The Automated Meter Infrastructure (AMI) Project will produce water savings, energy savings, and GHG reductions as calculated in the attached spreadsheet and summarized in Table 2-1 below:

Table 2-1: Water, Energy, and GHG Savings

Benefit	Annual	Lifetime
Water Savings	102 MG/year	2,040 MG
Energy Savings	1,147,009 kWh/year	22,940,171 kWh
GHG Reduction	318,868 kg CO_2e/year	6,377,368 kg CO_2e

Step 1: Enter the baseline (pre-project) volume of water associated with the project.

This Project will primarily address water lost due to leakage. Therefore, the "baseline" for the Project is defined as the estimated volume of water lost due to leakage and other water use efficiency issues at 21,250 households without the Project. The Project will install AMI technology to replace 21,250 manual meters at these households.

To estimate the amount of water lost annually due to leaks, a documented average leakage rate for typical homes was used. The California Department of Water Resources' "California Single-Family Water Use Efficiency Study" (2011) (Appendix 2-1) documents an average leakage rate of 21.9 gallons per household per day (gphd) for a California study group from 1997, and the study documents an average leakage rate of 30.7 gphd for the California Single-Family Home Study group in 2005. An average leakage rate of 26.3 gphd [(21.9 + 30.7)/2] was used to estimate the volume of water that could potentially be lost every year at the 21,250 households targeted in the EMWD service area. Using these values, the average volume lost to leaks is approximately **204 MG per year** [(26.3 gphd)*(21,250 households)*(365 days/year)]. This number is used as the baseline for the Project.

Step 2: Enter the volume of water that will be delivered after the project is implemented.

The AMI Project will conserve water by providing early leak detection; but even after being notified, not all customers will address every leak. For the purposes of this grant application, EMWD estimates that approximately 50% of the water currently lost due to leaks will be conserved after implementation of the Project. Thus, approximately 102 MG per year [(204 MG/year)*(50%)] will be saved and approximately **102 MG per year** will continue to be lost due to leakage. Project monitoring may eventually demonstrate that a higher leak prevention rate can be achieved.

Step 3: Enter the volume of hot water saved from the project's electric water heating system (the summation of step 3 and step 4 must not exceed annual volume of water savings). If not applicable, enter "0".

The Project is assuming water savings through early leak detection. No water heating savings are applicable.

Step 4: Enter the volume of hot water saved from the project's natural gas water heating system (the summation of step 3 and step 4 must not exceed annual volume of water savings). If not applicable, enter "0".

The Project is assuming water savings through early leak detection. No water heating savings are applicable.

Step 5: Enter the useful life in years for the project.

According to the system manufacture, Sensus, the transmitters and receivers have a 20-year warranty. These are the key components of the Project to provide the benefits so the useful life of the Project is assumed to be **20 years**.

Source: http://sensus.com/web/usca/water/product-line/ami-networks-water/product/flexnet-ami-water (Appendix 2-2)

Step 6: Enter the percentage of water that is imported.

EMWD receives imported water, local potable water, local desalinated groundwater, and recycled water. As shown in Table 2-2, EMWD's imported water supply consists of treated and untreated water from the Metropolitan Water District of Southern California (MWD). These two imported supplies account for approximately **61%** [47% + 14%] of EMWD's total water supply, averaged over the past 5 years.

Table 2-2: Water Supply (AFY) 2007-2011

Type	2009	2010	2011	2012	2013	Average Percent
Imported	84,200	75,000	72,510	53,467	52,013	47%
Imported – Locally Treated	17,000	16,600	17,023	20,274	29,618	14%
Groundwater	18,100	15,800	17,464	15,489	18,823	12%
Desalination	4,800	5,800	5,706	5,666	5,003	4%

Recycled Water	32,441	28,246	31,029	36,763	34,533	23%
Total	**156,541**	**141,446**	**143,732**	**131,659**	**139,990**	**100%**

Source: EMWD staff

Step 7: Enter the Energy Intensity (EI) of the System associated with the project's water savings.

