INTERAGENCY Amendment *Department of Enterprise Services*

Date: April 25, 2013
Agreement No: 2010-ERG-572
Project No: 2013-228
Amendment No: 2 – 2nd Revision

Interagency Agreement Between the Department of Enterprise Services and the City of Olympia

The parties to this Agreement, the Department of Enterprise Services, Facilities Division, Engineering & Architectural Services, hereinafter referred to as "DES", and the City of Olympia, hereinafter referred to as the "CITY", hereby amend the Agreement as follows:

1. **Statement of Work**

DES shall furnish the necessary personnel and services and otherwise do all things necessary for or incidental to the performance of the work set forth in Attachment "A-1" and Attachment "C-1", attached hereto and incorporated herein by reference. Unless otherwise specified, DES shall be responsible for performing all fiscal and program responsibilities as set forth in Attachment "A-1" and Attachment "C-1".

The following projects, set forth in detail in Attachments "D" and "D-1" are hereby authorized:

1. 1 Energy Conservation Measures projects outlined in Quantum Engineering & Development, Inc., City of Olympia Energy Services Proposal dated December 4, 2009.

1. 2 EECBG Project as outlined in Quantum Engineering & Development, Inc., City of Olympia Energy Services Proposal dated December 4, 2009.

1. 3 Street Lighting Upgrades outlined in Ameresco Quantum, Inc., City of Olympia Energy Services Proposal dated March 22, 2013, and the latest revision dated April 12, 2013.

All future projects shall be authorized by Amendment to this Agreement

Attachment "A-1" Scope of Work Energy/Utility Conservation Projects Management Services is revised to update the Statewide Energy Performance Contracting Program Master Energy Services Agreement number from Agreement No. 2009-151 to Agreement No. 2011-169, attached hereto and incorporated herein by reference.

4. **Consideration**

Compensation under this Agreement shall be by Amendment to this Agreement for each authorized project. Each Amendment will include a payment schedule for the specific project.

For Project Management Services provided by DES under Attachment "A-1" of this Agreement, the CITY will pay DES a Project Management Fee for services based on the total project value per Project Management Fees Schedule set forth in Attachment "B-1".

If the CITY decides not to proceed with an Energy/Utility Conservation project that meets the CITY's cost effective criteria, then the CITY will be charged a Termination Fee per Attachment "B-1". The Termination Fee will be based on the estimated Total Project Value outlined in the Energy Audit and Energy Services proposal prepared by the Energy Services Company (ESCO).

If monitoring and verification services are requested by the CITY and provided by DES under Attachment "C-1" of this Agreement, the CITY will pay DES $2,000.00 annually for each year of monitoring and verification services requested.

Compensation for services provided by the ESCO shall be paid directly to the ESCO by the CITY, after DES has reviewed, approved and sent the invoices to the CITY for payment.

4.1 Energy Project Management Fee for Energy Conservation Measures is $59,900.00.

4.2 EECBG Project Management Fee is zero dollars.

4.3 Energy Project Management Fee for Street Lighting Upgrades is $64,000.00. Anticipated billing date for this Amendment is December 31, 2013.

The new total Agreement value is $123,900.00.

All sections above have been fully amended and are shown in their entirety.

All other terms and conditions of this Agreement remain in full force and effect. The requirements of RCW 39.34.030 are satisfied by the underlying Agreement and are incorporated by reference herein.

Each party signatory hereto, having first had the opportunity to read this Amendment and discuss the same with independent legal counsel, in execution of this document hereby mutually agree to all terms and conditions contained herein, and as incorporated by reference in the original Agreement.

City of Olympia

Stephen H. Buxbaum, Mayor Date

Approved As To Form:

4-29-2013

Assistant City Attorney Date

Department of Enterprise Services
Facilities Division
Engineering & Architectural Services

Bill Phillips
Program Manager
Title Date

2010572am2af

ATTACHMENT A-1

Scope of Work
Energy/Utility Conservation Projects
Management Services

Statewide Energy Performance Contracting Program
Master Energy Services Agreement No. **2011-169**

DES will provide the following project management services for each specific project for the CITY. Each individual project shall be authorized by Amendment to this Agreement.

1. Assist the CITY in the selection of an Energy Service Company (ESCO) consistent with the requirements of RCW 39.35A for local governments; or 39.35C for state agencies and school districts.

2. Assist in identifying potential energy/utility conservation measures and estimated cost savings.

3. Negotiate scope of work and fee for ESCO audit of the facility(s).

4. Assist in identifying appropriate project funding sources and assist with obtaining project funding.

5. Assist in negotiating the technical, financial and legal issues associated with the ESCO's Energy Services Proposal.

6. Review and recommend approval of ESCO energy/utility audits and Energy Services Proposals.

7. Provide assistance during the design, construction and commissioning processes.

8. Review and approve the ESCO invoice vouchers for payment.

9. Assist with final project acceptance.

10. Provide other services as required to complete a successful energy performance contract.

ATTACHMENT B-1
Fee Schedule

2011-13 Interagency Reimbursement Costs
for Project Management Fees to Administer
Energy/Utility Conservation Projects

TOTAL PROJECT VALUE	PROJECT MANAGEMENT FEE	TERMINATION
5,000,001.....6,000,000	$66,000	25,700
4,000,001.....5,000,000	65,000	25,400
3,000,001.....4,000,000	64,000	25,000
2,000,001.....3,000,000	60,000	23,400
1,500,001.....2,000,000	56,000	21,800
1,000,001.....1,500,000	49,500	19,300
900,001..... 1,000,000	42,000	16,400
800,001.....900,000	39,600	15,400
700,001.....800,000	36,800	14,400
600,001.....700,000	35,000	13,700
500,001.....600,000	32,400	12,600
400,001.....500,000	29,000	11,300
300,001.....400,000	24,800	9,700
200,001.....300,000	19,800	7,700
100,001.....200,000	13,800	5,400
50,001.....100,000	7,500	3,500
20,001.....50,000	4,000	2,000
0.....20,000	2,000	1,000

The project management fee on projects over $6,000,000 is 1.1% of the project cost. The maximum DES termination fee is $25,700.

1. These fees cover project management services for energy/utility conservation projects managed by DES's Energy Program.

2. Termination fees cover the selection and project management costs associated with managing the ESCO's investment grade audit and proposal that identifies cost effective conservation measures if the CITY decides not to proceed with the project through DES.

3. If the project meets the CITY's cost effectiveness criteria and the CITY decides not to move forward with a project, then the CITY will be invoiced per Attachment B Termination or $25,700.00 whichever is less. If the CITY decides to proceed with the project then the Agreement will be amended per Attachment B for Project Management Fee.

4. If the audit fails to produce a project that meets the CITY established Cost Effectiveness Criteria, then there is no cost to the CITY and no further obligation by the CITY.

ATTACHMENT C-1

Scope of Work
Energy/Utility Conservation Projects
Monitoring Services

Statewide Energy Performance Contracting Program
Master Energy Services Agreement No. **2011-169**

If requested DES will provide the following monitoring services for each specific project for the CITY.

1. Monitor actual energy use and dollar costs, compare with the ESCO's annual Measurement and Verification (M&V) report and any ESCO guarantee, resolve differences, if needed, and approve any vouchers for payment.

2. Monitor facility operations including any changes in operating hours, changes in square footage, additional energy consuming equipment and negotiate changes in baseline energy use which may impact energy savings.

3. Provide annual letter report describing the ESCO's performance, equipment performance and operation, energy savings and additional opportunities, if any, to reduce energy costs.

ATTACHMENT D-1

EXHIBIT EN- XX

ENERGY SERVICES PROPOSAL

For: City of Olympia – Energy Services
Olympia, Washington

By: Ameresco Quantum, Inc.
Ameresco Quantum Project Number 041-2013-01

Rev April 12, 2013

Table of Contents

EXECUTIVE SUMMARY

A. SUMMARY & PROPOSED SERVICES

Ameresco Quantum is pleased to present this proposal for the implementation of energy efficiency measures for the City of Olympia.

This Proposal follows the outline contained in Section 2 of the Energy Services Agreement. It presents the contractual terms under which Ameresco Quantum, the City of Olympia, and the Department of Enterprise Services Energy Program (DES Energy Program) will work together over the term of the project. This Proposal describes the scope, costs, guarantees, and other aspects of the project.

The services in this Proposal include design, construction, system verification, and Measurement and Verification (M&V) services for the first year. Although the City of Olympia will operate and maintain the new equipment, Ameresco Quantum will provide important M&V services during the first year to help insure the predicted savings are achieved. Ongoing M&V services are also offered for an additional cost.

B. PROJECT DESCRIPTION

The project improves comfort, saves energy, reduces maintenance costs, and improves light quality for the City of Olympia. The project will upgrade and replace the city owned street lighting with LED technology; see Exhibit 1 for details. Additionally, the project will replace failing HVAC equipment at the Olympia Center and Timberland Library.

C. PROJECT BENEFITS

1. Financial Benefits

Table 1 shows project costs, estimated utility incentives, and savings related to this project. The guaranteed maximum project cost is $3,488,402. Including sales tax and DES Energy Program project management fees, the total project cost is $3,859,382. The estimated utility incentive for the project is $375,331.

All construction costs will be open book to the Owner, and any cost savings related to savings on the ESCO's labor and material costs will revert to the Owner at the end of the project.

