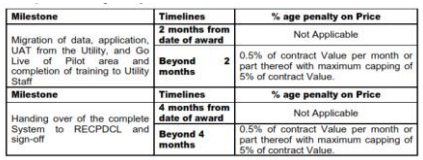
No. RECPDCL/TECH/JKPDD/e-Tender/2017-18/1713 Dated: 16.08.2017

Pre bid Clarification

S. No.	Query rcvd date	Vendor	Page No.	Section/ Item	Technical Specifications as per RFP	Queries/ Changes/ Modification Suggested	Clarification
1	29-Aug-17	EASYASOFT	-	Page 10, point 6	The intermediate server should be equipped for capturing and processing CMRI/SMRD data of meters of all available meter manufacturers and generate bills after defined Reading Quality Checks (RQC), sending the Billing data further to JKPDD	Why is the proposed billing system referred as intermediate server. Need more clarity.	Cloud solution should be equipped for capturing and processing CMRI/SMRD data of meters of all available meter manufacturers and generate bills after defined Reading Quality Checks (RQC), sending the Billing data further to JKPDD existing Orable CCB system (Through Application Integration) including sufficient storage space to capture the consumer base of about 9 lakhs to 20 Lakhs in 5 years
2	29-Aug-17	EASYASOFT	-	Page 13; Data migration requirements	The data migration activity shall involve migration of this data into the intermediate server and then to JKPDD existing application through integration.	Why is the proposed billing system referred as intermediate server. Need more clarity. What data needs to be migrated to the existing system. Please provide the details.	Meter reading and Billing data and other relavent data will be provided in Excel, CSV file or to be fetched via API from existing billing system . After RQC-BQC logics, the final data needs to be pushed to JKPDD existing Oracle CCB billing system. From there it will be sent for frther Bil Distribution & Collection.
3	29-Aug-17	EASYASOFT	-	Page 10; B. Android based Mobile Application-Pt.no.4	It should be able to fetch account number from a printed Serial Number (pasted on the meter) lab number of the meter to fetch customer details before entering meter reading.	We understand that the proposed system shall extract the all consumer details on entering the Meter Serial Number. Please confirm	The meter reader will connect SMRD to meter via commun. Cord/Optical cord to download meter data into SMRD device, without any manual intervention. In case, data downloading through cord is not possible in that case meter reader will manualy punch the reading data.
4	29-Aug-17	EASYASOFT	-	Page 10; B. Android based Mobile Application-Pt.no.9	Client Side mobile app for self (Do It Yourself) Meter reading submission and bill generation should be made available for downloading by JKPDD consumers.	Why should the client be given the provision to share the meter reading themselves? This will question the authenticity of the reading. Need clarity on this requirement.	J&K state geographyically distributed in a very vast area and have also there are chances of getting curfew/environmental factors - which could stop regular reading/billing process. Thus consumer end mobile app. will help us during that scenarios. However there should be provision to configure certain conditions in which consumer billing will be excersised.
5	29-Aug-17	EASYASOFT	-	Page 9	Web application to be hosted on cloud infrastructure at RECPDCL/ its associate Data Center	Is the hardware infrastructure part of bidder scope or does the bidder just need to provide the solution sizing?	Billing solution to be hosted on Cloud only Hence any sizing is to be done from bidder for 9 Lacs consumer to 20 Lacs consumers in 5 years
6	29-Aug-17	EASYASOFT	-	Page 10; Point 14	The Bidder will ensure that all Communication related issues pertaining to service provider (i.e. Airtel or any other Bidder) or between the Mobile based/ any other meter reading device and intermediate Server in their districts or area of operation will be addressed within stipulated time –	Is the Mobile Communication (SIM cards and internet connectivity at hub location) part of bidder scope?	Yes
7	29-Aug-17	EASYASOFT	-	Page 12 Server Specification	Bidder will propose cloud solution as per SLA requirement.	No SLA information is available	Refer Amendment-1
8	31-Aug-17	VMWARE			Scope of Work	1. MDM solution should help in hosting the SMRD application in secure manner on the Android devices. It will help in giving a feature that can remotely wipe the application in case mobile is lost or stolen.	Bid will be evaluated as per current tender specicifications
9	31-Aug-17	VMWARE			Scope of Work	2. CMRI/SMRD data shall be downloaded/uploaded from/to RECPDCL Prescribed Meter Reading and Billing solution only. Meter Reading Agency should not create any interface for transfer or amendment of data without written permission of RECPDCL. MDM solution will prevent any misuse of data and through secure container avoid any copy/paste of data in another third party application.	Will be covered under agreement with meter reading agency
10	31-Aug-17	VMWARE			Scope of Work	3. MDM solution will help in updating the meter reading application on the mobile devices at regular basis remotely. Patches and upgrades of application will be pushed on the mobile devices automatically.	Bid will be evaluated as per current tender specicifications
11	31-Aug-17	VMWARE			Scope of Work	4. We can help RECPDCL in monitoring the android mobiles and also help in analyzing the meter reading done on daily basis.	This feature/functionality is already incorporated in tender
12	31-Aug-17	VMWARE			Scope of Work - SECURITY	• We help in providing zero trust security model and micro segmentation wherein solution should provide application isolation with stateful firewall for all and any inter VM / App communication. This is required at the VM and host level so that security can be applied in an automated fashion preventing security threats to spread horizontally.	Bid will be evaluated as per current tender specicifications
13	31-Aug-17	VMWARE			Scope of Work - SECURITY	• This Inter VM Firewalling within the same VLAN / Application Tier and any east-west traffic can be deployed in a fully distributed manner without routing the traffic to perimeter firewall.	Bid will be evaluated as per current tender specicifications