EMWD's Energy Management Plan, 2014 (Appendix 2-3) summarizes the District's water system energy requirements. The components that apply to this Project are summarized in Table 2-3 and are described in more detail below:

Table 2-3: EMWD Water System Electricity Usage

Water Category	Flow (MG)	Electricity Usage (kWh/year)
Water	30,279	36,553,280
Raw Water	n/a	1,990,000
Wastewater	n/a	45,694,000
Total System Energy Usage		84,237,280
Total Flow	30,279	
Total Energy Use/flow	**2,782 kWh/MG**	

- **Water**: The "Water" category applies to the facilities that treat and convey potable water to the EMWD service area. This category includes water treated by EMWD for potable use and purchased potable water; and it includes energy demands for such facilities as wells, water treatment plants, and brine disposal.
- **Raw Water**: The "Raw Water" category applies to facilities that import raw, untreated water to EMWD water treatment facilities and to groundwater wells for recharge to underlying aquifers. The energy to pump this water back out of the aquifer is included in the "Water" category. The energy demand for the "raw water" category includes EMWD's raw water booster pumping plants.
- **Wastewater:** The "Wastewater" category applies to facilities that convey and treat wastewater in the EMWD service area. This category includes regional water reclamation facilities, sewage lift stations, and booster pump plants.

Because the Project only involves the potable water distribution system, EMWD's recycled water system energy requirements and flow are not included in the EI calculations. For a more

detailed breakdown of the energy demands for each category, see the attached table from EMWD's 2014 Energy Management Plan (Appendix 2-3).

To calculate the energy intensity of the system, the energy demands of the water, raw water and wastewater categories were combined and divided by the total flow. To avoid double counting, the total flow only includes the "Water" flow and not the "Wastewater" flow. The energy per unit of water associated with the Project is therefore:

Energy of the (Water + Raw Water + Wastewater)/Total Flow

(84,237,280 kWh per year)/(30,279 MG per year) = **2,782 kWh/MG**

Though this EI value was calculated based on EMWD's entire service area, it is assumed that it can be applied to the specific Project benefit area.

Step 8: Enter the total output emission rate specific to the power supplier or use the default value of 0.278 kg CO_2e/kWh.

The default value of **0.278 kg CO_2e/kWh** is used as the total power supplier output emission rate. A more specific value could not be identified at this time.

Step 9: Enter EI associated with the Supply and Conveyance segment of the imported water or enter "0" if imported water is not applicable.

Of EMWD's imported water supplies, approximately 80% are from the SWP and 20% from the CRA, on average. EMWD receives SWP water from the Pearblossom Pumping Plant at 13,606 kWh/MG and from the CRA at 6,066 kWh/MG. The total EI associated with the supply and conveyance of the imported water is therefore **12,098 kWh/MG** [(13,606 kWh/MG)*(0.8) + (6,066 kWh/MG)*(0.2)]

Step 10: Enter any additional annual energy savings from energy efficiency and renewable energy (EE/RE), etc.

The Project creates an additional energy savings through reducing fossil fuel consumption. By replacing the manually-read meters with AMI, EMWD staff members will no longer need to drive to the 21,250 meters every month to record water usage data. To produce a kWh/year estimate for energy savings, EMWD's Fleet Manager prepared a report on the miles travelled and gasoline required to read 83,000 existing manual meters in EMWD's service area. Over a year, approximately 93,175 miles were travelled and 11,785 gallons of fuel were consumed to read the meters, once per month, for a total of 996,000 meter trips per year. This amounts to an average for EMWD's service area of approximately 0.0935 miles driven per meter read and

0.012 gallons of fuel used per meter read. These estimates produce a fuel efficiency value lower than the U.S. EPA average of 21.5 miles/gallon, but this difference can be explained by the continuous stop-and-go driving that is typical for meter readers in the EMWD service area.

Using the average miles travelled and gallons of fuel used per meter read, EMWD estimated the number of miles and gallons of fuel per year that would be consumed to read the 21,250 meters that will be replaced as part of the Project. Assuming 21,250 meters are replaced between January 1, 2015 and April 1, 2018, meter reading vehicles will travel approximately 23,855 fewer miles a year, expending approximately 3,017 fewer gallons of fuel per year.