The project will produce over $173,782 annually in energy savings. The project produces a positive cash flow as shown on Table 1 Financial Analysis in the first year of operation. This is based on the City of Olympia providing a capital investment of $1,284,000, and financing a loan of $1,700,051.

2. Maintenance Related Benefits

Over $15,903 in annual lighting maintenance savings is factored into the financial analysis. In addition, HVAC system upgrades will reduce maintenance labor, although, this is not factored into our analysis.

3. Environmental Benefits

In addition to building improvements and energy savings, there is a significant positive impact on the environment as a result of this project. The energy savings produced as a result of this project will directly reduce the amount of power produced by the utilities and reduce CO_2 emissions by over 1,850,383 lbs. annually.

D. GUARANTEES

Ameresco Quantum guarantees that the project cost, related specifically to energy savings and the project scope, will not exceed the maximum price of $3,488,402 (project cost before sales tax and DES Energy Program project management fee). Also, Ameresco Quantum is guaranteeing that the project will perform such that electrical savings will not be less than 1,688,991 kWh and 4,825 kW per year. This corresponds with 90% of the estimated energy savings.

E. CONCLUSION

This project represents an excellent opportunity for the City of Olympia to improve their facilities while saving energy. The project provides over $3,860,000 in facility improvements. Ameresco Quantum looks forward to working with the City of Olympia and DES Energy Program in making this project a success.

I. FACILITY DESCRIPTION

A. BUILDINGS

Building	Description	Sq. Ft.	Year Built	Operating Schedule (Approximately)
Olympia Center	Located at 222 Columbia Street NW in Olympia, Washington. This two-story building is built of steel beam, concrete and reinforced masonry construction. It contains several meeting and classroom spaces as well as senior services, a gymnasium and several multipurpose rooms. The roof is a single-ply membrane with gravel surfacing. Windows are thermal pane with aluminum frames.	56,147	1985	Varies, 7:00 AM to 10:00 PM
Timberland Library	Located at 313 8th Avenue SE in Olympia, Washington. This single-story building is constructed of pre-cast concrete planks on concrete post and beams systems with reinforced masonry shear walls. It has a built-up membrane roof with gravel surface and reflective coating. Windows are thermal pane with aluminum frames.	22,500	1977	Varies, 7:00 AM to 5:00 PM

B. MECHANICAL SYSTEMS

1. Olympia Center

Mechanical system consists of a gas-fired boiler, chiller with heat recovery, four multi-zone air handling units, two single zone air handling units, multiple return and exhaust fans, and two Gas-fired evaporative cooling make-up air handling units. Runtime and temperature control is accomplished with an Alerton DDC and EMS.

2. Timberland Library

Mechanical system includes a gas fire hot water boiler and associated hot water circulation pump, an air cooled direct expansion chiller, and a central air handling unit which provides primary air to VAV terminal units with hot water re-heat. An Alerton DDC and EMS provide the runtime and temperature control for the HVAC systems.

C. LIGHTING SYSTEMS

1. Street Lighting Systems

The existing street lighting systems consist of various wattage High Pressure Sodium (HPS) and Metal Halide (MH) lighting. The majority of the is cobra head style, and the remainder is various type of decorative fixtures. Complete details can be found in Exhibit 1.

II. ENERGY CONSERVATION MEASURES (ECM's) TO BE IMPLEMENTED

A. MECHANICAL SYSTEMS

1. Olympia Center (OC)

a) ECM-OC-M1: Replace Air Handling Units (ASU-501, AHU-502 and ASU-503) - This measure will replace the existing air handling units with new air handling units. This measure will also disconnect and reconnect the existing controls and fully commission the systems for proper operation and optimal performance.

NOTE: There are no savings associated with this measure.

b) ECM-OC-M2: Replace Chiller - This measure will replace the existing heat recovery chiller with a new heat recovery chiller. This measure will also disconnect and reconnect the existing controls and fully commission the system for proper operation and optimal performance.

NOTE: There are no savings associated with this measure.

2. Timberland Library (TL)

a) ECM-TL-M1: Replace Chiller - This measure will replace the existing air cooled DX chiller with an air cooled water chiller. This measure will also install a new chilled water coil in the main air handling unit and pipe the new coil to the new chiller. This measure will also disconnect and reconnect the existing controls and fully commission the system for proper operation and optimal performance.

NOTE: There are no savings associated with this measure.

B. LIGHTING SYSTEMS

1. City of Olympia (COO)

a) ECM-COO-L1b: Street Light Replacements (Schedule 24 - Option A, Retrofit Kits) - This measure will replace the existing high pressure sodium lamps and fixtures with new LED lamps and fixtures. This option will retrofit the post tops and pedestrian arm fixtures with retrofit kits.

b) ECM-COO-L2b: Street Light Replacements (Schedule 25 - Option B, Screw-in Lamps) - This measure will replace the existing high pressure sodium lamps and fixtures with new LED lamps and fixtures. This option will retrofit the post tops and pedestrian arm fixtures with screw in lamps.

c) ECM-COO-L3b: Street Light Replacements (Schedule 50 - Option B, Screw-in Lamps) - This measure will replace the existing high pressure sodium lamps and fixtures with new LED lamps and fixtures. This option will retrofit the post tops and pedestrian arm fixtures with screw in lamps.

d) ECM-COO-L5b: Street Light Replacements (Schedule 53 - Option B, Screw-in Lamps) - This measure will replace the existing high pressure sodium lamps and fixtures with new LED lamps and fixtures. This option will retrofit the post tops and pedestrian arm fixtures with screw in lamps.

e) ECM-COO-L6b: Street Light Replacements (Schedule 54 - Option B, Screw-in Lamps) - This measure will replace the existing high pressure sodium lamps and fixtures with new LED lamps and fixtures. This option will retrofit the post tops and pedestrian arm fixtures with screw in lamps.

III. ESCO (Energy Services Company) SERVICES

Ameresco Quantum will provide the following services:

1. Energy Audit: The energy audit is complete and is incorporated herein.

2. Design Services: Provide a detailed engineering design as needed to obtain Owner review and approval of the proposed system and to obtain competitive bids. Provide construction support services, start-up, and testing. Provide as-built drawings and relevant O&M manuals.

3. Construction: Provide, or cause to be provided, all material, labor, and equipment, including paying for permits, fees, bonds, and insurance, required for the complete and working installation of the ESCO equipment.

a) The ESCO may perform portions of the construction work or may subcontract portions to qualified firms. In either case, the ESCO will share information regarding actual costs of the work with the Owner.

b) The lighting retrofit is substantially a maintenance activity. As such, lighting maintenance workers will be used to perform fixture retrofits. These workers will be paid the applicable Washington State Department of Labor & Industries prevailing wage for the county of the work under a classification of "Electrical Fixture Maintenance Workers" or equivalent.

c) When the ESCO has completed the installation of the Equipment, including start-up and operation verification and training in accordance with the Proposal, the ESCO will provide to Owner a "Notice of Commencement of Energy Savings" and Owner shall have 10 days within which to accept the Notice.

d) At the conclusion of the last phase of the project, the ESCO will submit a "Notice of Substantial Completion" to the Owner.

4. Construction Management: Provide construction management services to coordinate and supervise the work. The Owner is expected to coordinate day-to-day communications with tenants and any scheduling of tenant relocations in and around occupied areas. The ESCO will provide construction superintendence of the work and will coordinate any impact upon building tenants with the Owner.

5. Operation training: The ESCO will provide on-going training for the building staff during construction.

6. Performance Maintenance: The ESCO will provide on-going measurement and verification to help ensure the predicted savings are achieved throughout the first year of the agreement. Specific tasks will include:

   a) Year One (the first year following Notice of Commencement of Energy Savings): Post installation Measurement and Verification (M&V) will be performed based on the International Performance Measurement and Verification Protocol (IPMVP) – Option A (Retrofit Isolation-Key Parameter Measurement), and on Section IX – Method of Calculating Energy Savings and Energy Cost Savings, as follows:

ECM	IPMVP Option	Work to be Performed	Years to be Done	Work To Be Performed By
ECM-COO-L1b	A	Ameresco Quantum will perform the following M&V work for year(s) based on IPMVP Option A: A sample of fixtures will be measured during the first year for both baseline and as-installed power use (kW) during construction. The system's actual total demand will be matched against the lighting audit. This will be done where applicable for measure(s).	1	Ameresco Quantum
ECM-COO-L2b	A	Ameresco Quantum will perform the following M&V work for year(s) based on IPMVP Option A: A sample of fixtures will be measured during the first year for both baseline and as-installed power use (kW) during construction. The system's actual total demand will be matched against the lighting audit. This will be done where applicable for measure(s).	1	Ameresco Quantum
ECM-COO-L3b	A	Ameresco Quantum will perform the following M&V work for year(s) based on IPMVP Option A: A sample of fixtures will be measured during the first year for both baseline and as-installed power use (kW) during construction. The system's actual total demand will be matched against the lighting audit. This will be done where applicable for measure(s).	1	Ameresco Quantum
ECM-COO-L5b	A	Ameresco Quantum will perform the following M&V work for year(s) based on IPMVP Option A: A sample of fixtures will be measured during the first year for both baseline and as-installed power use (kW) during construction. The system's actual total demand will be matched against the lighting audit. This will be done where applicable for measure(s).	1	Ameresco Quantum
ECM-COO-L6b	A	Ameresco Quantum will perform the following M&V work for year(s) based on IPMVP Option A: A sample of fixtures will be measured during the first year for both baseline and as-installed power use (kW) during construction. The system's actual total demand will be matched against the lighting audit. This will be done where applicable for measure(s).	1	Ameresco Quantum

   b) *The ESCO will attend one annual meeting* to review the Measurement & Verification results and reconcile energy savings.