14	31-Aug-17	VMWARE			Scope of Work - SECURITY	• The proposed Firewall would be in Software Form factor and can be either present in the Virtualization/ Hypervisor layer or as a Virtual Machine in every Physical Host as agentless mode. It can offer throughput of over 10Gbps Per Physical Host/ Server/ Blade.	Bid will be evaluated as per current tender specicifications
15	31-Aug-17	VMWARE			Scope of Work - SECURITY	• The proposed solution would get managed from a centralized console and would be integrated with the Centralized Virtualization console for an easy and common Operational mode with that of the Virtual Machine.	Bid will be evaluated as per current tender specicifications
16	31-Aug-17	VMWARE			Scope of Work - SECURITY	• Automated Security Policy Management - The Security Policy can be tied with each Virtual Machine and the Policy would automatically move with the movement of the Virtual Machine, thus bring Security Policy Portability along with the VM motion.	Bid will be evaluated as per current tender specicifications
17	31-Aug-17	VMWARE			Scope of Work - SECURITY	• The solution would have the capability of creating unique Security Groups of the VMs based on Operating Systems, Workload Type (Web, App or DB), Machine Name, Services running, Regulatory requirement etc. and apply Automated and Centralized Security Policy based on this context or grouping.	Bid will be evaluated as per current tender specicifications
18	31-Aug-17	VMWARE			Scope of Work - Disaster Recovery	• Solution would support migration of VMs/ Applications between Primary & DR sites with all their security policies and IPs addresses intact and would provide required underlying Layer 2 and security policy extensions irrespective of underlying networking hardware. • Solution would provide automated VM/ workload migration and automated DR drill without impacting the production. DR Automation solution is required where during migration solution should take care of sequential migration based on application requirements.	Bidder to meet SLA requirement
19	31-Aug-17	VMWARE			Scope of Work - SERVER	1. Virtualization software should have the provision to provide zero downtime, zero data loss and continuous availability for the applications running in virtual machines in the event of physical host failure, without the cost and complexity of traditional hardware or software clustering solutions.It should scale up CPU.Memory,Storage and Network on demand without downtime.	Bidder to meet SLA requirement
20	31-Aug-17	VMWARE			Scope of Work - SERVER	2. The Solution shall be able to run various operating systems like windows client OS, windows server, linux (RedHat, Suse Linux etc), Solaris x86 ,Netware etc. The Solution must offer ability to Copy, convert, or migrate an image (P2V, V2V, V2P & P2I).	Bid will be evaluated as per current tender specicifications
21	31-Aug-17	VMWARE			Scope of Work - SERVER	3. The solution should provide option for securing virtual machines with offloaded antivirus and antimalware solutions without the need for agents inside the virtual machine with integration of existing Deep Security Antivirus.	Bid will be evaluated as per current tender specicifications
22	31-Aug-17	VMWARE			Scope of Work - SERVER	4. The management should provide Orchestration facility which would simplify installation and configuration of the powerful workflow engine in Management. The workflows should be launched directly from the Web Client itself.	Bid will be evaluated as per current tender specicifications
23	31-Aug-17	VMWARE			Scope of Work - SERVER	5. The solution should provide self-learning performance analytics and dynamic thresholds which can adapt to the environment to simplify operations management and eliminate false alerts. It should provide prebuilt and configurable operations dashboards to provide realtime insight into infrastructure behavior, upcoming problems, and opportunities for efficiency improvements.	Bid will be evaluated as per current tender specicifications
24	31-Aug-17	VMWARE			Scope of Work - SERVER	6. Virtualization software should provide proactive High availability capability that utilizes server health information and migrates VMs from degraded hosts before problem occurs.	Bid will be evaluated as per current tender specicifications
25	31-Aug-17	VMWARE			Scope of Work - SERVER	7. Virtulization software should provide VM-level encryption protects unauthorized data access both at-rest and in-motion.	Bid will be evaluated as per current tender specicifications