(0.0935 miles per meter read) x (21,250 meters per month) x (12 months per year) = 23,855 miles/year

(0.012 gallons fuel per meter read) x (21,250 meters per month) x (12 months per year) = 3,017 gallons/year

The PSP for this grant specifies 1.25 therms/gallon of fuel and 29.3 kWh/therm according based on U.S. EPA parameters. Using these values, there will be approximately 110,507 kWh/year that will saved as a result of replacing the 21,250 manually read meters with AMI.

(3,017 gallons/year) x (1.25 therms/gallon) x (29.3 kWh/therm) = **110,507 kWh/year**

Appendix 2-1

Supporting Documentation for the Automated Meter Infrastructure Expansion Project

CALIFORNIA SINGLE-FAMILY WATER USE EFFICIENCY STUDY

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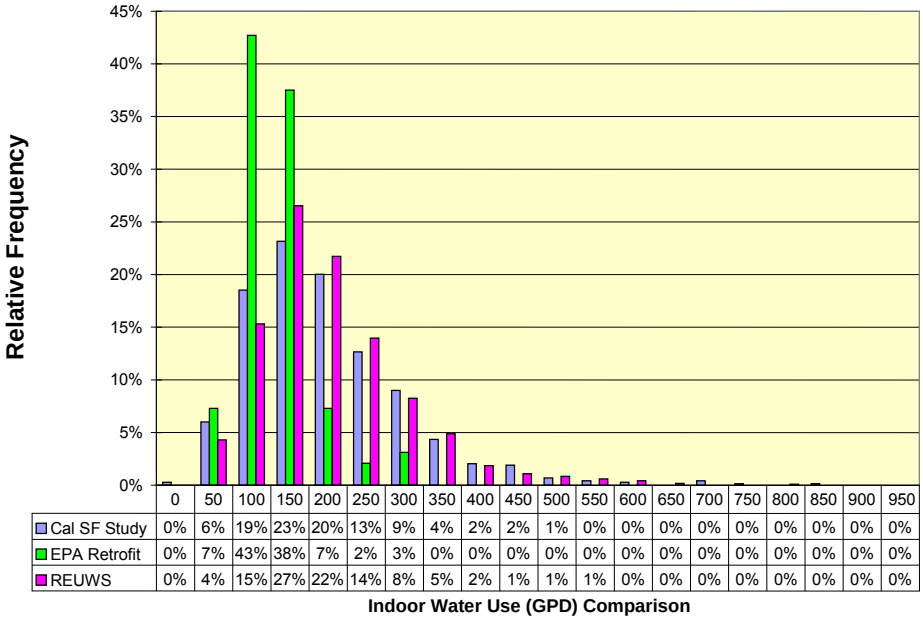
groups. Figure 1 compares the distribution of indoor use for the three groups. The current California use patterns are much closer to the REUWS benchmark than the EPA Retrofit benchmark.

Table 1: Comparison of average indoor use to benchmarks

Group	Average Indoor Use (gphd)	Percent of REUWS
REUWS (California)	186 ± 10.2	100 %
California SF Home Study	175 ± 8	94%
EPA Post Retrofit Group	107 ± 10.3	57%

