OFFICE OF THE CITY ATTORNEY
CHARLES PARKIN, City Attorney
333 West Ocean Boulevard, 11th Floor
Long Beach, CA 90802-4664

AGREEMENT

33559

THIS SOFTWARE IMPLEMENTATION SERVICES AGREEMENT is made and entered, in duplicate, as of September 1, 2014, for reference purposes only, pursuant to a minute order adopted by the City Council of the City of Long Beach at its meeting on June 10, 2014, by and between N. HARRIS COMPUTER CORPORATION, a Canadian corporation ("Consultant"), with a place of business at 1 Antares Drive, Suite 400, Ottawa, Ontario K2E 8C4 , and the CITY OF LONG BEACH, a municipal corporation ("City").

WHEREAS, City requires specialized services requiring unique skills to be performed in connection with the design, installation and administration of an automated meter infrastructure system for natural gas and water meters in the City and the City of Signal Hill ("Project"); and

WHEREAS, City has selected Consultant in accordance with City's administrative procedures and City has determined that Consultant and its employees are qualified, licensed, if so required, and experienced in performing these specialized services; and

WHEREAS, City desires to have Consultant perform these specialized services, and Consultant is willing and able to do so on the terms and conditions in this Agreement; and

WHEREAS, in connection with Consultant's provisions of software and services in furtherance of the Project, City and Consultant have entered into (i) a Software License Agreement dated as of even date herewith ("License Agreement"), and (ii) a Support and Maintenance Agreement dated as of even date herewith ("Maintenance Agreement");

NOW, THEREFORE, in consideration of the mutual terms, covenants, and conditions in this Agreement, the parties agree as follows:

1. SCOPE OF WORK OR SERVICES.

A. Consultant shall furnish certain Software (as defined in the License Agreement) and other specialized services, each as described in the Scope of Work attached hereto as Exhibit "A" to this Agreement and incorporated by this reference, in accordance with the standards of the profession, and City shall pay for these services in the manner described below, not to exceed Nine Hundred Fifty-Six Thousand Three Hundred Eighty-Four Dollars ($956,384), at the rates or charges shown in Exhibit "A".

B. Consultant may select the time and place of performance for these services; provided, however, that access to City documents, records and the like, if needed by Consultant, shall be available only during City's normal business hours and provided that milestones for performance, if any, are met.

C. Consultant has requested to receive regular payments. City shall pay Consultant within thirty (30) days following receipt from Consultant and approval by City of invoices showing the services or task performed, the time expended (if billing is hourly), and the name of the Project. Consultant shall certify on the invoices that Consultant has performed the services in full conformance with this Agreement and is entitled to receive payment. Each invoice shall be accompanied by a progress report indicating the progress to date of services performed and covered by the invoice, including a brief statement of any Project problems and potential causes of delay in performance, and listing those services that are projected for performance by Consultant during the next invoice cycle. Where billing is done and payment is made on an hourly basis, the parties acknowledge that this arrangement is either customary practice for Consultant's profession, industry or business, or is necessary to satisfy audit and legal requirements which may arise due to the fact that City is a municipality.

D. Consultant represents that Consultant has obtained all necessary information on conditions and circumstances that may affect its performance and has conducted site visits, if necessary.

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E. CAUTION: Consultant shall not begin work until this Agreement has been signed by both parties and until Consultant's evidence of insurance has been delivered to and approved by City.

2. TERM. The term of this Agreement shall commence at midnight on (BEGINNING DATE), and shall terminate at 11:59 p.m. on (ENDING DATE), unless sooner terminated as provided in this Agreement, or unless the services or the Project is completed sooner or extended upon mutual agreement in writing by the parties in accordance with Section 14.

3. COORDINATION AND ORGANIZATION.

A. Consultant shall coordinate its performance with City's representative, if any, named in Exhibit "B", attached to this Agreement and incorporated by this reference. Consultant shall advise and inform City's representative of the work in progress on the Project in sufficient detail so as to assist City's representative in making presentations and in holding meetings on the Project. City shall furnish to Consultant information or materials, if any, described in Exhibit "C", attached to this Agreement and incorporated by this reference, and shall perform any other tasks described in the Exhibit.

B. The parties acknowledge that a substantial inducement to City for entering this Agreement was and is the reputation and skill of Consultant's key employee, Michael Brown. City shall have the right to approve any person proposed by Consultant to replace that key employee.

4. INDEPENDENT CONTRACTOR. In performing its services, Consultant is and shall act as an independent contractor and not an employee, representative or agent of City. Consultant shall have control of Consultant's work and the manner in which it is performed. Consultant shall be free to contract for similar services to be performed for others during this Agreement; provided, however, that Consultant acts in accordance with Section 9 and Section 11 of this Agreement. Consultant acknowledges and agrees that (a) City will not withhold taxes of any kind from

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Consultant's compensation; (b) City will not secure workers' compensation or pay unemployment insurance to, for or on Consultant's behalf; and (c) City will not provide and Consultant is not entitled to any of the usual and customary rights, benefits or privileges of City employees. Consultant expressly warrants that neither Consultant nor any of Consultant's employees or agents shall represent themselves to be employees or agents of City.

5. INSURANCE.

A. As a condition precedent to the effectiveness of this Agreement, Consultant shall procure and maintain, at Consultant's expense for the duration of this Agreement, from insurance companies that are admitted to write insurance in California and have ratings of or equivalent to A:V by A.M. Best Company or from authorized non-admitted insurance companies subject to Section 1763 of the California Insurance Code and that have ratings of or equivalent to A:VIII by A.M. Best Company, the following insurance:

i. Commercial general liability insurance (equivalent in scope to ISO form CG 00 01 11 85 or CG 00 01 10 93) in an amount not less than $2,000,000 per each occurrence and $15,000,000 aggregate. This coverage shall include but not be limited to broad form contractual liability, cross liability, independent contractors liability, and products and completed operations liability. City, its boards and commissions, and their officials, employees and agents shall be named as additional insured by endorsement (on City's endorsement form or on an endorsement equivalent in scope to ISO form CG 20 10 11 85 or CG 20 26 11 85), and this insurance shall contain no special limitations on the scope of protection given to City, its boards and commissions, and their officials, employees and agents. This policy shall be endorsed to state that the insurer waives its right of subrogation against City, its boards and commissions, and their officials, employees and agents.

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ii. Workers' Compensation insurance as required by the California Labor Code and employer's liability insurance in an amount not less than $1,000,000. This policy shall be endorsed to state that the insurer waives its right of subrogation against City, its boards and commissions, and their officials, employees and agents.

iii. Professional liability or errors and omissions insurance in an amount not less than $2,000,000 per occurrence.

iv. Commercial automobile liability insurance (equivalent in scope to ISO form CA 00 01 06 92), covering Auto Symbol 1 (Any Auto) in an amount not less than $1,000,000 combined single limit per accident.

B. The Commercial General Liability policy shall be endorsed to state that coverage shall not be canceled except after thirty (30) days prior written notice to City.

C. If this coverage is written on a "claims made" basis, it must provide for an extended reporting period of not less than one hundred eighty (180) days, commencing on the date this Agreement expires or is terminated, unless Consultant guarantees that Consultant will provide to City evidence of uninterrupted, continuing coverage for a period of not less than three (3) years, commencing on the date this Agreement expires or is terminated.

D. Consultant shall require that all subconsultants or contractors that Consultant uses in the performance of these services maintain insurance in compliance with this Section unless otherwise agreed in writing by City's Risk Manager or designee.

E. Prior to the start of performance, Consultant shall deliver to City certificates of insurance and the endorsements as evidence of compliance with the insurance coverage required herein. In addition, Consultant shall, within thirty (30) days prior to expiration of the insurance, furnish to City certificates of insurance and endorsements evidencing renewal of said insurance.

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F. The procuring or existence of insurance shall not be construed or deemed as a limitation on liability relating to Consultant's performance or as full performance of or compliance with the indemnification provisions of this Agreement.

6. ASSIGNMENT AND SUBCONTRACTING. This Agreement contemplates the personal services of Consultant and Consultant's employees, and the parties acknowledge that a substantial inducement to City for entering this Agreement was and is the professional reputation and competence of Consultant and Consultant's employees. Consultant shall not assign its rights or delegate its duties under this Agreement, or any interest in this Agreement, or any portion of it, without the prior approval of City, except that Consultant may with the prior approval of the City Manager of City, assign any moneys due or to become due Consultant under this Agreement. Despite the foregoing, Consultant may assign this Agreement, with notice to City, to a successor entity in the event of Consultant's dissolution, acquisition, sale of substantially all of its assets, merger or other change in legal status. This Agreement shall inure to the benefit of and be binding upon the parties to this Agreement and their respective successors and permitted assigns. Any attempted assignment or delegation that is not in accordance with this Section 6 shall be void, and any assignee or delegate shall acquire no right or interest by reason of an attempted assignment or delegation. Furthermore, Consultant shall not subcontract any portion of its performance without the prior approval of the City Manager or designee, or substitute an approved subconsultant or contractor without approval prior to the substitution. Nothing stated in this Section shall prevent Consultant from employing as many employees as Consultant deems necessary for performance of this Agreement.

7. CONFLICT OF INTEREST. Consultant, by executing this Agreement, certifies that, at the time Consultant executes this Agreement and for its duration, Consultant does not and will not perform services for any other client which would create a conflict, whether monetary or otherwise, as between the interests of City

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and the interests of that other client. And, Consultant shall obtain similar certifications from Consultant's employees, subconsultants and contractors.

8. MATERIALS. Consultant shall furnish all labor and supervision, supplies, materials, tools, machinery, equipment, appliances, transportation and services necessary to or used in the performance of Consultant's obligations under this Agreement, except as stated in Exhibit "C".

9. OWNERSHIP.

A. All materials, information and data furnished to Consultant by or on behalf of City in connection with this Agreement, including but not limited to documents, estimates, calculations, studies, maps, graphs, charts, computer disks, samples, models, reports, summaries, drawings, designs, notes, plans, information, material and memorandum ("Data") shall be and remain the exclusive property of City. Copies of Data may be retained by Consultant but Consultant warrants that Data shall not be made available to any person or entity (other than Consultant's affiliates for use in the performance of this Agreement) for use without the prior approval of City. This warranty shall survive termination of this Agreement for five (5) years. All copies of the Software (in any form) and related documentation provided by or on behalf of Consultant are the sole property of Consultant. City shall not have any right, title, or interest to any such Software, related documentation or copies thereof except as expressly provided in this Agreement, and shall take all reasonable steps to secure and protect all Software and related documentation consistent with maintenance of Consultant 's proprietary rights therein.

B. The parties agree that no materials or documents are being created for City by Consultant under this Agreement as of the effective date. All materials and documents which were developed or prepared by Consultant for general use and which are not the copyright of any other party or publicly available, including educational materials, the Software and any other computer

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applications, shall continue to be the property of Consultant. Only where City requests custom materials or documents, then upon the agreement of the parties in writing as evidenced by a duly executed scope of work, City shall be the exclusive owner of all such custom materials and documents which are developed or prepared by Consultant specifically for City so long as such customer materials and documents are specifically described as being deliverables that are subject to this subsection in the relevant scope of work, except to the extent to which such materials or documents may contain pre-existing Consultant materials, in which case the scope of work will describe the license for such pre-existing Consultant materials.

10. TERMINATION.

A. Either party shall have the right to terminate this Agreement for any reason or no reason at any time by giving sixty (60) calendar days prior notice to the other party. In the event of termination under this Section, City shall pay Consultant for services satisfactorily performed and costs incurred up to the effective date of termination, including any non-refundable expenses incurred in accordance with this Agreement, for which Consultant has not been previously paid. The procedures for payment in Section 1.B. with regard to invoices shall apply. On the effective date of termination, Consultant shall deliver to City all Data in its possession whether in draft or final form, or in process. Consultant acknowledges and agrees that City's obligation to make final payment is conditioned on Consultant's delivery of the Data to City.

B. If Consultant should fail to perform the services set forth in the Scope of Work properly, or otherwise fail to comply with of its obligations under this Agreement, City shall notify Consultant in writing of such default (a "Default Notice"). Upon receipt of a Default Notice, Consultant must correct the default at no additional cost to City, or issue a written notice of its own disputing the alleged default, in either case within thirty (30) days immediately following receipt of a

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Default Notice. If Consultant fails to correct the default, or issue a notice disputing the alleged default, in either case within ninety (90) days following receipt of the Default Notice, City may terminate the whole of this Agreement or the part of this Agreement relating to the provision of services and in such case will be responsible for payment to Consultant of only that part of the fee earned by Consultant for those services performed up to the time of communication of such notice of termination to Consultant.

C. If City should fail to comply with its obligations under this Agreement, Consultant shall notify City in writing of such default (a "Default Notice"). Upon receipt of a Default Notice, City must correct the default at no additional cost to Consultant, or issue a written notice of its own disputing the alleged default, in either case within thirty (30) days immediately following receipt of a Default Notice. If City fails to correct the default, or issue a notice disputing the alleged default, in either case within ninety (90) days following receipt of the Default Notice, Consultant may terminate the whole of this Agreement and in such case City will be responsible for payment to Consultant of only that part of the fee earned by Consultant for that part of the services performed in accordance with this Agreement up to the time of communication of such notice of termination to City.

11. CONFIDENTIALITY. Consultant shall keep all Data confidential and shall not disclose the Data or use the Data directly or indirectly, other than in the course of performing its services, during the term of this Agreement and for five (5) years following expiration or termination of this Agreement.. Consultant shall not disclose any or all of the Data to any third party, or use it for Consultant's own benefit or the benefit of others except for the purpose of this Agreement. Despite the foregoing, Consultant may disclose Data to its affiliates, provided that such affiliates will be bound to keeps such Data confidential in accordance with this Section.

12. BREACH OF CONFIDENTIALITY. Consultant shall not be liable for

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a breach of confidentiality with respect to Data that: (a) Consultant demonstrates Consultant knew prior to the time City disclosed it; or (b) is or becomes publicly available without breach of this Agreement by Consultant; or (c) a third party who has a right to disclose does so to Consultant without restrictions on further disclosure; or (d) must be disclosed pursuant to subpoena or court order.

13. ADDITIONAL COSTS AND REDESIGN.

A. Any costs incurred by City due to Consultant's failure to meet the standards required by the Scope of Work or Consultant's failure to perform fully the tasks described in the Scope of Work which, in either case, causes City to request that Consultant perform again all or part of the Scope of Work shall be at the sole cost of Consultant and City shall not pay any additional compensation to Consultant for its re-performance.

B. Intentionally left blank.

14. AMENDMENT. This Agreement, including all Exhibits, shall not be amended, nor any provision or breach waived, except in writing signed by the parties which expressly refers to this Agreement.

15. LAW. This Agreement shall be governed by and construed pursuant to the laws of the State of California (except those provisions of California law pertaining to conflicts of laws). Consultant shall comply with all laws, ordinances, rules and regulations of and obtain all permits, licenses and certificates required by all federal, state and local governmental authorities.

16. ENTIRE AGREEMENT. This Agreement including all Exhibits thereto, collectively constitute the entire understanding between the parties and supersede all other agreements, oral or written, with respect to the subject matter in this Agreement.

17. INDEMNITY. Subject to Section 30, Consultant shall, with respect to services performed in connection with this Agreement, indemnify and hold harmless City, its Boards, Commissions, and their officials, employees and agents (collectively in this

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Section, "City") from and against any and all liability, claims, allegations, demands, damage, loss, causes of action, proceedings, penalties, costs and expenses (including attorney's fees, court costs, and expert and witness fees) (collectively "Claims" or individually "Claim") arising, directly or indirectly, in whole or in part, out of any negligent act or omission of Consultant, its officers, employees, agents, sub-consultants or anyone under Consultant's control (collectively "Indemnitor"), breach of this Agreement by Indemnitor, misrepresentation or willful misconduct by Indemnitor, and Claims by any employee of Indemnitor relating in any way to workers' compensation. This indemnity is only effective where (i) City has provided prompt notice of the claim, action or demand to Consultant, (ii) City has not made any admissions of liability or settlement offers either prior to or after providing notice to Consultant of the applicable claim except with Consultant's prior written consent, except to the extent required by applicable law, (iii) Consultant has sole control of the defense of any claim or proceeding and all negotiations for its compromise or settlement; (iv) City provides reasonable assistance to Consultant, at Consultant's expense, throughout the action or proceeding, and (v) City has not modified the Software in any manner whatsoever except where permitted under this Agreement, or with the prior written consent of Consultant. Any breach by City of its covenants under this Section 17 shall nullify this indemnity. City may, at City's sole cost and expense – which is outside the scope of this indemnity – retain counsel of its own choosing who shall be permitted to attend all settlement conferences and hearings or other court appearances (except where the court has specifically made an order against such attendance) related to the proceeding. Consultant will not settle or compromise any applicable claim or consent to the entry of any judgment that (i) adversely affects any of the rights of the City, (ii) imposes any obligations on the City, (iii) imposes any costs on the City that are not indemnified by Consultant, or (iv) would admit fault by the City.

18. AMBIGUITY. In the event of any conflict or ambiguity between this Agreement and any Exhibit, the provisions of this Agreement shall govern.

19. COSTS. If there is any legal proceeding between the parties to

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enforce or interpret this Agreement or to protect or establish any rights or remedies under it, the prevailing party shall be entitled to its costs, including reasonable attorneys' fees.