26	31-Aug-17	VMWARE			Scope of Work - SERVER	8. Virtualization software should provide secure boot for protection for both the hypervisor and guest operating system by ensuring images have not been tampered with and preventing loading of unauthorized components	Bid will be evaluated as per current tender specicifications
27	31-Aug-17	VMWARE			Scope of Work - STORAGE	1. The solution should provide software based enterprise class storage services on any x86 servers hardware available from all the leading server vendors in the industry. It should support both hybrid and all flash configurations on the x86 server. The solution should have in-built software defined storage capability integrated within the hypervisor kernel itself and should work without the need for any specialized dedicated controller virtual appliance.	Bid will be evaluated as per current tender specicifications
28	31-Aug-17	VMWARE			Scope of Work - STORAGE	2. The solution should allow common management across storage tiers and dynamic SLA automation via policy-driven control plane. Policies can be applied on a per-VM level and adjusted on the fly. No LUNs or RAID configurations should be required.	Bid will be evaluated as per current tender specicifications
29	31-Aug-17	VMWARE			Scope of Work - STORAGE	3. The solution should provide a single unified management console for the management of the entire environment including virtualized environment as well as software defined storage environment to simplify the manageability of the entire solution.	Bid will be evaluated as per current tender specicifications
30	31-Aug-17	VMWARE			Scope of Work - STORAGE	4. The solution should provide distributed RAID and cache mirroring for intelligent placement of VM objects across disks, hosts and server racks for enhanced application availability. Zero data loss with zero downtime in case of disk, host, network or rack failure. Software defined storage fault domains provide the ability to tolerate rack failures in addition to disk, network and host failures.	Bid will be evaluated as per current tender specicifications
31	31-Aug-17	VMWARE			Scope of Work - STORAGE	5. The solution should be able to use hypervisor/ VM based replication to asynchronously replicate VMs across sites based on configurable schedules of up to 5 minutes RPO.	Bid will be evaluated as per current tender specicifications
32	31-Aug-17	VMWARE			Scope of Work - STORAGE	6. The solution should provide end-to-end software checksum of data enables automatic detection and resolution of silent disk errors and ensures data integrity. The solution should support to creates an all-flash architecture delivering consistent, predictable performance with up to 100K IOPS/Host and sub-millisecond response times.	Bid will be evaluated as per current tender specicifications
33	8-Sep-17	FLUENT GRID			Scope of Work - STORAGE	• According to the RFP the consumer base of the utility is not clear. There are two different numbers in page no. 6 and page no. 7 i.e. 20,77,275 and 1707639 respectively. Please confirm which is the consumer base to be taken into consideration.	Bidder to consider 9 Lacs in 1st year to 20 Lacs in 5 years

34	8-Sep-17	FLUENT GRID			Scope of Work - STORAGE	• Also request you to provide clarity on the infrastructure requirements in this bid. As per our understanding we only need to provide the specifications of the hardware which is to be deployed on cloud. Please confirm.	Bidder to Design, Supply, Implement & Maintane the Hosting of Billing Solution on Cloud which should take care of 9 Lacs to 20 Lac (in 5 Years) consumer reading & billing data
35	8-Sep-17	FLUENT GRID			Scope of Work - STORAGE	• According to page no. 12 of RFP, "Server Specifications: Bidder will propose cloud solution as per SLA requirement". Please provide the SLAs.	Refer Amendment-1
36	10-Sep-17	EASYASOFT		NIT Page 22	The minimum average annual turnover of the bidder shall be a minimum of ₹ 3.5 Crores during the any of 03 FYs during last 05 FYs ending 31st March of the previous financial year.	We request you to modify this clause as: "The minimum average annual turnover of the bidder shall be a minimum of ₹ 2 Crores during the any of 03 FYs during last 05 FYs ending 31st March of the previous financial year i.e 2016-17"	Refer Amendment-1
37	10-Sep-17	EASYASOFT		Special Conditions of Contract (SCC) Annexture C Page 21	Authorization Letter in lieu of the same shall be submitted along with the signed and stamped Acceptance Form	Is there any specific format for the Authorization letter	This form need to be signed and stamped and to be uploaded in the portal along with other bid documents by lead bidders digital signatures only.
38	11-Sep-17	FLUENT GRID	Page no. 9		Maintenance of established IT infrastructure and Solutions/ Services for a period of 05 years with 100% redundancy from the date of Go-Live.	As per our understanding, there is a requirement of 100% redundancy implying the need of Disaster Recovery along with Data Centre. Please confirm.	Bidder to maintan the SLA.
39	11-Sep-17	FLUENT GRID	Page no. 9		The new solution would be required for expanding the domain of the existing solution available with PDD and that the proposed system would be fully integrated with the existing PDD system. Also it is proposed to have effective billing system, the two software (proposed and the existing PDD) would gradually merge upon completion of stabilization period	We understand that there is an existing billing software and the client intends to procure another billing system through this RFP. Kindly confirm our understanding.	The Cloud solution provided by bidder is referred as intermediate server. Cloud solution should be equipped for capturing and processing CMRI/SMRD data of meters of all available meter manufacturers and generate bills after defined Reading Quality Checks (RQC), sending the Billing data further to JKPDD existing Orable CCB system (Through Application Integration) including sufficient storage space to capture the consumer base of about 9 lakhs to 20 Lakhs in 5 years
40	11-Sep-17	FLUENT GRID	Page no. 9		Solution should be capable of including adjoining areas Jammu & Kashmir consumers.	What is the potential consumer base of the adjoining areas, where the solution may be deployed?	Initially bidder to consider 9 Lacs to 20 Lacs in 5 years as project scope
41	11-Sep-17	FLUENT GRID	Page no. 9		Along with the above mentioned software, web portal and mobile application bidder will also provide the monitoring dashboard for JKPDD/RECPDCL to monitor the day to day Reading, Billing and Collection activity as per requirement.	Please elaborate the expected functionalities of the web portal.	Detailed requirement will be discuss after award of the contract.
42	11-Sep-17	FLUENT GRID	Page no. 9		Training: Training session shall be arranged on functionalities and operation of Revenue Management System. For each circle, maximum 2 training sessions shall be provided, where each session may comprise of maximum of 30 participants. This will be on concept of "Train the trainer	As per our understanding training has to be provided in every circle. Please provide the total number of circles	Total no. of Circles are 12 (7+5)
43	11-Sep-17	FLUENT GRID	Page no. 10		The Bidder will ensure that all Communication related issues pertaining to service provider (i.e. Airtel or any other Bidder) or between the Mobile based/ any other meter reading device and intermediate Server in their districts or area of operation will be addressed within stipulated time. Bidder will assist and support RECPDCL for full roll out & streamlining of the existing features of Meter Reading, Bill Generation, Site Verification report (SVR) of Mobile base Meter Reading Device modules in districts/divisions of their operation.	As per our understanding communication related issues will be handled by service provider and should be under the scope of the utility.	SIM & SIM card related communication failure will be in meter reading agencies scope.
44	11-Sep-17	FLUENT GRID	Page no.18			As per RFP, the go-live should be attained by the end of 2 months for the pilot area. Request you to please provide the consumer base for the pilot area?	Pilot area will be declared after award of contract