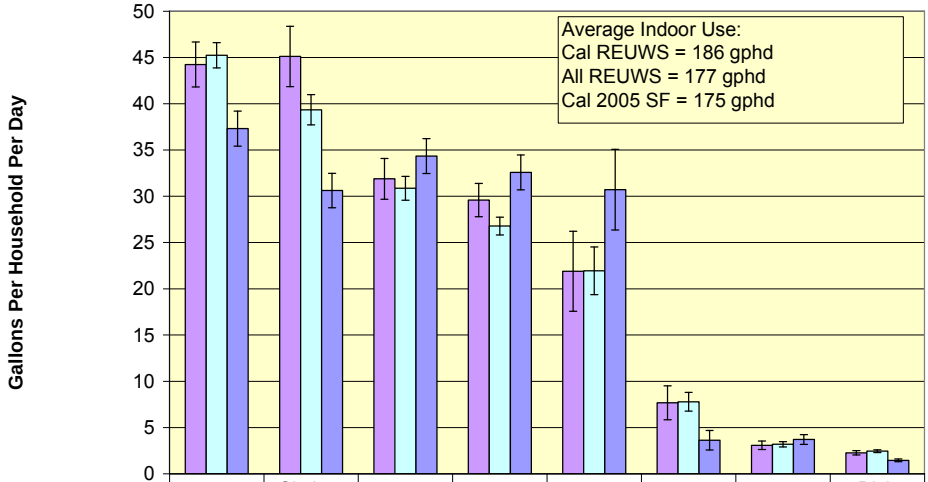


	0	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950
Cal SF Study	0%	6%	19%	23%	20%	13%	9%	4%	2%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
EPA Retrofit	0%	7%	43%	38%	7%	2%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
REUWS	0%	4%	15%	27%	22%	14%	8%	5%	2%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%

Figure 2: Indoor use histogram for California SF Study sites, REUWS, and EPA Retrofit Homes

When the indoor uses are disaggregated the results are more revealing. The disaggregated data, shown in Figure 3, show that, as one would expect, there have been significant reductions in indoor use for toilets and clothes washers in California since 1997. At the same time, the indoor uses attributed to the other categories have stayed the same or increased in a way that has masked the savings from the toilets and clothes washers. This pattern is especially true for events classified as leaks. The analysis showed significantly more long duration or continuous flows that get classified as leaks. These continuous events, which are found in a small number of homes, raise the average volume of water attributed to leaks for the study group from around 22 gphd to 31 gphd. This finding needs further investigation to determine whether these truly are

leaks or may be due to devices that actually create a continuous demand for water. This information is important because if the leakage, faucet and shower use were brought down to the levels shown in the REUWS study the average indoor use for the group would have been around 150 gphd, which would have been a significant improvement from the 1997 data.



	Toilet	Clothes Washer	Shower	Faucet	"Leaks"	Other	Bath	Dish Washer
Cal REUWS	44.2	45.1	31.9	29.6	21.9	7.7	3.1	2.3
All REUWS	45.2	39.3	30.9	26.8	21.9	7.8	3.2	2.4
Cal2005SF	37.3	30.6	34.3	32.6	30.7	3.6	3.7	1.5

Figure 3: Comparison of household end uses

The data show a major improvement in the water use efficiency of toilets. There were a total of 122,869 flushes recorded during the data logging period. The average flush volume was 2.76 gallons, and 64% of all flushes were less than 2.75 gallons. The one negative finding on toilets was that apparently many toilets that are designed to meet the ULF standard of 1.6 gpf are flushing at significantly larger volumes. This helps explain why the study found that only 30% of the homes were at average flush volumes of 2 gpf or less, while all of the program data, confirmed by survey data from this study, suggest that over 60% of the toilets in the population are ULF or better models.

Figure 4 shows the comparison of the distribution of toilet flush volumes in the California Single-Family Homes study and the 1997 REUWS study. This shows a dramatic shift in the bins containing the largest percentage of flushes. In the 1997 sample these were between 3.75 and 4.25 gpf, but as of 2007 they were between 1.25 and 2.25 gpf. As more of the toilets on the right side of the distribution are replaced with high-efficiency models the overall demands for toilet

Sensus Limited Warranty

I. General Product Coverage

Sensus USA Inc. ("Sensus") warrants its products and parts to be free from defects in material and workmanship for one (1) year from the date of Sensus shipment and as set forth below. All products are sold to customer ("Customer") pursuant to Sensus' Terms of Sale, available at: sensus.com/TC ("Terms of Sale").

