STATEMENT OF WORK (SOW)
for Outage Management System

1.0 Introduction

Purpose

The intent of this document is to define the necessary functional requirements in order for Colorado Springs Utilities (SU) to identify a qualified vendor capable of delivering an Outage Management System (OMS) application for the purpose of monitoring and tracking outages within SU's service area (approximately 200,000 customers). The OMS is an important tool that will be used during electrical service outages to provide a means for monitoring and tracking outage service orders, coordinating the work effort of trouble shooters in the field, and to provide a communication mechanism for timely and informative public notification of outages along with estimated times as to when service will be re-established.

The desired solution is to procure a fully-automated application with a proven and verifiable high level of reliability that will provide the capability to develop a seamless interface with the systems currently utilized by Utilities personnel to monitor, track and manage electrical service outages (e.g. GIS, IVR, CIS, MDSI, SCADA and AMR).

See attachment #1 for definitions.

2.0 Scope

The scope of the OMS project will include these major interface processes:

1. An interface between CIS (Customer Interface System) and the OMS.

2. An interface between GIS (Geodedic Information System) and the OMS.

3. An interface between IVR (Interactive Voice Recognition) and the OMS.

4. An interface between AMR (Automated Meter Reading) and the OMS.

5. An interface between Mobile Data and OMS.

6. SCADA interface.

7. The ability to handle large volumes of calls (potentially 30,000 calls per hour).

The OMS will provide real-time and accurate outage information to internal and external customers. This will allow identification of outages and dispatching crew to correct locations in a more informed and timely fashion thereby reducing time to restore power when an outage occurs. The OMS will help handle and record the large influx of calls during major outages as well as keep track of customers who have lost power, thus improving operational efficiencies and service levels.

When calls come in, or when devices are operated, the OMS must be able to predict the location of each outage. This allows operators to send the crews to the most appropriate location to begin the outage restoration process. The OMS will have the ability to separate numerous outages into manageable groups so that power will be restored in a more efficient manner and improve customer satisfaction.

The OMS monitors the crews assigned to each individual outage and keeps track if power has been restored. The OMS will also have the ability to analyze the current outage situation and help to manage troubleshooters and reduce redundant responses.

Colorado Springs Utilities must have complete access to data in which to build reports and provide analysis. The OMS must generate and report valuable historical information. The OMS should provide the basic reliability reports that include: ASAI (System Average Interruption Frequency), CAIDI (Customer Average Interruption Duration Index) SAIDI (System Average Interruption Duration Index), and SAIFI (System Average Interruption Frequency Index).

The OMS must interface with GIS - this is the heart of an OMS and will drastically affect the outcome of the OMS success and functionality.

The OMS must provide a two-way interface with CIS Plus system.

The OMS must work in conjunction with the call handling system of Interactive Voice Response (IVR) system. The IVR must pass customer acceptance. With a previous system, the canned robotic voice used was not pleasing to the customer and not utilized or well understood.

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The OMS for Colorado Springs Utilities must work in conjunction with the AMR (Automatic Meter Reading) system currently being deployed and must provide interaction with Cellnet UtiliNet software.

The OMS should improve network reliability and the ease of compliance with regulatory requirements for reliability reporting.

2.1 Functional Interfaces

Application	Supplier	Database	Platform/OS	Hardware
GIS Core, ESRI 9.2	ESRI	SDE Oracle	SUN Solaris 9/10	SUN Sparc T2000
GIS Manager, Miner&Miner ArcFM 9.2	Miner&Miner	SDE Oracle	SUN Solaris 9/10	Intel Client PCs
CIS, CC&B 1.5.20.1	Oracle Utilities	Oracle 9	SUN Solaris 9	SUN V245 Intel Clients
IVR, PeriProStudio MPS Developer 3.0	Nortel Networks	N/A	SUN Solaris 8	SUN V210
Mobile Data, Advantex R7.7	Ventyx	Oracle 9	SUN Solaris 8	SUN V445
AMR, UtiliNet	Cellnet	Oracle	Secure FTP	Secure FTP
SCADA, Network Manager 2003	ABB	Oracle	HPUX Windows XP	Intel Xeon

3.0 Background

The new OMS will replace the existing Trouble Call Analysis (TCA) application which is no longer production capable and is in need of both hardware and software upgrades. The existing outage management process is comprised of manual interaction with various groups from both inside and outside the energy distribution offices. The current TCA has no external interfaces and there are no outage diagnostic tools.