7. Equipment Maintenance: The ESCO will provide no equipment maintenance or repairs after the warranty period. Following the completion of the installation and Owner acceptance of the Equipment, the Owner shall provide all necessary service, repairs, and adjustments to the Equipment so that the Equipment will perform in the manner and to the extent set forth in the Proposal. The ESCO shall have no obligation to service or maintain the Equipment after the warranty period.

8. Operation and Maintenance Procedures: None provided for existing equipment. Operation and maintenance manual will be provided for the installed equipment.

9. Warranty: The ESCO will warrant Equipment for one year following Notice of Substantial Completion.

10. Hazardous Waste: Should the project require removal or disposal of hazardous material, the ESCO may have the hazardous material or substances removed and disposed of at the request of the Owner. The ESCO will not assume ownership of the material, but may act on behalf of the Owner to properly remove and dispose of the material. The Owner shall pay the ESCO for the cost of such work. The Owner agrees and acknowledges that it has not relied on or employed the ESCO to analyze or identify the presence of any hazardous substance on the Owner's premises. The cost of hazardous material abatement and disposal is not included in this proposal with the exception of PCB ballasts.

IV. PROJECT COSTS

A. MAXIMUM PROJECT COST

The ESCO guarantees that the Maximum Project Cost will not exceed Three Million Four Hundred Eighty-Eight Thousand Four Hundred two and no/100 Dollars ($3,488,402). This cost does not include sales tax, or DES Energy Program project management fees, which are all estimated. With sales tax and DES Energy Program project management fees the Project Cost is Three Million Eight Hundred Fifty-Nine Thousand Three Hundred Eighty-Two and no/100 Dollars ($3,859,382). The ESCO does not guarantee the value of sales tax, DES Energy Program project management fees, or the utility incentive.

B. PROJECT COST TABLE

I. PROJECT COSTS & ENERGY SAVINGS FOR SELECTED OPTIONS

PROJECT COSTS	Mech, Water, General	Lighting	Total Project costs
Estimated Labor and Material Cost	$ 592,143	$ 1,936,848	$ 2,528,990
M,W,G Design @ 10.0% of Labor & Material	$ 59,214		$ 59,214
Lighting Design @ 6.0% of Labor & Material		$ 116,211	$ 116,211
Construction Mgt @ 6.0% of Labor & Material	$ 35,529	$ 116,211	$ 151,739
Bonding @ 2.0% of Labor & Material	$ 11,843	$ 38,737	$ 50,580
ESCO overhead and profit @ 18.0% of Labor & Material	$ 106,586	$ 348,633	$ 455,218
Subtotal:	$ 805,314	$ 2,556,639	$ 3,361,953
Construction contingency @ 5.0% of CC	$ 29,607	$ 96,842	$ 126,450
Subtotal - Maximum Project Cost:	$ 834,921	$ 2,653,481	$ 3,488,402
Est. Sales Tax @ 8.8% of Maximum Project Cost	$ 73,473	$ 233,506	$ 306,979
Additional 2 Years of M&V - Ameresco (plus sales tax)			$ -
Additional 2 Years of M&V - DES			$ -
DES Project Management Fees			$ 64,000
TOTAL PROJECT PRICE:	**$ 908,394**	**$ 2,886,988**	**$ 3,859,382**
Estimated Utility Incentive	$ -	$ 375,331	$ 375,331
Commerce Grant Request			$ 500,000
Estimated Client Net Cost (excluding add'tl years M&V)			$ 2,984,051
Client initial cash payment of Non-State Dollars			$ 1,284,000
Amount to be financed by client:			**$ 1,700,051**
Year 2 Estimated Cash Flow:			**$ 4,112**
Year 2 Cash Flow Based on Guaranteed Energy Savings (90%):			**$ (15,141)**

C. ITEMS INCLUDED IN MAXIMUM PROJECT COST

1. Maximum project costs include the following:

   a) Engineering audit, including the cost for preparation of this proposal. This is a fixed fee.

   b) Engineering design. This is a fixed fee.

   c) Construction management services. This is a fixed fee.

   d) Installation of the ESCO Equipment including the following costs:

      (1) All costs paid by the ESCO for the installation of the ESCO Equipment. This includes costs paid to subcontractors or directly to ESCO personnel when related to installation or system verification of the ESCO Equipment.

      (2) The portion of reasonable travel, lodging, and meals expenses of the ESCO or of its officers or employees incurred while traveling in discharge of duties connected with the Work.

      (3) Cost of all equipment, materials, supplies and equipment incorporated in the Work, including costs of transportation thereof.

      (4) Cost or rental charges, including transportation and maintenance, of all materials, supplies, equipment, temporary facilities, and hand tools not owned by the workers which are consumed in the performance of the Work, and the cost less salvage value on such items used but not consumed which remain the property of the ESCO.

      (5) Cost of premiums for all bonds and insurance, which the ESCO is required to purchase and maintain.

      (6) Sales, use, or similar taxes related to the Work and for which the ESCO is liable imposed by a governmental authority.

      (7) Permit fees, royalties, and deposits lost for causes other than the ESCO's negligence.

      (8) Losses and expenses not compensated by insurance or otherwise sustained by the ESCO in connection with the Work, provided they have resulted from causes other than the fault or neglect of the ESCO. Such losses shall include settlements made with the written consent and approval of the Owner. If, however, such loss requires reconstruction and the ESCO is placed in charge thereof, the ESCO shall be paid for its services a fee.

      (9) Minor expenses such as copies, long distance telephone calls, telephone service at the site, express mail services, and similar petty cash items.

      (10) Demolition cost and cost of removal of all debris.

      (11) Costs incurred due to an emergency affecting the safety of persons and property.

      (12) Other costs incurred in the performance of the Work if and to the extent approved in advance in writing by the Owner.

      (13) The cost of construction financing including contingency and an allowance for Owner initiated scope improvements only if agreed to by the Owner and DES Energy Program in advance.

      (14) Cost of equipment startup, training, system verification and balancing performed by the ESCO.

(15) Bonding, Liability Insurance, and Builder's Risk Insurance.

(16) Overhead and Profit. This includes the ESCO's remuneration for compensation of personnel, expenses, risks related to the project, and profit. This is a fixed fee.

(17) Metering equipment costs for any permanent metering or monitoring equipment left on site.

(18) The ESCO shall provide a Schedule of Values at the end of construction bidding. The schedule of values will include all costs related to the installation of the ESCO equipment, excepting fixed fee items.

D. EXCLUSIONS

1. Maximum project costs do not include the following:

a) Modifications or upgrades of electrical service or distribution systems.

E. CONSTRUCTION CONTINGENCY

A construction contingency of $126,450 (not including sales tax) has been established for this project. The contingency is for items necessary to complete the original scope of work upon approval by the Owner and DES Energy Program. Such approval for the use of contingency funds for work in the original scope shall not be unreasonably withheld. The ESCO shall not be allowed to mark-up contingency funds expended for items included in the original scope of this project. The ESCO and Owner will jointly manage any contingency left after the project scope is completed. The ESCO shall be allowed to mark-up items beyond the original scope and approved by Owner. All unused construction contingency funds shall reduce the overall project cost to the Owner.

F. ONGOING SERVICES

Ongoing measurement and verification for the first year are included in the project fees. After the end of Year 1, the ESCO will present a proposal to the Owner for ongoing measurement and verification services. These services will verify energy savings and provide engineering assistance in maintaining the savings as described in Section III. The owner may cancel these services at any time.

G. ACCOUNTING RECORDS

The ESCO shall check all material, equipment, and labor entering into the Work and shall keep such full and detailed accounts as may be necessary for proper financial management under this Agreement. The accounting system shall be satisfactory to the Owner. The Owner shall be afforded access to all the ESCO's records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to this Contract, and the Contractor shall preserve all such records for a period of three years, or for such longer period as may be required by law, after the final payment.

H. RECONCILIATION OF LABOR & MATERIAL COSTS

The financed amount is based on an estimate of Labor & Material costs. In recognition that actual Labor & Material costs may vary from the estimate, the following procedures are established to reconcile this difference:

a) When actual Labor & Material costs exceed the estimated Labor & Material costs (plus contingency), the additional expense will be borne by the ESCO without affecting the Owner's payment.

b) When actual Labor & Material costs are less than the estimated Labor & Material costs (plus Contingency), the remaining funds will be retained by the Owner.

V. RECOMMENDATIONS FOR REPLACEMENT OF EXISTING EQUIPMENT

N/A

VI. STANDARDS OF COMFORT SERVICE

A. HVAC COMFORT

1. The heating and ventilating (HV) systems provided by the ESCO will provide comfort and indoor air quality in accordance with Exhibit 3. This standard will pertain only to buildings and areas of buildings in which the ESCO is installing new HVAC equipment that has direct control over space comfort conditions. HVAC comfort conditions cannot be guaranteed when operable windows are open. Standards for HVAC comforts are as follows:

   a) Indoor Occupied Temperatures

      (1) Winter Minimum – 70 Degrees F.

      (2) Winter Maximum – 75 Degrees F.