45	11-Sep-17	FLUENT GRID	Page no. 9 Page no.12		Hosted Web Application shall have the following key sub-modules. a) Connection & Meter Management Module b) Meter Reading Module (to upload meter readings received, Provision to edit (after the approval competent authority) / enter the readings and to carry out quality checking of uploaded readings) c) Revenue Billing, Collection and Recovery Module d) Management Information System Module e) Energy Audit Module f) Web application to be hosted on cloud infrastructure at RECPDCL/ its associate Data Center. Web-Application (Dash Board): The responsive web-based application will be used by the JKPDD/RECPDCL personnel for activity monitoring and management:	As per page no. 9 of RFP, the bidder needs to provide a web based software for all the sub modules mentioned. But under the solution specifications there is no mention of web application related to the modules mentioned above in page 9. Rather it only states about the dashboard. Please clarify the exact scope of work.	Refer Amendment-1

46	11-Sep-17	FLUENT GRID	Page no. 14 Page no. 19		Warranty support of Hardware and Software under FMS Period: The bidder shall be responsible for providing hardware and software warranty under FMS after go live of the system for next 05 years. For all equipment, the bidder shall provide warranty for a period of 12 months from the date of commissioning for all supplied, installed and commissioned equipment.	Request you to please clarify the actual warranty period.	Refer Amendment-1
47	11-Sep-17	FLUENT GRID	Page no. 13		Bidder has to provide detailed documents as part of the project deliverables: Solution Architecture Design Document – HLD and LLD Standard Product manuals User Manual for Custom Applications Source code	As per our understanding the bidder will provide source code only for the customized part of the solution. Kindly confirm our understanding.	Yes, customized part which have JKPDD related infor.