20. NONDISCRIMINATION.

A. In connection with performance of this Agreement and subject to applicable rules and regulations, Consultant shall not discriminate against any employee or applicant for employment because of race, religion, national origin, color, age, sex, sexual orientation, gender identity, AIDS, HIV status, handicap or disability. Consultant shall ensure that applicants are employed, and that employees are treated during their employment, without regard to these bases. These actions shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

B. It is the policy of City to encourage the participation of Disadvantaged, Minority and Women-Owned Business Enterprises in City's procurement process, and Consultant agrees to use its best efforts to carry out this policy in its use of subconsultants and contractors to the fullest extent consistent with the efficient performance of this Agreement. Consultant may rely on written representations by subconsultants and contractors regarding their status. City's policy is attached as Exhibit "D" to this Agreement. Consultant shall report to City in May and in December or, in the case of short-term agreements, prior to invoicing for final payment, the names of all subconsultants and contractors hired by Consultant for this Project and information on whether or not they are a Disadvantaged, Minority or Women-Owned Business Enterprise, as defined in Section 8 of the Small Business Act (15 U.S.C. Sec. 637).

21. NOTICES. Any notice or approval required by this Agreement shall be in writing and personally delivered or deposited in the U.S. Postal Service, first class, postage prepaid, addressed to Consultant at the address first stated above, and to City at

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333 West Ocean Boulevard, Long Beach, California 90802, Attn: City Manager, with a copy to the City Engineer at the same address. Notice of change of address shall be given in the same manner as stated for other notices. Notice shall be deemed given on the date deposited in the mail or on the date personal delivery is made, whichever occurs first.

22. COPYRIGHTS AND PATENT RIGHTS. In the event there is a third party claim against City alleging that City's use of the Software in accordance with this Agreement constitutes an infringement of a Canadian or United States patent, copyright, trade-mark or trade secret or other intellectual property, Consultant shall, at its expense, defend and indemnify City and pay any final judgment (including all damages awarded against City) against City or settlement agreed to by Consultant on City's behalf. This indemnity is only effective where (i) City has provided prompt notice of the claim, action or demand, (ii) City has not made any admissions of liability or settlement offers either prior to or after providing notice to Consultant of the applicable claim except with Consultant's prior written consent, unless otherwise required by law, (iii) Consultant has sole control of the defense of any claim or proceeding and all negotiations for its compromise or settlement; (iv) City provides reasonable assistance to Consultant, at Consultant's expense, throughout the action or proceeding; and (v) City has not modified the Software in any manner whatsoever except where permitted under this Agreement, or with the prior written consent of Consultant. Any breach by City of its covenants under this Section 22 shall nullify this indemnity. The foregoing states Consultant's entire liability, and City's exclusive remedy, with respect to any claims of infringement of any copyright, patent, trade-mark, trade secret or other property interest rights relating to the Software, or any part thereof or use thereof. City may, at City's sole cost and expense—which is outside the scope of this indemnity—retain counsel of its own choosing who shall be permitted to attend all settlement conferences and hearings or other court appearances (except where the court has specifically made an order against such attendance) related to the proceeding. Consultant will not settle or compromise any

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applicable claim or consent to the entry of any judgment that (i) adversely affects any of the rights of City, (ii) imposes any obligations on City, (iii) imposes any costs on City that are not indemnified by Consultant, or (iv) would admit fault by City. If any Software or portion of the Software is finally adjudged to infringe, or in Consultant's opinion is likely to become the subject of such a Claim, Consultant shall, at City's option, either: (i) procure for City the right to continue using the Software; or (ii) modify or replace the Software to make it non-infringing.

23. COVENANT AGAINST CONTINGENT FEES. Consultant warrants that Consultant has not employed or retained any entity or person to solicit or obtain this Agreement and that Consultant has not paid or agreed to pay any entity or person any fee, commission or other monies based on or from the award of this Agreement. If Consultant breaches this warranty, City shall have the right to terminate this Agreement immediately notwithstanding the provisions of Section 10 or, in its discretion, to deduct from payments due under this Agreement or otherwise recover the full amount of the fee, commission or other monies.

24. WAIVER. The acceptance of any services or the payment of any money by City shall not operate as a waiver of any provision of this Agreement or of any right to damages or indemnity stated in this Agreement. The waiver of any breach of this Agreement shall not constitute a waiver of any other or subsequent breach of this Agreement.

25. CONTINUATION. Termination or expiration of this Agreement shall not affect rights or liabilities of the parties which accrued pursuant to Sections 7, 10, 11, 17, 19, 22 and 28 prior to termination or expiration of this Agreement.

26. TAX REPORTING. As required by federal and state law, City is obligated to and will report the payment of compensation to Consultant on Form 1099-Misc. Consultant shall be solely responsible for payment of all federal and state taxes resulting from payments under this Agreement. Consultant's Employer Identification Number is 98 0141520. If Consultant has a Social Security Number rather than an

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Employer Identification Number, then Consultant shall submit that Social Security Number in writing to City's Accounts Payable, Department of Financial Management. Consultant acknowledges and agrees that City has no obligation to pay Consultant until Consultant provides one of these numbers.

27. ADVERTISING. Consultant shall not use the name of City, its officials or employees in any advertising or solicitation for business or as a reference, without the prior approval of the City Manager or designee.

28. AUDIT. City shall have the right at all reasonable times during the term of this Agreement and for a period of five (5) years after termination or expiration of this Agreement to examine, audit, inspect, review, extract information from and copy all books, records, accounts and other documents of Consultant relating to this Agreement.

29. THIRD PARTY BENEFICIARY. This Agreement is not intended or designed to or entered for the purpose of creating any benefit or right for any person or entity of any kind that is not a party to this Agreement.

30. LIMITATION OF LIABILITY. Termination of this Agreement shall not affect any right of action of either party arising from anything which was done or not done, as the case may be, prior to the termination taking effect. The City and Consultant recognize that circumstances may arise entitling the City to damages for breach or other fault on the part of Consultant arising from this Agreement. The parties agree that in all such circumstances the City's remedies and Consultant's liabilities will be limited as set forth below and that these provisions will survive notwithstanding the termination or other discharge of the obligations of the parties under this Agreement.

A. Except for damages arising out of (a) either Party's breach of its confidentiality obligations, (b) either Party's intentional misrepresentation, gross negligence or willful misconduct, (c) injury or death to persons, (d) damage to tangible or real property, or (e) Consultant's indemnification obligations set forth in Section 22, both Parties agree that the aggregate liability of Consultant to City for all claims, suits, actions and proceedings howsoever arising, directly or indirectly,

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under or relating to this Agreement or its subject matter, including those based on breach or rescission of contract, tort, breach of trust, or breach of fiduciary duty shall not exceed, in the aggregate, the fees paid to Consultant pursuant to the relevant Scope of Work.

B. In addition to the foregoing, neither Party shall be liable to the other for any claims for consequential damages, incidental damages, indirect damages, special damages, aggravated damages, loss of revenue, loss of profits, failure to realize expected savings, loss of data, loss of business opportunity either under or relating to this Agreement or its subject matter, whether based on breach or rescission of contract, tort, breach of trust, or breach of fiduciary duty even if such other party has been advised of the likelihood of the occurrence of such damages and notwithstanding any failure of essential purpose of any limited remedy.

C. The Parties hereby confirm that the waivers and disclaimers of liability, releases from liability, limitations and apportionments of liability, and exclusive remedy provisions expressed throughout this Agreement shall apply even in the event of default, negligence (in whole or in part), strict liability or breach of contract of the person released or whose liability is waived, disclaimed, limited, apportioned or fixed by such remedy provision, and shall extend to such person's affiliates and to its shareholders, directors, officers, employees and affiliates.

IN WITNESS WHEREOF, the parties have caused this document to be duly executed with all formalities required by law as of the date first stated above.

N. HARRIS COMPUTER CORPORATION,
a Canadian corporation

September 1, 2014

By _____
Name Chris J. Lewis
Title Executive Vice President

_____, 2014

By _____

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Name_____
Title_____

"Consultant"

CITY OF LONG BEACH, a municipal corporation

October 17, 2014

By Assistant City Manager
City Manager

EXECUTED PURSUANT TO SECTION 301 OF THE CITY CHARTER.

"City"

This Agreement is approved as to form on October 9, 2014.

CHARLES PARKIN, City Attorney

By _____
Deputy

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Exhibit "A"

Scope of Work

MeterSense & SmartWorks Compass Statement of Work

CustomerConnect Statement of Work

Statement of Work

Meter Data Management (MeterSense)

Presented to
City of Long Beach
Long Beach Gas and Oil

September 1, 2014
Version: 0.4

www.metersense.com

Revision Control

Document Title: MeterSense_SOW_Long_Beach
Meter Data Management Solution (MeterSense)
Author: Harris Utilities SmartWorks

Version	Date	Author	Details / Comments
Version 0.1	2014.04.04	C.Craig	Initial Draft
Version 0.2	2014.05.07	M.Brown	Updates per review with Customer
Version 0.3	2014.06.26	M.Brown	Updates per review with Customer
Version 0.4	2014.09.24	B.Robinson	Final Version

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Contents

1 INTRODUCTION

This Statement of Work (SOW) defines the work to be performed by the Harris Utilities, SmartWorks division of N.Harris Computer Corporation (Herein referred to as "Consultant") for Long Beach Gas & Oil (Herein referred to as "Customer"). This SOW includes a high level timeline, fees, and other Terms and Conditions specific to the services requested by Customer.

This document serves as the complete understanding, between Customer and Consultant, as to what the current Statement of Work entails. This document will be used as a reference by Consultant for the configuration and implementation of MeterSense MDM. This document will also be used by Customer to determine if MeterSense provides the functionality requested and agreed to, per this document. If there are any issues during the project lifecycle, this document will be used to determine if the issue is a configuration/development issue or if the issue was not included as part of the current Statement of Work.

Changes to this document shall be made through a Change Management Process as described Section 4.3.

The MeterSense MDM implementation project will accomplish the following high level objectives:

1. Install, configure and implement the MeterSense Solution as defined in this document.
2. This solution will be installed at the Sensus Data Center.
3. Initiate the collection and management of interval data from AMI Meters within MeterSense.
4. Integrate with Sensus AMI, CC&B CIS, and to provide the necessary meter, event, and billing data as required.
5. Deliver system training designed to develop competency with the use and configuration of the MeterSense solution.

1.1 Glossary of Terms

Acceptance Testing Period	has the meaning given in Section 4.4.1.
Actual Solution Acceptance Date	has the meaning given in Section 4.4.1.
Billing Determinant	The measure of consumption used to calculate a customer's bill. A billing determinant is either; • A register read; or A value calculated by the MDM for billing purposes based on interval and/or register read data. If rates are blocked, seasonally differentiated, time-differentiated, or separated by demand and energy measures, then the billing determinants are organized in the same fashion.
Change Management Process	the process outlined in section 3.3 of the SOW, which Consultant will follow for any proposed changes to the SOW.

Correction Period	has the meaning given in Section 4.4.1
Deliverable	an item created during the engagement that requires formal review and approval by the customer.
Deliverable Acceptance Criteria	Has the meaning given in Section 4.5.
Deliverable Acceptance Criteria Document	Has the meaning given in Section 4.5.
Detailed Project Plan	a plan jointly created and base lined by Customer and Consultant during the Initiation/Definition phase of the project, which establishes the implementation timeline (including certain milestones) for the project.
Expected Solution Acceptance Date	The date, identified in the Detailed Project Plan, by which the Parties expect Solution Acceptance to be achieved.
Functional Testing (Systems Acceptance Testing)	has the meaning given in Section 5.4.
Go-Live Plan Document	a Deliverable identifying and describing the activities to be performed during the Go-Live phase of the project.
Integration Testing	has the meaning given in Section 5.4.
Interval Read Data	A meter read showing the consumption over a defined period of time, or interval, normally 1 hour, 30 minutes, 15 minutes or 5 minutes. Typical units of measure include kilowatt-hours (kWh) for electric meters, Gallons/cubic foot or cubic meter for water meters or CCF for gas meters.
MeterSense MDM	the software being implemented for this project.
Register Read Data	A value provided by the meter that is shown on the meter's faceplate, and hence can be validated by the customer by visual inspection of the meter. This can include: • Cumulative Consumption Register Read – total measured consumption since the meter was manufactured or refurbished (Typical units of measure include kilowatt-hours (kWh) for electric meters, Gallons/cubic foot or cubic meter for water meters or CCF for gas meters.) • Electricity Demand Register Read (peak kW value measured on the meter since the last time it was reset) • Time of Use Consumption Register (total consumption during a specific time of use window)
User Acceptance Testing (UAT)	has the meaning given in Section **Error! Reference source not found.**.

1.2 Related Documents

Related documents to the SOW are:

1. This Statement of Work is Schedule "A" of the IMPLEMENTATION SERVICES AGREEMENT BETWEEN N. HARRIS COMPUTER CORPORATION and CITY OF LONG BEACH

2 Project Scope

The scope of this statement of work is to implement the MeterSense MDM solution for Customer and to train the key people on the operation of the Solution. Customer will procure and install their respective advanced meters and supporting network infrastructure. The MeterSense Installation will be run in parallel with the CustomerConnect software installation, terms of which are disclosed in a separate document.

2.1 Software Modules

The following SmartWorks Modules will be installed and configured as part of the scope of this engagement:

- SmartWorks Framework and Integration Adaptors
- MeterSense MDM v4.1
- SmartWorks Compass v4.1, includes: Process Automation Module All other Compass Modules are future options (Task Manager, Weather, Distribution Optimization, Rate and Revenue Analysis, Forecasting, and KPI Dashboard)
- AMI Connector (Sensus RNI 3.1)
- CIS Connector (Oracle CC&B v2.3)

Consultant will deploy two instances of the SmartWorks application at the Sensus Data Center: 1 Test instance and 1 Production instance. MeterSense will be capable of importing, processing and storing twenty four (24) months of interval data for residential meters from 160,000 Gas meters (Long Beach), 3,500 Water meters (Signal Hill) and will be sized appropriately to manage this volume of data. An archive and purge process will be used for data older than 24 months. Archived data will be recoverable. A user will be able to select a meter or location and recover all historical data back into MeterSense. The Data will then be in the system available for all graphs, tables, reports or any analysis.

Significant changes in meter data volume (e.g., the addition of Long Beach Water) would require a review by Consultant of hardware and software requirements as well as system configuration and may require additional license and services fees.

The Test instance of MeterSense will integrate to a test instance of CC&B CIS. Customer will provide a snapshot of meter data from the Head End System for use in the test environment. This will allow Consultant to perform testing and development on all functions except remote meter actions.

During project Go-Live activity, MeterSense and Compass will be ported to a production instance and integration with the production instance of the CIS will be established. Up to three months of historic meter data will be collected from the AMI Head End System through historic meter read files.

A set of test meters in the production environment will be defined by Customer as being eligible for testing disconnect/reconnect functionality.

2.2 Core MDM Functionality

At the end of the implementation Consultant will have delivered MeterSense MDM and software with the following functionality:

2.2.1 MeterSense Core Functionality

- Receive and load Meter Reads using a CMEP file format;
- Interval and Register Read data reporting;
- Store, manage and maintain data;
- Provide auditing of all changes to data;
- "Validate, edit and estimate Meter Reads. MeterSense will validate a 24 hour period of interval and register read data for Customer's entire meter population within 3 hours of receipt of the interval data files. MeterSense will also estimate interval reads at this time based on actual register reads. The performance metric assumes that the MeterSense servers and Oracle database are properly tuned and optimized for performance with the assistance of MeterSense, and there are no bottlenecks caused by competing processes, bandwidth issues, or an abnormally slow data storage subsystem (i.e. SAN). Parameters for each routine can be set at the Meter Type and Location Class levels. MeterSense will provide the following VEE functionality:"

Validation Routines

Routine Name	Description
Interval Flags Validation Routine	This routine checks for specific meter events that occurred in the interval, such as Test Mode, Pulse Overflow, Time Changes, Meter Diagnostics, or Reverse Energy. The AMI Config Parameter: "IntervalFlagsMessages" is used by the check to determine if a meter event should cause a validation failure. This AMI Config Parameter is a comma-separated list of strings, and if any one of these values matches the meter event type or comment, the interval will fail validation.
Future Date Validation Routine	This routine checks that the timestamp of the read (interval or register) is not later than the time at which it is received - i.e. future date. The parameter is a tolerance value in hours.
Interval Length Validation Routine	This routine checks that the interval time for the raw meter read data matches the configured meter interval length.
UOM Validation Routine	This routine checks that the reported unit of measure for the raw meter read data matches the configured meter unit of measure.
MaxDemand Validation Routine	This routine sets a maximum threshold value for an hourly interval's KWH read.
Register-Increasing Validation Routine	This routine checks that the register read for consumptive channels only increases and does not decrease. The parameter is

	a tolerance value.
SpikeCheck Validation Routine	This routine checks a block of interval data (values between two register reads) to see if there is a spike in the data. For this check to identify a spike, the following conditions must both be met: 1. The Nth highest value in the block (where N is a configurable parameter. N is typically set to "3") must exceed an absolute threshold (defined by an independent configurable parameter). This threshold is defined in the standard units of measure of the meter. • The Spike factor is calculated as the difference between the highest and Nth highest values, divided by the Nth highest value. The spike factor must be greater than the spike factor threshold (defined by a third independent configurable parameter).
SumCheck Validation Routine	This routine validates each read as follows: 2. The first available register read following and preceding the interval read are determined. 3. Next, the sum of all available interval reads between the register reads is calculated. This sum should equal the difference in register reads. The routine parameters define a tolerance threshold. If the sum of the interval reads does not match the register read differential within the specified tolerances, the interval read will fail validation. Thresholds can be defined in absolute values and/or as a percentage.
ZeroDuration Validation Routine	This routine defines the number of successive hours of zero reads are permitted. For most industrial and some commercial electric meters, zero reads are not expected. For residential meters, zero reads are common, so only after the specified number of successive zero consumption hours would the reads start to fail validation. For water meters, prolonged zero durations will be common (i.e. during vacations) and a much longer duration should be used. This routine can be configured to define a number of successive zeros that is permitted. It can also be configured to exempt meters with a power status of "OFF" (For example, meters that have power cut for non-pay or meters at vacant locations where the power is shut off could exempted from this routine).
WattVar Validation Routine	For polyphase meters, this routine calculates the power factor from the KWH and KVARH or KVAH interval reads, and checks that the power factor value is within specified low and/or high thresholds.
High Low Check	This routine checks that the reported value for the register read is within a percentage threshold of the historic average for the meter. This validation is performed on consumption channels

	only. The routine can also be configured to account for seasonal weight. The routine can be configured to compare the reading to the previous month or to the same month last year (if available). The routine can also be configured to compare to a weighted average of these two months.
High Low Demand Check	This routine checks that the reported value for the register read is within a percentage threshold for the historic average. This validation is performed on demand channels only.

