



BANGALORE ELECTRICITY SUPPLY COMPANY LIMITED

(Wholly owned Government of Karnataka Undertaking)

(CIN-U04010KA2002SGC030438)

Office of the
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No: BESCOM/GM (ICT & MIS)/DGM(IT-3)/BC-48/2022-23/ 3710

Date: 28 OCT 2022

Detailed Work Award: A-1003

To,

M/s Connectivity IT Solutions Pvt Ltd.
No. 1877, 1st Floor, 31st Cross,
10th Main, Banashankari 2nd Stage,
Bangalore - 560070.

Sir,

Sub: Supply, Installation, Configuration and Maintenance of SD-WAN Devices for Data Center, Disaster Recovery Center and Field Offices of All ESCOMs of Karnataka.

- Ref: 1) Enquiry No. BESCOM/GM(ICT&MIS)/DGM-IT3/BC-48/2021-22/44/
CALL-2 Date: 21.10.2021.
- 2) Technical Bid opened on 18.11.2021.
- 3) TSC Meeting Proceeding dated 16.12.2022.
- 4) Price bid opened on 03.03.2022.
- 5) 118th BOD meeting dated: 08.06.2022 and its resolution dated: 12.07.2022.
- 6) LOI issued vide letter No: BESCOM/GM(ICT&MIS)/DGM(IT-3)/BC-48/2022-23/2131-57 dated 20.07.2022 and its amendment no: BESCOM/GM(ICT&MIS)/DGM(IT-3)/BC-48/2022-23/2362-88 dated 26.07.2022 and subsequent Amendment-2 to LoI No: BESCOM/GM(ICT&MIS)/DGM(IT-3)/BC-48/2022-23/3659-85, dated:21.10.2022
- 7) The Bank guarantee submitted to BESCOM for value of Rs 56,25,500/- vide Bank Guarantee No: OGT0028220069970, dated: 20.08.2022, issued by The Indusland Bank Ltd, Mumbai-400059 valid up to 30.11.2027.
- 8) The Bank guarantee submitted to CESC for value of Rs 7,47,500/- vide Bank Guarantee No: OGT0028220069857, dated: 19.08.2022, issued by The Indusland Bank Ltd, Mumbai-400059 valid up to 30.11.2027.
- 9) The Bank guarantee submitted to GESCOM for value of Rs 9,44,000/- vide Bank Guarantee No: OGT0028220069859, dated: 19.08.2022, issued by The Indusland Bank Ltd, Mumbai-400059 valid up to 30.11.2027.
- 10) The Bank guarantee submitted to MESCOM for value of Rs 7,82,000/- vide Bank Guarantee No: OGT0028220069861, dated: 19.08.2022, issued by The Indusland Bank Ltd, Mumbai-400059 valid up to 30.11.2027.

- 11) The Bank guarantee submitted to HESCOM for value of Rs 12,53,500/- vide Bank Guarantee No: OGT0028220069859, dated: 19.08.2022, issued by The Indusland Bank Ltd, Mumbai-400059 valid up to 30.11.2027.
- 12) Your acceptance to LOI vide letter dated: 25.10.2022
- 13) SD-WAN devices Proof of Concept Proceedings no: BESCOM/GM(ICT&MIS)/DGM(IT-3)/BC-48/2022-23/3076(A)
Date: 07.09.2022.
- 14) Contract Agreement and Non-Disclosure Agreement executed with BESCOM on 27.10.2022

BESCOM is pleased to issue this Detailed Work Award on you in continuation with the Letter of Intent(LOI) and its subsequent amendments issued vide this office letter cited under ref (6) for Supply, Installation, Configuration and Maintenance of SD-WAN Devices for Data Center, Disaster Recovery Center and Field Offices of All ESCOMs of Karnataka on the terms and conditions stipulated in this office vide tender enquiry cited under ref(1).

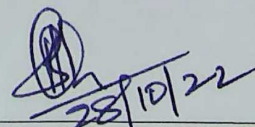
These shall be binding on you in respect of this contract and no conditions or stipulations to the contrary or inconsistent will be applicable. You have already submitted unconditional acceptance to the rates, Terms and Conditions, responding to BESCOM's RFP issued vide ref (1).

1. Scope of Work

BESCOM on behalf of all ESCOMs of Karnataka is seeking services of Supply, Install, Configuration and Maintenance of SD WAN device across various offices, DC & DRC (on premise and/or cloud) for various projects. M/s Connectivity IT solutions, the System Integrator (SI) shall supply, install, configuration and maintain SD- WAN devices to field office locations along with on-prem and cloud Data Centres as per RFP under ref(1). The SI shall extend the SDWAN solution for the upcoming projects as specified by ESCOMs. The below mentioned are the essential requirements to be fulfilled by the SI so as to ensure best in class service is provided.

1.1 Functional Specification of the Network devices


- The SI shall provide the solution as per the technical requirement specified in the RFP under ref(1)
- The SI shall ensure that all the supplied hardware /software and spares/upgrades for the solution shall have a support upto next 7 yrs from the date of issue of Detailed Work Award.
- The devices shall have Zero touch provisioning available from day one.
- The device installation will be performed first at the Data Centres and offices locations as per the preference list of sites provided by ESCOMs.



- The customer edge devices provided at the locations shall be new and SI shall provide and install software Updates/Patches/Versions during all the Stages for all software components including operating systems (that of Network Equipment's), firmware, management software, security software, or any other software, which would be part of the supplies.
- SI shall design, supply, implement, integrate, maintain and manage branch and hub network devices commissioned and provide warranty, AMC and ATS services for the SD-WAN equipment(s) and associated management software during the tenure of contract.

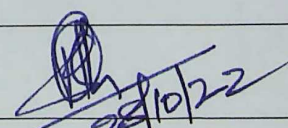
1.1.1 Functional Requirements for SDWAN Device

Sl No	Specification
General	
1	System shall be implemented as true software-defined network architecture with a complete separation of Control, Data and Management plane. It shall integrate different types of connectivity (MPLS, ILL, FTTH, Broadband, SIM etc.) into a single, end-to-end framework that uses policies to manage traffic.
2	All the components of SD-WAN solution need to be on-premises for on - premise hub location and field offices. The SD WAN solution shall be deployed as a virtual appliance for cloud based hub locations.
3	No configuration changes should be possible from the remote branch SD-WAN appliance.
4	<p>The solution shall comprise of following components:</p> <ol style="list-style-type: none"> 1. Orchestrator/Controller - Shall be a dedicated stand-alone Orchestrator or Controller with options of High availability both local and geographic. Work Appliance that Provides single point of entry for Configuration and Monitoring. Orchestrator shall be securely accessed and shall be capable of configuration, monitoring and troubleshooting of All WAN Edge devices in the branches, data centers or remote locations. These branches are to be managed from the centralized orchestrator. Shall be a separate component that Distributes routes prefixes to all Edges. Controller/Orchestrator shall be available in either physical/virtual form factor. The solution shall maintain centralized routing table, controls route advertisement as per policy, creates end to end segments on network, instructs data plane to change traffic flow as per policy. 2. SD-WAN Edge Device - Customer Premise Equipment deployed in branches, DC/DR with accessories to meet technical requirements of the RFP. 3. Control Plane: Maintains centralized routing table, controls route advertisement as per policy, creates end to end segments on network, instructs data plane to change traffic flow as per policy. 4. Data Plane: Forwards traffic in encrypted tunnels, applies local policy like QoS, ACL OSPF, BGP, etc.

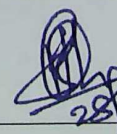
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5	The Controller/Orchestrator shall be designed for scale to support Minimum 2500 devices and expandable upto 5000 devices and any required SDWAN licenses for controllers shall be provided from day-1.
6	Solution shall support deployment of any kind of topologies such as full-mesh, hub-spoke and partial mesh or any arbitrary topology as desired by ESCOMs. It shall be possible to change network topology only by pushing policy on central controller and shall not require device by device configuration. The solution should be capable to cater multi hub location with multiple hub.
7	The solution shall support dynamic optimal direct site-to-site remote routing (spoke- to-spoke model) and/or any-to-any.
8	System shall support multiple WAN links such as Multiprotocol Label Switching (MPLS), ILL, Internet, Broadband/FTTH, P2P TDM links (Lease Lines), RF links, Range of interface support of both IP as well as legacy interfaces (If applicable) and Wireless LAN/WAN 4G/LTE in Active-Active mode. The solution shall be capable of integrating with external LTE based devices.
9	The overlay paths established amongst the edge devices shall support transport of unicast & multicast
10	The SDWAN Solution shall be capable of upgrading SD-WAN devices to the latest version and also support rollback of the software version when upgraded to the latest software version, if required. Rollback and Upgrade shall be from the Centralized platform. The solution shall support seamless functioning of appliances of different software versions without any compatibility issues.
11	The centralized Management Portal shall support Customized Role Based Access Control that provides only relevant information to the user based on their roles and privileges. Solution shall also provide customized role builder and support multiple administrators. Solution shall provide detailed audit trail of changes etc.
12	The centralized Management Portal shall support local, external Radius Server User/Account authentication method or two factor authentications and AD integration.
13	The System shall be functional at the time of connectivity failure to the controller. There shall not be any data plane disruption when the SDWAN controller is not reachable or goes offline for maintenance
14	The solution shall allow for plug and play installation of devices without requiring any manual configuration at the remote location
15	The SD-WAN Solution shall be able to horizontally scale at the Datacenter to support future expansion of the network
16	All SD-WAN solution components including the controller and Edge Routers shall be from the same OEM
17	All the functionality and feature licenses shall be available to be consumed from day 1


