYSTEM	Avaya	Avaya Aura
11.	IP Phone	Avaya	Avaya Aura
12.	Desktop PC	HP	HP EliteTower 600 G9
13.	CCC Switch	Huawei	Huawei CloudEngine S5735-L
14.	CCC Firewall	Fortinet	FortiGate 80F
15.	Multi-Function Network Laser Printer	HP	HP LaserJet Pro MFP 3103fdw printer(3G632A)
16.	TOR Switch	Juniper	Juniper QFX5120-48Y-AF02
17.	RMS Application	LongShine	LongShine Energy Pack
18.	Document Management System (DMS)	Newgen Software Technologies Ltd.	Newgen Software - DMS
19.	3rd Party Software	Red Hat	<ol style="list-style-type: none"> <li>1. Red Hat Enterprise Linux Server</li> <li>2. Red Hat Jboss Enterprise Application Platform</li> </ol>
20.	3rd Party Software	Microsoft	<ol style="list-style-type: none"> <li>1. Microsoft SQL Server 2019/2022 standard</li> <li>2. Microsoft Windows Server 2019/2022 standard</li> </ol>
21.	3rd Party Software	Oracle	<ol style="list-style-type: none"> <li>1. Oracle Database Enterprise Edition - Processor Perpetual</li> <li>2. Oracle Partitioning - Processor Perpetual</li> <li>3. Oracle Active Guard - Processor Perpetual</li> </ol>