48	11-Sep-17	FLUENT GRID	Page no. 15		Post implementation support shall also cover the new requirement of tools, application, reports etc. of utility.	Please elaborate the requirements of tools, application and reports.	As per tender requirement
49	11-Sep-17	FLUENT GRID	Page no. 18 Page no. 15 Page no. 13 & 14		Post Implementation Support: The bidder shall be responsible for providing stabilization support for six (06) month after go live of the system. Warranty support of Hardware and Software under FMS Period: The bidder shall be responsible for providing hardware and software warranty under FMS after go live of the system for next 05 years.	As per our understanding, the total implementation timeline is of 4 months followed by 6 months of handholding/ stabilization support and 4 yrs. 2 months of FMS. Please confirm.	Refer Amendment-1
50	11-Sep-17	FLUENT GRID	Page no. 10		The intermediate server should be equipped for capturing and processing CMRI/SMRD data of meters of all available meter manufacturers and generate bills after defined Reading Quality Checks (RQC), sending the Billing data further to JKPDD (Through Application Integration) including sufficient storage space to capture the consumer base of about 20 lakhs.	Please provide the minimum technical specifications of the intermediate server and other infrastructure requirements for the bid.	Cloud Infra should be capable to handle upto 20 Lac consumers approx in 5 yrs
51	11-Sep-17	FLUENT GRID	Page no. 12		A. Server Specifications: Bidder will propose cloud solution as per SLA requirement.	SLAs are not provided in the RFP. Please provide the same.	SLA attached
52	11-Sep-17	SMART TRACK SOLAR	-	SECTION-VI ELIGIBILITY CRITERIA (5)	i. The bidder must have successfully completed one (01) project covering meter reading / bill distribution or other similar nature in any power distribution utilities having value of Rs.1.68 cr. Or the consumer base not less than 2.16 lakhs in last 7 years, Or (ii). The bidder must have successfully completed Two (02) project each covering meter reading / bill distribution or other similar nature in any power distribution utilities having value of Rs.1.16 cr. Or the consumer base not less than 1.35 lakhs in last 7 years,	We understand the bidder having experience in providing SCADA application involving Services, Supply, Deployment of Hardware, Software Development & Manpower to any Utilities in India should also be acceptable. Request your good Office to consider our request and include SCADA experience also and amend subject clause.	Bid will be evaluated as per current tender specicifications
53	14-Sep-17	BCI-TS			"Web application to be hosted on cloud infrastructure at RECPDCL/ its associate Data Center."	With respect to the above we request you to clarify; If all the cloud infrastructure like the required VM, RAM, Storage, Operating System, RDBMS and the internet connectivity with public IP Address will be provided to us by RECDPCL for hosting our software. If not, kindly specify if all the required Hardware like servers, operating systems, RDBMS with the required connectivity has to be provided by the bidder.	All cloud based infrastructure i.e hardware, VM, RAM, Storage, Operating System, RDBMS and the internet connectivity etc are to be provided/maintained by Bidder only.
54	14-Sep-17	BCI-TS			"Web application to be hosted on cloud infrastructure at RECPDCL/ its associate Data Center."	If the hardware as referred in point 1. Is provided by RECDPCL, then for what component the MAF is expected (excluding the cloud Billing Software which is owned by us).	No Hardware/Software will be provided by RECPDCL. The bidder needs to take the MAF authorization from Cloud service provide for cloud service and/or from Hardware/Software OEM to maintain the same till the contract period.
55	14-Sep-17	BCI-TS			"Web application to be hosted on cloud infrastructure at RECPDCL/ its associate Data Center."	In the price Bid SL No. 1 and SL No. 3 are again related to supply of hardware ad hosting charges for cloud.	If bidder is proposing cloud service then S.No 1 will not be applicable.
56	19-Sep-17	EASYASOFT		NIT Page 9/Section IV; Detail scope of work	Hosted Web Application shall have the following key sub-modules. a) Connection & Meter Management Module e) Energy Audit Module	The RFP specifications doesn't mention any detail on new connection process or meter management etc. Please confirm if new connection, disconnection, reconnection, asset management (meter management) modules are to be provided as a part of the current RFP scope.	Only Meter Reading and Billing Module required. Billing solution should be moduler in approach so that in future any new module can be easily integrated.
57	19-Sep-17	EASYASOFT		NIT Page 9/Section IV; Detail scope of work	Hosted Web Application shall have the following key sub-modules. c) Revenue Billing, Collection and Recovery Module	Is collection module also a part of the current scope or we just need to integrate with the existing collection module	Only Meter Reading and Billing Module required. Billing solution should be moduler in approach so that in future any new module can be easily integrated.
58	19-Sep-17	EASYASOFT		NIT Page 11/Section IV; Detail scope of work	Whenever required by RECPDCL, Bidder will change/modify the size and format of captured photos/images in both SMRD/Intermediate server for the optimisation of space.	Which photo/ image is referred here. We assume that no image capturing is required by the meter reader as it will need a dedicated additional storage space. One image requires atleast 65KB storage.	SMRD App provided by billing Solution provider should have provision to capture the photo and store/upload it on the central billing server hosted on cloud., Capturing of Meter Reading Photographs along with Serial No. is required in case of :- # Manual reading (if SMRD or comm. Fails) and # For exceptional cases like Meter Faulty, Abnormal reading, Disconnected or any other remark
59	19-Sep-17	EASYASOFT		NIT Page 13/ Solution Specifications	D. Web-Application (Dash Board): It should provide for viewing of meter reading and picture of meter with reading and GPS coordinates vis: latitude & longitude.	We assume that the software is required to capture the lat long of the meter reader and show the same in data reports. The lat long provided, can be manually copied and used in any other application. GIS Software shall not be required for the same. Please confirm.	No real time tracking on GIS map required.
60	19-Sep-17	EASYASOFT		NIT Page 9/Section IV; Detail scope of work	Scope of work also covers the integration of established solution with the existing consumer care and billing system of JKPDD	Please share the details of the existing systems with which integration is required to be done. Also please mention the details of the data and its frequency that needs to be exchanged. The same shall be required for sizing and system bandwidth.	Details of Existing system to be provided/studied - after award of tender.
61	19-Sep-17	EASYASOFT		General	Sizing Related	Do we need to consider 20Lac consumers right from the 1st year? Please confirm if the utility plans to increase the consumers gradually till the 5th year. This will directly impact the cloud sizing.	Bidder to consider 9.0 Lacs Consumers in first year then will go to upto 20.0 Lacs consumers in next 4 years.

62	19-Sep-17	EASYASOFT		Page 15;Post Implementation Support:	The bidder shall be responsible for providing stabilization support for six (06) month after go live of the system. The bidder shall deploy minimum 04 resources of requisite experience during this period thereafter two resources of requisite experience shall be deployed for entire period of FMS support.	Once the billing solution is successfully deployed, technical resources are generally not required onsite as the frequency of the software bugs/issues is very less. As and when required, the bugs can be fixed remotely. We have implemented the same in another utility as well. We propose the following modification: The bidder shall be responsible for providing onsite/offsite stabilization support for six (06) months after go live of the system. The bidder can provide remote support for entire period of FMS support. However the bidder shall ensure the smooth functioning of the software.	Refer Amendment-1

JKPDD Requirements for Provisioning of cloud Services for Proposed Billing Solution

1. Provisioning of Cloud Services

Billing Software Solution Provider work scope shall also consist of Implementation of Billing Solution as per following requirement.

a) Deployment of billing Software solution/——application and associated component/application/services to be host on Secured Cloud.