18	Solution shall integrate with SIEM, Ticketing tool & Tacacs/Radius/AAA using APIs.
19	All elements of the solution will have IPv4 from Day 1 & shall be compatible with IPv6 support
20	The SD-WAN Device shall be capable of handling power surges without damaging the device
Dynamic Load Sharing of Traffic Based on Business and/or application policies	
21	SDWAN (Edge & Central) devices shall be able to load balance traffic across multiple connectivity paths based on load balancing algorithms efficiently using all available connectivity. System shall also detect blackouts & brownouts by supporting active-active load balancing and fast session failover. Shall be able to integrate different types of connectivity (MPLS/ILL/FTTH/Broadband/SIM/VSAT) for Active-Active Load Balancing on per packet, per session and per Application basis with Seamless Failover without traffic duplication on the connected links at a site
22	Edge devices shall be able to identify and classify applications at OSI layer L4-L7.
23	The solution shall be able to dynamically control data packet forwarding decisions by looking at application type, performance, policies, and path status
24	The solution shall allow various traffic load balancing requirement like, between equal and unequal bandwidth links, application flow via specific link only etc. Shall be able capable of Seamless Sub-Second Failover of Voice/Video and Data Traffic
25	The system shall do continuous performance monitoring of loss and latency for all network paths and link and make decisions to forward critical applications over the best performing path based on the defined application policy.
26	The SD-WAN solution shall improve the degraded link (e.g. Forward Error Correction/SACK or equivalent, Quality of Service (QoS), Jitter buffering etc.) to maintain application performance for high priority applications
27	The solution shall have application awareness with capability of deep packet inspection of traffic in order to identify and monitor applications' performance to determine what traffic is running across the network in order to tune the network for business critical services, resolve network problems and to help ensure that critical applications are properly prioritized across the network.
28	In the event of link degradation or link down the solution shall be able to move traffic to a better link without any application disruption by moving the data traffic on a per packet/flow basis
29	System shall be able to automatically route over the overlay WAN without the need for a separate routing protocol. Solution shall support automatic overlay routing without any manual configuration.
30	The system shall be able to prioritize business critical applications and shall have the capability of prioritizing traffic during congestion



31	The SDWAN solution shall makes path optimization decisions on the Edge device and not through the central controller to reduce delay and improve performance.
High Availability	
32	The SD-WAN shall support High Availability feature (active-active) required compulsorily at the Data Centers for the Management and the Controller Platforms The device shall handle the failover transparently for the entire network. Device shall be equipped with TCP/IP connection and SSL ID mirroring.
33	The SD-WAN solution shall be capable to provide High Availability of the device (both DC and DRC) with the support for Active/Active configuration.
Security	
34	All remote site traffic shall be encrypted when transported over WAN transport links: MPLS, ILL, FTTH, Broadband and 3G/4G/LTE network protecting Data Confidentiality and Integrity.
35	The encryption shall be done as per IPsec standards using AES-256 or AES-GCM or higher coupled with SHA 256/ 512 Hash Algorithm
36	SD-WAN solution deployment at locations shall have security features like stateful firewall, intrusion prevention system DDoS protection, Next-Generation Firewall, Unified Threat Management like NG-Intrusion Prevention System, URL Filtering, Whitelist/blacklist and URL filtering capabilities.
37	The Firewall Policy shall be based on Identity/Applications, IP, Protocol and Port numbers.
38	The SD-WAN Solution shall support token based or certificate-based or PSK based authentication
39	The solution shall have functionality to protect the control plane as well as edge devices from unnecessary or malicious levels of traffic from Day1 without any additional hardware requirement
40	LTE Link shall support additional Authentication (such as PAP/CHAP/PAPCHAP or equivalent) to provide More security)
41	The SD WAN devices shall have the feature of Next Generation Firewall facility.
Routing and VPN	
42	The SD-WAN solution shall be able to support local breakout of internet traffic and in case of a failure of internet links shall backhaul internet traffic (barring traffic as specified by ESCOM) to the Datacenter via the MPLS (wherever MPLS is provided)
43	The solution shall allow support Link Aggregation Groups (LAG) functionality or equivalent technology to represent multiple physical links in active-active forwarding
44	The Solution shall have flexible deployment at location to co-exist with their existing firewall/ WAN optimization device


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45	For seamless integration with current network SD-WAN edge shall be able to build IPSec tunnel to a non-SD-WAN device or equivalent.
46	The SD-WAN solution shall able to auto configure VPN tunnels without limitation of the number of remote sites. The solution shall be able to auto configure VPN tunnels of a minimum of 1500 sites with and without manual VPN tunnel configurations. Solution should support L2 & L3 VPN Tunneling. In case of restriction on auto configuration, there should be a provision for manual configuration or creation of VPN tunnels.
47	In case of a change in WAN IP Address (Private/Public) the SD-WAN solution shall detect and rebuild the VPN tunnel without manual VPN configurations.
48	The system shall support reverting to last known working configurations after detecting connectivity issue. eg: revert to the previous configuration when an IP address is changed and pushed to the edge device.
49	The SD-WAN solution shall support dynamic edge to edge VPN tunnel without another device as a hop
50	The Solution shall be capable to view the routing table of the entire enterprise and have ability to audit and troubleshoot
51	The SD-WAN solution shall co-exist with non-SD-WAN sites on the any type of network with standard deployments topologies which may send traffic directly between the SD-WAN and Non-SD-WAN through routing protocols.
NAT	
52	The SD-WAN solution shall support NAT and port forwarding of all LAN side prefixes.
53	The SD-WAN solution shall support source NAT on location subnets to allow overlapping location subnet to communicate to the datacenter. Also, the solution shall support LAN side destination NAT for simplicity of redirecting traffic
QoS	
54	The solution shall be capable of configuring QoS weights on default applications, bespoke applications & destination IP based QoS definitions/VLAN based/VRF based etc
55	The SD-WAN solution shall be able to apply QoS policies for all traffic types including TCP, UDP and other non-TCP traffic types
56	Solution shall measure the quality of each QoS value for integration with the existing MPLS QoS configurations
Segmentation/VRF's	
57	The SD-WAN solution shall be able to isolate different departments/functions (which may have overlapping IP subnetting) and also have separate routing policies, firewalling policies, topology configurations, VPN configurations, QoS, NAT-ing etc. by end to end segmentation/VRF functionality on the edge device.
Centralized Management, Monitoring and Configuration of WAN.	

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58	The Centralized management solution extended by the Service Provider shall provide a single, unified platform for network service provisioning, device configuration, software updates, monitoring and assurance, change and compliance management.
59	The centralized management solution shall have web-based GUI. The solution shall support SSL for access to the management web GUI.
60	Monitoring Live dashboard with customizable features to be provided to ESCOMs with min 20 concurrent users & dashboard with standard features to any other users (like Custodians, ISPs) as required by ESCOMs to meet their specific requirements. Device should support alert through email and SMS or to ticketing portal.
61	The solution shall support end-to-end real-time flow visualization for the application paths for identifying issues and taking corrective actions.
62	All network-wide configurations shall be from the orchestrator/controller
63	The centralized management solution shall have NMS capabilities and shall support network wide device and network visibility for all the devices in the terminated on the devices irrespective of the type of link (MPLS, broadband, FTTH, ILL, SIM etc). The NMS solution shall have capabilities including but not limited to TCP dump, ping and traceroute. Device should be equipped with the features like Visualize in real-time, Customized graphs and reports, Link Availability, WAN Link utilization, Detailed bandwidth usage of applications, Link wise WAN Link Latency, jitter and packet loss, SLA monitoring and compliance, Appliance load and utilization, Alert for high resource utilization All types of alarms, Application performance monitoring. In case of performing any trouble shoot, the solution should have trouble tracking tools such as TCP dump, ping, traceroute etc.
64	Solution shall provide the real time and historical (for last 1month) and health status of all the location devices on the dashboard for CPU & memory utilization, link utilization and performance, application utilization etc.
65	The Device shall support application-level monitoring and traffic control to improve business-critical application performance, facilitate capacity management and planning, and reduce network operating costs
66	The solution shall store historical traffic and performance information for at least one month to assist with trouble analysis, traffic forecasting and SLA compliance. The SI shall preserve logs for security and audit trail without purging. The solution shall be capable of archiving data beyond one month and generation of reports out of Archived Data. The solution shall have the capabilities to define, monitor and report SLA of the WAN links. There should be provision for automatic export of the logs to an external storage, so that in case of a failure of the internal reporting engine, the syslog can provide the relevant information.
67	The system shall automatically measure the link SLs without any manual configuration on the devices