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4.0 Tasks, Deliverables & Schedule

It is anticipated that the following steps will be required for the implementation of the Outage Management System.

Item #	Task/Deliverable Description	Start Date	Completion Date
Phase 1	CIS/GIS Integration, Customer Acceptance, Customer Training	TBD	TBD
Phase 2	MDSI Integration, IVR Integration, Customer Acceptance Test, Customer Training	TBD	TBD
Phase 3	AMR Integration, SCADA Integration, Customer Acceptance Test, Customer Training	TBD	TBD

For detailed schedule see attachment # 3

Step 1 – Initiation

The Initiation Phase is designed to provide the roadmap for the project, align Colorado Springs Utilities (SU) and the Contractors expectations, setup initial plans and provide the necessary infrastructure for the project. This phase also provides an opportunity for SU and the Contractor to perform a high level review of SU's business practices and systems environment in order to validate the scope of the project. The main object of this phase is to review and analyze SU's existing business practices in terms of system functionality and determine at a high level how closely the Contractors product fits SU's needs. Based on this understanding, the Contractor can provide specific recommendations to help SU optimize the functionality of the system.

Step 2 – Analysis

The analysis phase of the project is primarily the responsibility of the Contractor where the essentials of the project: system architecture, model, and configuration is reviewed. A typical system architecture will be proposed by the Contractor and iterated with SU subject matter experts where the platform vendor (client/server machine resources), software modules, third party products and networking considerations are agreed upon. During the course of this analysis, SU and the Contractor will have regular meetings to clarify issues that have been identified by SU and the Contractor. SU and the Contractor will document any decisions and actions that arise from these sessions.

Step 3 – Assembly

The objective of this phase is to prepare the system for testing and acceptance in order to transition the product into live operation. These activities will be accomplished with continual reference to the strategies and specifications documents agreed to in the analysis phase.

Step 4 Acceptance

Full SU system acceptance takes place during this phase. SU will draft a system acceptance test plan, and execute the plan in a controlled and orderly manner to verify that the installed system is operating as specified. This step validates the decisions made in the previous phases. The final step of this phase is preparation for SU to take all aspects of the system (software, procedures, documents and reports) into live operation. The contractor will assist SU in resolving any issues and problems encountered in the setup and testing of each application.

Step 5 Rollout

The objective of this phase is to ensure that the product is functioning properly through the first critical processes and meets the requirements as documented from the meetings in the prior phases. At this point, SU should be able to take ownership of the installed product and should be sufficiently equipped and trained to operate the system successfully. The first step of this phase is to take all aspects of the system (software, procedures, documents, and reports) into live operation. The Contractor and SU will work together to perform those conversion and support activities necessary to begin operation of the new system in a production environment. By the end of this phase, the system should be operational an in the production environment. The Contractor should be available to assist SU in resolving and issues or problems encountered during the first 90 days after going live with the system.

5.0 Performance Requirements

Contractor will provide project management services to coordinate its activities and responsibilities with the activities and responsibilities of Colorado Springs Utilities (SU). The project management services include ongoing liaison with SU and preparation of status reports from the contractors activities, as well as on-going planning and status assessments with SU as required. The contractors project management duties will include, but not be limited to:

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- Attendance at all agreed upon planning and reporting meetings scheduled by SU's project manager.

- Monthly project status reports outlining:

    A) Progress against Contractor target deliverables
    B) The status of any issues or change orders
    C) Milestone billings
    D) Resource usage and requirements
    E) Pending tasks
    F) Documentation and tracking of changes as the project progresses

Trouble Call

- Incident creation and management, whether the call is received by a person or through an IVR.

- Interface with the Interactive Intelligence Recognition (IVR).

    A) Identify the geographic location that the customer is calling from through interfaces to customer data in CIS and GIS.
    B) Verify that the call is being made from the location where the problem is happening.
    C) Obtain information to help identify the nature and location of the problem.
    D) The OMS must be able to determine through circuit analysis whether the caller is part of an outage that has been already reported or whether this is a new problem.