2.3 Integrations

Consultant will provide advice and recommendations regarding our experience and leading practice. However, we expect that Customer will act as or provide a systems integrator who will be responsible for overseeing the entire integration component of this project.

Consultant will make a reasonable attempt to provide sufficient lead time when making requests for assistance from third party vendors. When deemed appropriate by Customer, Consultant will also work directly with third party vendors if direct communication will result in efficient execution of the project.

However, the systems integrator will be ultimately responsible for securing, as required and in a timely fashion, the assistance and cooperation of third party vendors. A change order may be required if the third party vendor is unavailable or non-cooperative and causes an impact to the project schedule or effort.

Any version changes to integrating systems that occur during the project will be reviewed by Consultant and may require a change order if integration updates or re-testing activities are required.

The following Integrations are included in the project scope:

2.3.1 AMI Head End System (Sensus FlexNet Version 3.1)

MeterSense MDM will integrate with Regional Network Interface (RNI) (the AMI Head End System) to:

- Import of the current day's readings as well as older reads that were previously missed. Interval and register read data will be received from RNI using a CMEP file format
- Import of meter event data from RNI using a CMEP file format or MultiSpeak® methods if available. Specific alarms will be defined between Sensus and Customer.
  Where the functionality is supported by the Sensus meters or compatible others, MeterSense will integrate with the RNI to perform On-Demand reads and Remote Connects & Disconnects using MultiSpeak® methods or a mutually agreeable API call.

If CMEP files are used for providing meter data, the files are expected to be delivered by 5:00am or an agreed upon time suitable to consultant and customer in order for MeterSense to perform the VEE process. The RNI may deliver files at multiple times during the day in order to collect the maximum amount of meter data.

It is assumed that the RNI version 3.1 will be installed on the Customer system in time for Consultant to perform its development and testing activities.

2.3.2 Customer Information System (CIS) (CC&B CIS version 2.3)

In collaboration with Customer or Customer's agent(s), Consultant will provide the following integrations with Customer's CIS.

MeterSense/CIS Synchronization Integration

Import of customer and meter data into MeterSense for validation of AMI data. A daily full periodic synchronization activity will occur.

The minimum information to be provided from the CIS will include the following:

- List of meters with identifiers, meter types, etc.
- It is expected that when a radio is installed or removed from a meter, a cross reference between meter ID and associated radio ID will be maintained in the CIS
- List of location(account) numbers, service addresses
- Meter latitude and longitude information
- A date-driven cross reference between meter and location number (i.e. when a meter is installed and removed from a location)
- Customer ID/Location ID.
- List of account number, addresses, list of meters, Account class/billing cycles information/billing schedules.
- A date-drive cross reference between accounts and locations (i.e. when an account is active and inactive at a particular location / locations)

This integration will be established using a flat file that will be imported into the MeterSense MDM.

The file will be developed by the CIS vendor or another agent of Customer. Depending on Customer requirements, the synchronization will occur between 1 to 3 times per day and will be scheduled to occur after the Customer database has been updated.

Billing Interface:

Customer will bill using register reads, not time based determinants.

Customer will use the MeterSense billing interface, which makes use of an MV-RS file format. The MV-RS file will be created in the CIS and uploaded to an ftp/sftp site using CIS processes. MeterSense will be configured to automatically update the file with reads and place it on an ftp/sftp site for download back to the CIS.

MeterSense will also support Customer's Net Billing functionality. Net billed customers have meters with two registers. For these customers, the MV-RS file will contain records for both registers and MeterSense will provide the information for each register. MeterSense will not perform the activity to

calculate a net usage. The billing request file must differentiate which reading is being requested (delivered or received), as well as specify the unit of measure requested.

If there are multiple units of measure expected for billing (IE CCF, MCF), these need to be identified in the request file from the CIS.

2.3.3 Geographic Information System (GIS) Integration

MeterSense will be configured so that MeterSense data will be overlaid on top of one or more ESRI "Base Maps" via url live link. With this capability, the Customer will be able to view MeterSense data together with their other data layers within MeterSense.

This scope of integration assumes Customer is hosting ESRI on a web server and can provide a URL.

Import meter latitude and longitude information if this information is not available in the CIS. A daily full periodic synchronization activity will occur.

This integration will be established using a flat file or database view.

The file or view will be developed by the GIS vendor or another agent of Customer. Depending on Customer requirements, the synchronization will occur between 1 to 3 times per day and will be scheduled to occur after the Customer database has been updated.

Any further GIS integration is not included in the scope of services for this project.

2.3.4 Weather Integration

MeterSense MDM will integrate weather data services with daily feed of observed weather data received from the Weather Network weather station determined to be closest to Customer's location.

The following weather data, if provided by the weather station, will be imported into MeterSense:

- Temperature (Hourly)
- Humidity (Hourly)
- Wind Speed (Hourly)
- Wind Direction (Hourly)
- Weather Conditions (Hourly)
- Precipitation (Daily)

This data is automatically downloaded from MeterSense's data provider for a weather station or stations in the customer's service area, and is automatically inserted into the MeterSense database.

2.4 Reporting

The following standard reports will be available in MeterSense and are applicable to this project:

Routing/Maps

- Map: Collectors Only
- Map: 30 days since last comm.
- Map: 14 days since last comm.
- Map: Current Power Outages
- Map: Transformer Meters

Communications

- Meter Non-Communication Summary
- Meter Non-Communication Listing
- Meter Intermittent Communications Summary
- Meter Intermittent Communications Listing

Meter Problems

- Unknown Meters Report
- Interval No Register Report
- Register No Interval Report
- Meters Missing Register Reads
- Meters Missing Interval Reads
- Register Reads Per Day
- Meters with Estimated Intervals
- Vacant Consumption Report
- Zero Consumption Report
- List Meters Failing Validation

Meter Reads

- AMI Service Levels
- Register Status Report
- Interval Status Report
- Register Validation Failures
- Interval Validation Failures

Meter Events

- Meter Event Query
- Event Type Summary

Outages

- Outage Listing
- Outage Statistics

Conservation

- Leak Events

Billing

- Billing Results Summary
- Billing Results Details

2.5 Rules

The MeterSense rules engine is a highly configurable and flexible tool that utilities can use to automate business processes and to leverage data from AMI and other integrated systems for improved analytics. Its pluggable component-based design provides a framework for the automation of complex business rules.

The interface to the rules engine, the rules editor, is used for the creation, management and editing of rules. The rules editor includes graphical user interface where components are dragged and dropped into a workflow. Parameters for each component are defined using SQL queries.

At the conclusion of this project, rules can be created and implemented by Customer. For a fee, Consultant can provide additional training or services for the development and implementation of rules.

Custom Workflow Rules

Included in this project scope, Consultant will deliver, install, configure, and test the following Rules/functionality:

- No Custom rules were identified at the time of writing this Statement of work. If, during the project, Customer identifies custom rules for Consultant to build, the change management process identified in section 4.3 can be used to bring these new rules into scope.

2.6 Training

Consultant will deliver the following training courses:

MeterSense Training – Overview Session (1/2 day)

The MeterSense Overview Training is held with the core user group at the beginning of the implementation project, as part of the Solution Definition phase. The objective of the overview session is to introduce the users to the MeterSense project and walk through the basic functionality of the system. This is one of the activities used to define the configuration specific to each client. This session may be delivered by a remote trainer via WebEx. However, MeterSense will provide an onsite facilitator during the session.

MeterSense Training – Functional Process (3 days onsite)

During the Functional and Process Training, up to 10 users will be provided training on the MeterSense solution. System Navigation will be reviewed as well as the main business functions of the solutions. Training will also include system administration and maintenance. Following the functional training, the Business processes and use cases applicable to Customer will be reviewed.

The Functional and Process Training will include a Rules Engine module. This is a technical module on rules development designed to enable participants to become familiar with the functionality of the Rules Engine. This module is of particular interest to department leads, who will identify opportunities for business process optimization and become a rules champion. The topics include:

1. Overview of Rules Engine as a tool, Lifecycle of a Rule, Rule Components
2. Using the Rules Engine to run rules and evaluate the results

Topics typically covered in this training include:

- MeterSense Overview
- Administrator Functions
- Data Setup
- Meter Reads & Validating, Estimating, Editing – VEE
- Using Maps and Reports
- Advanced Reporting
- System Administration
- Billing & Customer Service Functions
- Task Manager
- Rules Engine Overview

2.7 Deliverables

The following list identifies the key deliverables associated with this project:

- Functional and Integration Requirements Document
- MeterSense Testing Plan
- MeterSense installation
- MeterSense configuration
- MeterSense integration
- MeterSense Training Delivered

The following list identifies the key work product documentation associated with this project:

- Solution Design Document
- Acceptance Criteria Document
- MeterSense Test Cases
- Go-Live Approach Document
- MeterSense Test Results
- Configuration documentation describing the "As-Built" configured condition after Go-Live
- Product user guides and training material

2.8 Areas Out of Scope

Anything in this section and not listed in the above "Areas within Scope" is considered out of scope for this SOW. Specific items that are currently out of scope of this engagement include:

- Development and implementation of custom reports and custom rules not identified in this SOW. If, during the project, Customer identifies custom reports or custom rules for Consultant to build, the change management process identified in section 4.3 can be used to bring these new rules into scope.
- Integration with the AMI head end system for the purpose of facilitating synchronization of the meter status between the AMI head end system and CIS. When the CIS is the system of record for account information that will differentiate active meters from inactive meters and the AMI head end system uses that information to determine whether meter data should be transmitted to MeterSense. It is assumed that a direct integration will be made between the AMI head end system and the CIS.
-

3 Optional Consulting Services

To be determined over the course of the project.

4 Project Management Approach

4.1 Communication/Relationship Management Approach

Communication Management is the cornerstone of any project and a well-structured communication plan is a must from the beginning. Regular, or ongoing, communications include those opportunities to communicate with project team members, sponsors, steering committee members, and other key stakeholders on a regular basis. These types of communication include regular status reports, scheduled project team meetings, monthly updates with the steering committee or with executive project sponsors on a project.

During the Project Kick-Off meeting, a detailed Communication Plan will be presented and reviewed with Customer staff based on the following Communication Strategy:

Goals of Communication Strategy

- Keep people informed on project status
- Focus on communication to effectively prepare organizations for their software rollout
- Focus on communication to build support for project
- Monitor effectiveness of communication

Guiding Principles

- Clear messages using simple language
- Openness, honesty, credibility, and trust in all communications
- Two-way communication, with feedback valued and asked for
- Project Team and Management ownership of the communication program
- Ongoing commitment to the communications process

Effective Communication Guidelines

- There are multiple audiences for project communications
- Communication needs to be
    - Tailored to specific groups
    - Regular and informative
    - Real-time and relevant
- Communication content needs to be of interest to the target audience

Following is the communication plan for the project:

What	Who / Target	Purpose	When / Frequency	Type/Method(s)
Project Kick Off	All stakeholders	Communicate plans and stakeholder roles/responsibilities.	At or near Project Start Date	Meeting
Status Reports	All stakeholders and Project Office	Update stakeholders on progress of the project.	Weekly	Distribute electronically using agreed Status Report template
Team Meetings	Entire Project Team.	To review detailed plans (tasks, assignments, and action items) and risks.	Weekly for entire team.	Meeting Review Project Plan, Status Reports, and Risk Log.
Project Management Status Meetings	Sponsor(s) and Project Manager (Customer, AMI Vendor, CIS Vendor, MeterSense)	Update Sponsor(s) on status and discuss critical issues. Seek approval for changes to Project Plan.	Weekly	Meeting
Executive Sponsor Meetings	Executive Sponsor(s) and Project Manager	Update Sponsor(s) on status and discuss critical issues. Seek approval for changes to Project Plan.	Monthly	Meeting

4.2 Work Management Approach

Work will be managed through the use of the Project Schedule in MS-Project format which will be developed within 10 business days of the project kick-off. The Consultant Project Manager will have the responsibility to create the baseline project schedule and make schedule updates as necessary. It is expected that the Customer Project Manager will work in conjunction with the Consultant Project Manager to ensure that key Customer activities that impact the project are also contained in the project plan.

As well, the Consultant eSupport solution will be used to track project issues such as bugs or other lower level action items. The entire project team (Consultant / Customer) will have access to eSupport.

4.3 Scope Management Approach

Consultant will maintain the Statement of Work for the MeterSense product with formal documentation denoting agreed upon deliverables and scope. Customer and/or Consultant may propose changes to this SOW addressing services falling outside the scope of services described in this SOW ("Change"). The Change Order form must be used for all Change requests. Consultant shall have no obligation to commence work in connection with any change until the fee and schedule impact of the change is agreed upon in a written Change Order Form signed by the designated representatives from both parties.

Upon a request for a change, Consultant shall submit the change on our standard Change Order Form describing the change, including the impact of the change on the schedule, fees and expenses. The Change Management Process that will be employed is defined below:

- Identify and document proposed change
- Assess impact of proposed change
- Estimate required effort / cost of proposed change
- Submit Change Order for Approval / Disapproval
- Communicate Change Order Decision
- If Change Order is Approved:
    - Assign responsibility
    - Monitor and report progress

Within 5 consecutive business days of receipt of the Change Order Form, Customer shall either indicate acceptance or rejection of the proposed change by signing the Change Order Form or any other period of time mutually agreed to by the parties. If Consultant is advised not to perform the change, then Consultant shall proceed only with the original services. In the absence of Customer acceptance or rejection of the Change Order, Consultant will not perform the proposed change.

4.4 Risk Management Approach

Risk Management Planning is an important part of project management and a core component of the Consultant Project Implementation Methodology. Risk Management planning is about defining the process of how to engage and oversee risk management activities for a project. Having a viable plan on how to manage risk allows one to mitigate risk versus attempting to decide in the midst how to handle a risk. The earlier Risk Management planning is engaged within the project increases the probability of success of all risk management activities. Risk Management planning will be initiated at the start of the project by having the initial discussion with Customer prior to or during the Project Kick-off meeting. The planning will include identifying the owner of the Risk Log (Consultant can own this log if it is solely focused on MeterSense implementation risks)

Risks can be raised by any project stakeholder, including project team members, the client, third-party integrators, or vendors.

Risks will be entered on the Risk Log and categorized by type and priority. The Project Manager will investigate the Risk and, if necessary, will update the Risk Log with background information to place the Risk in perspective.

At a minimum, the following information will be captured and tracked for all Risks:

- RISK ID - each risk should have a unique ID
- TITLE – short description of the risk (usually a few words or a sentence, helpful when reporting risks)
- DESCRIPTION – complete description of the risk, the more details the better
- IMPACT – impact to the project and/or business in terms of money, time, and/or quality
- PROBABILITY – indicate the probability of the risk
- SEVERITY – risk severity (typically values could be "critical", "high", "medium", "low")
- TYPE – type of risk (e.g. technical, process, organizational, etc.)
- RISK MITIGATION PLAN – detailed description of actions (including dates and owners) required mitigating the risk.
- STATUS – current status of the risk (typical values are "open" or "closed")

Throughout the duration of the project, as risks are identified they will be added to the Risk Log and will be reviewed at bi-weekly Status Meetings with the team to determine the possibility of occurrence and the best plan for mitigation.

4.5 Acceptance Management Approach

In collaboration with Customer, Consultant will develop and maintain a central listing of all Deliverables and Work Products to be completed throughout the project **"Deliverable Acceptance Criteria Document"**. The Deliverable Acceptance Criteria Document will also set forth the acceptance criteria for each deliverable (**"Deliverable Acceptance Criteria"**).

A baseline version of the Deliverable Acceptance Criteria document will be created through a combined effort between Consultant and the Customer during the Solution Definition phase. The Deliverable Acceptance Criteria Document will be reviewed with Customer regularly and updated to record the approval of the deliverables as they are accepted. The approvals of the deliverables in the Acceptance Criteria document will constitute final system acceptance.

A core component of the Deliverable Acceptance Criteria Document will be the execution of the test plan and test cases. The Testing Plan, also created in the Solution Definition phase, and the Test Case Scenarios, created during the Solution Construction phase, are customized specific to the implementation for Customer. The Test Plan and Test Case Scenarios are used for testing and will be provided to Customer for their own review and testing of the system. The Application Consultant and the Customer staff will work as a team to ensure that exhaustive testing is carried out. During the

Solution Validation phase, when the system testing is being executed, the project team will be meeting to review the testing status and ensure that scheduled testing is being carried out.

Once system testing has been completed, and the Customer staff has been trained on the system, the Customer staff will have the necessary tools to review the system for acceptance. Customer will have access to their own instance of MeterSense, loaded with their data, to train and test on. The Application Consultant assigned to Customer will provide the documents and training of the system to the staff. Training will be conducted onsite and using WebEx sessions, phone calls and documentation when needed.

5 Delivery Approach

5.1 Implementation Approach – Phases, Deliverables, Key Milestones

Based on Consultant's understanding of the Customer requirements and Consultant's experience gained through the implementations of the MeterSense MDM Solution at various Customers across North America and to ensure the successful implementation of the MeterSense MDM Solution at Customer, the Consultant Project will leverage Consultant's Implementation Methodology which has been honed and perfected over the company's long history to successfully guide project implementation from Definition to Go-Live.