II. SR II® and accuSTREAM ™5/8", 3/4" & 1" Meters…

are warranted to perform to AWWA New Meter Accuracy Standards for five (5) years from the date of Sensus shipment or until the registration shown below, whichever occurs first. Sensus further warrants that the SR II meter will perform to at least AWWA Repaired Meter Accuracy Standards for fifteen (15) years from the date of Sensus shipment or until the registration shown below, whichever occurs first:

	New Meter Accuracy	Repair Meter Accuracy
5/8" SR II Meter and accuSTREAM Meter	500,000 gallons	1,500,000 gallons
3/4" SR II Meter and accuSTREAM Meter	750,000 gallons	2,250,000 gallons
1" SR II Meter and accuSTREAM Meter	1,000,000 gallons	3,000,000 gallons

III. SR® 5/8", 3/4" & 1" Meters…

are warranted to perform to AWWA New Meter Accuracy Standards for one (1) year from the date of Sensus shipment. Sensus further warrants that the 5/8", 3/4" and 1" SR meter will perform to at least AWWA Repaired Meter Accuracy Standards for fifteen (15) years from the date of Sensus shipment or until the registration shown below, whichever occurs first:

	Repair Meter Accuracy
5/8" SR Meter	1,500,000 gallons
3/4" SR Meter	2,250,000 gallons
1" SR Meter	3,000,000 gallons

IV. SR 1-1/2" & 2"…

are warranted to perform to AWWA New Meter Accuracy Standards for one (1) year from the date of Sensus shipment. Sensus further warrants that the 1-1/2" and 2" SR meter will perform to at least AWWA Repaired Meter Accuracy Standards for ten (10) years from the date of Sensus shipment or until the registration shown below, whichever occurs first:

	Repair Meter Accuracy
1-1/2" SR	5,000,000 gallons
2" SR	8,000,000 gallons

V. PMM® 5/8", 3/4", 1" Meters…

are warranted to perform to AWWA New Meter Accuracy Standards for one (1) year from the date of Sensus shipment. Sensus further warrants that the 5/8", 3/4", and 1" PMM meter will perform to at least AWWA Repaired Meter Accuracy Standards for fifteen (15) years from the date of Sensus shipment or until the registration shown below, whichever occurs first:

	Repair Meter Accuracy
5/8" PMM	1,500,000 gallons
3/4" PMM	2,000,000 gallons
1" PMM	3,000,000 gallons

VI. PMM 1-1/2", 2" Meters…

are warranted to perform to AWWA New Meter Accuracy Standards for one (1) year from the date of Sensus shipment. Sensus further warrants that the 1-1/2", and 2" PMM meter will perform to at least AWWA Repaired Meter Accuracy Standards for ten (10) years from the date of Sensus shipment or until the registration shown below, whichever occurs first:

	Repair Meter Accuracy
1-1/2" PMM	5,000,000 gallons
2" PMM	8,000,000 gallons

VII. iPERL™ Water Management Systems...

that register water flow are warranted to perform to the accuracy levels set forth in the iPERL Water Management System Data Sheet available at sensus.com/iperl/datasheet or by request from 1-800-METER-IT, for twenty (20) years from the date of Sensus shipment. The iPERL System warranty does not include the external housing.

VIII. Maincase…

of the SR, SR II and PMM in both standard and low lead alloy meters are warranted to be free from defects in material and workmanship for twenty-five (25) years from the date of Sensus shipment. Composite and E-coated maincases will be free from defects in material and workmanship for fifteen (15) years from the date of Sensus shipment.

IX. Sensus "W" Series Turbo Meters, OMNI™ Meters and Propeller Meters…

are warranted to perform to AWWA New Meter Accuracy Standards for one (1) year from the date of Sensus shipment.

X. Sensus accuMAG™ Meters...

are warranted to be free from defects in material and workmanship, under normal use and service, for 18 months from the date of Sensus shipment or 12 months from startup, whichever occurs first.

XI. Sensus Registers…

are warranted to be free from defects in material and workmanship from the date of Sensus shipment for the periods stated below or until the applicable registration for AWWA Repaired Meter Accuracy Standards, as set forth above, are surpassed, whichever occurs first:

5/8" thru 2" SR, SR II, PMM, accuSTREAM Standard Registers	25 years
5/8" thru 2" SR, SR II, PMM, accuSTREAM Encoder Registers	10 years
Electronic Communication Index (ECI)	10 years
All HSPU, IMP Contactor, R.E.R. Elec. ROFI	1 year
Standard and Encoder Registers for:"W" Turbo and Propeller Meters	1 year
OMNI Register with Battery	10 years

XII. Sensus Electric Meters…

are warranted to be free from defects in material and workmanship for one (1) year from the date of Sensus shipment. Spare parts and components are warranted to be free from defects in material and workmanship for one (1) year from the date of Sensus shipment.