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68	The solution shall support email and SMS based alarm to notify the administrators when any device/link fault or network performance degradation happens.
69	The SD-WAN Solution shall support syslog export directly from the SDWAN edge device
70	The solution shall support SNMP V2/V3, syslog, IPFIX or equivalent polling of the SD-WAN devices and send SNMP to equivalent traps/logs. A dedicated SDWAN/Routing MIBs shall be available to poll SD-WAN/Router specific functionality.
Reports & Analytics to be available in the solution	
71	Real & historical time series log event reporting from day one without purging any logs
72	Traffic usage, CPU/Memory Utilization
73	Ad-hoc and scheduled reports
74	Predefined and custom report templates
75	Traffic reports per site: availability, bandwidth usage per access circuit (both upstream & downstream), bandwidth usage per application, latency, packet loss, QoS per link etc
76	Firewall reports: top rules, zones, source, destination by IP/domain, name/geo location, ports, protocols, session duration, QoS, DDoS, NAT events, pool utilization and Flood detection
77	Application reports: All Applications usages, All URLs, All Bandwidth Consuming Applications, All Sources, All Destinations, Site based Application usage analysis report, All sites, All Sites over time, Site availability over time, Total Availability etc.

1.1.1.1 Core DC Device (Category A)

1	Device shall able to connect in SD-WAN architecture and shall meet requirements as per specification mentioned under functional requirement.
2	Device shall have a minimum of 4x1/10 Gig WAN ports. The SI shall provide switch which has throughput equivalent to the hub device along with the SD-WAN Hub end device to accommodate 16 WAN links. The device shall have a minimum of 8x1/10 Gig LAN ports and 1xUSB Port available. All the ports shall support 1/10 Gbps speed for Hub appliances. The device ports should be equipped with both copper and Fiber Channel at the same ports.
3	Device Shall support minimum 16 VRF level segments /virtual domain for End to End Segmentation of traffic
4	The device shall be able to support a min of 6 WAN links as part of the SDWAN overlay The device shall possess multi-tenant support at central as well as remote locations, so that resources can be ear-marked for multiple departments or SBUs. The device shall have support for Virtual Network Operator concept where multi-tenancy can be supported in all the plane
5	Device shall have redundant hot swappable power supply units and power cords. There should be high availability for the solution at the data center.



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6	Shall be capable to support following routing protocols, IPv4, IPv6, static routes, Open Shortest Path First (OSPF), Border Gateway Protocol (BGP), Dynamic Host Configuration Protocol (DHCP), (VRRP), RADIUS, Authentication, Authorization, and Accounting (AAA), Application Visibility and Control (AVC) or equivalent, IPsec.
7	Shall support Generic Routing Encapsulation (GRE), IPsec, Ethernet 802.1Q VLAN.
8	Device shall support Multicast, PIM/ ASM/SSM, IGMPv3 and broadcast.
9	Device shall support Radius, LDAP and/or TACACS+, SSHv2, SNMPv3 and/or Telemetry or equivalent, NAT, NetFlow/ sflow/ IPFix, Syslog. Shall also support DHCP and DNS as well.
10	Shall support advanced encryption algorithms like AES-256 or AES-GCM
11	Device shall be able to do deep packet inspection and identify applications at layer-7 and shall be able to define QoS and access control based on application.
12	The devices at Data Center and remote offices should be rack mountable.
13	Appliance shall be hardened appliance from OEM and shall have capability to boot from OEM provided image only and not from non-standard/unauthorized software
14	Shall have adequate memory, CPU etc. so that the utilization does not normally exceed 75% impacting performance of the device. In case augmentation in any component is required, the same shall be done without any additional cost to ESCOMs
15	Device shall have hardening procedure and disable unwanted services. The device shall have an option to configure the DNS (Recursive / Authoritative).
16	Device shall support forward error correction or equivalent and packet duplication for enhancing end user experience.
17	Device shall support DHCP helper/relay address to forward DHCP request to central DHCP servers
18	Solution shall have minimum 10 Gbps capability (in each direction).
19	Device shall support Fiber channel ports for both primary and secondary link. The connection ports shall be expandable and shall support connectivity from multiple service provider.
20	The solution shall have option for including RESTFUL API's for 3 rd party NMS integration.
21	The OEM should be responsible for maintenance and support for all the SD-WAN device components.

1.1.1.2 Location/Site Devices (Category B)

Office categorization is mentioned in Annexure 4 of the RFP. The devices to be deployed for category B shall be classified as location devices.

Common compliance points for category B Devices:

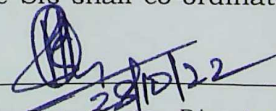

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Field Office SD-WAN Specification	
Sl. No.	Specification
1.	Device shall able to connect in true SD-WAN architecture and shall meet requirements as per specification mentioned under functional requirement
2.	Device shall support QoS on physical and sub interface, NAT, DHCP, DNS for IPv4 and IPv6 traffic
3.	Device shall support Radius, LDAP and/or TACACS+, SSHv2, SNMPv3 and/or Telemetry, NetFlow/sflow/IPFix, Syslog, NTP
4	Device shall support deep packet inspection to identify applications and shall able to apply QoS based on application
5.	Device should be rack mountable at Site offices
6.	Device shall be hardened appliance from OEM and shall have capability to boot from OEM provided image only and not from non-standard/unauthorized software
7.	Device shall have hardening procedure (e.g. SNMP access list) and disable unwanted services
8.	Device shall have minimum 2 WAN and 2 LAN ports and 1x USB Port
9.	Shall have adequate memory, CPU etc so that the utilization does not normally exceed 75% impacting performance of the device. In case augmentation in any component is required, the same shall be done without any additional cost to ESCOMs
10.	Device shall meet requirements as per specification mentioned under General section requirement
11.	Device Shall support minimum 8 segments/VRF/virtual domain for End to End Segmentation of traffic
12.	Device shall support ILL, MPLS, Broad band, FTTH, SIM Card based connection.
13.	Appliance shall be sized to handle 1 Gbps broadband along 20 Mbps leased lines. (Also, SI shall provide the rate card for throughputs listed in the rate card underprice bid. However, the prices listed in the rate card will not be considered for financial bid evaluation)

Note: If the device has no inbuilt SIM card slot, an external SIM dialer/dongle shall be provided which shall support 5G without any extra cost to ESCOMs.

The SI shall provision and maintain racks to mount the network devices at all locations except the hub location.

The SI shall work in coordination with system integrators of the various projects for successful implementation of the project especially for installation, configuration and commissioning and integration of the solution at on-prem and cloud locations. The SI shall also integrate the solution with the existing set-up of the projects without any disruption. The SIs shall co-ordinate with ESCOM's



identified team to support for configuration issues, hardware replacements etc. The SI shall configure, install, re-install, re-configure (in case ESCOM need any configure change) at no extra cost during the entire contract period.

The SI shall design the overall solution architecture including physical infrastructure and logical design duly incorporating the inputs from ESCOMs. The scope of work shall also include supply of required and related accessories and cabling necessary for successful implementation of the solution.

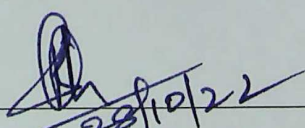
If any services, accessories, functions or responsibilities not specifically described in this scope but are an inherent, necessary or customary part of the services and are required for proper performance or provision of the services in accordance with the scope, they shall be deemed to be included within the scope of the services, as if such services, functions or responsibilities were specifically required and described in this scope and shall be provided by the SI at no additional cost. SI is expected to provide post installation support to the ESCOMs. The SI shall provide the assistance whenever required.

Warranty and AMC support shall be provided by the SI through OEM. The documents including user manuals, installation manuals, operation manuals, design documents, process documents, technical manuals, technical specification, system configuration documents, debugging/diagnostics documents etc shall be provided by the SI to ESCOMs.

It is the responsibility of the SI to configure the various WAN networks available across the sites and hub locations, the SI shall gather the required inputs for the configuration activity without any dependency from ESCOMs. The sites may have various WAN links viz, broadband, leased lines etc. which is to be configured by the SI. The SI is expected to work in co-ordination with bandwidth providers engaged by ESCOMs for configuration, testing, troubleshooting activities.