5.2 MeterSense Implementation Methodology

The Consultant Methodology is based on the following guiding principles:

- *Promote and foster customer ownership of solution;*
- *Establish and maintain consistent and regular touch-points with Customer;*
- *Ensure that project performance is visible, measurable, tracked and risks identified and mitigated – No Surprises!; and*
- *Seek to minimize customer cost and time while still achieving engagement objectives.*

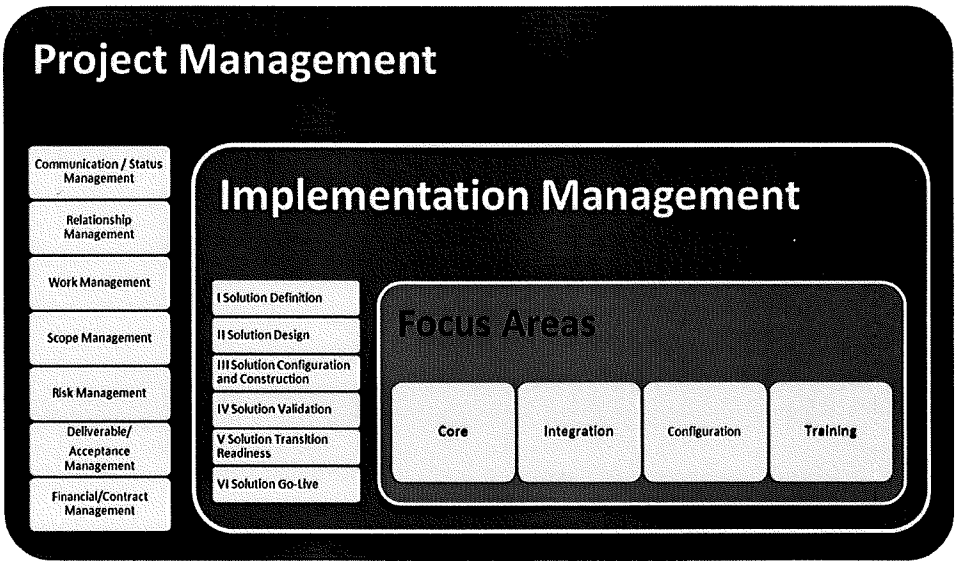

Figure 1: MeterSense MDM Implementation Methodology

The MeterSense MDM Implementation Methodology consists of two main areas: **Project Management** and **MeterSense Implementation Management** where each has associated (where applicable):

- Processes / Checklists / Matrices that define how to operate;
- Deliverables that are formal outputs that require Customer sign-off;

- Work Products that are outputs produced as part of the work required to achieve the desired engagement goals; and
- Tools / Assets that are leveraged to produce defined outputs.

The **Project Management** area defines how Engagements will be managed are managed. It includes:

- ***Communication/Status Management*** aimed at establishing internal and external communications as well as monitoring and communicating engagement status and effort spent;
- ***Relationship Management*** aimed at measuring the pulse of Customers and partners;
- ***Work Management*** aimed at capturing and monitoring effort, cost and work to be performed;
- ***Scope Management*** aimed at defining and controlling project scope;
- ***Risk Management*** aimed at planning, mitigating, tracking and monitoring risks;
- ***Deliverable/Acceptance Management*** aimed at ensuring that expected deliverables are delivered and accepted; and
- ***Financial/Contract Management*** aimed at monitoring project financial health.

The **Implementation Management** area defines the Implementation Phases and associated work products and deliverables that are part of this engagement. The MeterSense Implementation

Phases are the following:

Implementation Phases	Objectives	Key Work Products and Activities	Deliverables
Solution Initiation / Definition *Key Milestones* • *Kick-Off Meeting Held* • *Project Plan Reviewed/Updated* • *Integration Requirements Signed-Off*	• *To Kick-Off engagement and establish successful working relationship.* • *To obtain detailed agreement on "What" is to be delivered.*	• *Kick-Off Meeting* • *Discovery Workshop(s) Summary* • *MeterSense Implementation Questionnaire* • *Acceptance Criteria Document* • *Physical Architecture Recommendation*	• *Integration Requirements Document* • *MeterSense Overview Session (3 Hours via WebEx)* • *Training Plan* • *Test Plan*
Solution Installation / Configuration / Construction *Key Milestones* • *Solution Feature / Code / Configuration Complete*	• *To install, configure and build the solution components & write associated test artifacts.*	• *Test Scenarios / Cases* • *User Acceptance Test Scripts* • *Base Solution Installed and configured*	• *Go-Live Approach*
Solution Validation *Key Milestones* • *User Acceptance Completed*	• *To move the solution to a known state of quality and ready for deployment.* • *To train customer on their solution.*	• *Functional Testing Results* • *Integration Testing Results* • *User Acceptance Test (UAT) Results* • *Accepted Solution per UAT*	• *Functional and Process Training(3 days in person)* •
Solution Go-Live *Key Milestones* • *Solution Live*	• *To move the solution into a production environment state and transition support to the operations team.*	• *Solution Live*	• *MeterSense Installation Acceptance*

To minimize project costs, the majority of project work will be performed at one of the Consultant's locations except for key project activities such as Discovery Workshops where face-to-face is deemed more effective for a successful project

5.3 Implementation Timeline

The estimated duration to implement this scope is approximately 6-8 months based on our current understanding of the requirements.

The 6-8 months' timeline to implement the core MeterSense MDM Solution approximately conforms to the following timeline for most implementations:

Timeline	Phase
Month 0-2	• *Solution Initiation / Definition Phase*
Month 2-3	• *Solution Installation / Configuration / Construction Phase*
Month 4-6	• *Solution Validation Phase*
Month 6-8	• *Solution Go-Live Phase*

The actual duration and scheduling of project activities will be evaluated during the Initiation/Definition phase and a detailed project plan will be jointly created and base-lined at that time.

Alpha Phase

The overall objective for this phase will be to implement the network infrastructure. Between 6 and 7 meters will be AMI enabled for testing and validation purposes. In this phase, Consultants scope of work will include;

- Creation of the data synchronization interface with CIS to enable meter data collection and management
- Create the billing interface with CIS as defined in this scope of work
- Creation of the data collection interface (including meter read data and meter alarm data) with the AMI head end system as defined in this scope of work
- Creation of the remote meter actions interface as defined in this scope of work

Consultant will complete the Solution Initiation / Definition and the Solution Installation / Configuration / Construction phases in order to meet requirements for the completion of Alpha phase within 120 days. This timing is based on the following dependencies:

- RNI installation and configuration and initial test meter installation is completed within 56 days of project kick-off.
- The CIS data synchronization file will be available to support MeterSense CIS integration activities within 30 days of project kick-off.
- The guiding principal for Alpha phase implementation will be to deliver a solution that conforms to MeterSense leading practices and our standard solution delivery. If, use cases and requirements are identified during that Alpha phase discovery that lead to functionality that is within scope but beyond our standard product and integration functionality, that functionality or integration will be deferred to the Beta phase of the project.
- The duration of the Alpha phase does not include the Christmas holiday season

Beta Phase

Mass deployment of meters and supporting AMI infrastructure will occur during this phase. While not all meters will be converted to AMI during this phase, enough will be converted so that MeterSense testing and Go-Live can be completed.

- Customer|Connect will be implemented as defined in this scope of work
- MeterSense MDM Validation, Editing, Estimation (VEE) functionality, as defined in this scope of work, will be configured
- MeterSense reporting functionality, as defined in this scope of work, will be configured
- MeterSense Solutions will create the GIS interface as defined in this scope of work

The actual duration and scheduling of these project activities and phases will be evaluated during the Initiation/Definition phase and a detailed project plan will be jointly created and base-lined at that time.

5.4 Validation/Testing Approach

Systems Testing is an activity that is addressed through all Phases of the MeterSense Implementation Methodology but is the focus of the Solution Validation Phase.

To ensure that a quality Solution is delivered to our Customer, MeterSense Implementation Methodology includes a Validation Phase focused on validating that the configured and developed Customer Solution performs per agreed upon requirements. The Validation Phase includes three main testing activities:

- ***Functional Testing*** *(System Acceptance Testing) to test the core Solution components (Configuration, Interfaces, Reports, and Modifications) against agreed upon requirements as defined in the Functional and Integration Requirements Document based on the test cases and scenarios developed during the construction phase.*
- ***Integration Testing*** *to test the end-to-end process based on business processes and scenarios developed during the construction phase.*
- ***User Acceptance Testing*** *to provide Customer the opportunity to validate that Solution behaves per agreed upon requirements as defined in the Functional and Integration Requirements Document based on the test cases and selected scenarios collaboratively developed with Customer during the construction phase. User Acceptance Testing sign-off per agreed upon criteria is necessary to move to GO-LIVE.*

The progress for performing the three testing activities will be summarized in a table describing the test characteristics **"Test Matrix"**. At a minimum, the Test Matrix will include the following information:

- The test name
- The objective for performing the test
- A Description of the steps required to perform the test **"Test Script"**
- The expected result that will demonstrate the test is successful **"Test Acceptance Criteria"**
- The actual result observed after performing the test **"Test Result"**

Prior to commencing Functional Testing and Integration Testing activities, the Test Scripts and Test Acceptance Criteria will be documented in the Test Matrix by Consultant collaboratively with Customer and will be based on the Requirements documented in the Functional and Integration Requirements Document.

While performing testing activities, the tester will update the Test Matrix with the Test Result and will make a determination as to whether the result meets the Test Acceptance Criteria.

Functional Testing and Integration Testing will be performed by Consultant. User Acceptance testing will be performed by Customer with support from Consultant.

5.4.1 User Acceptance Testing Procedure

Once Functional Testing and Integration Testing have been completed, and the Customer staff has received Functional Process Training, the Customer staff will have the necessary tools to perform User Acceptance Testing.

Prior to commencing User Acceptance testing activity, the Test Scripts and Test Acceptance Criteria will be documented in the Test Matrix by Consultant collaboratively with Customer.

Customer will have their own instance of MeterSense, loaded with their data, to train and test on. The Application Consultant assigned to Customer will provide the documents and training of the system to the staff. Training will be conducted onsite and using WebEx sessions, phone calls and documentation as needed.

Customer will have a defined period of time to perform User Acceptance Testing on the Software (including testing in a live production environment) (the **"Acceptance Testing Period"**). The length of the Acceptance Testing Period will be defined in the Detailed Project Plan. This User Acceptance Testing Period will begin upon formal written notification from Consultant to Customer that a MeterSense has been configured and is ready for testing. During such Acceptance Testing Period, both Parties shall work diligently and dedicate the appropriate resources to conclude the evaluation in a timely and efficient fashion.

If the Software meets the Functional and Integration Requirements Document, and substantially satisfies the testing criteria set forth in the User Acceptance Test Matrix (together the **"Solution Acceptance Criteria"**), Customer will provide Consultant with written acceptance notice thereof, and the date of such notice to be the **"Actual Solution Acceptance Date"**.

In the event Customer determines that the results of a test do not meet the Solution Acceptance Criteria, following the initial User Acceptance Testing cycle, Customer will provide Consultant with written notice thereof, specifying in reasonable detail how the Software failed to meet the Solution Acceptance Criteria. If Customer delivers to Consultant such notice of retesting, Consultant shall make all necessary corrections, repairs, fixes, modifications, or additions to or replacements of all or any part of the rejected Software so that it conforms to and performs in accordance with the User Acceptance Criteria. Consultant will have a defined period of time **"Correction Period"** to correct any deficiency,

after which the Solution Acceptance Testing will be resumed. The Correction Period will be defined in the Detailed Project Plan.

In the event retesting is required by Customer, the User Acceptance Testing process will then be repeated.

The Customer shall not reject or fail to accept the Software based on any Severity 3 error, as defined in the table below:

Severity Level	Description
1	• *System Down (Software Application, Hardware, Operating System, Database)* • *Program errors without workarounds* • *Incorrect calculation errors impacting one-third of records* • *Error messages preventing data integration and update* • *Performance issues of severe nature impacting critical processes* • *Security Issues*
2	• *System errors that have workarounds* • *Calculation errors impacting less than one-third of records* • *Reports calculation issues* • *Performance issues not impacting critical processes* • *Usability issues* • *Workstation connectivity issues (Workstation specific)*
3	• *Training questions, how to, or implementing new processes* • *Aesthetic issues* • *Minor issues where a Customer approved workaround is available for a large majority of cases* • *Recommendations for enhancements on system changes* • *Questions on documentation*

In the event that the Customer fails to notify Consultant in writing of any deficiency in a test result, acceptance shall be deemed to have occurred upon the expiration of the applicable Acceptance Testing Period. During the Acceptance Testing Period, Customer may in collaboration with Consultant, acting reasonably, extend the Acceptance Testing Period, the Correction Period, and the Expected Solution Acceptance Date (such that the extended Acceptance Testing Period shall expire on the revised Expected Solution Acceptance Date).

5.5 Customer Resource Involvement

Consultant strongly believes that a successful MeterSense implementation project requires that both Customer and Consultant resources work openly and collaboratively towards a common objective. As such, Customer's involvement will be required through all phases of the implementation project. Consultant also believes that the involvement of key Customer resources will help with the Organizational Change Management activities that are essential to obtain acceptance of the new solution.

The factors that will determine the size of Customer' team includes the following:

- The level and expertise of the each of the Customer project Core Team members;
- The ability of the Customer Project Manager to make decisions regarding the project;
- Whether current job-responsibilities will interfere with Core Team responsibilities;
- The amount of business reengineering that Customer determines is necessary; and
- The number of personnel that Customer will use to run their operation's system, which in turn affects the amount of training needed.

Based on Consultant's experience with other clients, following is the anticipated involvement of Customer through the Consultant MeterSense implementation phases:

Phase I: Solution Initiation/Definition

1. Complete the MeterSense Implementation Questionnaire provided by Consultant. This questionnaire provides Consultant with the technical and environmental details required to configure the MeterSense Solution.
2. Ensure that any third parties required for the success of this engagement such as the AMI and CIS have been informed and that they are ready to participate and contribute on an as required basis.
3. Ensure the staff members that have been identified to participate in Discovery session(s) are available on dates agreed to and scheduled.

Phase II: Solution Installation / Configuration / Construction

1. Provide and ensure all required Technical Staff are available on dates agreed to and scheduled.
2. Identifying users of the solution.
3. Installing VPN connection.
4. Assist with ensuring that MeterSense Solution is accessible from within Customer environment.
5. Create User Acceptance Detailed Plan.

Phase III: Solution Validation

1. Determine the appropriate staff to be trained.

2. Ensure the staff members that have been identified to participate in the training sessions are available on dates agreed to and scheduled.
3. Assist with Functional / Integrated Testing.
4. Conducting User Acceptance Testing.
5. Log issues found in the Consultant eSupport system (a web based issue tracking system). The calls logged in eSupport will be addressed by Consultant consultants per triage and priority.
6. Work with Consultant to develop a Go-Live Plan Document

Phase IV: Solution Go-Live

1. Assist in activities as defined within the Go-Live Plan Document.

5.6 Engagement Completion Criteria

MeterSense Implementation Engagement is deemed completed once all Consultant MeterSense MDM Functionality within scope of this SOW have been deployed to the "live" environment (i.e. used by Customer Personnel) for 30 calendar days and that any Severity Level 1 and 2, as defined in the following table, items raised during that period have been resolved.

Severity Level	Description
1	• *System Down (Software Application, Hardware, Operating System, Database)* • *Program errors without workarounds* • *Incorrect calculation errors impacting one-third of records* • *Error messages preventing data integration and update* • *Performance issues of severe nature impacting critical processes* • *Security Issues*
2	• *System errors that have workarounds* • *Calculation errors impacting less than one-third of records* • *Reports calculation issues* • *Performance issues not impacting critical processes* • *Usability issues* • *Workstation connectivity issues (Workstation specific)*
3	• *Training questions, how to, or implementing new processes* • *Aesthetic issues* • *Minor issues where a Customer approved workaround is available for a large majority of cases* • *Recommendations for enhancements on system changes* • *Questions on documentation*

6 Fees & Payment Schedule

PROFESSIONAL SERVICES:

Professional Services MeterSense & SmartWorks Compass Fees: ***$425,000***

Payment Milestone	Percent	Amount
Contract Signing	10%	$42,500
Overall Monthly Project Support beginning November 1, 2014 – June 30, 2015 (8 months) billed monthly at $21,250 – if the project ends early then balance will be due upon acceptance	40%	$170,000
Functional and Integrations Requirement Document	5%	$21,250
Acceptance Criteria Document	5%	$21,250
Testing Plan	5%	$21,250
Training Plan	5%	$21,250
Complete Training and Deliver Training Manuals	20%	$85,000
Go-Live Approach Document	5%	$21,250
Configuration "As-Built" Document	5%	$21,250
Total	**100%**	**$425,000**

Payment Milestone		Amount
For Additional Support Service Previously Approved by CLB via Change Order, Billed Hourly	Per Hour	$200

Project travel is in addition to these fees. Travel is subject to approval by the Customer Project manager.