b) This application must be able to integrate with existing legacy solution at JKPDD (Oracle CCB and NIC System) to fetch the Consumer Billing and Meter reading information and able to update the same from Cloud application to Customer Legacy Application also.

c) Billing solution Partner shall perform the benchmark billing solution in cloud facilities initially for 10 Lack consumers (Gradually to be increase up to 20 Lacs in a span of 5 years) meter transactions as per the defined frequency of data pull and update.

d) Application design, development, and implementation /deployment of envisaged billing System.

e) Establishment of Network Connectivity from Cloud Service Provider's Data Centre to REPDCL/JKPDD Offices and Data Centre through secured connectivity.

f) Handholding of Application/Training to JKPDD and RECPDCL .

g) Operations and Maintenance of the billing system for the entire project period of 05 years from the date of go-live.

1.1. Provisioning and Commissioning of billing solution on Cloud

The billing solution provider shall be responsible for deploying the entire solution on a Cloud. Billing solution provider shall propose a Cloud Service Provider (CSP) from the empaneled cloud service provider (http://meity.gov.in/content/gi-cloud-meghraj) by MeITY Govt. of India.

Billing solution provider shall deploy the developed billing Solution on a "Government Community Cloud" (GCC) of the Cloud Service Provider. Cloud shall offer dashboard to provide visibility into cloud service to JKPDD, Dashboard shall be configurable for JKPDD and RECPDCL. All the update, upgrades, tech refreshes, patch management and other operations of cloud infrastructure will be carried out by the billing solution provider. Ownership of all virtual machines, clones, and scripts/applications including application code (all versions) created for the billing system, and all licenses purchased under this Tender during the contractual period. RECPDCL will have the right to retrieve full copies of these virtual machines along with Application and relevant Data at any time during the project period.

1.2. Technical Requirements of Cloud

a) There shall be both physical and logical separation (of space, servers, storage, network infrastructure and networks) to protect data, applications and servers, in the Cloud proposed by the bidder.

b) DC-DR shall be Tier-3 or higher

c) In case of the any disaster at DC site, 100% of the performances shall be available at DR site. DR shall be 100% mirror image of the primary site.
d) DC and DR shall be provided by the same service provider.
e) Bidder must specify DC and DR locations with complete address of the facility in the proposal. RECPDCL/JKPDD may at any point of time do physical audit of the DC and DR facilities and the service provider shall facilitate such timely physical audits as decided by JKPDD/RECPDCL.
f) Cloud provider shall offer a simple **pay-as-you-go** pricing where Purchaser can pay for compute, storage and bandwidth capacity utilized.
g) Cloud provider shall support direct leased-line connections between cloud provider and a Purchaser Offices and DC- DR.
h) Data shall not leave the boundaries of the country and data residing within Cloud shall not be accessed by any entity outside the control of JKPDD/authorized representative of RECPDCL.
i) In the event of a Primary site failover or switchover, DR site will take over the active role, and all requests will be routed through that site
j) The CSP(cloud Service Provider) shall not delete any data at the end of the agreement (for a maximum of 90 days beyond the expiry of the Agreement) without the express approval of Purchaser.
k) Cloud services shall be accessible via internet and MPLS.

Billing solution provider shall configure, schedule and manage backups of all the data including but not limited to files, folders, images, system state, databases and billing applications any other application in scope of this tender. There shall be sufficient capacity (compute, network and storage capacity offered) available for near real time provisioning (as per the SLA requirement of the Contract) during any unanticipated spikes in the user load. Billing solution provider will be responsible for adequately sizing the necessary compute, memory, and storage required, building the redundancy into the architecture (including storage) and load balancing to meet the service levels mentioned in the tender.

Billing solution provider shall perform and store data and file backups consisting of an initial full back up with daily incremental backups for files;

a) Perform weekly backups for the files
b) For the databases, perform minimum twice weekly full database backup, with a three times daily backup of database log files
c) Retain the backups for entire project period on system and thereafter on tapes which can to be restored when required.
d) Billing solution partner shall not delete any data at the end of the agreement (for a maximum of 90 days beyond the expiry of the Agreement) without the express approval of Purchaser.

Billing solution provider ensure redundancy at each level and shall provide interoperability support with regards to available APIs, data portability etc. for RECPDCL/JKPDD to utilize in case of:

a) Change of Cloud Service Provider,

b) Integration with Utilities backend systems,
c) Burst to a different cloud service provider for a short duration, or
d) Availing backup or DR services from a different service provider

Billing solution provider shall provide required Support to purchaser in migration of the Virtual Machines (VMs), data, content and any other assets as the case may be to the new environment created by purchaser to enable successful deployment and running of billing solution on the new infrastructure.

1.3. Network Connectivity

Billing solution provider shall provide Internet and MPLS bandwidth (over VPN) at DC, DR of Service Provider, JKPDD Offices. Network connectivity at all three locations from two (02) different service providers for redundancy.