The SI shall undertake the following activities

1. Inform ESCOMS and implementation/applying the latest patches, OS/application versions, updates, signatures, etc. as and when released by the OEM and evaluating and applying the same as per their applicability in ESCOMS's environment as per ESCOMS' policies/requirements after implementation.
2. Proactive monitoring of health of the solution, including the hardware, software, application, solution on various parameters such as CPU, memory, interface utilizations, etc.
3. Reporting abnormalities to ESCOMS and taking suitable corrective actions as and when observed/occurred after implementation.
4. Preparing and submitting regular reports as and when required by ESCOMS.
5. Troubleshooting day to day issues, faced by end users, pertaining to SDWAN solution in coordination with ESCOMS' Network integrator, security integrator, or other relevant teams/SIs.



6. Keep back up of log, configuration, data etc.
7. SI should have Toll Free number facility on 24*7*365 basis for the DC / DR and working hours for all other ESCOM offices.

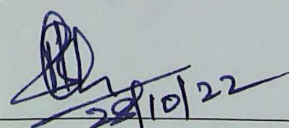
1.2 Network Monitoring and Ticketing tools

1.2.1 Network Monitoring System:

- The SI shall provision web-based NMS tool to monitor the network status for each ESCOM or their identified representatives.
- The SI shall procure NMS tool license to monitor the network for ESCOMs without any additional cost. The SI shall deploy tools/services/applications to enable round the clock monitoring of the network services. The SI shall provide dashboard to provide complete visibility of the network services with all relevant metrics. The facility of measurement / monitoring the network services from the ESCOM end using applications preferably in a graphical format shall be provided by the SI.
- The SI shall have its own network management/operations center (NMC/NOC), at SI's premises, round the clock (24 X 7 X 365) manned by skilled & technical manpower, for the efficient central monitoring, configuration, diagnosing, troubleshooting and performance management of network services. If the SI has an established NOC meeting the above requirements, the services of the same shall be extended.
- The NOC shall have the following:
 - Performance management,
 - Ticketing management
 - Maintenance management from day ONE.
- The NMS tool shall have the feature to monitor the network status till the site level, with the status of the network hardware components status like CPU usage, Memory status, SMPS status, Port status etc.
- The NMS tool shall capable of integration with third party application to capture issues from other applications.
- The NMS tool shall have the provision of dashboard to project and monitor the important parameters in the network.
- NMS tool shall be able to display the network topology (links, sites, devices, etc.) and user shall be able to drill to granular level.
- The NMS tool shall provide reports on demand and have the provision to generate automated reports as per the schedule and send the report to the concerned stakeholders of ESCOMs.

1.2.2 Ticketing Tools:

- The SI shall proactively manage the network devices.



- On encountering any issues, the SI shall proactively log a ticket/request for any issues in the network services without awaiting response/confirmation from the ESCOM.
- The ticketing tool shall be equipped with the feature to auto log ticket on the basis of error parameters generated by the NMS tools.
- The SI shall provide a web-based ticket creation tool dedicated portal to log trouble tickets for any issues by the ESCOM or the any party nominated by the ESCOM. The ticketing portal shall be integrated with the IT Infra and application ticketing tool used in all ESCOMs. The ticketing portal of the SI shall be customizable and extendible to meet the needs of the ESCOM. The SI shall enable logging tickets through e-mail, telephonic call to the dedicated telephone lines (preferably toll-free). The SI shall acknowledge, provide progressive updates through e-mail & SMS (e-mail IDs & phone numbers shall be provided by the ESCOM) & resolve the tickets adhering to the SLA clauses for the tickets raised by the ESCOM.
- ESCOMs reserve the right to modify/add SLA clauses anytime and the same is binding on the SI for compliance.
- The SI shall configure the tool with response and resolution time frame to ensure compliance to SLAs.
- The tool shall be capable to generate SLA reports on demand.

1.3 Shifting of Locations

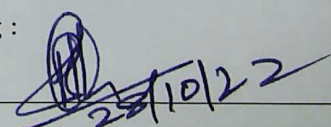
ESCOMs at any time during the period of contract due to business requirements may shift their office location and DC locations to any other locations. In that scenario, the SI shall shift the Devices (on a particular date as decided/specified by the ESCOM in coordination with the Network Provider – mostly on weekends) to the new location without any additional cost to ESCOM. The SI has to depute engineer for de-commissioning the Devices, shifting to the new location, installation, termination of transport media and commission the devices and operationalize the connectivity at no additional cost.

1.4 Preventive maintenance

1. The SI has to carry out periodic preventive maintenance including inspection, testing, satisfactory execution of all diagnostics, earthing testing, updation / up-gradation of patches / firmware etc., in addition to normal maintenance required without any additional cost.
2. The preventive maintenance at the locations should be carried out at least once in half year.
3. The SI has to prepare Preventive Maintenance schedule and intimate the ESCOMs / Sites. The onsite resource deployed by the SI at the sites has to coordinate with the field officers during Preventive Maintenance.
4. On completion of Preventive Maintenance, the SI has to submit the report in prescribed template which will be shared with SI.

1.5 Onsite support during implementation:

The onsite implementation shall essentially include (but not limited to) the following :



1. The SI has to ensure the physical availability of certified professional from OEM at Hub Locations for setting up and administration of the solution till the complete implementation solution.
2. The OEM's technical/implementation team should be an active part of the network link implementation team and should remain onsite throughout the solution implementation/project sign off, which should be provided without any additional cost.
3. During the implementation, the performance or security of the existing network setup should not be compromised.
4. Onsite support during implementation will be applicable at all sites.
5. Overall management of the complete SDWAN solution such as refinement of policies, creation of policies, configuration optimization or any changes/modifications to be done for enforcing ESCOM's policies, etc.
6. The SI shall configure/reconfigure associated (existing and new) network equipment's (switches/workstations/PCs etc) for successful implementation of the project at no additional cost. If existing devices are compromised during the activity, they shall be replaced suitably with a new device at no additional cost.

1.6 Site Details

The list of sites along with hub locations to provide the SD-WAN devices is mentioned in the Annexure-6 of the RFP. The sites if any are re-located, the services shall be provided to the new location as per confirmation from respective ESCOMs. The quantity of devices shall be supplied, delivered and installed as per confirmation from respective ESCOMs. The firm shall undertake a survey of the sites and upon surveying if any additional hardware is required to commission the network through SD-WAN device, the firm shall arrange to provide the same at no additional cost to ESCOMs.


- a) The IPDS IT Phase-II towns/office locations are as follows:

ESCOM	TOWNS	NO. OF OFFICES
BESCOM	20	95
CESC	21	52
GESCOM	21	57
HESCOM	44	91
MESCOM	18	41
Total	124	336

- b) Hub Locations:

On-Prem and Cloud Data Centers and Disaster Recovery Centers of RAPDRP, IPDS and ERP Projects.

Other Offices:


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ESCOM	NO. OF OFFICES
BESCOM	669
CESC	100
GESCOM	135
HESCOM	164
MESCOM	118
Total	1186

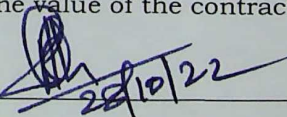
1.7 Reporting

The SI shall make available the required network tools/applications. The SI shall generate and provide ESCOM wise report. While submitting the reports, the SI shall ensure to provide separate details for individual links and device hardware. The SI shall provide the following reports on daily/monthly/weekly basis as csv, pdf, xls, email notification as desired by the ESCOM.

- a. Real & historical time series log event reporting
- b. Traffic usage/protocol anomaly detection
- c. Configurational Changes made with version history
- d. Compliance report on configuration, security and associated parameters
- e. Traffic reports per site: availability, bandwidth usage per access circuit,
- f. Bandwidth usage per application, latency, packet loss, QoS per access circuit
- g. Hardware status (Related to CPU, Memory, Ports, etc.) of all the devices present across all the ESCOMs and DC. It shall contain the MTTR, in case there is any occurrence of failure.
- h. Firewall reports: top rules, zones, source, destination by IP/domain, name/geo location, ports, protocols, session duration, QoS, DDoS, NAT, events, pool utilization and Flood detection
- i. Application reports: Top Applications usages, Top URLs, Top Bandwidth, Consuming Applications, Top Sources, Top Destinations, Site based Application usage analysis report, Top sites, Top Sites over time, Site availability over time, Total Availability etc.
- j. Ad-hoc and scheduled reports
- k. Predefined and custom report templates

1.8 Variation in the quantity

- The quantities are subject to variation of $\pm 25\%$ per ESCOM. ESCOMs may propose additional sites for delivering managed network services with same terms and conditions.
- In case of items for which the rates are available in the Contract the extra quantities shall be executed by the SI at the same rates up to the variation limit of twenty-five percent ($\pm 25\%$) or as provided in the Contract.
- Important Considerations
 - Contract Value may increase/decrease by 25% of the value of the contract


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- The Bill of Material (BoM) may increase/decrease by 25%

1.9 Network Security

The logs of all the network devices shall also be preserved and made available for analysis, co-relation etc. The proposed solution shall support industry standard enterprise SIEM solutions.

The solution shall have inbuilt next generation firewall security features from day ONE (1).