Repaired or refurbished equipment repaired by Sensus is warranted to be free from defects in material and workmanship for ninety (90) days from the date of Sensus shipment or for the time remaining on the original warranty period, whichever is longer.

XIII. Batteries, iPERL System Components, AMR and FlexNet™ System AMI Interface Devices…

are warranted to be free from defects in material and workmanship from the date of Sensus shipment for the period stated below:

Electronic TouchPad	10 years
RadioRead® MXU (Model 505C, 510R or 520R) and Batteries	20 years*
Act-Pak® Instrumentation	1 year
TouchRead® Coupler and AMR Equipment	1 year
FlexNet Water or Gas SmartPoint™ Modules and Batteries	20 years*
Hand Held Device	1 year
Vehicle Gateway Base Station	1 year
FlexNet Base Station (including the Metro and M400 base stations)	1 year
Echo Transceiver	1 year
Remote Transceiver	1 year
iConA and FlexNet Electricity SmartPoint Module	1 year
iPERL System Battery and iPERL System Components	20 years*
Residential Electronic Register	20 years*

* Sensus will repair or replace non-performing:

- RadioRead® MXU (Model 505C, 510R and 520R) and Batteries,
- FlexNet Water or Gas SmartPoint Modules (configured to the factory setting of six transmissions per day under normal system operation of up to one demand read to each SmartPoint Module per month and up to two firmware downloads during the life of the product) and batteries,
- Residential Electronic Register with hourly reads, and
- iPERL System Batteries, and/or the iPERL System flowtube, the flow sensing and data processing assemblies, and the register ("iPERL System Components") with hourly reads

at no cost for the first ten (10) years from the date of Sensus shipment, and for the remaining ten (10) years, at a prorated percentage, applied towards the published list prices in effect for the year product is accepted by Sensus under warranty conditions according to the following schedule:

Years	Replacement Price	Years	Replacement Price
1 – 10	0%	16	55%
11	30%	17	60%
12	35%	18	65%
13	40%	19	70%
14	45%	20	75%
15	50%	>20	100%

Note: Software supplied and licensed by Sensus is warranted according to the terms of the applicable software license agreement. Sensus warrants that network and monitoring services shall be performed in a professional and workmanlike manner.

XIV. Return…

Sensus' obligation, and Customer's exclusive remedy, under this Sensus Limited Warranty is, at Sensus' option, to either (i) repair or replace the product, provided the Customer (a) returns the product to the location designated by Sensus within the warranty period; and (b) prepays the freight costs both to and from such location; or (ii) deliver replacement components to the Customer, provided the Customer installs, at its cost, such components in or on the product (as instructed by Sensus), provided, that if Sensus requests, the Customer (a) returns the product to the location designated by Sensus within the warranty period; and (b) prepays the freight costs both to and from such location. In all cases, if Customer does not return the product within the time period designated by Sensus, Sensus will invoice, and Customer will pay within thirty days of the invoice date, for the cost of the replacement product and/or components.

The return of products for warranty claims must follow Sensus' Returned Materials Authorization (RMA) procedures. Water meter returns must include documentation of the

Customer's test results. Test results must be obtained according to AWWA standards and must specify the meter serial number. The test results will not be valid if the meter is found to contain foreign materials. If Customer chooses not to test a Sensus water meter prior to returning it to Sensus, Sensus will repair or replace the meter, at Sensus' option, after the meter has been tested by Sensus. The Customer will be charged Sensus' then current testing fee. Sensus SmartPoints modules and MXU's returned must be affixed with a completed return evaluation label. For all returns, Sensus reserves the right to request meter reading records by serial number to validate warranty claims.