1.4. Security for Billing Solution

It is critical to have a set of IT security management processes and tools to ensure complete cyber security of billing solution. An IT security policy, framework and operational guidelines as per ISO 27001 be maintained by the Billing solution provider and Cloud service provider (CSP) as an overall guideline to all forms of IT security – Physical, application, data, network and cloud. The IT systems maintained shall be audited and will be subject to IT security testing. For the billing solution complete audit trail shall be maintained for regular audit of all data changes made to billing solution. Billing Implementing Partner shall provide tools to mine these audit records and gather intelligence from these tools to not only alert Purchaser of any breaches but also predict of any security mishaps that can occur. Latest security tools like IPS, Malware protection, Data loss protection, DB access monitoring etc. need to be in place. All the security management processes, tools and usage shall be well documented in security policy and the security best practices to be followed to maintain IT security of Billing Solution.

1.5. Functional Requirements of Billing Cloud

1.5.1. Compute

Cloud provider shall offer instances that provide a baseline level of CPU performance with the ability to burst above the baseline.

a) Billing Solution Provider must be able to specify and modify server configuration (CPU, memory, storage) parameters seamlessly and without outage.
b) Cloud service shall support local storage for compute instances to be used for temporary storage of information that changes frequently.
c) Cloud service must offer self-service provisioning of multiple instances concurrently either through an interface (API/CLI) or through a management console.
d) Cloud service shall be able to automatically increase the number of instances during demand spikes to maintain performance and decrease capacity during lulls to reduce costs.

e) Cloud provider shall offer a simple pay-as-you-go pricing where Billing solution Provider/Purchaser can pay for compute capacity by the hour with no long-term commitments.

1.5.2. Network

Cloud services shall be provided on a 10 GB network connectivity between the server and Storage and Network. Cloud service shall be able to support multiple (primary and additional) network interfaces. The proposed data centers engineered to host Billing Solution shall be isolated from failures in other data centers of the service provider and shall be connected to provide inexpensive, low-latency network connectivity to other data centers in India. Cloud service shall be able to support multiple (primary and additional) network interfaces.

a) Cloud service shall be able to support multiple IP addresses per instance including hosting multiple websites on a single server and network appliances (such as load balancers) that have multiple private IP addresses for each network interface.
b) Cloud provider shall be able to extend the data center to the cloud and enable communication with their own network over an IPsec VPN tunnel.
c) Cloud service shall support the ability to create a network interface, attach it to an instance, detach it from an instance, and attach it to another instance.
d) Cloud service shall support capabilities such as single root I/O virtualization for higher performance (packets per second), lower latency, and lower jitter.
e) Cloud service shall support a VPN connection between the cloud provider and JKPDD offices.
f) Cloud service shall support connecting two virtual networks to route traffic between them using private IP addresses.
g) Cloud service shall support Load balancing of instances across multiple host servers.
h) Cloud service shall support multiple routing mechanism including round-robin, failover, sticky session etc.
i) Cloud service shall support a front-end load balancer that takes requests from clients over the Internet and distributes them across the instances that are registered with the load balancer.

1.5.3. Storage

Cloud provider shall offer block storage volumes greater than 1 TB in size. Cloud service shall support solid state drive (SSD) backed storage media with minimum latencies.

a) Cloud service shall support the needs of I/O-intensive workloads, particularly database workloads that are sensitive to storage performance and consistency in random access I/O throughput.
b) Cloud service shall offer SSD backed storage media and shall support High IOPS Storage (greater than 50,000 IOPS per VM).
c) Cloud provider shall offer a simple scalable file storage service to use with compute instances in the cloud.
d) Cloud service shall support petabyte-scale file systems and allow thousands of concurrent NFS connections.

1.5.4. Zoning / Logical Partitioning

a) Citizen / consumer facing services shall be deployed in a zone (DMZ) different from the application services. The Database nodes (RDBMS) shall be in a separate zone with internal firewall security layer.
b) The application development zone, staging zone, testing zone, and the UAT on the cloud shall be separate from the production in a different VLAN than the production environment and setup such that users of the environments are in separate networks.
c) All other application shall also be separate from the production in a different VLAN than the production environment and setup such that users of the environments are in separate networks.

1.5.5. Configuration / Provisioning and De-Provisioning

There shall be a provision to modify VM and storage configuration (CPU, memory, storage) parameters seamlessly with minimal downtime. Cloud service must offer self-service provisioning of multiple instances concurrently either through an interface (API/CLI) apart from the management console.

a) Monitoring tools that will enable collection and tracking metrics, collection and monitoring log files, set alarms, and automatically react to changes in the provisioned resources. The monitoring tools shall be able to monitor resources such as compute and other resources to gain system-wide visibility into resource utilization, application performance, and operational health.
b) Billing Solution Provider shall be able to split and host instances across different physical data centers to ensure that a single physical failure event does not take all instances offline.
c) Cloud service shall be able to automatically increase the number of instances during demand spikes to maintain performance and decrease capacity during lulls to reduce costs.
d) Cloud provider shall offer a service to quickly deploy and manage applications in the cloud by automatically handling the deployment, from capacity provisioning, load balancing, auto-scaling to application health monitoring.
e) Cloud service shall support automatically launching or terminating instances based on the parameters such as CPU utilization defined by users.
f) Cloud service shall support parameterization for specific configuration.
g) Cloud provider shall offer support at any time, 24 hours a day, 7 days a week, and 365 days per year via phone, chat, and email.