      (3) Summer Minimum - 70 Degrees F (where mechanical cooling is employed).

      (4) Summer Maximum - 78 Degrees F (where mechanical cooling is employed).

   b) Indoor Unoccupied Temperatures

      (1) Minimum – 55 Degrees F.

      (2) Maximum – 85 Degrees F.

   c) Relative Humidity (where humidity control is provided).

      (1) Minimum – 40%

      (2) Maximum – 60%

   d) Minimum outside air per occupant shall be in accordance with American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) standards and Washington State Mechanical Code.

B. ILLUMINATION LEVELS

1. The lighting and illumination levels for lighting systems provided by the ESCO are designed, directed and agreed upon by the City of Olympia.

VII. BASELINE ENERGY CONSUMPTION

A. OVERALL RESOURCE USE

Existing use of customer owned street lighting: 3,225,978 kWh/Yr.

Fuel	$	Average Annual Consumption	Time Period	Utility Provider
Electricity (kWh)	$312,600	3,225,978	2012	PSE
Electricity (kW)		9,217		

VIII. ESTIMATED ANNUAL SAVINGS AMOUNT AND UTILITY INCENTIVE

A. ELECTRICAL

The ESCO estimates that annual electrical costs will be reduced by $173,782. This estimate is based on an annual consumption being reduced by 1,876,657 kWh, and demand being reduced by 5,361 kW.

B. UTILITY INCENTIVE

The estimated utility incentive is $375,331.

IX. METHOD OF CALCULATING ENERGY SAVINGS AND ENERGY COST SAVINGS

A. ENERGY AUDIT

The energy cost savings are calculated in Exhibit 1. These savings calculations have been reviewed and accepted by the DES Energy Program project management, the Owner and the ESCO.

B. CALCULATION OF SAVINGS

1. The Owner and ESCO agree that the energy savings exists if the ESCO equipment performs as described below (as measured per Section III.6):
    a) Lighting Systems: The lighting systems perform properly when new components with efficiencies equal to or greater than those in Exhibit 1 are installed.
2. The Owner and the ESCO agree that the energy savings will be reduced at the rates listed below when the ESCO installed equipment is not performing as a result of the sole failure of the ESCO installed equipment. The Owner agrees to notify the ESCO by telephone within two working days of detecting any non-performing ESCO installed equipment with a follow-up in writing within three business days. Should the ESCO installed equipment not perform in accordance with this Section, the Energy Cost Savings will be reduced by:

a) Lighting (Street): $0.87767 per failed light fixture per week. For the purpose of the guarantee, failed light fixture is one that does not comply with IX.B.1.a above.

3. The ESCO shall have two weeks from notification to repair the ESCO equipment without reduction of savings.

4. Modifications to Baseline by Owner: The Owner shall maintain all existing facilities and installed equipment during the term of this contract at or above current maintenance levels. Owner agrees to maintain the energy efficiency of the systems installed.

X. FINANCING

Project financing will be provided by the Owner.

XI. ENERGY SAVINGS GUARANTEE

The ESCO guarantees that the equipment will perform as indicated in Section IX - Method of Calculating Energy Savings and Energy Cost Savings. This performance level is guaranteed for one year following the notice of commencement of savings (defined as Year 1). Based on this performance, and as indicated in Exhibit 1, electrical savings will not be less than 1,688,991kWh and 4,825 kW per year. This corresponds with 90% of the estimated energy savings.

In the event that the guaranteed performance in Year 1, pursuant to Section IX – Method of Calculating Energy Savings and Energy Cost Savings, is less than the guaranteed minimum, the ESCO shall pay the Owner in accordance with Section IX.B.2.

XII. ESCO COMPENSATION

A. PAYMENTS

1. Owner agrees to make progress payments based on construction progress and one subsequent payment for retainage.

2. Retainage will be released within 45 days after receipt of all lien releases, L&I releases, and Revenue and Employment Security certificates and releases by Owner.

B. TAX INCENTIVES

1. Owner agrees to relinquish any and all tax credits and deductions associated with the project scope to the ESCO. This includes any tax deductions associated with the Federal Energy Policy Act of 2005. Upon determination of the value of these credits or deductions, the ESCO will credit a portion of these tax benefits back to the Owner.

XIII. TERM OF AGREEMENT

Subject to the following sentence, the term of this Contract shall be one year beginning with the Notification of Commencement of Energy Savings. Nonetheless, the Contract shall be effective and binding upon the parties immediately upon its execution, and the period from contract execution until the Commencement Date shall be known as the "Interim Period." All energy savings achieved during the Interim Period will be fully credited to Customer and may be used to offset any loss of energy savings as mutually agreed to by the DES Energy Program manager, Owner, and the ESCO.

XIV. TERMINATION VALUE

Upon commencement of energy savings, Owner may at any time terminate this Agreement.

Any termination shall fully and finally terminate and extinguish all of the Owner's rights and all of the ESCO's obligations under this agreement.

XV. PROJECT SCHEDULE

The ESCO will complete design work and order product with 60 days of notice to proceed. Construction will be substantially complete within 180 day of design acceptance. Final completion will be within 60 days of substantial completion.

XVI. EXTENT OF SUBCONTRACTING

The ESCO may subcontract the energy audit, design, construction management, start-up, and training portions of this Contract to qualified firms at its sole discretion. Construction subcontracts will be awarded competitively.

The ESCO will endeavor to satisfy the MWBE goals of Washington State. The ESCO will not be required to meet these goals if the project budget is exceeded and cost effectiveness is impaired.

XVII. INSURANCE AND BONDING

1. The ESCO shall provide a payment and performance bond in accordance with Exhibit 3. Builders Risk Insurance will also be provided by the ESCO.
2. For the purposes of this Agreement, the "Sum Amount of Bond" shall be $2,886,549. This amount does not include any construction contingencies.
3. The bond amount consists of the following:
   (a) Labor and Material and Bond Cost $2,579,970
   (b) Sales Tax $306,979
   (c) Bond Total $2,886,549

   (2) Certificates of General Liability Insurance will be provided prior to Contract Signing. The State Of Washington shall be named as An Additional Insured on all insurance certificates.
4. The ESCO shall provide a payment and performance bond in the amount of 100% of the construction cost, as defined in the Energy Services Agreement Addendum. The amount shall include all authorized changes and state sales tax. The Bond shall be in the form attached to the Conditions of the Energy Services Agreement. The Contract listed on the bond form shall be the Addendum No. and Agreement No. which incorporates the work, and the "Contract Date" shall be the date of the Addendum. The full and just sum of the Bond shall be as defined above and shall include the actual cost of purchasing and installing the ESCO equipment, job superintendent, and state sales tax. The Bond shall specifically exclude coverage for those portions of the Energy Services Agreement and/or Energy Services Agreement Addendum pertaining to design services, energy cost savings guarantee, maintenance guarantee, utility incentives, efficiency guarantees, and any other clauses which do not relate specifically to construction management and supervision of work for purchasing and installing of the ESCO Equipment or for work to be accomplished by the Owner. The Bond shall be with a Surety or Bonding Company that is registered with the State of Washington Insurance Commissioner's Office.

XVIII. RENEGOTIATION

Both parties recognize that during the project implementation, the DES Energy Program Manager, Owner, and the ESCO may mutually agree to various modifications and that the energy savings may change as a result. Further, local code officials may require unanticipated changes to the project scope. In either event, both parties shall negotiate in good faith to restructure the project to maintain the intent of this Agreement.

XIX. EXHIBITS AND TABLES

Please see attached exhibits & tables

A. TABLE 1 FINANCIAL ANALYSIS

I. PROJECT COSTS & ENERGY SAVINGS FOR SELECTED OPTIONS

PROJECT COSTS	Mech, Water, General	Lighting	Total Project costs
Estimated Labor and Material Cost	$ 592,143	$ 1,936,848	$ 2,528,990
M,W,G Design @ 10.0% of Labor & Material	$ 59,214		$ 59,214
Lighting Design @ 6.0% of Labor & Material		$ 116,211	$ 116,211
Construction Mgt @ 6.0% of Labor & Material	$ 35,529	$ 116,211	$ 151,739
Bonding @ 2.0% of Labor & Material	$ 11,843	$ 38,737	$ 50,580
ESCO overhead and profit @ 18.0% of Labor & Material	$ 106,586	$ 348,633	$ 455,218
Subtotal:	$ 805,314	$ 2,556,639	$ 3,361,953
Construction contingency @ 5.0% of CC	$ 29,607	$ 96,842	$ 126,450
Subtotal - Maximum Project Cost:	$ 834,921	$ 2,653,481	$ 3,488,402
Est. Sales Tax @ 8.8% of Maximum Project Cost	$ 73,473	$ 233,506	$ 306,979
Additional 2 Years of M&V - Ameresco (plus sales tax)			$ -
Additional 2 Years of M&V - DES			$ -
DES Project Management Fees			$ 64,000
TOTAL PROJECT PRICE:	**$ 908,394**	**$ 2,886,988**	**$ 3,859,382**
Estimated Utility Incentive	$ -	$ 375,331	$ 375,331
Commerce Grant Request			$ 500,000
Estimated Client Net Cost (excluding add'tl years M&V)			$ 2,984,051
Client initial cash payment of Non-State Dollars			$ 1,284,000
Amount to be financed by client:			**$ 1,700,051**
Year 2 Estimated Cash Flow:			**$ 4,112**
Year 2 Cash Flow Based on Guaranteed Energy Savings (90%):			**$ (15,141)**