- Provide outage status information to the caller, either through the IVR or from an employee accessing the system. The OMS must be able to provide status information such as: whether the problem has already been reported, whether a crew has been dispatched and estimated time of restoration (if known). The information provided to callers should be specific to their circumstances.

- Maintain call history of all information relevant to each call.

- Automated event logging and archiving.

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Outage Management

- Predict the most likely open point from incoming call and sensor data inputs.

- Manage multiple simultaneous system outages.

- Dynamically change outage situations in real-time.

- The system must provide the following information for access by: the dispatcher, customer call center, line crews and management. Selected information will also be made available to customers.

  A) Active outages.
  B) Circuits affected.
  C) Customers who are affected by the outage.
  D) Identify critical customers involved in outage.
  E) Customers who have called.
  F) Length of each active outage.
  G) Crew assignment.
  H) Outage status.
  I) Messages left by customers on IVR voice clips.
  J) Clearly identify critical issues (ex: wire down, pole down, wire fire) perhaps through special icons.

- Dynamically process Incremental restorations.
- Manage and track follow-up work after service restoration (ex: temporary repair, damage claims, disconnect after 30 days, billing work orders when another person or organization is liable for damages to company facilities).

Reporting

- Include all required system reliability reports (ex: CAIDI, SAIDI, SAIFI, MAIFI).

- Ability to easily write custom reports in-house for engineering analysis.

Crew and Management

- Create crews/Assign individuals to crews

- Crew dispatch and tracking

A) Track truck type
B) Identify primary crew

Dynamic Switching

- Single click operations to perform open and close operations.
- Interface open and close operations to GIS.
- Ability to display the electrical circuit model.
- Network management (switching, tagging, splices/jumpers, etc.)

General

- Support for web and desktop access.
- Both spatial and tabular views of outage events provided.
- Support for alarms and events.
- Study/training modes.
- An application built on open standards – which utilize non-proprietary programming languages and provide standard interfaces and integration with other systems such as CIS, GIS, SCADA and telephony.
- Near real-time operation and fast, efficient updates.
- Flexibility in defining business rules.
- Able to support integration to future Resource Management System.

See Attachment #2 for complete listing of Functional Requirements

6.0 Performance Measurement Methods

Full client System Acceptance Testing (SAT) will take place during the Phase 4 acceptance phase. SU will draft a System Acceptance Test Plan which will be executed in a controlled and orderly manner to verify that the system is operating as specified. It should be noted that the OMS is a “24/7 critical system.” The

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System Acceptance Test Plan will exercise each application and departmental procedure. The project managers of both SU and the Contractor will collaborate to ensure that the testing is not hindered due to lack of information, procedures, or testing methodology. This step validates the decisions made in the discussions and meetings held during the Assembly Phase. The contractor will assist and advise SU during the System Acceptance Test. Once the contractor has completed the System Acceptance Test and has corrected any potential failures to suitably conform to the System Acceptance Test (which SU will document and report in writing to the Contractor) the system will be accepted by SU. The activities to be performed are in the table below:

	Activities	Deliverable	Contractor	SU
1	SAT I Test	Identify issues		X
2	SAT I Remediation	Bug fixes, patches	X	
3	SAT II Test	Identify issues		X
4	SAT II Remediation	Bug fixes, patches	X	
5	Performance Test			X
6	Performance Tuning		X	X
7	Signoff Certificate of Acceptance	Certificate of Acceptance		X
8	Pre-Go Live setup			X
9	Set up machine to transfer to Support		X	
10	Real time data migration			X
11	Client signoff of Certificate of Project Completion	Agreement that Contractors obligations have been fully met		X
12	Go Live support	Contractor provides implementation support	X	X
13	Prepare Machine for support		X	
14	Hand off to Customer Support Group	Handover extension and support documentation	X	X

7.0 Resource Requirements

Colorado Springs Utilities Responsibilities

- SU is responsible for providing and maintaining the facilities required for the project team. SU will provide their security standards to Contractor in advance.

- SU will provide and maintain in satisfactory operating condition a working hardware platform with sufficient capacity to load and operate the OMS

software and to perform Project activities for the relevant phase of the project.