1.5.6. Database and Allied Services

Cloud services provider shall provide services like Database as a service (both RDBMS and No SQL), Content Delivery Network (CDN), DNS, Data warehouse, Storage, Analytics,
Message queuing etc. and these services shall be manageable from a single console.

a) Cloud provider shall offer a service with ability to take regular and scheduled backup.
b) Cloud services shall provide a web interface with support for multi-factor authentication to access and manage the resources deployed in cloud.
c) Provide Audit Trail of the account activity to enable security analysis, resource change tracking, and compliance auditing.

1.5.7. Cloud Security

Cloud provider shall offer fine-grained access controls including, conditions like time of the day, originating IP address, use of SSL certificates, and multi-factor authentication. The policies for billing solution shall comply with international security standards like ISO27001, ISO22301 etc.

1.5.7.1. Cloud service shall support reporting a user's access and last use details.

1.5.7.2. Cloud service shall have access control policies that are attached to users, groups.

1.5.7.3. Cloud service shall integrate with LDAP / Active Directory. Cloud provider shall support setting up a stand- alone directory in the cloud or connecting cloud resources with LDAP / Microsoft Active Directory.

1.5.7.4. Cloud service shall support features such as user and group management.

1.5.7.5. Cloud service shall support audit features such as what request was made, the source IP address from which the request was made, who made the request, when it was made, and so on.

1.5.7.6. Audit plans must be developed and maintained for billing solution to address business process disruptions. Audit shall focus on reviewing the effectiveness of the implementation of cyber security. Any/all audit activities must be agreed upon prior to executing.

1.5.7.7. Physical security perimeters (e.g., fences, walls, barriers, guards, gates, electronic

1.5.7.8. Surveillance, physical authentication mechanisms, reception desks, and security patrols) shall be implemented to safeguard sensitive data and information systems.

1.5.7.9. Policies and procedures shall be established for the secure disposal of equipment (by asset type) used outside the billing Solution landscape. This shall include a wiping solution or destruction process that renders recovery of information impossible. The erasure shall consist of a full overwrite of the drive to ensure that the erased drive is released to inventory for reuse and deployment, or securely stored until it can be destroyed.

1.5.7.10. User access policies and procedures shall be established, and supporting business processes and technical measures implemented, for ensuring appropriate identity, entitlement, and access management for all internal and utilities (tenant) users with access to data and organizationally-owned or managed (physical and virtual) application interfaces and infrastructure network and systems components.

1.5.7.11. Policies and procedures shall be established to store and manage identity information about every user who accesses IT infrastructure and to determine their level of access. Policies based controlled access to network resources based on user identity.

1.5.8. Incident Response

For the proposed BILLING solution BILLING Implementing Partner must plan for policies and procedures to ensure timely and thorough incident management, as per established IT service management policies and procedures. They shall have proper forensic procedures defined and implemented, including chain of custody, required for the presentation of evidence to support potential legal action subject to the relevant jurisdiction after an information security incident.

Upon notification, The Purchaser impacted by a security breach shall be given the opportunity to participate as is legally permissible in the forensic investigation.

1. Policies and procedures shall be in place for timely detection of vulnerabilities within billing applications, IT infrastructure, and network and system components.
2. A risk-based model for prioritizing remediation of identified vulnerabilities shall be used.

1.5.9. Disaster Recovery and Business Continuity Planning

Billing solution shall be architected to run on cloud services offered from multiple data center facilities to provide business continuity with no interruptions in case of any disruptions /disaster to one of the data center facility. In case of failure, automated processes shall move customer data traffic away from the affected area. The Cloud Service Provider shall provide adequate bandwidth between the Data Centre Facilities to provide business continuity.

1.5.9.1. Bidder must propose a framework for business continuity planning and the plan consistent in addressing priorities for JKPDD.

1.5.9.2. The bidder shall plan for Business continuity drills and testing at planned intervals or upon significant organizational or environmental changes.

1.5.10. Sizing Considerations for Billing Solution

In the technical proposal Bidder(s) are required to submit the details of methodology used by them for sizing of Cloud including capacity of storage, compute, backup, and network & security components. Bidder will be responsible for adequately sizing the necessary compute, memory, and storage required, building the redundancy into the architecture (including storage) and load balancing to meet the service levels mentioned in the Tender and bidders may use the information as given in table below for sizing of cloud / billing solution:

Table 12 - Sizing of cloud / BILLING solution

S. No.	Parameter	Description	Value
1.	Consumer Base	Consumer Base	**9 Lacs Initial**
2.	Internal Users	Number of internal users JKPDD and RECPDCL	**Approximately 500 users at JKPDD + RECPDCL**
3.	Network Connectivity	Network Connectivity within IT Infrastructure of Cloud Services such as Network, Server, Storage interconnectivity	Minimum 10/100 GBPS Connectivity between Network, Servers, Storage
4.	CPU Utilization Limit	Utilization upper limits of VM's	Between 60% to 70%
5.	Compliance to Standards	Cloud Compliance Standards Security	ISO 27017, ISO 27018 SOC 1 and SOC 2
6.	Storage	Read Write Volumes Media	Read 10000 IOPS Write 5000 IOPS Disc > 1 TB SSD
7.	Database Performance	Transaction	5000 IOPS
8.	Scalability		Upto **20 Lacs consumers**