ECONOMIC ASSUMPTIONS

Interest Rate :	2.00%
Financing Term:	10 years
Payments/year:	2
Inflation Rate:	3.50%
Est Annual Rate of Energy Increases:	1.50%
Savings Guarantee:	90%
NPV life:	15 years
Client Discount Rate:	5%
Estimated Net Present Value:	(658,070)

OSPI /Commerce Metrics

Commerce Metrics	
Leverage Ratio:	6.72
Maint. Savings:	$ 15,903
Simple Payback:	21.44

ANNUAL ENERGY SAVINGS	Mechanical	Water	Lighting	General	Total
Electrical Savings (kWh)	0	0	1,876,657	0	1,876,657
Electrical Savings (kW)	0	0	5,361	0	5,361
Nat Gas Savings (Therms)	0	0	0	0	0
Oil (DESI)	0	0	0	0	0
Propane (DESI)	0	0	0	0	0
Water Savings (CCF)	0	0	0	0	0
$ Saved	$ -	$ -	$ 173,782	$ -	$ 173,782

B. TABLE 2 CASH FLOW

II. PROJECT CASH FLOW FOR SELECTED OPTIONS

PROJECT SAVINGS BASED ON ESTIMATED ENERGY SAVINGS (100%)

Year ending / Reference year	2013 0	2014 1	2015 2	2016 3	2017 4	2018 5	2019 6	2020 7	2021 8	2022 9	2023 10	2024 11	2025 12	2026 13	2027 14	2028 15	2029 16	2030 17	2031 18	2032 19	2033 20
Mechanical, General, and Water savings	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Lighting Savings:	$ -	$ 172,782	$ 176,386	$ 179,934	$ 181,720	$ 184,445	$ 187,212	$ 190,020	$ 192,871	$ 195,764	$ 198,700	$ 201,681	$ 204,706	$ 207,776	$ 210,893	$ 214,056	$ 217,267	$ 220,526	$ 223,834	$ 227,192	$ 230,600
Lighting Maintenance Savings	$ -	$ 15,903	$ 16,141	$ 16,383	$ 16,629	$ 16,879	$ 17,132	$ 17,389	$ 17,650	$ 17,914	$ 18,183	$ 18,456	$ 18,733	$ 19,014	$ 19,299	$ 19,588	$ 19,882	$ 20,180	$ 20,483	$ 20,790	$ 21,102
Other Maintenance Savings	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Savings:	$ -	$ 188,684	$ 192,530	$ 196,318	$ 198,349	$ 201,324	$ 204,344	$ 207,409	$ 210,520	$ 213,678	$ 216,883	$ 220,136	$ 223,438	$ 226,790	$ 230,192	$ 233,645	$ 237,149	$ 240,707	$ 244,317	$ 247,982	$ 251,702
Cumulative Savings:	$ -	$ 188,684	$ 382,214	$ 577,631	$ 775,980	$ 977,304	$ 1,181,648	$ 1,389,057	$ 1,599,577	$ 1,813,255	$ 2,030,138	$ 2,250,275	$ 2,473,713	$ 2,700,503	$ 2,930,695	$ 3,164,340	$ 3,401,489	$ 3,642,196	$ 3,886,513	$ 4,134,495	$ 4,386,197

PROJECT SAVINGS BASED ON GUARANTEED ENERGY SAVINGS (90)%

Year ending	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Mechanical, General, and Water savings	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Lighting Savings:	$ -	$ 156,403	$ 159,749	$ 161,131	$ 163,548	$ 166,001	$ 168,491	$ 171,018	$ 173,584	$ 176,187	$ 178,830	$ 181,513	$ 184,235	$ 186,999	$ 189,804	$ 192,651	$ 195,541	$ 198,474	$ 201,451	$ 204,473	$ 207,540
Lighting Maintenance Savings	$ -	$ 14,312	$ 14,527	$ 14,745	$ 14,966	$ 15,191	$ 15,419	$ 15,650	$ 15,885	$ 16,123	$ 16,365	$ 16,610	$ 16,859	$ 17,112	$ 17,369	$ 17,629	$ 17,894	$ 18,162	$ 18,435	$ 18,711	$ 18,992
Other Maintenance Savings	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Savings:	$ -	$ 170,716	$ 173,277	$ 175,876	$ 178,514	$ 181,192	$ 183,909	$ 186,668	$ 189,468	$ 192,310	$ 195,195	$ 198,123	$ 201,095	$ 204,111	$ 207,173	$ 210,280	$ 213,434	$ 216,636	$ 219,886	$ 223,184	$ 226,532
Cumulative Savings:	$ -	$ 170,716	$ 343,992	$ 519,868	$ 698,382	$ 879,574	$ 1,063,483	$ 1,250,151	$ 1,439,619	$ 1,631,930	$ 1,827,124	$ 2,025,247	$ 2,226,342	$ 2,430,453	$ 2,637,626	$ 2,847,906	$ 3,061,340	$ 3,277,976	$ 3,497,862	$ 3,721,045	$ 3,947,577

ANNUAL PROJECT COSTS

Amount Financed:	$	(1,700,061)
Cash Payment	$	(1,284,000)

Year ending	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Annual Financing Costs		$ (188,418)	$ (188,418)	$ (188,418)	$ (188,418)	$ (188,418)	$ (188,418)	$ (188,418)	$ (188,418)	$ (188,418)	$ (188,418)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
AQ Tech Support and Monitoring	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
OES Tech Support & Monitoring	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Annual Costs to Client	$ (1,284,000)	$ (188,418)	$ (188,418)	$ (188,418)	$ (188,418)	$ (188,418)	$ (188,418)	$ (188,418)	$ (188,418)	$ (188,418)	$ (188,418)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

NET ANNUAL CASH FLOW WHEN FINANCING PROJECT:

Year ending	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Cash Flow from Estimated Energy Savings (with inflation)	$ (1,284,000)	$ 1,297	$ 4,112	$ 7,000	$ 9,931	$ 12,906	$ 15,926	$ 18,991	$ 22,102	$ 25,260	$ 28,465	$ 220,136	$ 223,438	$ 226,790	$ 230,192	$ 233,645	$ 237,149	$ 240,707	$ 244,317	$ 247,982	$ 251,702
Cumulative	$ (1,284,000)	$ (1,282,723)	$ (1,278,622)	$ (1,271,622)	$ (1,261,691)	$ (1,248,784)	$ (1,232,858)	$ (1,213,867)	$ (1,191,765)	$ (1,166,504)	$ (1,138,039)	$ (917,903)	$ (694,464)	$ (467,674)	$ (237,482)	$ (3,836)	$ 233,312	$ 474,018	$ 718,336	$ 966,318	$ 1,218,019
Cash Flow from Guaranteed Energy Savings (with inflation)	$ (1,284,000)	$ (17,702)	$ (15,141)	$ (12,542)	$ (9,904)	$ (7,226)	$ (4,506)	$ (1,750)	$ 1,050	$ 3,882	$ 6,777	$ 198,123	$ 201,095	$ 204,111	$ 207,173	$ 210,280	$ 213,434	$ 216,636	$ 219,886	$ 223,184	$ 226,532
Cumulative	$ (1,284,000)	$ (1,301,702)	$ (1,316,843)	$ (1,329,385)	$ (1,339,289)	$ (1,346,515)	$ (1,351,023)	$ (1,352,773)	$ (1,351,722)	$ (1,347,840)	$ (1,341,063)	$ (1,142,940)	$ (941,845)	$ (737,734)	$ (530,562)	$ (320,282)	$ (106,847)	$ 109,789	$ 329,684	$ 552,868	$ 779,400