7 Assumptions

The Services, fees and delivery schedule for this engagement are based upon the following assumptions:

1. This engagement currently has, and will continue to have, the support of senior Customer management and will be assigned sufficient priority with respect to other project to ensure its success.
2. Customer will assign a lead to act as an internal resource and guide throughout this engagement.
3. Customer will secure the appropriate staff in a timely fashion in order to discuss or review the various materials produced when required, provided Consultant gives reasonable notice of such request.
4. Customer agrees to facilitate any required Customer Corporate logistics for the fulfillment of this agreement.
5. Customer will secure, as required and in a timely fashion, the assistance and cooperation of Third Party Vendors (e.g. CIS, AMI, OMS) to ensure a successful MeterSense Implementation. A change Order may be created if the Third Party Vendor is unavailable or non-cooperative and as such results in an impact to the schedule or effort.
6. Third Party Vendors Solutions are able to provide information required by the MeterSense Solution as well as accept information provided by the MeterSense Solution.
7. All third-party software and hardware products are assumed to perform correctly in the Customer environment, in accordance with the appropriate third-party vendor's specifications.
8. All documentation provided by Customer shall be up-to-date and accurate or if that is not the case, advise Consultant as such.
9. All hardware, software, and network components supplied by Customer are working properly and are free of defects and will meet minimum hardware standards provided during the engagement.
10. To minimize project costs, the majority of project work will be performed at one of the Consultant's locations except for project activities where face-to-face is deemed more effective.
11. Customer will provide the appropriate remote access to its network, facilities, and systems as may be required to perform activities from one of Consultant's locations. Consultant shall abide by all rules and directions of Customer when accessing Customer's network, facilities or systems. A Change Order may be created if appropriate remote access to its network is not available, resulting in project delays.
12. Any items not explicitly identified within this document are considered out of scope. Any changes to those responsibilities and/or deliverables will be considered a change in scope for the engagement. Any proposed change to the engagement scope must be put into written format and be submitted to Consultant during this engagement for review and consideration.

8 Document Acceptance and Signoff

Accepted on this day by:

City of Long Beach	**N.Harris Computer Corporation (Harris Utilities, SmartWorks)**
By: _____	By: _____
Name: _____	Name: Chris J. Lewis
Title: _____	Title: Executive Vice President
Date: _____	Date: September 1, 2014

APPENDIX A –Hardware and Software Requirements

MeterSense Hardware

Based on our current understanding of the project requirements, we are providing the following hardware and software recommendations for the MeterSense MDM Solution.

Data retention requirements:

MeterSense MDM will store the interval and register read data according to the following table:

Service	Number of Meters	Interval Length
Gas	160,000	60 minute
Water	3,500	60 minute

Actual account numbers can vary over time. The server size is recommended with the assumption that the number of services may expand by 10% over five years.

A minimum of two (2) years of data is assumed.

9 APPENDIX B

MeterSense UAT acceptance criteria

Client: [Customer]
Document Version: 0.1

[Customer Logo]

metersense
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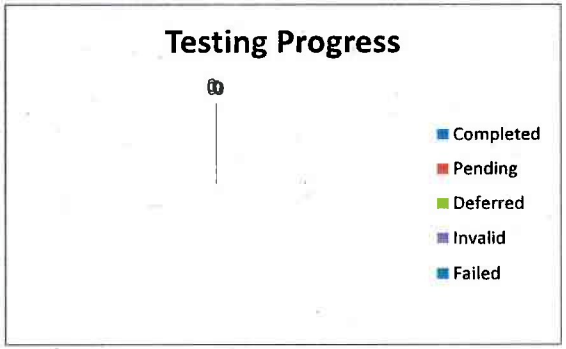
Category	Completed	Pending	Deferred	Invalid	Failed	
VEE Tests (V)	16	0	0	0	0	0
Billing Interface Tests (B)	4	0	0	0	0	0
Datasync / Data load tests (D)	12	0	0	0	0	0
Remote Action tests (RA)	4	0	0	0	0	0
Reporting tests (R)	7	0	0	0	0	0
Custom rules & requirements tests (C)	2	0	0	0	0	0
Security (S)	1	0	0	0	0	0
GIS Tests* (G)	2	0	0	0	0	0
OMS Tests* (O)	4	0	0	0	0	0
Total	52	0	0	0	0	0



Approver Information	
Name:	
Title:	
Document Version:	
Signature:	
Date:	

#	MeterSense Accepted	Area	Test Type (Functional/UI)	UAT ? (Yes/No)	Test Name	Description	Notes	Steps to Execute	Expected Result	Actual Result	Pass/Fail
01		Outage	Functional		MeterSense receives outage notification from AMI	MeterSense will receive MultiSpeak ODEventNotifications from the AMI for outages	MeterSense must be configured to receive outage notifications from the AMI; these must also be configured to be logged in the outages table	Find a real outage or simulate one by removing power from a test electric meter Examine MeterSense events log to verify that MeterSense captured and	MeterSense should capture and log any MultiSpeak outage notifications provided by the AMI in the events table, and update the outages table		
02		Outage	Functional		Maps - Power Fail	MeterSense will dynamically capture power failure notifications from the AMI in real time, and will create a report of power failures on a graphical map	[Customer] must disconnect the power to their test meter. Note: The event type of interest is Outage Call In. This is the Event Type reported to MeterSense via MultiSpeak Event Notifications when an event is reported in real time.	1. Launch a report from MeterSense menu item "Reports/Routing/Maps/Map: Current Power Outages" 2. Launch the filter and display settings 3. In the Meter Status Tab, select "Show only meters with event Outage Call In since 1 day ago or longer." Ensure this is the only option selected in the tab 4. Select Update Map. Export the Map to CSV	The generated excel report will contain the test meters for which [Customer] disconnected power		
03		Restoration	Functional		MeterSense receives restoration notification from AMI	MeterSense will receive MultiSpeak ODEventNotifications from the AMI for restorations	MeterSense must be configured to receive retoration notifications from the AMI; these must also be configured to be logged in the outages table	Find a real restoration or simulate one by reapplying power to a test electric meter Examine MeterSense events log to verify that MeterSense captured and	MeterSense should capture and log any MultiSpeak restoration notifications provided by the AMI in the events table, and update the outages table		
04		Restoration	Functional		Maps - Power Restore	MeterSense will dynamically capture power restoration notifications from the AMI in real time, and will create a report of power restoration on a graphical map	[Customer] must reconnect the power to their test meter. Note: The event type of interest is RestoreCon Call In. This is the Event Type reported to MeterSense via MultiSpeak when the event is reported in real time.	1. Launch a report from MeterSense menu item "Reports/Routing/Maps/Map: Current Power Outages" 2. Launch the filter and display settings 3. In the Meter Status Tab, select "Show only meters with event RestoreCon Call In since 1 day ago or longer." Ensure this is the only option selected in the tab 4. Select Update Map. Export the Map to CSV	The generated excel report will contain the test meters for which [Customer] reconnected power		

#	MeterSense Resource	Area	Test Type (Functional/SI)	UAT ? (Yes/No)	Test Name	Description	Notes/Prep	Steps to Execute	Expected Result	Actual Result	Pass/Fail
V1		VEE	Functional		VEE Daily Execution	MeterSense will attempt to run meter data load as configured in VEE Profiles and VEE Job Schedulers. When new meter data is available, it will be loaded and validated	VEE is automatically executed after the meter data load. The Meter Data Load is a scheduled task that will take place as configured in VEE Profiles and VEE Job Schedulers.	1. Select MeterSense menu item "System Configuration/System Log/System Log Query" 2. Chose a Date Window of 3 days 3. Under Source Process select "Validation" 4. Click Submit.	The "TIME_STAMP" log column confirms that MeterSense ran validation as configured in the VEE Profiles and VEE Job Schedulers		
V2		VEE	Functional		Validation Routines - Future Date	Test that a validation failure is triggered when the read's time stamp is later than the date the read was received in MeterSense	The MeterSense tester must manipulate data to fail Future Date validation routines. This will be achieved by changing the read's timestamp to a date later than the record timestamp. The MeterSense tester must also change the meter validation parameters to activate the FutureDate validation routine. The file must then be pushed through the system.	After VEE has ran 1. Select MeterSense menu item "Reports/Meter Reads/Register Validation Failures". 2. Select "FutureDate" as the validation routine 3. Click submit	The generated report will display the read value fo... the meter ID(s) that failed this validation routine. The Comments column provides a detailed overview of the failure.		
V3		VEE	Functional		Validation Routines - Future Date	Test that a validation failure is triggered when the read's time stamp is later than the date the read was received in MeterSense	The MeterSense tester must manipulate data to fail Future Date validation routines. This will be achieved by changing the read's timestamp to a date later than the record timestamp. The MeterSense tester must also change the meter validation parameters to activate the FutureDate validation routine. The file must then be pushed through the system.	After VEE has ran 1. Select MeterSense menu item "Reports/Meter Reads/Register Validation Failures" 2. Select "FutureDate" as the validation routine 3. Click submit	The generated report will display the read value for the meter ID(s) that failed this validation routine. The Comments Column provides a detailed overview of the failure		
V4		VEE	Functional		Validation Routines- H Lo	Test that a validation failure is triggered when the reported read fails to be within a percentage threshold of the historic average for the meter	1. Open "Setups/Validation/Meter Validation Parameters" and enter the test meter ID 2. Click Submit 3. Set HiLo Parameter 1 to 1.01, and Parameter 2 to .01. Set Parameter 3 to 1 to account for seasonality. Change the Failure level to ManualEditingRequired. This increases the chances of a Hi Lo Validation Failure. 4. The file containing data for the test meter must then be pushed through the system	After VEE has been executed: 1. Select MeterSense menu item "Reports/Meter Reads/Register Validation Failures" 2. Select "Hi Lo" as the validation routine 3. Click submit	The generated report will display the read value for the meter ID(s) that failed this validation routine. The Comments Column provided a detailed overview of the failure. This test typically requires several months of historical data in the MeterSense database; as such it is not executed early in the project		
V5		VEE	Functional		Validation Routines - Hi Lo Demand	Test that a validation failure is triggered when the reported read fails to be within a percentage threshold of the historic average for the meter (demand channels only)	1. Select "Setups/Validation/Meter Validation Parameters" and enter a demand meter ID 2. Set HiLoDemand Parameter 3 to .5. Change the Failure level to ManualEditingRequired. This increases the chances of a Hi Lo Validation Failure. 3. The file containing data for the test demand meter must then be pushed through the system.	After VEE has been executed: 1. Select MeterSense menu item "Reports/Meter Reads/Register Validation Failures" 2. Select "Hi Lo Demand" as the validation routine 3. Click submit	The generated report will display the read value for the meter ID(s) that failed this validation routine. The Comments Column provides a detailed overview of the failure.		
V6		VEE	Functional		Validation Routines - Interval Flags	Test that a validation failure is triggered with the occurrence of specified meter events (i.e. power outage, tamper alert)	The MeterSense tester must activate the IntervalFlags validation parameter globally to increase the chance an IntervalFlags Validation will occur. The tester must also change the AMI config parameter for IntervalFlags to include an event type.	1. Select MeterSense menu item "Reports/Meter Reads/Interval Validation Failures" 2. Select "IntervalFlags" as the validation routine 3. Click submit	The generated report will display the read value for the meter ID(s) that failed this validation routine. The Comments Column provides a detailed overview of the failure.		
V7		VEE	Functional		Validation Routines Interval Length	Test that a validation failure is triggered when the frequency at which the meter is reporting exceeds the configured meter interval length in MeterSense	The MeterSense tester will need to manipulate data to fail Interval Length validation routines. The MeterSense tester must also change the meter validation parameters to activate the IntervalLength validation routine. The file must then be pushed through the system.	1. Select MeterSense menu item "Reports/Meter Reads/Interval Validation Failures" 2. Select "IntervalLength" as the validation routine 3. Click submit	The generated report will display the read value for the meter ID(s) that failed this validation routine. The Comments Column provides a detailed overview of the failure.		
V8		VEE	Functional		Validation Routines Register Increasing	Test that a validation failure is triggered when a register read fails to be larger than its previous register read	The MeterSense tester will need to manipulate test meter data to fail RegisterIncreasing validation routines. The MeterSense tester must also change the meter validation parameters to activate the RegisterIncreasing validation routine. The file must then be pushed through the system.	1. Select MeterSense menu item "Reports/Meter Reads/Register Validation Failures" 2. Select "RegisterIncreasing" as the validation routine 3. Click submit	The generated report will display the read value for the meter ID(s) that failed this validation routine. The Comments Column provides a detailed overview of the failure		
V9		VEE	Functional		Validation Routines - Spike Check	Test that a validation failure is triggered when a read exceeds the Spike Check threshold.	1. Select "Setups/Validation/Meter Validation Parameters" and enter the test meter ID 2. Set SpikeCheck Parameter 1 to 3, parameter 2 to 1, and parameter 3 to 1. Change the Failure level to ManualEditingRequired. These parameters will increase the probability a read will fail this validation routine 3. Open the .csv file containing data for the test meter. 4. Manipulate the data to ensure there will be a spike factor in interval reads which exceeds the spike factor configured in the meter parameters. The file must then be pushed through the system	1. Select MeterSense menu item "Reports/Meter Reads/Interval Validation Failures" 2. Select "SpikeCheck" as the validation routine 3. Click submit	The generated report will display the read value for the meter ID(s) that failed this validation routine. The Comments Column provides a detailed overview of the failure.		
V10		VEE	Functional		Validation Routines - Sum Check	Test that a validation failure is triggered when the sum of a block of intervals does not equal the register differential for that block (within a specified tolerance level)	1. Open the file containing register and interval meter data for a test meter. 2. Calculate the register read differential for the given date. 3. Manipulate the interval read meter data to ensure the interval summation exceeds the calculated register read differential by greater than 1%. 4. Open "Setups/Validation/Meter Validation Parameters" and enter the meter ID 5. Click Submit 6. Set SumCheck parameter 1 to .001, leaving parameter 2 blank. Change the Failure level to ManualEditingRequired. These parameters will increase the probability a read will fail this validation routine. The file must then be pushed through the system.	After VEE has ran: 1. Select MeterSense menu item "Reports/Meter Reads/Interval Validation Failures" 2. Select "SumCheck" as the validation routine 3. Click submit	The generated report will display the read value for the meter ID(s) that failed this validation routine. The Comments Column provides a detailed overview of the failure.		
V11		VEE	Functional		Validation Routines - UOM	Test that a validation failure is triggered when the raw read's unit of measure does not match the unit configuration in MeterSense	The MeterSense tester will need to manipulate data to fail UOM validation routines. This will be achieved by changing the UOM of a test meter in the meter file. The MeterSense tester must also change the meter validation parameters to activate the UOM validation routine. The file must then be pushed through the system.	After VEE has ran: 1. Select MeterSense menu item "Reports/Meter Reads/Register Validation Failures" 2. Select "UOM" as the validation routine 3. Click submit	The generated report will display the read value for the meter ID(s) that failed this validation routine. The Comments Column provides a detailed overview of the failure.		
V12		VEE	Functional		Validation Routines - Zero Duration	Test that a validation failure is triggered when the period of successive zeros is larger than the specified tolerance level.	1. Open the .csv file containing data for test meter 2. Manipulate the data to ensure a period of successive zeros. Take note of the number of successive zeros entered here 3. Select "Setups/Validation/Meter Validation Parameters" and enter the test meter ID 4. Click Submit 5. Set ZeroDuration parameter 1 to a level which will ensure a failure (according to the number of successive zeros established in step 2). Leave parameter 2 blank to include meters with a power status of OFF in this routine. Change the Failure level to ManualEditingRequired. These parameters will increase the probability a read will fail this validation routine. The file must then be pushed through the system.	After VEE has ran 1. Select MeterSense menu item "Reports/Meter Reads/Interval Validation Failures" 2. Select "ZeroDuration" as the validation routine 3. Click submit	The generated report will display the read value for the meter ID(s) that failed this validation routine. The Comments Column provides a detailed overview of the failure.		
V13		VEE	Functional		Validation Routines - Max Demand	Test that a validation failure is triggered when the meter's hourly kWH read is greater than the specified threshold value	1. Select "Setups/Validation/Meter Validation Parameters" and enter the test Meter ID 2. Set MaxDemand Parameter 1 to .05 to increase the probability a read will fail this validation routine. Leave Parameter 2 blank as the routine applies to all Channels. Change the Failure level to ManualEditingRequired. 3. Open the .csv file containing data for test meter 4. Manipulate the data to ensure two interval reads are greater than MaxDemand Validation Parameter of .05. The file must then be pushed through the system	After VEE has ran 1. Select MeterSense menu item "Reports/Meter Reads/Interval Validation Failures" 2. Select "MaxDemand" as the validation routine 3. Click submit	The read comments should describe the interval as having failed validation, along with how much the interval consumption was, as well as the maximum consumption threshold as defined in the Validation Parameter defaults for that specific meter type.		
V14		VEE	Functional		Validation Routines - Continuous Usage	Test that a validation failure is triggered when the interval data shows continuous usage for an extended period of time. This is particularly useful for water meters to detect a leak.	1. Open "Setups/Validation/Meter Validation Parameters" and enter the test meter ID 2. Click Submit 3. Set ContinuousUsage Parameter 1 to a low threshold e.g. 5 hours. Change the Failure level to ManualEditingRequired. 4. The file containing data for the test meter must then be pushed through the system.	After VEE has ran: 1. Select a Meter which has been reporting consecutive non-zero intervals beyond what is configured for the validation parameter settings 2. View read version comments *HI MT: To find failures when validation is set to AutoAccept_SoftFailure, use the following SQL query*: SELECT * FROM INTERVALREADCOMMENTS WHERE COMMENTS LIKE 'Continuous%' AND READ_DT > '20-Oct-12'	The read comments should describe the interval as having failed validation, along with how many consecutive hours of usage the specific meter has seen, as well as the maximum threshold of both consecutive hours, and minimum hourly value, as defined in the Validation Parameter defaults.		
V15		VEE	Functional		Estimation	MeterSense will fill in any gaps in interval reads using the VEE estimation process	1. Open the .csv file containing data for a test meter 2. Manipulate the data to remove a two hour period of intervals in the day. Ensure that the last reported interval read prior to the gap and the first reported interval read following the gap contain the same consumption (i.e. Zero Consumption over the gap of missing interval reads) 3. Ensure the estimation routines are configured as desired for the utility The file must then be pushed through the system.	1. Select MeterSense menu item "Reports/Meter Problems/Meters with Estimated Intervals" 2. Specify the test meter ID, as well as the start date for which data was previously manipulated, and select Submit 3. Select "View Raw Reads" to view where the gap in interval data exists 4. Select "View Interval Reads" and select the Read_Version column to view estimation details	Clicking between "View Raw Reads" and "View Interval Reads" will allow the tester to see where the gap in interval data existed, as well as the estimated read values used to eliminate this gap. Selecting the Read_Version column will allow the tester to see details regarding the estimation algorithm used to calculate missing consumption. The estimation algorithm used should be as per configured for testing.		
V16		VEE	Functional		Estimation	MeterSense will replace estimates with actual reads, should these reads later be reported by the AMI	The MeterSense tester must manipulate test meter data in the test file to fill in the gap inserted in test 2. The MeterSense tester will then push this file through the MeterSense system	After Meter Data Load has ran: 1. Select MeterSense menu item "Meter Data/Meter Search" 2. Select the test meter and click Submit 3. Select the Meter in the list and click on the Processed Interval Reads icon. 4 Find the read date time that was overwritten and click on the Read_Version.	The actual reported data will increment the READ_VERSION from 1 (estimated) to 2 (actual)		