1.10 Spares availability

The SI shall always maintain at their own facility, 10% spares of the components used per ESCOM in deploying the solution to meet all the contingencies for each ESCOM in their respective headquarters.

ESCOM	Headquarters
BESCOM	Bangalore
CESC	Mysore
HESCOM	Hubli
MESCOM	Mangalore
GESCOM	Gulbarga

1.11 Restoration times

The SI shall, upon interruption of the services, carry out the restoration activity proactively. Any additional hardware/replacement of hardware shall be carried out within 24hrs by the SI at no additional cost to ESCOM. The restoration process shall be carried out to provide services as per the SLA.

1.12 Periodic meeting

The SI shall periodically access the outages in the services, analyze the reasons for outage and the corrective action taken up to avoid future occurrence of the same issue. The SI shall provide such a report to the ESCOM every quarter or as per the frequency set by the ESCOMs. The SI shall attend the meeting as and when intimated by the ESCOMs along with the designated personnel of the SI.

1.13 Supporting documentation

The SI shall maintain updated inventory of the devices along with the history of configuration/hardware changes made. The SI shall provide ESCOMs all the requisite documentation on the SD-WAN devices, shall update it regularly and submitted to ESCOMs.

1.14 Escalation matrix

The SI shall provide the Escalation matrix with timelines of escalation including OEM. Upon any changes in the matrix, the updated version shall be provided to the ESCOMs

1.15 Training and Assistance

- a) The SI shall arrange for certified Network related training from the OEM to be conducted offline to Service Desk users and at least five persons per ESCOM personnel prior to commissioning activity.
- b) After installation and commissioning, the SI shall arrange OEM authorized certified training program to ESCOM's network trackleads, regarding installation, configuration, operation, monitoring, functionalities, security, troubleshooting, etc., as per ESCOM's requirement to be conducted offline. Detailed training requirement will be shared with the SI.
- c) Refresher trainings shall be conducted as per the ESCOMs requirement as when required by the ESCOMs
- d) All training/certifications shall be at no additional cost. The required manuals, books and resources shall be provided along with training. Hands on training shall be arranged for all the training activities.

2. Prices

The prices are firm and the contract Price of ₹ 31,17,03,407/- only (all incl.) (Rupees Thirty One Crore Seventeen Lakhs Three Thousand Four Hundred and Seven only) (Annexure-1 Price breakup sheet) during the contractual period in line with M/s Connectivity IT Solutions Pvt Ltd response to the tender enquiry cited under ref(1). No per unit cost variation will be allowed during the entire period of contract.

3. Taxes and Duties:

The said contract price is inclusive of all taxes. ESCOMs will not pay any other taxes, whatsoever in respect of this contract. Any increase in the tax should be absorbed by the firm during the contract and any reduction in the tax should be passed on to ESCOMs.

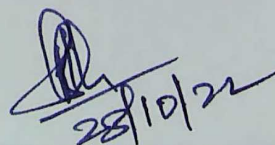
4. Duration of the project

The duration of the project is 5 years from date of Enterprise Go-Live, with the provision of extension of 2 years on year on year basis.

5. Change Orders

ESCOMs may at any time, by written order given to the SI, make changes within the general scope of the Contract in any one or more of the following:

- (a) drawings, designs, or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for ESCOM;
- (b) the method of shipping or packing;
- (c) the place of delivery; and/or
- (d) the Services to be provided by the SI.



If any such change causes an increase or decrease in the cost of, or the time required for, the SI's performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or delivery schedule, or both, and the Contract shall accordingly be amended. Any claims by the SI for adjustment under this clause shall be asserted within thirty (30) days from the date of the SI's receipt of ESCOM's change.

6. Contract Amendments

No variation in or modification of the terms of the Contract shall be made except by written amendment signed by the parties.

7. Contract Performance Guarantee:

1. The Bank guarantee submitted ESCOM wise is as follows

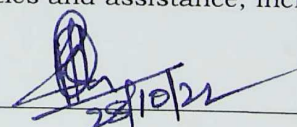
Sl. No.	ESCOM	BG Amount in INR	Bank and BG Number	Date	BG Validity
1	BESCOM	56,25,500.00	IndusInd Bank OGT0028220069970	20-08-2022	30.11.2027
2	CESC	7,47,500.00	IndusInd Bank OGT0028220069857	19-08-2022	30.11.2027
3	GESCOM	9,44,000.00	IndusInd Bank OGT0028220069859	19-08-2022	30.11.2027
4	MESCOM	7,82,000.00	IndusInd Bank OGT0028220069861	19-08-2022	30.11.2027
5	HESCOM	12,53,500.00	IndusInd Bank OGT0028220069865	19-08-2022	30.11.2027
Total		93,52,500.00			

Note: The original BG in respect of each ESCOMs is will be sent separately for the custody of respective ESCOM.

2. The Performance Guarantee will be discharged without any interest at the end of Guarantee Period. The validity of the BG submitted shall be extended beyond the contract period as and when requested by ESCOMs.
3. M/s Connectivity IT Solutions Ltd shall execute contract agreement & Non-disclosure agreement individually with all ESCOMs after receipt of this DWA.

8. Inspection and Tests

- The SI shall at its own expense and at no cost to the ESCOMs i.e., the Purchaser carry out all such tests and/or inspections to ensure that the Goods and Related Services are complying with the functional parameters, codes and standards to the satisfaction of the Purchaser.
- The inspections and tests will be conducted at the factory site and at ESCOMs store and/or at the final destination of the Goods. All reasonable facilities and assistance, including access to



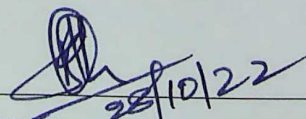
drawings and production data, shall be furnished to the inspectors at no charge to the Purchaser.

- The Purchaser or its designated representative will attend and witness the tests and/or inspections and the SI shall bear all expenses.
- Whenever the SI is ready to carry out any such test and inspection, it shall give a reasonable advance notice, including the place and time, to the Purchaser
- The Purchaser may require the SI to carry out any test and/or inspection to verify that the characteristics and performance of the Goods or Related Services comply with the technical specifications, codes and standards under the Contract
- The SI shall provide the Purchaser with a report of the results of any such test and/or inspection
- The Purchaser may reject any Goods / Related Services or any part thereof that fail to pass any test and/or inspection or do not conform to the specifications.
- The SI shall either rectify or replace such rejected Goods/ Related Services or parts thereof or make alterations necessary to meet the specifications at no cost to the Purchaser, and shall repeat the test and/or inspection, at no cost to the Purchaser, upon giving a notice. The SI agrees that neither the execution of a test and/or inspection of the Goods/ Related Services or any part thereof, nor the attendance by the Purchaser Delivery and Documents
- Upon delivery of the Goods, the SI shall notify ESCOM and the insurance company by cable/telex/fax/email the full details of the shipment including contract number, railway receipt number and date, description of goods, quantity, name of the consignee etc. The SI shall mail the following documents to ESCOM with a copy to the insurance company:
 - (a) Four Copies of the SI invoice showing contract number, goods' description, quantity, unit price, total amount;
 - (b) Railway receipt/acknowledgment of receipt of goods from the consignee(s);
 - (c) Four Copies of packing list identifying the contents of each package;
 - (d) Insurance Certificate;
 - (e) Manufacturer's/SI's warranty certificate;
 - (f) Inspection Certificate issued by the nominated inspection agency, and the SI's factory inspection report; and

The above documents shall be received by ESCOMs before arrival of the Goods (except where the Goods have been delivered directly to the Consignee with all documents) and, if not received, the SI will be responsible for any consequent expenses.

9. Implementation Schedule

Implementation and deployment timeline is as per time line specified in the clause no. 16.1



The SI is expected to adhere to the above or mutually agreed timeline for the implementation and submit the Town wise, site location wise expected Device delivery schedule in the below format for each ESCOM separately. The devices shall be delivered to IPDS sites initially before commencing the delivery process for RAPDRP and ERP sites. Penalty clauses are applicable (see Section 5 of RFP) for delay in implementation and commissioning of the devices.

Integration, Installation and Commissioning:

The SI is responsible for assembling, installation and commissioning of all Hardware at respective offices. The list of the Zone, Circle offices, Division & SubDivision offices are mentioned in Annexure, where the Hardware items needs to be installed and commissioned in given time line as specified in RFP. The SI should perform work i.e. installation, commissioning of the Hardware and also provide 7 years onsite comprehensive warranty.

SI should install and commission the hardware at respective office in given time line and take sign off from the respective office head.

The installation will be deemed as incomplete if any component of the hardware, software, etc., or any item is not delivered or is delivered but not installed and commissioned and/or not operational or not acceptable to ESCOMs after acceptance testing/examination.

In such an event, the supply, installation and commissioning will be termed as incomplete and it will not be accepted and warranty period will not commence. The entire site will be accepted after complete commissioning of equipment and satisfactory working of the entire equipment for a minimum period of 7 days.