C. TABLE 3 FULL LIST OF MEASURES

ECM #	Conservation Measure	Baseline						Proposed						Savings					Financials			
		Current Annual Use - Electrical		Current Gas Use	Current Electric Cost	Current Gas Cost	Current Total Cost	Future Total Annual Use - Electric		Future Gas Use	Future Electric Cost	Future Gas Cost	Future Total Cost	Annual Savings Electric		Annual Gas Savings	Annual Resource Savings	Annual Maint. Savings	Labor/Mat'l Cost	Utility Incentive	Final Labor/Mat'l Cost	Simple Payback
		Consume (kWh)	Demand (kW)	(Therms)	($)	($)	($)	Consume (kWh)	Demand (kW)	(Therms)	($)	($)	($)	Consume (kWh)	Demand (kW)	(Therms)	($)	($)		($)	($)	
	Olympia Center (OC)																					
	Mechanical Conservation Measures																					
ECM-OC-M1	Replace Air Handling Units (ASU-501, AHU-502 and ASU-503) - This measure will replace the existing air handling units with new air handling units. This measure will also disconnect and reconnect the existing controls and fully commission the systems for proper operation and optimal performance	There are no savings associated with this measure						There are no savings associated with this measure						There are no savings associated with this measure					$ 124,025	$ -	$ 124,025	n/a
ECM-OC-M2	Replace Chiller - This measure will replace the existing heat recovery chiller with a new heat recovery chiller. This measure will also disconnect and reconnect the existing controls and fully commission the system for proper operation and optimal performance	There are no savings associated with this measure						There are no savings associated with this measure						There are no savings associated with this measure					$ 277,621	$ -	$ 277,621	n/a
	Timberland Library (TL)																					
	Mechanical Conservation Measures																					
ECM-TL-M1	Replace Chiller - This measure will replace the existing air cooled DX chiller with an air cooled water chiller. This measure will also install a new chilled water coil in the main air handling unit and pipe the new coil to the new chiller. This measure will also disconnect and reconnect the existing controls and fully commission the system for proper operation and optimal performance	There are no savings associated with this measure						There are no savings associated with this measure						There are no savings associated with this measure					$ 190,496	$ -	$ 190,496	n/a
	City of Olympia (COO)																					
	Lighting Conservation Measures																					
ECM-COO-L1a	Street Light Replacements (Schedule 24 - Option A, Retrofit Kits) - This measure will replace the existing high pressure sodium lamps and fixtures with new LED lamps and fixtures. This option will retrofit the post tops and pedestrian arm fixtures with retrofit kits	871,945	2,491	-	$ 84,546	$ -	$ 84,546	389,243	1,113	-	$ 37,742	$ -	$ 37,742	482,702	1,378	-	$ 46,804	$ 5,216	$ 680,367	$ 96,318	$ 584,049	11 23
ECM-COO-L1b	Street Light Replacements (Schedule 24 - Option B, Screw-in Lamps) - This measure will replace the existing high pressure sodium lamps and fixtures with new LED lamps and fixtures. This option will retrofit the post tops and pedestrian arm fixtures with screw in lamps.	871,945	2,491	-	$ 84,546	$ -	$ 84,546	390,377	1,117	-	$ 37,852	$ -	$ 37,852	481,568	1,375	-	$ 46,694	$ 5,216	$ 521,189	$ 84,740	$ 443,333	8 54
ECM-COO-L2a	Street Light Replacements (Schedule 25 - Option A, Retrofit Kits) - This measure will replace the existing high pressure sodium lamps and fixtures with new LED lamps and fixtures. This option will retrofit the post tops and pedestrian arm fixtures with retrofit kits	131,271	375	-	$ 15,272	$ -	$ 15,272	44,436	127	-	$ 5,170	$ -	$ 5,170	86,835	248	-	$ 10,103	$ 1,732	$ 196,975	$ 17,367	$ 179,608	15 18
ECM-COO-L2b	Street Light Replacements (Schedule 25 - Option B, Screw-in Lamps) - This measure will replace the existing high pressure sodium lamps and fixtures with new LED lamps and fixtures. This option will retrofit the post tops and pedestrian arm fixtures with screw in lamps	131,271	375	-	$ 15,272	$ -	$ 15,272	44,096	126	-	$ 5,130	$ -	$ 5,130	87,175	249	-	$ 10,142	$ 1,732	$ 105,436	$ 5,877	$ 100,036	8 42
ECM-COO-L3a	Street Light Replacements (Schedule 50 - Option A, Retrofit Kits) - This measure will replace the existing high pressure sodium lamps and fixtures with new LED lamps and fixtures. This option will retrofit the post tops and pedestrian arm fixtures with retrofit kits	29,761	85	-	$ 3,750	$ -	$ 3,750	14,591	42	-	$ 1,536	$ -	$ 1,536	15,170	43	-	$ 2,213	$ 168	$ 21,296	$ 3,034	$ 18,262	7 67
ECM-COO-L3b	Street Light Replacements (Schedule 50 - Option B, Screw-in Lamps) - This measure will replace the existing high pressure sodium lamps and fixtures with new LED lamps and fixtures. This option will retrofit the post tops and pedestrian arm fixtures with screw in lamps	29,761	85	-	$ 3,750	$ -	$ 3,750	14,570	42	-	$ 1,534	$ -	$ 1,534	15,191	43	-	$ 2,215	$ 168	$ 21,064	$ 3,307	$ 18,046	7 57

ECM #	Conservation Measure	Baseline						Proposed						Savings					Financials			
		Current Annual Use - Electrical		Current Gas Use (Therms)	Current Electric Cost ($)	Current Gas Cost ($)	Current Total Cost ($)	Future Total Annual Use - Electric		Future Gas Use (Therms)	Future Electric Cost ($)	Future Gas Cost ($)	Future Total Cost ($)	Annual Savings Electric		Annual Gas Savings (Therms)	Annual Resource Savings ($)	Annual Maint. Savings ($)	Labor/Mat'l Cost	Utility Incentive ($)	Final Labor/Mat'l Cost ($)	Simple Payback
		Consume (kWh)	Demand (kW)					Consume (kWh)	Demand (kW)					Consume (kWh)	Demand (kW)							
ECM-COO-L4	Street Light Replacements (Schedule 52 - Option A, Retrofit Kits) - This measure will replace the existing high pressure sodium lamps and fixtures with new LED lamps and fixtures. This option will retrofit the post tops and pedestrian arm fixtures with retrofit kits.	4,305	12	-	$ -	$ -	$ -	2,121	6	-	$ -	$ -	$ -	2,184	6	-	$ -	$ 24	$ 3,051	$ 437	$ 2,615	108.66
ECM-COO-L5a	Street Light Replacements (Schedule 53 - Option A, Retrofit Kits) - This measure will replace the existing high pressure sodium lamps and fixtures with new LED lamps and fixtures. This option will retrofit the post tops and pedestrian arm fixtures with retrofit kits.	272,891	780	-	$ 31,218	$ -	$ 31,218	106,520	304	-	$ 11,243	$ -	$ 11,243	166,370	475	-	$ 19,975	$ 1,174	$ 158,404	$ 33,274	$ 125,130	5.92
ECM-COO-L5b	Street Light Replacements (Schedule 53 - Option B, Screw-in Lamps) - This measure will replace the existing high pressure sodium lamps and fixtures with new LED lamps and fixtures. This option will retrofit the post tops and pedestrian arm fixtures with screw in lamps.	272,891	780	-	$ 31,218	$ -	$ 31,218	106,256	304	-	$ 11,210	$ -	$ 11,210	166,635	476	-	$ 20,008	$ 1,172	$ 154,345	$ 36,274	$ 121,018	5.71
ECM-COO-L6a	Street Light Replacements (Schedule 54 - Option A, Retrofit Kits) - This measure will replace the existing high pressure sodium lamps and fixtures with new LED lamps and fixtures. This option will retrofit the post tops and pedestrian arm fixtures with retrofit kits.	1,920,110	5,486	-	$ 177,814	$ -	$ 177,814	797,000	2,277	-	$ 83,413	$ -	$ 83,413	1,123,109	3,209	-	$ 94,400	$ 7,624	$ 1,169,052	$ 224,622	$ 944,430	9.26
ECM-COO-L6b	Street Light Replacements (Schedule 54 - Option B, Screw-in Lamps) - This measure will replace the existing high pressure sodium lamps and fixtures with new LED lamps and fixtures. This option will retrofit the post tops and pedestrian arm fixtures with screw in lamps.	1,920,110	5,486	-	$ 177,814	$ -	$ 177,814	794,023	2,269	-	$ 83,091	$ -	$ 83,091	1,126,087	3,217	-	$ 94,722	$ 7,614	$ 1,134,794	$ 245,132	$ 909,576	6.89