#	MeterSense Resource	Area	Test Type (Functional/SI)	UAT ? (Yes/No)	Test Name	Description	Notes	Steps to Execute	Expected Result	Actual Result	Pass/Fail
B1		Billing	Functional		Billing Request Import	MeterSense will consume a billing request file from the CIS with valid meter IDs for use with the MVRS billing interface	The billing request file will be generated out of the CIS and placed in the files/billing/in folder on the MeterSense server.	1. Select MeterSense menu item "Actions/Biling/Run Billing Interface" 2. Select the file to load, specify a read date and an output filename 3. Click Submit	MeterSense will process the file and provide a valid MVRS file in the files/billing/out folder		
B2		Billing	Functional		Billing Read Export	MeterSense will provide the CIS with valid reads for billing using the MVRS billing interface	**This test should be performed to include all of [Customer's] meter types**	1. Select MeterSense menu item "Actions/Biling/Run Billing Interface" 2. Select the file to load, specify a read date and an output filename 3. Click Submit	A valid MVRS file will be created under the billing output folder. The file will be populated with relevant meter reads required for CIS billing routines.		
B3		Billing	Functional		Billing read date tolerance	The MVRS for [CIS Vendor] billing file will support a configurable date range, allowing the user to specify how far in the past MeterSense will look to return a read for a billing request (if the date requested is unavailable)	To execute this test, System Config Parameter "Billing Interface Register Date Tolerances" should be set. For testing, we have set to **TBD**		To execute this test, System Config Parameter "Billing Interface Register Date Tolerances" should be set. For testing, we have set to **TBD**, meaning MeterSense will use the latest reading, up to the billing request date, as long as it is no more than **TBD** hours before the billing request date. Note that MeterSense will not use a read LATER than the billing request date.		
B4		Billing	Functional		Split Bill / Meter Changeout	The MeterSense system in concert with the CIS shall gracefully handle the split billing of an account where the meter was exchanged midway through a billing cycle.	Specifically, the utility shall insert a "takeout" read of the old meter coming out of service into the CIS, as well as entering a start read for the new meter (typically, zero). Then, when the CIS requests the register reading at the end of the billing cycle, MeterSense will return the current register reading on the new meter, which the CIS will then use to calculate the 2nd part of the split bill. The calculation of the first half of the split bill shall be handled in the CIS using the register reading from the old meter (previous billing cycle) combined with the takeout register reading. The calculation of the second half of the split bill shall be handled in the CIS using the install read in the CIS and the register reading provided by MeterSense in the billing file	1. Ask the utility to perform a meter changeout on a test account. 2. Allow additional usage to accumulate on the new meter 3. Request that the utility execute a split bill on the location where the meter was exchanged, which transcends billing cycles 4. Run billing interface on billing request file from the utility 5. Verify that MeterSense provides the register reading of the new meter, from the request date 6. Ask the utility to verify the accuracy of the split bill by auditing the two "halves" of the bill, paying particular attention to the first half which should be calculated entirely in the CIS			

#	MeterSense Resource	Area	Test Type (Functional/ SIT	UAT ? (Yes/No)	Test Name	Description	Notes	Steps to Execute	Expected Result	Actual Result	Pass/Fail
D1		CIS [Vendor]	Functional		Meter Multipliers - raw data	MeterSense will receive meter multipliers from the CIS as a part of the datasync. It is expected that the raw data from the "AMI File Type] will not have multipliers applied, and as such MeterSense is required to apply multipliers to convert raw AMI reads into common Units of Measure.		1. In the SQL file query, run the following query: SELECT * from METERS WHERE CHANNEL1_MULTIPLIER != '1' Spot check 10 of these records against the channel multiplier as shown in the SQL Server view in the Meters table for those meters	It is expected that records will be returned. The channel multiplier in MeterSense should match the multiplier made available in the database view for each of the 10 test meters.		
D2		CIS [Vendor]	Functional		Data Sync - timing	The MeterSense synchronizat on process will be t iggered at daily at [xxxx] local standard time. During this process all modified meter identification a nd account information in the CIS will be updated in MeterSense.		1. Select MeterSense menu item "System Configuration/System Log/System Log Query" 2. Chose a Date Window of 3 days 3. Under Source Process select "DataSync" 4. Click Submit	This test will display the Time Stamp for each Data Sync, as well as a message containing a summary of the sync. MeterSense will also maintain a historical archive of all data sync files revieved from [CIS System].		
D3		CIS [Vendor]	Functional		Data Sync - Location updates	MeterSense will update any synchronized Location records which have changed in the CIS since the last datasync, when the next datasync is executed	This test requires a dummy Location in the CIS which is being exported as part of the datasync. This dummy location must have values which have been recorded for every location field that is datasync'ed to MeterSense	1. Modify the dummy location in the CIS such that every field that is supposed to be synchronized to MeterSense during the data sync has been modified. 2. Wait unt l the next datasync is executed (typically, the next day). 3. Review the Location record in MeterSense and verify that it has been updated to reflect the latest updates in the CIS.	Each field that has been changed in the CIS should be updated in MeterSense after the datasync		
D4		CIS [Vendor]	Functional		Data Sync - Meter updates	MeterSense will update any synchronized Meter records which have changed in the CIS since the last datasync, when the next datasync is executed	This test requires a dummy meter in the CIS which is being exported as part of the datasync. This dummy meter must have values which have been recorded for every location field that is datasync'ed to MeterSense	1. Mod fy the dummy meter in the CIS such that every field that is supposed to be synchronized to MeterSense during the data sync has been modified. 2. Wa t until the next datasync is executed (typically, the next day). 3. Review the Location record in MeterSense and verify that it has been updated to reflect the latest updates in the CIS.	Each field that has been changed in the CIS should be updated in MeterSense after the datasync, and the previous state should be maintained in the Meter History in MeterSense.		
D5		CIS [Vendor]	Functional		Data Sync - Meter / Location Xref	MeterSense will update any synchronized Meter/Location x-ref records which have changed in the CIS since the last datasync, when the next datasync is executed	In order to test this, the tester needs a record of meter / location relationships as updated in the CIS. The tester also needs to know when an update to the CIS has taken place to verify it is propagating to MeterSense	After the datasync. 1. Open Meter / Location xref in MeterSense 2. Look for the location for which the change was made 3. Examine the records for that location in MeterSense and compare them to the known meter / location relationsh ps from the CIS	The Meter / Location xref records in MeterSense should be consistent with the active and inactive dates for the meters as indicated by the CIS.		
D6		CIS [Vendor]			Transformer Synchronization	MeterSense will update the Transformers table daily based upon information made available to MeterSense via a Database View as part of the datasync	The relevant fields from the CIS must be made available to MeterSense for use in the datasync process.	1. View the TRANSFORMERS table in MeterSense 2. Compare the contents of the TRANSFORMERS table in MeterSense against the actual transformer information as stored in the CIS for at least 3 unique transformers 3. Perform an update in the CIS, wait until next Datasync, and compare against to confirm changes	The TRANSFORMER information in MeterSense should be consistent with that in the CIS system. When changes are made to the CIS system, those changes should be reflected in MeterSense after the next datasync.		
D7		CIS [Vendor]			Meter / Transformer Relationships	MeterSense will update TRANSFORMERS and LOCATION_TRANSFORMER_XREF tables based upon information made available to MeterSense via the CIS system., as part of the datasync	The relevant fields from the CIS must be made available to MeterSense for use in the datasync process.	1. View the LOCATION_TRANSFORMER_XREF table in MeterSense 2. Compare the contents of the LOCATION_TRANSFORMER_XREF table in MeterSense against the actual transformer / location relationships information as stored in the CIS for at least 3 unique transformers 3. Perform an update in the CIS, wait until next Datasync, and compare against to confirm changes	The LOCATION / TRANSFORMER information in MeterSense should be consistent with that in the CIS system. When changes are made to the CIS system, those changes should be reflected in MeterSense after the next datasync.		
D8		AMI [Vendor]	Functional		Meter Data Import Execution	MeterSense will load meter data as configured in VEE Profiles and VEE Job Schedules. This data will be loaded into the MeterSense rawreads and ravinte val reads tables.		1. Select MeterSense menu item "System Configuration/VEE Job Scheduler Setups/VEE Profile Schedules. Use this page to identify which profile is effective and when 2. Open MeterSense menu item "System Configuration/VEE Job Scheduler Setups/VEE Profile Setup" and observe the Meter Data Load Delay for the current profile in effect. This will allow the tester to identify how often the meter data load is expected to run for the current day and period. 3. Select MeterSense menu item "System Configuration/System Log/System Log Query" and filter by Source Process "Meter Data Import" for the current day. Observe the process timestamp.	The frequency with which the meter data load must match the Meter Data Load Delay for the profile in current effect.		
D9		AMI [Vendor]	Functional		Meter Data Import Tim ng	MeterSense will verify if any fi es are pending for validation as configured in VEE Profiles and VEE Job Schedulers and will process al fi es waiting for validation. After MeterSense completes processing the meter data files, MeterSense will keep checking for any further pending files as configured in VEE Profiles and VEE Job Schedulers.		1. Select MeterSense menu item "System Configuration/VEE Job Scheduler Setups/VEE Profile Schedules. Use this page to identify which profile is effective and when. 2. Open MeterSense menu item "System Configuration/VEE Job Scheduler Setups/VEE Profile Setup" and observe the Check for Pending Delay parameter for the current profile in effect. This will allow the tester to identify how frequently the job scheduler checks for "pending" raw meter read records and assigns them to VEE jobs for the current day and period. 3. Select MeterSense menu item "System Configuration/VEE Job Schedule Reports/VEE Job Scheduler Status" and monitor the "Last Check for Pending VEE Requests" to ensure the check executes as configured in the effective profile.	The Last Check for Pend ng VEE Requests should execute and update as configured in the current VEE Profile		
D10		AMI [Vendor]	Functional		Meter Data Import Contents	The contents of the AMI files will be consistent with what is described in the Requirements document with respect to time window (midn ght to midnight local time), interval length, and number of registers.		1. Open an IntervalReport AMI file in a text editor 2. Verify that the contents for the electric meter readings are consistent with the requirements (register read(s), interval length). 3. Repeat this process for all meter types			
D11		AMI [Vendor]			Peak Demand Data	MeterSense will be provided with peak demand data from the AMI us ng file format TBD		1. Select MeterSense menu item "Meter Data/Meter Search" 2. Enter a Demand Meter ID, or search for a Demand Meter ID using the meter picker 3. Click Submit 4. Select a Meter ID and select the Processed Interval Reads icon from the task pane	The generated report will display the read date and time, the demand read value, version, and status for the selected meter. Demand data is maintained in		
D12		Rules	Functional		Weather Data Import	Weather data will be imported to MeterSense on a daily basis	System Config Parameters can be modified to display the temperature in F and to select the temperature averaging method.	1. Select MeterSense menu item "Setup/Weather Data". 2. Review the weather information provided. 3. Select MeterSense menu item "Meter Data/Meter Search" 4. Select a test meter and click Submit. 5. Select the Meter in the list and click on the Interval Bar Graph icon. 6. Review the temperature on the consumption graph and zoom in and out 7. Check System Log to verify weather data is loading	Weather data will be displayed in the MeterSense tables and in MeterSense Interval Bar Graph. Weather data will be loaded daily.		

#	MeterSense Resource	Area	Test Type (Functional /SI)	UAT? (Yes/No)	Test Name	Description	Notes	Steps to Execute	Expected Result	Actual Result	Pass/Fail
RA1		**Remote Action**	Functional		On Demand Read	MeterSense will ping a meter for an on demand read		1. Select MeterSense menu item "Actions/Meters/On Demand Read" 2. Enter a Meter ID, or search for a meter ID with the Meter Picker 3.Click Submit 4. Note the reading 5. Confirm with [Customer] staff that the reading is consistent with what is displayed on the meter	Reading returned to MeterSense shall match that on the meter dial / display		
RA2		**Remote Action**	Functional		Remote Disconnect	MeterSense will remotely disconnect a meter on demand	Tester must identify a test meter which supports remote disconnect, and is currently energized, and the relay is open (load side is *disconnected*)	1. Select MeterSense menu item "Actions/Meters/Remote Disconnect" 2. Enter the Meter ID, or search for a meter ID with the Meter Picker 3.Click Submit. 4. Wait for confirmation of action 5. Confirm with [Customer] staff that the state changed.	If MeterSense confirms the remote action was successful, the relay on the meter in question should be open (service / load DISCONNECTED)		
RA3		**Remote Action**	Functional		Remote Reconnect	MeterSense will remotely reconnect a meter on demand	Tester must identify a test meter which supports remote reconnect, and is currently energized, and the relay is closed (load side is *connected*)	1. Select MeterSense menu item "Actions/Meters/Remote Connect" 2. Enter the Meter ID, or search for a meter ID with the Meter Picker 3.Click Submit 4. Wait for confirmation of action 5. Confirm with [Customer] staff that the state changed.	If MeterSense confirms the remote action was successful, the relay on the meter in question should be closed (service / load CONNECTED)		
RA4		**Remote Action**	Functional		Remote Demand Reset	MeterSense will reset demand register(s) on meters that support this, remotely, on demand. This includes kW and kVA registers.		1. Select MeterSense menu item "Actions/Meters/Demand Reset" 2. Enter a Meter ID, or search for a meter ID with the Meter Picker 3.Click Submit.	If MeterSense confirms the remote action is successful, the demand register(s) in the meter shall be reset		

#	MeterSense Resource	Area	Test Type (Functional/ SI)	UAT ? (Yes/No)	Test Name	Description	Notes	Steps to Execute	Expected Result	Actual Result	Pass/Fail
R1		**Reporting**	Functional		Meter Events Report	MeterSense will query and display meter events in a tabular report	The MeterSense tester must be provided with the MultiSpeak log and AlarmReport for a single day	1. The MeterSense tester will create a test AlarmsReport file for import into MeterSense 2. This will will contain 5 meter records (test meters) with different event types 3. The file will be processed through the meter data import process 4. Run the Event Query for test meters 1 through 5 for the test date.	The tester will be able to compare the meter events report generated against the test AlarmReport file, and see perfect correlation.		
R2		**Reporting**	Functional		Meter Events Summary	MeterSense will generate a meter event summary report	The MeterSense tester must be provided with the MultiSpeak log and AlarmReport for a single day	1. Select MeterSense menu item "Reports/Meter Events/Event Type Summary" 2. Choose Meter Read Failures as the Event Type. Ensure the selected date matches that in the Alarm Report 3. Select Submit 4. Cross check each meter ID to the Alarm Report to ensure perfect correlation between the generated MeterSense events report and	The tester will be able to compare the meter events report generated from the MultiSpeak log and Alarm Report against the reported events in MeterSense and see perfect correlation.		
R3		**Reporting**	Functional		Meters Missing Interval Reads	MeterSense will check for and report missing intervals	MeterSense must manipulate meter data to ensure missing intervals	1. Select MeterSense menu item "Reports/Meter Problems/Meters Missing Interval Reads" 2. Search by the test meter number 3. Click Submit.	The generated report will display available number of reads against the expected number of reads. Clicking "View Raw Reads" will reveal the exact missing intervals. Clicking "View Interval reads" will reveal the estimates generated for these missing intervals.		
R4		**Reporting**	Functional		Meter Non Communication Listing	MeterSense will identify and report meters that have not communicated for more than a specified threshold	1. The MeterSense tester must create a test .csv file containing data for a group of meters in the [Customer] system. This file must then be pushed through the MeterSense system. 2. The MeterSense tester must manipulate the test .csv file created in step one to completely remove all line items for one specific meter. The file must then be pushed through the MeterSense	1. Select MeterSense menu item "Reports/Communications/Meter Non-Communication Listing" 2. Specify the desired non-communication window 3. Select Go	This process will display pertinent non-communication information about meters which have not reported within the defined threshold. For these purposes, non-communication means that the meter in question has not been found in any [AMI] files loaded within the date parameters. Details available include the Meter ID and Meter Name, the First and Last Data time stamp, as well as the number of days since the last data was received.		
R5		**Reporting**	Functional		Maps - Non Communicating meters	MeterSense will display non-communicating meters in a graphical map format	1. The MeterSense tester must create a test .csv file containing data for a group of meters in the [Customer] system. This file must then be pushed through the MeterSense system. 2. The MeterSense tester must manipulate the test .csv file created in step one to completely remove all line items for one specific meter. The file must then be pushed through the MeterSense system.	1. Select MeterSense menu item "Reports/Dashboards/Non Communication Dashboard"	The graphical report will display the number of meters that have failed to communicate within various time frames, and display these meters on a map. Only meters with valid lat/long coordinates will be displayed on the map.		
R6		**Reporting**	Functional		Vacant Consumption	MeterSense must be able to identify meters that have been cut but have consumption. Note - the meter will continue to report, but the usage should be zero.	The MeterSense tester must turn the Meter's Status to "OFF" in the MeterSense database. The MeterSense tester will then push a [AMI type] file containing reads for the meter with Status OFF into the MeterSense sytem.	1. Select MeterSense menu item "Reports/Meter Problems/Vacant Consumption Report" 2. Select Go 3. If no active meters in "off" power status state, modify one known to have usage in the CIS to test this report. Once some usage has been loaded into Metersense with a timestamp AFTER the day the power status was changed to "off", run the Vacant	The generated report will display the meter for which data was previously manipulated, specifying the day for which the status was switched to OFF as well as the Max Read since cut.		
R7		**Reporting**	Functional		Meter Data	MeterSense will display usage information.		1. Select an electric meter which is active and is known to have usage (use map) 2. Use the Meter Picker to display processed register reads 3. Verify that register read data is being displayed in kWh 4. Repeat this step for Interval Data 5. Compare the data in MeterSense to that in the source [AMI Type] file 6. Repeat for all meter types (adjust expected UoM accordingly)	MeterSense should display register readings for the meter chosen. This information should also include datestamp / timestamps of the reads. MeterSense should also display hourly consumption data for the meter selected in the Processed Interval Reads Report. The reads should come through with the correct multiplier & unit of measure and the timestamp should be consistent with the source file		