Expected Device Delivery and commissioning Schedule

Supply: SI should deliver all required hardware at ESCOMs central store within 45 days of intimation to the SI

S.No	ESCOM	Nodal Officer Contact Details	Central Stores
1	BESCOM	GM ICT & MIS 9449844720	Rajajinagar-Bangalore
2	CESC	GM Projects 9448499920	Mysore
3	GESCOM	EE-IT 9448102755	Regional stores, GESCOM Near Pancha Sheela Nagar Old Jewargi road Kalaburagi – 585102
4	HESCOM	SEE-IT 9480883684	Stores HESCOM, Hubli Division-1, Vidyutnagar Karwar Road, Hubballi-580024.
5	MESCOM	EE-IT 9480880470	Mangalore

10. Patent Rights

The SI shall indemnify ESCOMs against all third-party claims of infringement of patent, trademark or

industrial design rights arising from use of the Goods or any part thereof in India.

11. Packing and Documents

The firm shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the bid document. During transit, the packing shall be sufficient to withstand, without limitation, rough handling and exposure to extreme temperatures, salt and precipitation, and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the final destination of the Goods and the absence of heavy handling facilities at all points in transit. The Purchaser shall not be responsible in any manner for any loss or damage caused to the Goods during Transit.

The packing, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract and in any other instructions ordered by the Purchaser.

12. Delivery and Documents

Delivery of the Goods shall be made by the SI in accordance with the terms specified by ESCOMs in the Notification of Award. The details of shipping and/or other documents to be furnished by the SI are specified in SCC.

The SI shall follow the delivery and deployment process as per the procedure laid down by ESCOMs and the detail process shall be provided to the SI at the time of issuing the award.

It's the sole responsibility of the SI to deliver the goods at the designated store and the SI has to take care of insurance, transportation, labour etc. costs till delivery upto central stores of each ESCOM.

The acceptance to the revised breakup of prices is subject to legal compliance. SI shall submit indemnification bond for the revision in breakup of prices due to statutory compliances viz, GST indemnifying ESCOMs and acceptance to reversal of payments, if any, for any consequent change in acceptance of the revised breakup of prices.

13. Insurance

The contractor shall at his own expense carry and maintain the insurance with reputed insurance companies as per the applicable law of India to the satisfaction of ESCOMs. The terms and conditions regarding the Insurance are applicable as per the Insurance clause of RFP.

14. Transportation

Where the SI is required under the Contract to transport the Goods to a specified place of destination within India defined as Project site, transport to such place of destination in India including insurance, as shall be specified in the Contract, shall be arranged by the SI, and the related cost shall be included in the Contract Price.



15. Incidental Services

The SI may be required to provide any or all of the following services, including additional services, if any, specified in SCC:

- a. performance or supervision of the on-site assembly and/or start-up of the supplied Goods;
- b. furnishing of tools required for assembly and/or maintenance of the supplied Goods;
- c. furnishing of detailed operations and maintenance manual for each appropriate unit of supplied Goods;
- d. performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the SI of any warranty obligations under this Contract; and
- e. training of ESCOM's personnel, at the SI's plant and/or on-site, in assembly, start-up, operation, maintenance and/or repair of the supplied Goods.

Prices charged by the SI for incidental services, if not included in the Contract Price for the Goods, shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the SI for similar services.

16. Payments

16.1. Payment Schedule

Sl.No	Milestone	Timeline	Payment	SLAs
1a	M1 Delivery of Hardware to the central stores.	45 days from the date of intimation to the SI	50% of the Hardware & SD WAN License Cost	Penalty of 0.5% of Hardware cost & SD-WAN license cost payable to the SI for each week delay as in Price Bid format apportioned to number of Days
1b	M2 Delivery of Hardware to the concerned offices.	30 days from the date of delivery of hardware to the central stores. (Transfer of hardware items from central stores to office locations will be taken care by ESCOMs).	10% of the Hardware & SD WAN License Cost after availability of all Hardware items to the concerned offices.	No SLA on SI
2	M3 Successful Installation, commissioning, configuration	30 days from the date of availability of all Hardware items to the concerned offices	10% of the Hardware & SD WAN License Cost	Penalty of 0.5% of Hardware cost & SD-WAN license cost payable to the SI for each week delay as in Price Bid form

	and testing of all Hardware			apportioned to number of Days
3	M4 Enterprise Go-Live & Training	Date of Commissioning of SD-WAN Devices in all ESCOMs & Hubs	10% of the Hardware & SD WAN License Cost	--
4	M5 Comprehensive warranty cost for all specified hardware	5 Years from the date of ESCOM Go-Live	Year-1: 10% of the Hardware & SD WAN License Cost Year-2: 10% of the Hardware & SD WAN License Cost and 25% Warranty Cost Year-3: 25% Warranty Cost Year-4: 25% Warranty Cost Year-5: 25% Warranty Cost	In case of deficiency in service observed during the warranty period, a penalty as per the clause Service Level Agreement and Penalties shall be levied (Clause No. 17)

The Hardware & SD WAN License Cost comprises of :

- Hub Router & its software License Cost
- Cloud DRs Virtual Appliances and its Licenses Cost
- Branch Router & its software License Cost
- Branch Router Rack

The Warranty Cost comprises of:

- SD WAN Software ATS & SD WAN Hardware AMC for 5 years

*Year-1 : Warranty period one year after Enterprise Go-Live

The Enterprise Go-Live is considered to be the date on which all the devices of all ESCOMs are commissioned.

The date of ESCOM Go-Live is considered to be the date on which all the devices are commissioned ESCOM wise.

The Warranty period will be reckoned One year from the date of Enterprise (i.e., all ESCOMs) Go-Live. The M5 milestone for Year-1 shall be considered after one year from the date of Enterprise Go-Live. The Warranty cost is considered from Year-2, However, the SI shall ensure warranty (AMC & ATS) is provided from the date of ESCOM Go-Live. The detailed Go-Live plan (ESCOM wise) and Enterprise-wide/all ESCOMs shall be shared with the SI.

16.2. Payment terms:

The Payments of the devices supplied and commissioned at DC/DR site shall made by BESCO on behalf of all ESCOMs. The cost for DC/DR sites shall be shared amongst ESCOMs as per the cost

sharing clause of the DWA. The devices for field offices/sites shall be confirmed from the respective ESCOMs which shall be supplied and the payment shall be claimed for the quantity commissioned at respective ESCOMs. The payment pertaining to sites of ESCOMs shall be made by respective ESCOMs. The services/activities shall not be disrupted for whatsoever reasons unless explicit communication is made from ESCOMs.

Payment shall be arranged after certification by the concerned IT Section of respective ESCOMs for respective milestones as follows:

16.2.1. M1 Milestone:

- MAS from Concerned stores of ESCOMs.
- Certificates Pertaining to Warranty. Back to back agreement (proof of entitlement document indicating the no. of years of support, licenses supplied with Qty etc.) with the OEM In case SI is OEM, it is not required to submit the same.
- Deliverables as per the RFP not covered in milestones.
- Completion certificate for certified training from ESCOMs prior commissioning.
- Establishment of Staging/Test/virtual environment for the proposed solution.

16.2.2. M2 Milestone:

- Confirmation from the Office Head of the site in the prescribed template.
- The payments shall be made against the invoice raised by SI for the devices delivered during that month against this milestone.

16.2.3. M3 Milestone:

- Confirmation from the Office Head of the site in the prescribed template.
- Installation Certificate from the SI

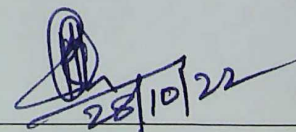
16.2.4. M4 Milestone:

- Confirmation from the Corporate Office in the prescribed template.
- Enterprise Go-Live Commissioning Certificate from the SI
- Completion certificate for certified training from ESCOMs post commissioning.

16.2.5. M5 Milestone:

- Against the invoices submitted by the SI by the end of the quarter for that particular year.
- Certificate from the office Head of the site about successfully completion of 1st year warranty by SI.
- Other relevant reports if any.

The below documents shall be received by the Purchaser before arrival of Goods (except where it is handed over to the Consignee with all documents) and, if not received, the SI will be responsible for any consequent expenses.



- a. Product brochures, catalogues, technical literature, system/reference manuals, instruction booklets, supporting documentation, installation and user manuals for all the components should be delivered.
- b. Software drivers compatible to the specified Operating System for all components, cables and relevant accessories would be made available at all the locations with the systems at the time of delivery of equipment's

17. Service Level Agreements and Penalties

17.1. Service Level Agreements

The SI will sign Service Level Agreement (SLA) with each ESCOM to ensure minimum uptime for entire solution and Uptime for individual site as per SLA's mentioned below.