For products that have become discontinued or obsolete ("Obsolete Product"), Sensus may, at its discretion, replace such Obsolete Product with a different product model ("New Product"), provided that the New Product has substantially similar features as the Obsolete Product. The New Product shall be warranted as set forth in this Sensus Limited Warranty.

THIS SECTION XIV SETS FORTH CUSTOMER'S SOLE REMEDY FOR THE FAILURE OF THE PRODUCTS, SERVICES OR LICENSED SOFTWARE TO CONFORM TO THEIR RESPECTIVE WARRANTIES.

XV. Warranty Exceptions and No Implied Warranties…

This Sensus Limited Warranty does not include costs for removal or installation of products, or costs for replacement labor or materials, which are the responsibility of the Customer. The warranties in this Sensus Limited Warranty do not apply to goods that have been: installed improperly or in non-recommended installations; installed to a socket that is not functional, or is not in safe operating condition, or is damaged, or is in need of repair; tampered with; modified or repaired with parts or assemblies not certified in writing by Sensus, including without limitation, communication parts and assemblies; improperly modified or repaired (including as a result of modifications required by Sensus); converted; altered; damaged; read by equipment not approved by Sensus; for water meters, used with substances other than water, used with non-potable water, or used with water that contains dirt, debris, deposits, or other impurities; subjected to misuse, improper storage, improper care, improper maintenance, or improper periodic testing (collectively, "Exceptions."). If Sensus identifies any Exceptions during examination, troubleshooting or performing any type of support on behalf of Customer, then Customer shall pay for and/or reimburse Sensus for all expenses incurred by Sensus in examining, troubleshooting, performing support activities, repairing or replacing any Equipment that satisfies any of the Exceptions defined above. The above warranties do not apply in the event of Force Majeure, as defined in the Terms of Sale.

THE WARRANTIES SET FORTH IN THIS SENSUS LIMITED WARRANTY ARE THE ONLY WARRANTIES GIVEN WITH RESPECT TO THE GOODS, SOFTWARE LICENSES AND SERVICES SOLD OR OTHERWISE PROVIDED BY SENSUS. SENSUS EXPRESSLY DISCLAIMS ANY AND ALL OTHER REPRESENTATIONS, WARRANTIES, CONDITIONS, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE, REGARDING ANY MATTER IN CONNECTION WITH THIS SENSUS LIMITED WARRANTY OR WITH THE TERMS OF SALE, INCLUDING WITHOUT LIMITATION, WARRANTIES AS TO FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, NON-INFRINGEMENT AND TITLE.

SENSUS ASSUMES NO LIABILITY FOR COSTS OR EXPENSES ASSOCIATED WITH LOST REVENUE OR WITH THE REMOVAL OR INSTALLATION OF EQUIPMENT. THE FOREGOING REMEDIES ARE CUSTOMER'S SOLE AND EXCLUSIVE REMEDIES FOR THE FAILURE OF EQUIPMENT, LICENSED SOFTWARE OR SERVICES TO CONFORM TO THEIR RESPECTIVE WARRANTIES.

XVI. Limitation of Liability...

SENSUS' AGGREGATE LIABILITY IN ANY AND ALL CAUSES OF ACTION ARISING UNDER, OUT OF OR IN RELATION TO THIS AGREEMENT, ITS NEGOTIATION, PERFORMANCE, BREACH OR TERMINATION (COLLECTIVELY "CAUSES OF ACTION") SHALL NOT EXCEED THE TOTAL AMOUNT PAID BY CUSTOMER TO SENSUS UNDER THIS AGREEMENT. THIS IS SO WHETHER THE CAUSES OF ACTION ARE IN TORT, INCLUDING, WITHOUT LIMITATION, NEGLIGENCE OR STRICT LIABILITY, IN CONTRACT, UNDER STATUTE OR OTHERWISE.