D. TABLE 4 SELECTED MEASURES

			Baseline						Proposed						Savings								
	ECM #	Conservation Measure	Current Annual Use - Electrical		Current Gas Use (Therms)	Current Electric Cost $	Current Gas Cost $	Current Total Cost $	Future Total Annual Use - Electric		Future Gas Use (Therms)	Future Electric Cost $	Future Gas Cost $	Future Total Cost $	Annual Savings Electric		Annual Gas Savings (Therms)	Annual Resource Savings $	Annual Maint. Savings $	Labor/Mat'l Cost	Utility Incentive	Final Labor/Mat'l Cost $	Simple Payback
Selected			Consume kWh	Demand kW					Consume kWh	Demand kW					Consume kWh	Demand kW					$		
		Olympia Center (OC)																					
		Mechanical Conservation Measures																					
Yes	ECM-OC-M1	Replace Air Handling Units (ASU-501, AHU-502 and ASU-503) - This measure will replace the existing air handling units with new air handling units This measure will also disconnect and reconnect the existing controls and fully commission the systems for proper operation and optimal performance	There are no savings associated with this measure						There are no savings associated with this measure					$ -	There are no savings associated with this measure					$ 124,025	$ -	$ 124,025	n/a
Yes	ECM-OC-M2	Replace Chiller - This measure will replace the existing heat recovery chiller with a new heat recovery chiller This measure will also disconnect and reconnect the existing controls and fully commission the system for proper operation and optimal performance	There are no savings associated with this measure						There are no savings associated with this measure					$ -	There are no savings associated with this measure					$ 277,621	$ -	$ 277,621	n/a
		Timberland Library (TL)																					
		Mechanical Conservation Measures																					
Yes	ECM-TL-M1	Replace Chiller - This measure will replace the existing air cooled DX chiller with an air cooled water chiller This measure will also install a new chilled water coil in the main air handling unit and pipe the new coil to the new chiller This measure will also disconnect and reconnect the existing controls and fully commission the system for proper operation and optimal performance	There are no savings associated with this measure						There are no savings associated with this measure						There are no savings associated with this measure					$ 190,496	$ -	$ 190,496	n/a
		City of Olympia (COO)																					
		Lighting Conservation Measures																					
Yes	ECM-COO-L1b	Street Light Replacements (Schedule 24 - Option B, Screw-in Lamps) - This measure will replace the existing high pressure sodium lamps and fixtures with new LED lamps and fixtures This option will retrofit the post tops and pedestrian arm fixtures with screw in lamps	871,945	2,491	-	$ 84,546	$ -	$ 84,546	390,377	1,117	-	$ 37,852	$ -	$ 37,852	481,568	1,375	-	$ 46,694	$ 5,216	$ 521,189	$ 84,740	$ 443,333	8.54
Yes	ECM-COO-L2b	Street Light Replacements (Schedule 25 - Option B, Screw-in Lamps) - This measure will replace the existing high pressure sodium lamps and fixtures with new LED lamps and fixtures This option will retrofit the post tops and pedestrian arm fixtures with screw in lamps	131,271	375	-	$ 15,272	$ -	$ 15,272	44,096	126	-	$ 5,130	$ -	$ 5,130	87,175	249	-	$ 10,142	$ 1,732	$ 105,436	$ 5,877	$ 100,036	8.42
Yes	ECM-COO-L3b	Street Light Replacements (Schedule 50 - Option B, Screw-in Lamps) - This measure will replace the existing high pressure sodium lamps and fixtures with new LED lamps and fixtures This option will retrofit the post tops and pedestrian arm fixtures with screw in lamps	29,761	85	-	$ 3,750	$ -	$ 3,750	14,570	42	-	$ 1,534	$ -	$ 1,534	15,191	43	-	$ 2,215	$ 168	$ 21,084	$ 3,307	$ 18,046	7.57
Yes	ECM-COO-L5b	Street Light Replacements (Schedule 53 - Option B, Screw-in Lamps) - This measure will replace the existing high pressure sodium lamps and fixtures with new LED lamps and fixtures This option will retrofit the post tops and pedestrian arm fixtures with screw in lamps	272,691	780	-	$ 31,218	$ -	$ 31,218	106,256	304	-	$ 11,210	$ -	$ 11,210	166,635	476	-	$ 20,008	$ 1,172	$ 154,345	$ 36,274	$ 121,018	5.71
Yes	ECM-COO-L6b	Street Light Replacements (Schedule 54 - Option B, Screw-in Lamps) - This measure will replace the existing high pressure sodium lamps and fixtures with new LED lamps and fixtures This option will retrofit the post tops and pedestrian arm fixtures with screw in lamps	1,920,110	5,486	-	$ 177,814	$ -	$177,814	794,023	2,269	-	$ 83,091	$ -	$ 83,091	1,126,087	3,217	-	$ 94,722	$ 7,614	$ 1,134,794	$ 246,132	$ 909,576	8.89

EXHIBIT 1 Detailed Lighting Audit Calculations (Provided Separately on CD-ROM)

EXHIBIT 2 Bond Form (Incorporated herein (AIA A312))

EXHIBIT 3 Energy Services Agreement (Incorporated herein)

ATTACHMENT D

EXHIBIT EN- 2009-128 A (1)

ENERGY SERVICES PROPOSAL – CITY OF OLYMPIA

For: **City of Olympia**
Olympia Washington

By: **Quantum Engineering & Development, Inc.**
Quantum Engineering Project Number 041-2008-01

December 4, 2009

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EXECUTIVE SUMMARY

A. SUMMARY & PROPOSED SERVICES

Quantum Engineering & Development, Inc. (Quantum Engineering) is pleased to present this proposal for the implementation of energy efficiency measures for the City of Olympia.

This Proposal follows the outline contained in Section 2 of the Energy Services Agreement. It presents the contractual terms under which Quantum Engineering, the City of Olympia, and the Department of General Administration will work together over the term of the project. This Proposal describes the scope, costs, guarantees, and other aspects of the project.

This proposal breaks out the portion of the overall project that is funded by the Energy Efficiency Community Block Grant (EECBG) funding. In this manner, the money going into this federally funded portion of the project can be separately tracked. The intention is that the EECBG portion of the project be under a separate contract.

The services included in this Proposal include design, construction, system verification, and ongoing services for the first three years. Although the City of Olympia will operate and maintain the new equipment, Quantum Engineering will provide important monitoring services during the first three years to help insure the predicted savings are achieved.

B. PROJECT DESCRIPTION

The project greatly improves comfort and visibility in the City of Olympia Facilities, while saving energy and water. The City Hall, Smith Building, Library, Washington Center, and the Olympia Center all will receive upgrades to their respective heating and ventilation control systems. All of these controls upgrades will be fully commissioned, as will the existing controls at the Main Fire Station. The lighting systems in the City Hall, Municipal Court Services, Police Annex, Smith Building, Library, Washington Center, Olympia Center, Family Support Center, Maintenance Facility, Main Fire Station, West Side Police Station, West Side Fire Station, East Side Fire Station, Command Training Center and the Firing Range will be retrofit to new, T-8 lamps and electronic ballasts, and metal halide fixtures will be replaced with new, T-8 fixtures. The plumbing fixtures at City Hall, Municipal Court Services, Police Annex, Smith Building, Library, Washington Center, Olympia Center, Family Support Center, Maintenance Facility, Main Fire Station, West Side Police Station, West Side Fire Station, East Side Fire Station, Command Training Center and the Firing Range will be retrofit and replaced with low consumption fixtures and devices.

C. PROJECT BENEFITS

Financial Benefits

Exhibit 1 shows project cost, estimated utility incentives, and savings related to this project. The guaranteed maximum project cost is. Including sales tax and E&A Services project management fees, the total project cost is.

The project is projected to receive incentive payments from Puget Sound Energy in the amount of $517,792 , and from the City of Olympia and LOTT in the amount of $90,477 . After the incentive payments, Energy Efficiency and Conservation Block Grant (EECBG) from the Department of Energy in the amount of, and a cash infusion from the City of Olympia's Capitol Repair and Replacement Fund 129 in the amount of, the amount financed is estimated at.

All construction costs will be open book to the Owner, and any cost savings related to savings on our labor & material costs will revert to the Owner at the end of the project.

The project will produce over annually in energy and maintenance related savings. Based on State Treasurer financing and a ten year loan, the project produces a positive cash flow of in the first year of operation. The cash flow grows to in year five due to energy rate increases.

Maintenance Related Benefits

While there will be significant savings in maintenance costs due to replacement of failing HVAC equipment, no HVAC maintenance savings are factored into our analysis. Lighting maintenance savings ofper year are estimated due to reduced need for replacement lamps and ballasts for the next five years.

Environmental Benefits

In addition to building improvements and energy savings, there is a significant positive impact on the environment as a result of this project. The energy savings produced as a result of this project will directly reduce the amount of power produced by the Utility. Because much of our electricity in the State of Washington is produced through hydroelectric power, the savings from this project will improve stream and river flows for endangered species such as salmon. The cumulative impact of many of these projects may very well result in saving a species from extinction. Also, reductions in emissions include over 1,303,968 lbs of CO_2 annually, and 279 lbs. of nitrous oxides.

D. GUARANTEES

Quantum Engineering guarantees that the project cost, related specifically to energy savings and the project scope, will not exceed the maximum price of (project cost before sales tax and E&AS management fees). Also, Quantum Engineering is guaranteeing that the project will perform such that the energy savings will meet or exceedkilowatt hours per year, kW per year, Therms per year, and CCF per year. This corresponds with 90 % of the projected energy savings.

E. CONCLUSION

This project represents an excellent opportunity for the City of Olympia to greatly improve their facilities while saving energy. The project provides over $2.6 million in facility improvements with limited capital investment. Quantum Engineering looks forward to working with the City of Olympia and General Administration in making this project a success.

I. FACILITY DESCRIPTION

A. BUILDING

Olympia City Hall (CH):

Olympia City Hall is located at 900 Plum Street SE in Olympia, Washington. This single story 26,240 square foot building was built in 1965 and houses legal services for the City of Olympia, the City Jail, Court and Police Services.

The building is constructed of wood framing with an exterior of precast concrete wall panels. Roofing is cast in place structural concrete with reflective surface coating. Windows are single-pane in aluminum frames.

Mechanical systems include a gas fired hot water boiler and associated hot water circulation pump, two multi-zone air handling unit, two single-zone air handling units, finned tube radiators at the perimeter, and multiple rooftop heat pumps. All of the main HVAC equipment is original to the 1965 construction. Combination electronic time clocks and pneumatic controls provide runtime, ventilation and temperature control or the HVAC equipment.

Lighting systems include T-12 and incandescent fixtures in the interior spaces with HID and compact fluorescent lighting outside.

Municipal Court Services Building (MCS):

The Municipal Court Services Building is located at Northeast corner of the City Hall Campus. This is a 1,150 square foot, single story building, of residential-style wood frame construction that was built in the late 1970s or early 1980s. The exterior is painted T111 wood siding with a sloped composition shingle roof. The building's windows are single-pane in aluminum frames.

Mechanical systems consist of a single packaged gas furnace with direct expansion cooling. A programmable thermostat provide system scheduling and temperature control.

Lighting systems includes T-12 and incandescent fixtures in the interior spaces with HID and incandescent lighting outside.

Police Annex Building (PA):

The Police Annex Building is located just east of Olympia City Hall in the Police Department parking lot. This 2,875 square foot two-story wood frame building was relocated to the site during the early 1990s. It is wood framed with a steep composition shingle roof. Windows are single pane with aluminum frames.

Mechanical systems include two forced air furnaces with electric heat and split direct expansion cooling. Programmable thermostats provide system scheduling and temperature control.