1. The Hardware Network Infrastructure (hardware devices, physical/virtual media) will be fully managed by the SI and shall provide SLA compliance tool and reports.
2. Shall submit monthly SLA reports to BESCO and respective ESCOMs or the authorized representative appointed by ESCOMs for verification
3. Shall enter into a detailed Service Level Agreement with BESCO and other ESCOMs. SLA will include essential parameters as given below:
 - Working days: Seven days a week (Monday to Sunday).
 - Hardware Availability Requirements: 24 hours for all locations.
 - Helpdesk (with preferably toll-free number): 24 hours Service Levels and Penalties for defaults are as given under penalties clause

17.2. Penalties

Device Uptime: The percentage uptime shall be calculated on quarterly basis as follows:

$$\text{Availability} = \frac{(\text{Total no of Hours in month} - \text{Total Outage Hours in month}) \times 100\%}{(\text{Total No of Hours in month})}$$

17.2.1. Uptime for DC & DR Devices

SI shall give uptime guarantee of 99.5% on monthly basis for all DC, DR devices. In case uptime falls below the guaranteed level, ESCOMs will impose a penalty of 10% of the monthly amount for each percent below the guaranteed level for the respective device. Refer table – a for penalty percentage details. Further, if uptime for any device during any month is less than 95%, ESCOMs will not make any payment for the month for that month for that location.



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TABLE - A

Uptime (%)	Penalty of (%) of total quarterly M5 invoices payment
>=99.5	0
>=98.5 and < 99.5	10
>=97.5 and < 98.5	20
>=96.5 and < 97.5	30
>=95.5 and < 96.5	40
>=95 and < 95.5	50

17.2.2. Uptime for Devices other than DC & DR:

The minimum uptime for all other sites is 98.5%. In case uptime falls below the guaranteed level, ESCOM will impose a penalty of 5% of the monthly amount for each percent below the guaranteed level for the respective site. Refer table - B for penalty percentage details. Further, if uptime for any device during any month is less than 95%, ESCOMs will not make any payment for that quarter for that location. ESCOMs have the right to recover the cost from SI for alternate arrangements.

TABLE - B

Uptime (%)	Penalty of (%) of total quarterly M5 invoices
>=98.5	0
>=97.5 and < 98.5	5
>=96.5 and < 97.5	10
>=95.5 and < 96.5	15
>=95 and < 95.5	20

17.2.3. Maximum Penalty

The maximum penalty shall not exceed beyond 30% of the quarterly contract value in any quarter of operations. If maximum penalty is levied for more than 3 quarters or if total penalty crosses 10% of overall project cost, ESCOMs reserves the right to terminate and recover the financial losses in addition to the LD clause from the SI.

17.2.4. Penalty due to erroneous behavior of the Solution

If the solution or any of its components behaves erroneously which results in monetary or business loss to ESCOM's, then the entire amount of such loss shall be recovered from the SI on actual basis.

18. Delays in the SI's Performance

Delivery of the Goods and performance of the Services shall be made by the SI in accordance with the time schedule specified by ESCOM in the Schedule of Requirements.

If at any time during performance of the Contract, the SI shall encounter conditions impeding timely delivery of the Goods and performance of Services, the SI shall promptly notify ESCOMs in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the SI's

notice, ESCOMs shall evaluate the situation and may, at its discretion, extend the SI's time for performance with or without liquidated damages, in which case the extension shall be ratified by the parties by amendment of the Contract.

Except as provided under Clause 23 , a delay by the SI in the performance of its delivery obligations shall render the SI liable to the imposition of liquidated damages pursuant to Clause 22, unless an extension of time is agreed upon.

19. Cost sharing

1. The cost of Supply, Installation, Configuration and Maintenance of SD-WAN Devices for Data Centre, Disaster Recovery Centre of All ESCOMs of Karnataka is to be shared among all ESCOM's as the DC-DR of RAPDRP and IPDS IT system is common to all ESCOMs and sharing is based on the approved percentage of sharing in the SLDRC meeting held on 18-03-2019.
2. The cost sharing is as detailed below:

ESCOM	ESCOM SHARE
BESCOM	35.17%
CESC	16.14%
GESCOM	15.08%
HESCOM	23.83%
MESCOM	09.78%
Total	100.00%

20. Law governing of contract

The Contract, shall in all respects be constructed and governed according to Indian Laws. The Courts of Bangalore shall have exclusive jurisdiction in all matters arising under this Contract.

21. Settlement of disputes:

1. A party claiming that a dispute has arisen under this Agreement must give the other party a written notice of the particulars of the Dispute.
2. Any dispute(s) or difference(s) arising out of or in connection with the Contract shall, to the extent possible, be settled amicably between the Parties.
3. If the party fails to resolve such a dispute or difference by mutual consultation within thirty days (30) days from the commencement of such dispute and difference, either may require that the dispute be referred to arbitration under the Arbitration and Conciliation Act of 1996 (Indian) and subsequent Amendments made thereon, to be adjudicated by the Arbitral Tribunal consisting of 3 (Three) Arbitrators. Each Party shall nominate an Arbitrator and the two nominated Arbitrators shall mutually agree and nominate a third Presiding Arbitrator and the award of the arbitral tribunal shall be final and conclusive and binding upon both the parties. (The date of commencement of the dispute shall be taken from the date when this clause reference is quoted

- by either party in a formal communication clearly mentioning existence of dispute or as mutually agreed).
4. The place of arbitration shall be in Bangalore. The arbitral procedure shall be conducted in English language.
 5. The cost of arbitration including the fees of Arbitrator shall be born by the parties equally.
 6. During the settlement of disputes and Arbitration proceedings, both parties shall be obliged to carry out their respective obligations under the contract.
 7. The courts of Bangalore only shall have the jurisdiction.

22. Termination of contract:

ESCOMs reserves the right to terminate the Contract either in part or in full due to reasons other than those mentioned under clause Termination for failed Delivery/Incomplete Services.

a) Termination for failed Delivery/Incomplete Services:

In case the SI fails to complete the work within the contracted period or if found to have furnished misleading or false representations in statements and attachments submitted as proof of the qualifying requirement at a later date the Company shall exercise its discretionary powers on any or all the following:

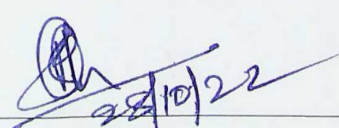
- to recover from the service provider/SI, as agreed, liquidated damages and by way of penalty, the amount as per applicable clause; and
- to avail the services elsewhere, after giving due notice to the service provider/SI on account and at the risk of the Service provider/SI
- to cancel the Detailed Work Award
- to forfeit the bank guarantee, if it has been submitted
- to black list or not to consider future offers for a specified period.

In the event ESCOMs terminates the Contract in whole or in part, pursuant to, ESCOMs may procure, upon such terms and in such manner as it deems appropriate, Goods or Related Services similar to those undelivered or not performed, and service provider shall be liable to ESCOMs for any additional costs for such similar Goods or Related Services.

ESCOMs shall in such an event may give fifteen (15) days' Notice in writing to the SI of his decision to do so. ESCOMs, upon receipt of such Notice, shall discontinue the Work on the date and to the extent specified in the Notice, make all reasonable efforts to obtain cancellation of the Contracts to the extent they are related to the Work terminated and terms Satisfactory to ESCOMS. Stop all further Sub-Contracting or providing services activity related to the Work terminated, and assist the Owner in Maintenance, Protection, and Disposition of the Works acquired under the Contract by the Owner.

The Contract is liable to be terminated at the absolute discretion of ESCOMS without assigning any reasons on the following grounds-

- a. The goods/services to be found unsatisfactory.
- b. Breach of any terms of the contract.



- c. If the SI fails to provide the goods/services as per the agreed terms and on violation of any of the terms of the contract, the firm is liable to be blacklisted besides termination of the contract.

b) Termination for insolvency

The ESCOMS may at any time terminate the Contract by giving written notice to the Service provider, if the service provider becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the service provider, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the ESCOMS.

c) Termination for convenience

ESCOMS, by written notice sent to the SI, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for ESCOM's convenience, the extent to which performance of the SI under the Contract is terminated, and the date upon which such termination becomes effective.

The Goods/Service that are complete and ready for shipment within 30 days after the SI's receipt of notice of termination shall be accepted by ESCOMS at the Contract terms and prices. For the remaining Goods/ Service, ESCOMS may elect:

- a) to have any portion completed and delivered at the Contract terms and prices; and/or
- b) to cancel the remainder and pay to the SI an agreed amount for partially completed Goods/Service and for materials and parts previously procured by the SI.

23. Liquidated Damages

Subject to Clause 20 (a), if the SI fails to deliver any or all of the Goods or to perform the Services within the period(s) specified in the Contract, ESCOM shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to 0.5% of the delivered price of the delayed Goods or unperformed Services for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of 10% of the Contract Price. Once the maximum is reached, ESCOMS may consider termination of the Contract pursuant to Clause 22.