#	MeterSense Resource	Area	Test Type (Functional/SI)	UAT? (Yes/No)	Test Name	Description	Notes	Steps to Execute	Expected Result	Actual Result	Pass/Fail
C1		Custom Rule			TBD						
C2		User Defined Items			TBD						

#	MeterSense Resource	Area	Test Type (Functional/SI)	UAT ? (Yes/No)	Test Name	Description	Notes	Steps to Execute	Expected Result	Actual Result	Pass/Fail
51		**Security**	Functional		Access Grants	MeterSense is able to assign different access levels (roles) to various users within the system		1. Select MeterSense menu item "System Configuration/Security/MeterSense Users" to find a user for this test 2. Select MeterSense menu item "System Configuration/Security/MeterSense Roles" to ensure there is an existing role for READONLY capabilities 3. To grant a role to a user select "System Configuration/Security/Role Members". Select the READONLY role and [illegible] 4. Select the user from the Non Members field, click the right arrow to move this user into the Members field and click save. Make sure this user does not belong to more than one Role 5. Select MeterSense menu item "System Configuration/Security/Synchronize Security" and select Synchronize Security Now 6. After the synchronization is complete, test that the user now has limitations to their login while in MeterSense; specifically they should not be able to make changes to the system, only view data	MeterSense allows full feature System Admin capability from assigning users, roles, access privilege to screens, commands, applications and even down to specific fields. All access control is granted to "roles" in the system. A user has access to the roles the user is a member of.		

#	MeterSense Resource	Area	Test Type (Functional/SI)	UAT ? (Yes/No)	Test Name	Description	Notes	Steps to Execute	Expected Result	Actual Result	Pass/Fail
G1		GIS	Functional		[Customer] ESRI Layers linked to MeterSense (if available)	MeterSense will support the use of [Customer] layers in the MeterSense mapping reports, provided they are available as a standard ESRI web hook		1. Select Dashboards&Reports - Classic Dashboard 2. Select Filter and Display settings 3. Pick the Base Map dropdown 4. Select the DPU map that has been configured in MeterSense 5. Choose "Update Map" 6. Confirm that MeterSense is able to display the [Customer] layer(s)	The layer(s) displayed should be the utility layers for which a standard ESRI link was provided to MeterSense PS, and configured in the client's instance of MeterSense		
G2		GIS			Coordinate Updates	MeterSense will update the coordinates of AMI meters daily based upon information made available to MeterSense via a Database View as part of the datasync	The relevant fields from the GIS must be made available to MeterSense for use in the datasync process.	1. View the METERS table in MeterSense 2. Compare the contents of the LATITUDE and LONGITUDE in MeterSense against the actual coordinate information as stored in the GIS for at least 3 unique meters 3. Perform an update in the GIS and wait until next Datasync. Compare against to confirm changes have been passed to	The coordinate information in MeterSense should be consistent with that in the GIS system. When changes are made to the GIS system, those changes should be reflected in MeterSense after the next datasync.		

Statement of Work
Customer Web Portal - CustomerConnect

Presented to
City of Long Beach
Long Beach Gas and Oil

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Version 0.1	2014.05.07	G.Belanger	Initial Draft.
Version 0.2	2014.08.08	M.Brown	Updates per review with Customer and UtiliWorks
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Table of Contents

Contents

1 Introduction

1.1 Purpose

This Statement of Work (SOW) defines the work to be performed by the Harris Utilities, SmartWorks division of N.Harris Computer Corporation (Herein referred to as "Consultant") for the City of Long Beach (Herein referred to as "Customer"). This SOW includes a high level timeline, fees, and other Terms and Conditions specific to the services requested by Customer.

This document serves as the complete understanding, between Customer and Consultant, as to what the current Statement of Work entails. This document will be used as a reference by Consultant for the configuration and implementation of CustomerConnect. This document will also be used by Customer to determine if CustomerConnect provides the functionality requested and agreed to, per this document. If there are any issues during the project lifecycle, this document will be used to determine if the issue is a configuration/development issue or if the issue was not included as part of the current Statement of Work.

After signing, changes to this document shall be made through the Scope Management Process described in section 3.3.

1.2 Project Objectives

The high level objectives of this project are to:

1. Install, configure and implement core CustomerConnect v. 2.1.1. Solution and Software modules defined in section 2. These solutions will be installed in the Sensus Data Center.
2. Deliver system training designed to develop customer competency with the use and configuration of the CustomerConnect solution.

2 Project Scope

The scope of this SOW is to implement CustomerConnect for Customer and to train the key people on the operation of the CustomerConnect solution.
The project scope includes:

1. Install the core CustomerConnect Platform;
2. Install and configure the HomeConnect module;
3. Install and configure the BizConnect module;
4. Train Customer staff.

2.1 Solution Description

2.1.1 Software Modules

The following CustomerConnect modules will be installed and configured as part of the scope of this engagement:

- HomeConnect
- BizConnect

Consultant will deploy two instances of the CustomerConnect solution in the Sensus Data Center environment: one Test instance and one Primary Production instance.

2.1.2 CustomerConnect Included Functionality

At the end of the implementation Consultant will have delivered the CustomerConnect Platform and modules with the following functionality:

2.1.2.1 CustomerConnect Platform

The CustomerConnect platform module is the administrative framework that the entire suite will work from. This is where the users will be administered and will have the ability to manage their profiles.

Below is a list of Features that are available:

- *Administration of users*
  - *Search for an Existing User*
  - *Administrators Setup*
  - *Customer Service Reps Setup*
  - *Customer User Setup*
- *Configure password policy*
- *Integration of Google Analytics*
- *View and Manage Account Information*
  - *Registration of new accounts (validation against most recent bill)*
  - *Update Password*
  - *Update Email Address*

- *Update Account Users*
- *View Billing Information*
- *Update Notification Settings*
- *Deactivate CustomerConnect Account*
- *Login/out of CustomerConnect*
- *Switching of accounts for customers with multiple accounts*

- *Library*
  - *Create a New Library Item*
  - *Edit an Existing Library Item*
  - *Feature an Existing Library Item*
  - *Unpublish an Existing Library Item*
  - *Remove an Existing Library Item*
  - *End user view of any published Library Item*
- *Manage Target Audiences*
  - *Search for an Existing Target Audience*
  - *Create a New Target Audience*
  - *Edit Target Audience Members*
  - *Remove an Existing Target Audience*
- *Manage Notifications*
  - *Create a New Notification*
  - *View/Edit/Remove an Existing Notification*
  - *Reschedule a Notification*
- *Manage Appearance of CustomerConnect Pages*
  - *Customize the General Appearance*
  - *Customize the Header*
  - *Customize the Navigation Menu*
- *Manage Contents*
  - *Customize the Page Sections*
  - *Customize the Marketing Footer*

The utility facing user interface enables the utility staff, typically the Customer Service Representatives (CSRs), to be able to assist the user by navigating the portal as they would (masquerading as the user), while making use of some additional administrational functions.

CustomerConnect is a web based application; standard desktop hardware is required for connectivity. The only requirements are an Internet connection and a web browser, CustomerConnect is designed to be compatible with the following web browsers.

- Microsoft Internet Explorer 8+
- Mozilla Firefox 3+
- Apple Safari 3+
- Google Chrome 10+

While consumers are able to log into CustomerConnect using browsers on their mobile devices, some display features may not work properly. Currently, CustomerConnect is not officially supported on mobile devices.

2.1.3 Application Level Modules

The application level contains 2 modules, which provide full functionality across its specified domain. At least one application level module must be in place for any implementations. The modules at this level are HomeConnect, BizConnect.

2.1.3.1 HomeConnect

HomeConnect consists of functionality that leverages the interval data served up by smart metering systems. This includes display of usage history and available units of measure in the MDM in graphical and tabular formats. It also includes content targeted for the education of users towards reducing their bills, targeted alerts and notifications based on defined thresholds, plus usage comparisons to customers within the utility area.

List of Features:

- *Home Page*
  - *Utility-configurable banner, footer and color scheme*
  - *Navigation menus*
  - *Widgets of information that show:*
    - *Past 30 days consumption*
    - *My Progress score card based on comparison to previous month*
    - *Random educational Library article*
    - *My Rates (TOU periods and rates or tiers with rates)*
- *Notifications*
  - *Set up notification by threshold*
  - *Send notification*
    - *To view in the CustomerConnect Home Page*
    - *By email*
    - *By voice call (requires integration to IVR solution provided by Tele-Works (TWI))*
    - *By alert*
  - *Provide notification history report*
- *Consumption Report*
  - *Display and compare the user's usage by Day, week or month.*
  - *Display the usage for the defined Time Of Use periods.*
  - *Overlay previous time period.*
  - *Overlay temperature, average usage or other meter if available.*
  - *Enable user to save, print or export their usage data*
- *Library of Education & Tips*

2.1.3.2 BizConnect

BizConnect provides features and functionality that are targeted towards the Commercial and Industrial (C&I) users within the utility's customer base. BizConnect provides richer analytics into the C&I environment, ultimately allowing these users to manage their consumption, their cost and their risk in a more precise manner. **BizConnect will be available in Q4 2014.**

The functional design for BizConnect currently includes the following functionality:

- Benchmarking reports to compare usage and demand or flow, where applicable between multiple meters to identify variability in consumption across locations.
- Comparison reports to assess difference in consumption from one time period to another, to identify variability in time.
- Threshold notifications to provide warning of consumption levels relative to thresholds.
- Meter Event reporting.
- Cost reporting.
- Environmental impact reporting.
- Informational tips and education.

2.2 Integrations

The following integrations are included in the project scope:

2.2.1 Customer Information System Integration

Consultant will support Customer in developing a CIS integration to provide a CIS user with the ability to launch into a guided session from the CIS. These activities include:

- Provide URL information to the CIS vendor
- Support CIS Vendor led unit and integration testing (up to 5 hours support will be provided)

2.2.2 Customer Web Portal Integration

Single Sign On

Consultant will configure CustomerConnect to enable single authentication from Customer's web portal.

Customer will provide ODBC/JDBC to connectivity to a Customer database containing end user account login information. With this information, CustomerConnect will provide LDAP authentication bridged from Customer web portal.

Note: this single sign on process will replace any registration processes within CustomerConnect.

2.2.3 Weather integration

CustomerConnect will integrate weather data services with daily feed of observed weather data received from the Weather Network weather station determined to be closest to Customer's location.

The following weather data, if provided by the weather station, will be imported into MeterSense:

- Temperature (Hourly)
- Humidity (Hourly)
- Wind Speed (Hourly)
- Wind Direction (Hourly)
- Weather Conditions (Hourly)
- Precipitation (Daily)

This data is automatically downloaded from Consultant's data provider for a weather station or stations in the customer's service area, and is automatically inserted into the CustomerConnect database.

2.2.4 MDM Integration (MeterSense 4.1)

CustomerConnect will integrate with MeterSense MDM to acquire customer usage data for presentment (Customer Usage Data). CustomerConnect will also integrate with MeterSense MDM to acquire customer information required to validate login credentials and customer characteristics (Customer Information Data).

Customer Usage Data

CustomerConnect will use MeterSense as a repository of customer usage data. Consultant will establish an integration between MeterSense and CustomerConnect to acquire this data and use it for presentment using an API. The system of record for this data is MeterSense.

Customer Information Data

CustomerConnect will use MeterSense as a repository of data required by CustomerConnect to validate customers. Consultant will establish an integration between MeterSense and Customer connect for this purpose using an API. The system of record for this data is Customer's CIS.

Consultant will establish a daily synchronization between MeterSense and Customer's CIS to acquire this data. A daily full periodic synchronization activity will occur. This integration will be established using a file transfer from the CIS to MeterSense MDM. The file will be developed by the CIS vendor or another agent of Customer.

The minimum information to be provided from Customer's CIS to MeterSense will include the following:

- Customer Account information (such as account name, account ID, occupant code, address, customer name, etc.)
- A date-driven cross reference between account and location (i.e. customer move in/out information)
- A date-driven cross reference between meter and location number (i.e. when a meter is installed and removed from a location)
- Account rate structure information (Tiered rates or Time of Use rates)
- Billing information (Bill codes, Bill Dates, last bill amount, last read date etc.)
- Utility commodity information (water, electric, gas).

2.3 Project Deliverables, Milestones and Work Products

The following deliverables, milestones and work products are included in this project, where ***deliverables*** are items created during the engagement that may require formal review and approval by the customer, and ***work products*** are items created during the engagement that are reviewed by the customer but do not require formal approval by the customer.

2.3.1 Deliverables and Milestones

The following list identifies the key deliverables and milestones associated with this project:

- Project Kick-Off Meeting
- Functional and Integration Requirements Document
- Testing Plan
- Training Plan
- CustomerConnect Platform and HomeConnect and BizConnect Software Installation
- Software Integration as described in the preceding section
- Software Configuration
- Functional User Training

2.3.2 Work Products

The following list identifies the key work product documentation associated with this project:

- Acceptance Criteria Document
- Test Case Scenario Checklist
- CustomerConnect Test Results
- Training Manual
- Go-Live Approach Document
- Configuration documentation describing the "As-Built" configured condition after Go-Live
- Product user guides

2.4 Areas Out of Scope

Anything not listed in the above "Project Scope" is considered out of scope for this SOW.

3 Project Management Approach

3.1 Project Manager

Project Management services are included in this engagement. These services include:

- Facilitating regular (weekly) status meetings and submitting status reports as agreed upon with Customer;
- Management and coordination of Consultant's resources; and
- Management of project scope and change control processes.

3.2 Work Management Approach

The Consultant eSupport application will be used to track project issues such as software deficiencies and other lower level action items. The entire project team from both Consultant and Customer will have access to eSupport.

3.3 Scope Management Approach

Consultant will maintain the SOW for the CustomerConnect product with formal documentation denoting the agreed upon deliverables and scope. Customer and/or Consultant may propose changes to this SOW to address services that fall outside the scope of services described in this SOW ("change requests"). The Change Control Form must be used for all change requests. Consultant shall have no obligation to commence work in connection with any change until the fee and schedule impact of the change is agreed upon in a written Change Control Form signed by the designated representatives from both parties.

Upon a request for a change, Consultant shall submit the change on our standard Change Control Form describing the change, including the impact of the change on the schedule, fees and expenses. The Change Management Process that will be employed is defined below:

- Identify and document proposed change
- Assess impact of proposed change
- Estimate required effort / cost of proposed change
- Submit Change Control for Approval / Disapproval
- Communicate Change Control Decision
- If Proposed Change is Approved:
  - Assign responsibility
  - Monitor and report progress

Within five consecutive business days of receipt of the Change Control Form (or any other period of time mutually agreed to by the parties), Customer shall either indicate acceptance or rejection of the proposed change by signing the Change Control Form. If Consultant is advised not to perform the change, then Consultant shall proceed only with the original services. In the absence of Customer's acceptance or rejection of the Change Control Form, Consultant will not perform the proposed change.

3.4 Service Deliverable Acceptance Process

If applicable, at specified milestones throughout the engagement, Consultant will deliver completed service deliverables ("deliverables") for review and approval. To ensure the project is not unduly delayed, service deliverables shall be reviewed within a mutually agreed upon time frame. After the

mutually agreed upon time frame, use or partial use of any service deliverable will constitute acceptance of that service deliverable. Feedback supplied after the review period will be evaluated as a potential change of scope and shall follow the Change Management Process described in section 3.3.
The service deliverable acceptance process is described below.

- **Submission of Deliverables** - The Consultant Project Manager, or his/her designee, will prepare a service deliverable acceptance form and forward with the respective service deliverable to the designated Customer representative for consideration.
- **Assessment of Service Deliverables** - The Customer representative will determine whether the service deliverable meets the requirements as defined in this SOW and that the service deliverable is complete.
- **Acceptance / Rejection** - After reviewing, Customer will either accept the service deliverable (by signing and dating the service deliverable Acceptance Form) or will provide a written reason for rejecting it and will return the service deliverable Acceptance Form to the Consultant Project Manager.
- **Correction of Service Deliverables** – Consultant will correct the in-scope items identified with the service deliverable. Consultant will submit a schedule for making changes to the service deliverable upon receipt of a rejected service deliverable Acceptance Form. Once Consultant corrects all previously identified in-scope issues, the service deliverable will be deemed accepted.
- **Monitoring and Reporting** - The Consultant Project Manager will track service deliverable acceptance. Updates on service deliverable acceptance will be included in the status reports and discussed in the status meetings. Service deliverable acceptance issues that cannot be resolved will be escalated.