- SU will be responsible for system administration and management activities on the platforms belonging to SU, including, but not limited to**,** establishing regular backup procedures to secure the new operating environment, and general housekeeping activities. Contractor will provide such information and guidance as to what is expected regarding system administration.

- SU will maintain the high speed connectivity and system logon to enable the Contractor to access SU's system remotely, should this be necessary for file transfer and to assist Contractor to locate the cause of problems.

- SU will assign core team or staff for the duration of the project, and will identify additional subject matter experts (SME's) who will be available as per the project schedule and at other times as required for each party to accomplish its work. The staff of each party will be present at meetings, training sessions, workshops, etc. SU team members will be authorized by SU to make decisions for SU concerning the requirements and functionality of the system and other aspects of the project. Any decisions that require approval from others will be handled promptly and in accordance with the escalation process to be agreed by the parties under this SOW.

- SU will provide knowledgeable employees trained in information services operations, relational database management system administration, and use of the hardware platform on which the applications software is installed.

Note: Where travel to one or more Colorado Springs Utilities facilities is required, and the resultant contract is not firm fixed price, the contractor shall obtain Colorado Springs Utilities pre-approval and shall be reimbursed within the limits of Colorado Springs Utilities then current travel reimbursement policy.

8.0 Key Personnel/Responsibilities

Role	Responsibility	Name	Phone Number
Sponsor	Project Advocate	Mason Parsaye	719-668-3503
Project Manager	Primary Contact and Coordinator	Steven Mahone	719-668-4131

CC&B SME	Customer Information System Lead	Angie Toma	719-668-7482
Dispatch SME	Field Services	Jennifer Dubas	719-668-7565
Operations SME	Electric Distribution Control	Matt Wells Laura Allen	719-668-4130 719-668-4089
GIS SME	Mapping and GEO Data	Randy Scott	719-668-5767
IVR SME	Interactive Voice Recognition	Scott Slye	719-668-8410
AMR SME	Automated Meter Reading	Gina McCurley	719-668-8284
SCADA SME	Supervisory Control	John Cotterman	719-668-3989
Business Process	SOW Development and Review	Mark Clark Keith Newby	719-668-8046 719-668-3617
Contract Award and Management	RFP Generation, Contract Negotiation	Scott Duncan	719-668-3865

9.0 Non-Disclosure of Information

N/A

10.0 Applicable Documents

See attachments for Definitions, Work Flow Diagram, Evaluation Criteria and OMS Requirements**.**