24. Force majeure

1. Force Majeure means any event or circumstance or combination of events and circumstances including those stated below that wholly or partly prevents or unavoidably delays the ESCOMS or the SI in the performance of their obligation under this Contract, but only if and to the extent that such events or circumstances are not within the reasonable control, directly or indirectly, of the affected Party and could not have been avoided if the affected Party had taken reasonable care or complied with prudent utility practices.

- a) Act of God, including, but not limited to lightning, drought, fire and explosion (to the extent originating from a source external to the Site), earthquake, volcanic eruption, landslide,

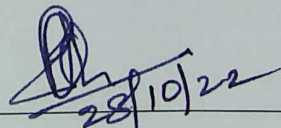
- flood, cyclone, typhoon, tornado, war embargo, or exceptionally adverse weather conditions which are in excess of the statistical measures for the last hundred (100) years, or
- b) Any act of war (whether declared or undeclared), invasion, armed conflict or act of foreign enemy, blockade, embargo, or
 - c) Any event or circumstance of a nature analogous to any of the above.
2. Delay or non-performance by either Party here to cause by the occurrence of any event of Force Majeure shall not
- a) Constitute a default or breach of the Contract, or
 - b) Give rise to any claim for damages or additional cost or expense occasioned thereby.
- If and to the extent that such delay or non-performance is caused by the occurrence of an event of Force Majeure.
3. The service provider or ESCOMS shall not be liable for delay in performing his obligations resulting from any Force Majeure cause as referred above.
4. If either Party is prevented, hindered or delayed from or in performing any of its obligations under the Contract by an event of Force Majeure, then it shall notify the other in writing of the occurrence of such event and the circumstances thereof within fifteen (15) calendar days after the occurrence of such event.
5. The Party who has given such notice shall be excused from the performance or punctual performance of its obligations under the Contract for so long as the relevant event of Force Majeure continues and to the extent that such Party's performance is prevented, hindered or delayed. The Time for Completion shall be extended in accordance with clauses of RFP.
6. The Party or Parties affected by the event of Force Majeure shall use reasonable efforts to mitigate the effect thereof upon its or their performance of the Contract and to fulfill its or their obligations under the Contract, but without prejudice to either Party's.
7. If the performance of the Contract is substantially prevented, hindered or delayed on account of one or more events of Force Majeure during the currency of the Contract, the Parties will attempt to develop a mutually satisfactory solution, failing which the dispute shall be resolved.

25. Consequences of Termination

Upon Termination of the Contract, the SI shall:

Prepare and present a detailed exit plan within five calendar days of termination notice receipt from GM (ICT & MIS), BESCOM ("Exit Plan") in accordance with clauses of 26.

The GM (ICT & MIS) and along with designated team will review the Exit plan. If approved, SI shall start working on the same immediately. If the plan is rejected, SI shall prepare alternate plan within two calendar days. If the second plan is also rejected, GM or the authorized person will provide a plan for SI and it shall be adhered to in totality.



26. The Exit Plan shall cover at least the following: -

- a. Execute all documents that may be necessary to effectively transfer the ownership and title, including OEM warranties in respect of all equipment;
- b. Handover all related documentation and other Configurable Items, if any in his possession;
- c. Handover the list of all IT Assets, passwords at all locations to ESCOMS.
- d. The SI and GM (ICT&MIS) or the authorized person will sign a completion certificate at the end of successful completion (all points tracked to closure) of the Exit Plan.

27. Subcontracting

M/s Connectivity IT Solutions Pvt Ltd shall not assign or sub-let their contract or any substantial part thereof to any other agency during the course of contract.

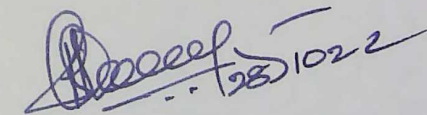
28. Safety and accidents

In case any accident occurs while working in the premises during the period of contract to the Manpower employed by the agency. ESCOMS will not be responsible for any injury that may occur and will not pay any compensation to the Manpower. The agency is solely responsible for any liabilities.

29. Disclaimer

- a. ESCOMS reserves the right to share, with any consultant of its choosing, any resultant proposal in order to secure expert opinion.
- b. ESCOMS reserves the right to accept or reject any proposal deemed to be in the best interest of ESCOMS.

All the other terms and conditions given in RFP document are applicable besides the terms and conditions given in this Detailed Work Award. Please acknowledge the receipt of this Detailed Work Award and take immediate action to implement the same on the terms and conditions enumerated above.


General Manager (ICT & MIS)
BESCOM

Annexure-A

Price Break-up

ESCOM	Item	Quantity (Offices)	Unit Rate (Excl. of Tax) in Rs	Tax in Rs	Unit Rate (Incl. of Tax) in Rs	Total Cost for all Offices (incl. of tax) in Rs	Total Cost for all Offices (incl. of Tax) for five years in Rs
Data Centre	Hub Router	2	₹ 1,58,49,325.80	₹ 28,52,878.64	₹ 1,87,02,204.44	₹ 3,74,04,408.89	₹ 6,23,40,681.48
	Hub Router Software License	(On-Prem DC)	₹ 39,62,331.45	₹ 7,13,219.66	₹ 46,75,551.11	₹ 93,51,102.22	
	Cloud DRs (IPDS DR and ERP DC-DR) Virtual appliances and Licenses	3 (Cloud DC/DR)	₹ 22,89,347.06	₹ 4,12,082.47	₹ 27,01,429.53	₹ 81,04,288.59	
BESCOM	SDWAN software ATS and SD WAN Hardware AMC for 5 Years for DC/DR	5, i.e. 2 (On-Prem DC) 3 (Cloud DC/DR)	₹ 12,67,946.09	₹ 2,28,230.30	₹ 14,96,176.39	₹ 74,80,881.95	₹ 12,51,72,879.50
	Branch Router		₹ 80,198.67	₹ 14,435.76	₹ 94,634.43	₹ 7,23,00,704.98	
	Branch Router Rack 4U		₹ 2,776.93	₹ 499.85	₹ 3,276.78	₹ 25,03,457.59	
CESC	SDWAN software License	764	₹ 39,209.30	₹ 7,057.67	₹ 46,266.97	₹ 3,53,47,965.82	₹ 2,49,03,504.82
	SD WAN Software ATS & SD WAN Hardware AMC for 5 Year		₹ 16,661.58	₹ 2,999.09	₹ 19,660.67	₹ 1,50,20,750.94	
	Branch Router Branch Router		₹ 80,198.67	₹ 14,435.76	₹ 94,634.43	₹ 1,43,84,433.45	
GESCOM	Branch Router Rack 4U	152	₹ 2,776.93	₹ 499.85	₹ 3,276.78	₹ 4,98,070.10	₹ 3,14,57,058.72
	SDWAN software License		₹ 39,209.30	₹ 7,057.67	₹ 46,266.97	₹ 70,32,579.59	
	SD WAN Software ATS & SD WAN Hardware AMC for 5 Year		₹ 16,661.58	₹ 2,999.09	₹ 19,660.67	₹ 29,88,421.65	
MESCOM	Branch Router Branch Router	192	₹ 80,198.67	₹ 14,435.76	₹ 94,634.43	₹ 1,81,69,810.68	₹ 2,60,50,376.76
	Branch Router Rack 4U		₹ 2,776.93	₹ 499.85	₹ 3,276.78	₹ 6,29,141.17	
	SDWAN software License		₹ 39,209.30	₹ 7,057.67	₹ 46,266.97	₹ 88,83,258.43	
HESCOM	SD WAN Software ATS & SD WAN Hardware AMC for 5 Year	159	₹ 16,661.58	₹ 2,999.09	₹ 19,660.67	₹ 37,74,848.40	₹ 4,17,78,906.12
	Branch Router Branch Router		₹ 80,198.67	₹ 14,435.76	₹ 94,634.43	₹ 1,50,46,874.47	
	Branch Router Rack 4U		₹ 2,776.93	₹ 499.85	₹ 3,276.78	₹ 5,21,007.54	
HESCOM	SDWAN software License	255	₹ 39,209.30	₹ 7,057.67	₹ 46,266.97	₹ 73,56,448.38	₹ 31,17,03,407.40
	SD WAN Software ATS & SD WAN Hardware AMC for 5 Year		₹ 16,661.58	₹ 2,999.09	₹ 19,660.67	₹ 31,26,046.33	
	Branch Router Branch Router		₹ 80,198.67	₹ 14,435.76	₹ 94,634.43	₹ 2,41,31,779.80	
HESCOM	Branch Router Rack 4U		₹ 2,776.93	₹ 499.85	₹ 3,276.78	₹ 8,35,578.12	₹ 4,17,78,906.12
	SDWAN software License		₹ 39,209.30	₹ 7,057.67	₹ 46,266.97	₹ 1,17,98,077.60	
	SD WAN Software ATS & SD WAN Hardware AMC for 5 Year		₹ 16,661.58	₹ 2,999.09	₹ 19,660.67	₹ 50,13,470.54	
Total							₹ 31,17,03,407.40