AS A SEPARATE AND INDEPENDENT LIMITATION ON LIABILITY, SENSUS' LIABILITY SHALL BE LIMITED TO DIRECT DAMAGES. SENSUS SHALL NOT BE LIABLE FOR: (I) ANY INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES; NOR (II) ANY REVENUE OR PROFITS LOST BY CUSTOMER OR ITS AFFILIATES FROM ANY END USER(S), IRRESPECTIVE OF WHETHER SUCH LOST REVENUE OR PROFITS IS CATEGORIZED AS DIRECT DAMAGES OR OTHERWISE; NOR (III) ANY IN/OUT COSTS; NOR (IV) MANUAL METER READ COSTS AND EXPENSES; NOR (V) DAMAGES ARISING FROM MAINCASE OR BOTTOM PLATE BREAKAGE CAUSED BY FREEZING TERMPERATURES, WATER HAMMER CONDITIONS, OR EXCESSIVE WATER PRESSURE. "IN/OUT COSTS" MEANS ANY COSTS AND EXPENSES INCURRED BY CUSTOMER IN TRANSPORTING GOODS BETWEEN ITS WAREHOUSE AND ITS END USER'S PREMISES AND ANY COSTS AND EXPENSES INCURRED BY CUSTOMER IN INSTALLING, UNINSTALLING AND REMOVING GOODS. "END USER" MEANS ANY END USER OF ELECTRICITY/WATER/GAS THAT PAYS CUSTOMER FOR THE CONSUMPTION OF ELECTRICITY/WATER/GAS, AS APPLICABLE.

The limitations on liability set forth in this Agreement are fundamental inducements to Sensus entering into this Agreement. They apply unconditionally and in all respects. They are to be interpreted broadly so as to give Sensus the maximum protection permitted under law.

To the maximum extent permitted by law, no Cause of Action may be instituted by Customer against Sensus more than TWELVE (12) MONTHS after the Cause of Action first arose. In the calculation of any damages in any Cause of Action, no damages incurred more than TWELVE (12) MONTHS prior to the filing of the Cause of Action shall be recoverable.

August 2014

Energy Management Plan

Prepared by **Kennedy/Jenks Consultants**

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Eastern Municipal Water District

FINAL
Energy Management Master Plan

August 2014

Prepared for

Eastern Municipal Water District
2270 Trumble Road
Perris, CA 92570

K/J Project No. 1244111*00

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#	Category	Flow (AFY)	Facility Name	Nat Gas. Source		Baseline		
					Electricity Use (kWh/year)	Natural Gas Use – SCG (Therms/year)	Natural Gas Use – Shell (Therms/year)	GHG (MT/year)
1	Water	92,930	Booster Pumping Plants	SCG/Shell	12,700,000	1,090,000	475,000	9,600
2			Storage	--	105,000	--	--	30
3			Wells -- Potable	SCG	9,310,000	141,000	--	3,500
4			Wells -- Brackish	--	4,130,000	--	--	1,200
5			WTP (including Desalters)	SCG	9,840,000	10,300	--	2,900
6			Brine Disposal	--	449,780	--	--	130
7			Water Miscellaneous	--	18,500	--	--	5
8	Recycled Water	48,870	Booster Pumping Plants	SCG	10,900,000	243,000	--	4,500
9			Storage	--	260	--	--	0.1
10			Energy Dissipaters	--	33,400	--	--	10
11			Recycled Water - Miscellaneous	--	1,770	--	--	1
12	Wastewater	53,600	Regional Water Reclamation Facilities	SCG/Shell	39,600,000	2,280,000	1,970,000	23,900
13			Sewage Lift Stations	SCG	5,280,000	34,600	--	1,700
14			Wastewater – Miscellaneous	--	814,000	--	--	230
15	Raw Water		Booster Pumping Plants		1,990,000	--	--	520
16			Storage		--	--	--	0
17			Wells		--	--	--	0
18	Admin	--	HQ	SCG/Shell	6,930,000	450,000	321,000	4,500
19			Customer Service Call Center	SCG	194,000	280	--	60
20			Admin -- Miscellaneous	SCG	--	710	--	4
				Gallons/yr	Diesel	Gasoline	Propane	
21	Fuel	--	--	--	74,300	227,000	670	2,800

(1) Natural gas is purchased both from SCG and Shell, but natural gas volume used is recorded through SCG's meter. The natural gas use shown on this table reflects the usage as provided on SCG invoices.