11.0 Project Cost

NA

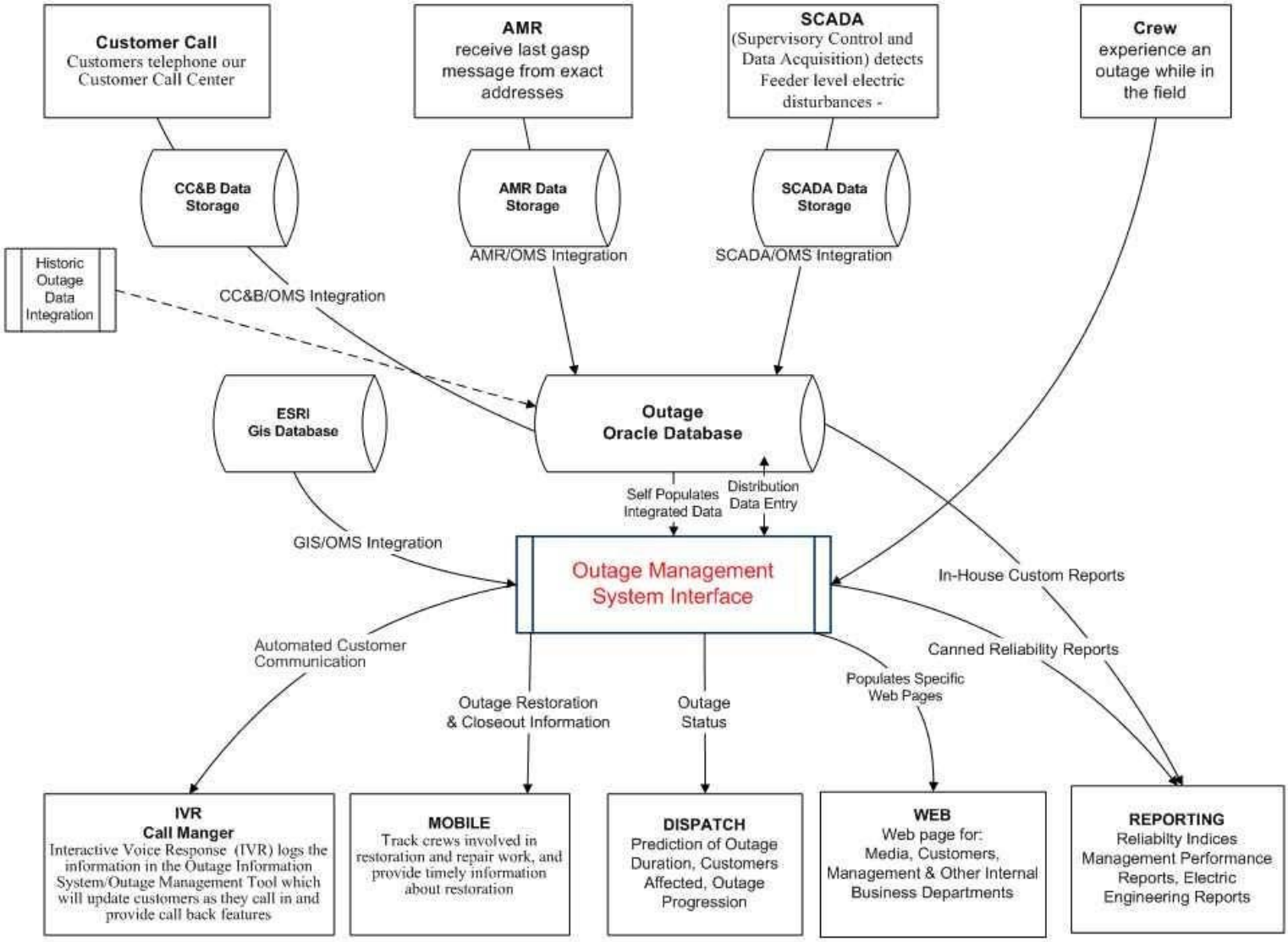
12.0 Security Requirements

Contractor to follow all current Colorado Springs Utilities internal security policies.

Attachment #1 to OMS Statement of Work

Definitions

AMR	Automated Meter Reading
ASAI	Average System Interruption Frequency
CAIDI	Customer Average Interruption Duration Index
CC&B	Customer Care and Billing
CIS	Customer Information System
CSR	Customer Service Representative
GIS	Geographic Information System
GUI	Graphical User Interface
FIMS	Facility Infrastructure Management System
IVR	Interactive Voice Recognition
MDSI	Mobile Data Solutions Inc.
OMS	Outage Management System
RFP	Request for Proposal
RMS	Resource Management System
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
SAT	System Acceptance Testing
SCADA	Supervisor Control and Data Acquisition
SME	Subject Matter Expert
SOW	Scope of Work
SU	Colorado Springs Utilities
TCA	Trouble Call Analysis


Customer Call
Customers telephone our Customer Call Center
AMR
receive last gasp message from exact addresses
SCADA
(Supervisory Control and Data Acquisition) detects Feeder level electric disturbances -
Crew
experience an outage while in the field
CC&B Data Storage
AMR Data Storage
SCADA Data Storage
Historic Outage Data Integration
AMR/OMS Integration
SCADA/OMS Integration
CC&B/OMS Integration
ESRI Gis Database
Outage Oracle Database
Self Populates Integrated Data
Distribution Data Entry
GIS/OMS Integration
Outage Management System Interface
In-House Custom Reports
Automated Customer Communication
Canned Reliability Reports
Populates Specific Web Pages
Outage Restoration & Closeout Information
Outage Status
IVR
Call Manger
Interactive Voice Response (IVR) logs the information in the Outage Information System/Outage Management Tool which will update customers as they call in and provide call back features
MOBILE
Track crews involved in restoration and repair work, and provide timely information about restoration
DISPATCH
Prediction of Outage Duration, Customers Affected, Outage Progression
WEB
Web page for: Media, Customers, Management & Other Internal Business Departments
REPORTING
Reliablity Indices Management Performance Reports, Electric Engineering Reports