4 Delivery Approach

4.1 Implementation Timeline

The estimated duration of this engagement is approximately **9 weeks** based on our current understanding of the requirements, and will conform closely to the following timeline. The CustomerConnect implementation will commence during the Beta phase of the overall CLB project.
This timeline assumes the IT environment is available for the installation and configuration of the solution.

Milestones	Timeline	Description	Owner	Deliverable/Work Product
Kick Off / Definition	Week 1	• Customer Contact • Scheduling with CustomerConnect team and Customer • Review of Hardware Requirements • Review Project Schedule • Hold CustomerConnect Solution Overview Session • Hold Functionality Review Session with Customer • Integration Requirements/Design • Review Acceptance Criteria Document	• Consultant Project Manager • Customer Project Manager (or Primary point of contact) • Consultant Functional Consultant • Customer Core Team	Project Kick-Off Meeting
Hardware Review	Week 1 / 2	• Overview and acceptance of proposed hardware and OS • Connection to Customer's server to confirm hardware and OS	• CustomerConnect Environment Consultant • Customer Technical Resources	
Discovery	Week 2/3	• Review of integration APIs • Review of Requirements for integrations to	• CustomerConnect Technical Consultant • CustomerConnect	Functional and Integration Requirements Document

		various supporting applications	Functional Consultant • Customer Technical Resources	
Validation Plan	Week 3	• Review and confirm the Test Plan • Review, update and create new test scenarios (as required) in the Test Case Scenario Checklist	• CustomerConnect Project Manager • CustomerConnect Functional Consultant • Customer Core Team (for review)	Testing Plan
Training Plan	Week 3	• Review and confirm the Training Plan • Training Agenda prepared and accepted	• CustomerConnect Project Manager	Training Plan
Installation	Week 3/4	• Software Installation and initial configuration • Configuration based on Requirements	• CustomerConnect Technical Consultant • CustomerConnect Functional Consultant	CustomerConnect Platform and HomeConnect and BizConnect Software Installation
Walk-Through	Week 5	• Walk through of configured solution with Customer Core Team	• CustomerConnect Technical Consultant • Customer Core Team	Software Integration as described in the preceding section Software Configuration
Validation of Configured Solution	Week 5	• Customer testing with the Test Case Scenario Checklist	• Technical Consultant • Customer Core Team	
Go-Live Approach Checklist	Week 6	• Includes steps for Go-Live and Go-Live timing • Who needs to be available and when • Discuss impact of installation on LIVE	• CustomerConnect Project Manager • CustomerConnect Technical Consultant • Customer Project	

		environment.	Manager (or primary point of contact) • Customer Core Team		
Training Conducted	Week 7	• Training Agendas delivered • Training Manuals delivered • CustomerConnect Solution Training Session	• CustomerConnect Functional Consultant • Customer End-Users	Functional Training	User
Go-Live Readiness	Week 7	• Preparing LIVE environment for Go-Live • Customer internally confirms functionality before releasing to their customer base. • Create Test Environment (if applicable) • Includes Go-Live checklist.	• CustomerConnect Technical Consultant • Customer Core Team	•	
Go-Live	Week 8	• Release to Customer's customer base			
Go-Live Support	Week 8/9	• Provide support to Customer during Go-Live phase. • At this time Customer should be logging support calls into the eSupport application.	• CustomerConnect Technical Consultant		
Transition to Support Services	Week 9	• Knowledge transfer to Support Services • Close out any items that are remaining from the Acceptance Criteria document • Transition to Support Services Team Lead • Final deliverable sign-off	• CustomerConnect Technical Consultant • Support Services Team Lead • Customer primary point of contact		

4.2 Validation/Testing Approach

To ensure that a quality solution is delivered to Customer, Consultant will validate that the delivered solution performs as per the agreed upon requirements. The three main testing activities are:

- Functional Testing to ensure that the solution (configuration, interfaces, reports and modifications) behaves per agreed upon requirements based on the Test Case Scenario Checklist.
- Integration Testing to ensure that the solution behaves as expected from end to end based on the Test Case Scenario Checklist.
- User Acceptance Testing to ensure that Customer validates that the solution behaves as per the agreed upon requirements based on the Test Case Scenario Checklist.

The Acceptance Criteria Document provides a central listing of all the deliverables to be completed throughout the project and is used to note the approval of the deliverables as they are delivered. This document will be reviewed regularly throughout the project to provide Customer with an overview of the progress of these deliverables. The acceptance criteria shall be limited to the functionality defined in Appendix B.

4.3 Training

Consultant recommends that CustomerConnect training be provided to Customer Service Representatives (CSRs) who may be called by customers as well as to individuals who will be called upon to administer the CustomerConnect solution.

In terms of skill-sets required to manage the tool, Consultant recommends a good understanding of the business aspects of the portal and of the data that is presented. Consultant does not believe that a strong technical background is required in order to be successful.

The following training sessions (all via WebEx) will be provided to Customer as part of this engagement:

- CustomerConnect Platform and Solution Overview Session (2 Hours)
- CustomerConnect Solution Administration Session (4 Hours) – *Recommended maximum of 10 trainees*
- CustomerConnect Platform and Solution End-User Training Session (4 Hours)

As part of the training, Consultant will provide user manuals which will allow Customer to refresh their knowledge of the solution as needed moving forward.

4.4 Engagement Completion Criteria

CustomerConnect Implementation Engagement is deemed completed once all Consultant CustomerConnect Functionality within scope of this SOW have been deployed to the "live" environment (i.e. used by Customer Personnel) for 30 calendar days and that any Severity Level 1 and 2 items, as defined in the following table, raised during that period have been resolved. The acceptance criteria shall be limited to the functionality defined in Appendix B.

Severity Level	Definition
1	• System Down (Software Application, Hardware, Operating System, Database) • Impacts Critical Business Function without a workaround: • Performance issues of severe nature impacting critical processes.
2	• System errors that have workarounds • Impact to business function is not critical: o Performance issues not impacting critical processes o Usability issues o Workstation connectivity issues (Workstation specific)
3	• Minimal or no impact to critical business function • Report formatting issues • Training questions, how to, or implementing new processes • Aesthetic issues • Minor issues where a Customer approved workaround is available for a large majority of cases • Recommendations for enhancements on system changes • Questions on documentation

5 Fees & Payment Schedule

Professional Services Fees CustomerConnect: ***$85,000***

Payment Milestone	Percent	Amount
Contract Signing	10%	$8,500
Overall Monthly Project Support beginning November 1, 2014 – June 30, 2015 (8 months) billed monthly at $4,250 – if the project ends early then balance will be due upon acceptance	40%	$34,000
CustomeConnect Functional and Integrations Requirement Document	5%	$4,250
CustomerConnect Acceptance Criteria Document	5%	$4,250
CustomerConnect Testing Plan	5%	$4,250
Customer Connect Training Plan	5%	$4,250
CustomerConnect Complete Training and Deliver Training Manuals	20%	$17,000
CustomerConnect Go-Live Approach Document	5%	$4,250
CustomerConnect Configuration "As-Built" Document	5%	$4,250
Total	**100%**	**$85,000**

Payment Milestone		Amount
For Additional Support Service Previously Approved by CLB via Change Order, Billed Hourly	Per Hour	$200

Project travel is in addition to these fees. Travel is subject to approval by the Customer Project manager.

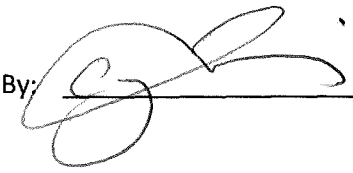
6 Assumptions

The Services, fees and delivery schedule for this engagement are based upon the following assumptions:

1. Any items not explicitly identified within this document are considered out of scope. Any changes to those responsibilities and/or deliverables will be considered a change in scope for the engagement. Any proposed change to the engagement scope must be put into written format and be submitted to Consultant during this engagement for review and consideration.
2. This engagement currently has, and will continue to have, the support of senior Customer management and will be assigned sufficient priority with respect to other project to ensure its success.
3. Customer will assign a lead to act as an internal resource and guide throughout this engagement.
4. Customer will secure the appropriate staff in a timely fashion in order to discuss or review the various materials produced when required.
5. Customer will provide access and support from the IT group and any other stakeholder, as deemed necessary by Consultant throughout this engagement.
6. Customer agrees to facilitate any required Customer Corporate logistics for the fulfillment of this agreement.
7. Customer will secure, as required and in a timely fashion, the assistance and cooperation of Third Party Vendors (e.g. CIS, AMI, MDM) to ensure a successful CustomerConnect Implementation. A change control may be created if the Third Party Vendor is unavailable or non-cooperative and as such results in an impact to the schedule or effort.
8. Third Party Vendors Solutions are able to provide information required by the CustomerConnect Solution as well as accept information provided by the CustomerConnect Solution.
9. All documentation provided by Customer shall be up-to-date and accurate or if that is not the case, advise Consultant as such.
10. All hardware, software, and network components supplied by Customer are working properly and are free of defects and will meet minimum hardware standards provided during the engagement.
11. To minimize project costs, the majority of project work will be performed at one of the Consultant's locations except for project activities where face-to-face is deemed more effective.
12. Customer will provide the appropriate remote access to its network, facilities, and systems as may be required to perform activities from one of Consultant's locations. Consultant shall abide by all rules and directions of Customer when accessing Customer's network, facilities or systems.
13. Price does not include Customer approved Travel and Living expenses that may be required as part of the delivery of the engagement unless specified in the contract (i.e. Air, car rental, gas, per diem and hotel). Consultant will work with Customer to identify most cost effective accommodations for Customer on-site activities that are mutually agreed upon.

7 Statement of Work Acceptance and Signoff

A signature below will signify acceptance of the terms of this Statement of Work and will serve as authorization to proceed with the activities described herein.

City of Long Beach	**N.Harris Computer Corporation, Harris Utilities, SmartWorks**
By: _____	By: 
Name: _____	Name: Chris J. Lewis
Title: _____	Title: Executive Vice President
Date: _____	Date: September 1, 2014

Appendix A - Hardware Specifications

CustomerConnect recommends two installation environments, a test instance and a production instance. All environments can be run within a virtual configuration so long as the adequate number of physical resources is allocated appropriately to the virtual machine.

In all cases, the database environment recommended is PostgreSQL 9+ and this will be installed and configured as part of the implementation process. In addition, the application server Apache Tomcat 6+, will be installed and configured as part of the implementation process.

The production environment will require the purchase of a certificate from a central authority (CA) to ensure that the application can be configured for use on a secure port for SSL.

Test Environment Specifications:

Component	Specification
Processor	2 or more Quad-Core Intel® Xeon® 2.00GHz processors, 2x4MB L2 Cache (or larger), 1333MHz Front Side Bus (or faster)
Memory	16GB DDR2 400MHz Dual Ranked DIMMs (or better and upgradeable)
Storage	500 GB
Network Access	Dual 1GB network cards
Operating System	Microsoft Windows Server 2008 64-bit (Standard Edition)
Other	Backup software and hardware. Virus protection software

Live Environment Specifications:

Component	Specification
Processor	2 or more Quad-Core Intel® Xeon® 2.00GHz processors, 2x4MB L2 Cache (or larger), 1333MHz Front Side Bus (or faster)
Memory	32GB DDR2 400MHz Dual Ranked DIMMs (or better and upgradeable)
Storage	500 GB
Network Access	Dual 1GB network cards
Operating System	Microsoft Windows Server 2008 64-bit (Standard Edition)
Other	Backup software and hardware. Virus protection software

Appendix B – CustomerConnect Functional Tests

CustomerConnect Core Tests

Area	Test Name	Description
Registration Features (remove if Single Sign On approach is being used)		
Registration	Registration Page Links	Links in registration page footer are functional
Registration	Validation Method	Validation Fields match method; input rules are invoked if necessary (i.e. number of digits, adjustment factors etc.)
Registration	Registration Help Messages	Custom Help Text Displays on fields
Registration	Create New User - Password Rules	User password rules are invoked
Registration	Validation Messages	Invalid Entries, produce corresponding custom messages
Registration	Create New User - account validation	User can create new account request by providing their account information as validation,
Registration	Token Activation	Registration email received and token provided activates new user
User management	Forgot Password - customer has user account	Test password reset process and associated help text, test validation of email address and test receipt of new password at the email address entered
User management	Forgot Password - customer is not registered	Test entry of unregistered email and the validate the error message that is produced
User management	Forgot Username - customer had user account	Test the validation of the email that is entered, and the process that provides them with the user with their associated username
User management	Forgot Username - customer is not registered	Test the validation of the email - and the message produced with an invalid email
User management	Lock Account	Test user account lockout functionality
User management	Lock/Unlock Account	Test user account unlock functionality
My Account	Change email	Test user change to the email associated with their account
My Account	Change/edit security question	Test that question updates and new question is presented in the forget username process
My Account	Deactivate online account	Test that user can deactivate their CustomerConnect account
My Account	Delete Account User	Account User is deleted
Landing Page	Default Landing Page	Test the default landing page for new user
Landing Page	Customer Service email link in footer	Test that link opens email message window and directs email to valid address
Landing Page	Icons on header	Test buttons on the header page
Landing Page	Widget Show/Hide	Test show hide functionality on landing page widgets

My Account	Account information - General	Validate that this information matches the CIS data
My Account	Add Account User(s)	Validate that this new user can access account, view and export reports (if admin setting allows) - and that no changes can be made to user's account data
My Account	Landing Page	User's Selected commodity default display
My Account	Service Details	Validate that details are the same as data in the CIS system
My Account	View Settings	Test change to user's default landing page
Notifications	Methods selection	Test that user is shown the available methods
Notifications	Notification - target audience	Test notifications sent to a limited target audience
Notifications	Web Portal Account Method - General	Test publication of general notices on the web portal
Notifications	Web Portal Account Method - Emergency	Test publication of emergency notices on the web portal
Notifications	Email method receipt - General	Test addition of method type and the receipt of general email notification
Notifications	Email method receipt - Emergency	Test addition of method type and the receipt of emergency email notification
Notifications	Deselect Method	Test that user's deselect of method prevents future notifications
Notifications	Utility Program notifications	Test that report accurately displays number of users registered for utility program alerts
Notifications	Utility Program Notifications	Test user registration and opt out for utility program notifications
My Account	Create User with multiple accounts - manual account entry	User can associate a single email address to more than one account by entering an additional account number and account validation information
My Account	Multiple Account Icon	Validate that the multiple account icon is displayed and access additional accounts
Analyze/Monitor	Usage -General Display	accuracy of presentation
Analyze/Monitor	Usage - Drill Down	Drill down on daily takes user to hourly range
Analyze/Monitor	Usage - Data Updates	Data accurately updates on the same frequency as source system meter readings

CustomerConnect System Administration Tests

Area	Test Name	Description
User management	Add Alias	Test addition of account Alias via Admin Portal
User management	Add CSR user	Test creation of CSR user and their menu user access within the admin portal
User management	Add user	Test adding users via Admin Portal
User management	Add VIP User	Test that VIP user account can be created.
User management	Change CSR/Admin Account password	Test password change functionality

User management	Delete User	Test user account delete functionality
User management	Delete CSR/Admin user	Test delete CSR/Admin user
User management	View As	Test View as functionality from User Mgmt. menu
User management	View As - VIP user	Test View as functionality from User Mgmt. menu - using a VIP user
System Admin	Target Audience Creation	creation of Target Audiences
System Admin	Target Audience Deletion	deletion of existing Target Audiences
Notifications	Create Notification - Emergency	Test creation of notification
Notifications	Create Notification - General	Test Creation and scheduling of notification
Notifications	Delete Notification	Test Delete functionality
Notifications	Edit Notification	Test editing functionality
Notifications	Reschedule Notification	Test rescheduling functionality

CustomerConnect Appearance Tests

Area	Test Name	Description
Appearance	Add new image	Validate new image entry process
Library	Add Category	Test addition of library categories
Library	Delete Category	Test deletion of library categories
Library	Add image - upload	Test addition of image using upload from a folder
Library	Add image - url	Test addition of image using url path
Library	Manually enter article using text editor	Test Creation of article
Library	Create Feature Article	Test publishing a feature article.
Library	"Feature" an existing article.	Test promotion of an article to a featured article
Library	Delete	Delete an existing library item
Library	Preview	Preview a library item
Library	Edit	Edit existing Library Article
Library	Publish	Publish a saved article from the view library page
Library	UnPublish	

HomeConnect Module Tests

Area	Test Name	Description
Notifications	Usage Threshold - Monthly	Threshold Notification - Usage - Monthly Amount
Notifications	Usage Threshold -Weekly	Threshold Notification - Usage - Weekly Amount
Notifications	Usage Threshold -Daily	Threshold Notification - Usage - Daily Amount
Notifications	Cost Threshold - Monthly	Threshold Notification - Cost - Monthly Amount

Notifications	Cost Threshold -Weekly	Threshold Notification -Cost - Weekly Amount
Notifications	Cost Threshold -Daily	Threshold Notification - Cost - Daily Amount
Reports	Consumption	Select different Meter
Reports	Consumption	Overlay - Weather
Reports	Consumption	Overlay - Average
Reports	Consumption	Overlay - Previous Month
Reports	Consumption	Previous and Next Month Links

Exhibit "B"

City Representative:

CRAIG BECK | MANAGER, BUSINESS OPERATIONS

Long Beach Gas & Oil Department

2400 E. Spring Street | Long Beach, CA 90806

T 562.570.2041

Exhibit "C"

Intentionally left blank.