Lighting systems include T-12 fluorescent and incandescent fixtures in the interior spaces with HID and incandescent lighting fixtures on the exterior.

Smith Building (SB):

The Smith Building is located at 837 7th Avenue SE in Olympia, Washington. This is a 25,000 square foot, 3 story, brick building with a built up hypalon roof system. Windows are thermal pane with aluminum frames.

Mechanical systems include a single packaged rooftop air handling unit which provides conditioned air to pressure dependant, variable air volume, linear slot diffusers, and three split air conditioning units. Programmable thermostats with remote sensors provide the runtime and temperature control for the HVAC systems.

Lighting systems include T-12 fluorescent and incandescent fixtures in the interior spaces, and HID and incandescent lighting fixtures on the exterior.

Library Building (LB):

The Library is located at 313 8th Avenue SE in Olympia, Washington. Built in 1977, this 22,500 square foot, single-story building is constructed of pre-cast concrete planks on concrete post and beams systems with reinforced masonry shear walls. It has a built-up membrane roof with gravel surface and reflective coating. Windows are thermal pane with aluminum frames.

Mechanical system includes a gas fire hot water boiler and associated hot water circulation pump, an air cooled direct expansion chiller, and a central air handling unit which provides primary air to by-pass terminal units with electric re-heat. A digital time clock and pneumatic controls provide the runtime and temperature control for the HVAC systems.

Lighting consists of T-12 lamps in parabolic fixtures for the interior, and HID and incandescent lighting fixtures on the exterior.

Washington Center Performing Arts Building (WC):

The Washington Center is located at 512 Washington Street SE in Olympia, Washington. Built in the 1980's in two phases, this 40,600 square foot building is constructed of steel framing with concrete and reinforced masonry walls. Multi-layer built-up roof membranes are finished with differing surfaces on the different roof levels. The surfaces are either smooth reflective or granular surfaced cap sheeting.

Mechanical systems include a water cooled chiller with associated circulating pumps and cooling tower, a 100% outside air dressing room air handling system with electric heat and a run-around heat recover loop, and a main air handling system with electric heat which provides primary air to multiple variable air volume terminal units. Runtime for the HVAC systems is performed manually by the staff. Temperature control is accomplished by pneumatic and electronic controls.

Lighting systems consist of a combination of T-12, T-8, compact fluorescent, incandescent and HID lighting for the interior, and HID and incandescent lighting outside.

Olympia Center - Community Center (CC):

The Olympia Center is located at 222 Columbia Street NW in Olympia, Washington. This two-story 56,147 square foot building was built in 1985 of steel beam, concrete and reinforced masonry construction. It contains several meeting and classroom spaces as well as senior services, a gymnasium and several multipurpose rooms. The roof is a single-ply membrane with gravel surfacing. Windows are thermal pane with aluminum frames.

Mechanical system consists of a gas-fired boiler, chiller with heat recovery, four multi-zone air handling units, two single zone air handling units, multiple return and exhaust fans, and two Gas-fired evaporative cooling make-up air handling units. Runtime and temperature control is accomplished with an antiquated hybrid pneumatic/ electronic control system.

Lighting in the spaces has been updated since construction and is largely T-8 with electronic ballast. HID and compact fluorescent fixtures illuminate the building's exterior.

Family Support Center (FSC):

The Family Support Center is located at 108 State Avenue NW in Olympia, Washington. Originally built in 1911 for the Olympia Fire Department, this 14,790 square foot, two-story building is constructed of wood framing with unreinforced masonry walls. Some seismic improvements have been made in the interim. The roofing is smooth surfaced torch grade membrane. The single-paned windows are wood framed.

Mechanical systems consist of five packaged rooftop heat pumps, and electric baseboard heaters at the perimeter. Programmable thermostats provide the runtime and temperature control for the HVAC systems.

Lighting systems consists of T-12 and T-8 fixtures at the interior, and incandescent and HID exterior lighting.

Maintenance Facility (MF):

The Maintenance Facility is located at 1401 Eastside Street SE in Olympia, Washington. This is a 51,396 square foot facility built in 1975. The front portion of the facility is two stories and house multiple offices and conference rooms for the administration staff. The remainder of the building is shops, storage and office space for the maintenance staff. Building construction is steel post and beam with metal siding and a metal roof.

Mechanical systems consist of a variety of systems including multiple heating and ventilation units, exhaust fans, and gas fired radiant heaters for the shop bays. The administration portion of the building is served by multiple gas fired forced air furnaces with direct expansion cooling. Manual and programmable thermostats provide the runtime and temperature control for the HVAC systems.

Interior lighting consists of T-12 fluorescent fixtures with some HID lighting in the shop bays. Perimeter lighting consists mainly of HID wall packs and parking lot lights.

Main Fire Station (MFS):

The main Fire Station is located at 100 Eastside Street NE in Olympia, Washington. This 26,500 square foot building was built in 1992 of wood framing, lap siding and a metal roof. Windows are thermal pane with vinyl frames.

Mechanical Systems consist of multiple gas fired forced air furnaces with split direct expansion cooling. The vehicle bays are served by gas-fired radiant heat and vehicle exhaust systems. Programmable thermostats provide the runtime and temperature control for the HVAC systems.

Lighting systems consist of T-8 and compact fluorescent fixtures through-out the interior, and HID lighting at the exterior.

Police Station - West Side (WPS):

The West Side Police Station is located at 221 North Perry in Olympia, Washington. This 2,000 square foot single story building was built in 1947. It was originally a fire station and was constructed of wood framing with reinforced concrete shear walls. The roof surface consists of a smooth surfaced torch grade membrane. Windows are thermal pane with vinyl frames.

Mechanical systems consist of one forced air gas fired furnace with split direct expansion cooling, and one packaged rooftop unit with gas heat and direct expansion cooling. Programmable thermostats provide the runtime and temperature control for the HVAC systems.

Interior lighting consists mainly of T-12 and incandescent fixtures. The exterior lighting is HID.

Fire Station - West Side (WFS):

The West Side Fire Station is located at 330 Kenyon Street NW in Olympia, Washington. This 1991 single story building is wood framed with structural brick masonry shear walls. The sloped roof assembly is tiled. Windows are vinyl framed double pane.

Mechanical Systems consist of multiple gas fired forced air furnaces with split direct expansion cooling. The vehicle bays are served by gas-fired radiant heat and vehicle exhaust systems. Programmable thermostats provide the runtime and temperature control for the HVAC systems.

Lighting systems consist of T-8 and compact fluorescent fixtures through-out the interior, and HID lighting at the exterior.

Fire Station - East Side (EFS):

The East Side Fire Station is located at 2525 22nd Avenue SE in Olympia, Washington. This two-story building, built in 1992 is constructed of wood framing with T111 wood siding. A single-story exercise addition was added in 2001. The roof is steep-sloped with composition shingles.

Mechanical Systems consist of a single gas fired forced air furnaces with split direct expansion cooling. The vehicle bay is served by a gas-fired radiant heater and vehicle exhaust systems. Programmable thermostats provide the runtime and temperature control for the HVAC systems.

Lighting systems consist of T-12 fluorescent, compact fluorescent, and incandescent fixtures through-out the interior, and incandescent and HID lighting at the exterior.

B. MECHANICAL SYSTEMS

City Hall (CH):

Mechanical systems at Olympia City Hall consist of a gas fired boiler (B-1) with an associated heating water circulation pump (CP-1), multiple finned tube radiators, two large multi-zone air handling units (AH-1 and AH-2), two single-zone air handling units (AH-3 and AH-4), and multiple packaged and split system heat pumps. Domestic hot water for the building is provided by two domestic hot water heaters; one gas and one electric.

Building Controls

Control for the HVAC systems at City Hall consist of an antiquated pneumatic and electronic control system. Start and stop control is accomplished with electronic time clocks. The start/stop "dogs" for the time clocks have been removed; enabling the associated equipment to operate 24 hours a day, 365 days a year. Ventilation and temperature control is accomplished with pneumatic controls.

The perimeter finned tube radiators are broke up into three zones and are controlled based on outside air temperature in lieu of individual space temperature control.

This type of control system is a maintenance burden and lacks remote monitoring capability. The proposed conservation measure will replace the existing control system with a new Direct Digital Control (DDC) System, and ties the new controls to a city wide Energy Management System (EMS). The new control will also implement proper runtime schedules and enhance control sequences to allow the HVAC system to better respond to occupant needs, and save energy at the same time.

Cooling System

Cooling for Olympia City Hall is accomplished by circulating domestic water through cooling coils at the main air handling units then dumping the water down the storm drain; commonly referred to as single pass cooling.

Water for cooling is sub-metered and billed separately for water usage only. The billing average for 2007-2008 indicates the single pass cooling system consumed more that 25,000 CCF annually.

Heating System

Heating hot water for the Olympia City Hall is generated by an Industrial Combustion Incorporated gas fired boiler, model 40H. This boiler was manufactured in 1965 and has a rated input capacity of 1,670,000 BTU/Hr. Combustion efficiency testing indicates that this boiler is currently operating at 82% combustion efficiency.

Heating hot water is circulated through-out the City Hall campus by CP-1; a constant volume, base mounted, end suction pump manufactured by Paco. CP-1 is equipped with a 5.0 horsepower motor, and is rated for 170 GPM at 56 feet of head.

Air Handling Units

AH-1 is a dual deck, constant volume, multi-zone air handling unit equipped with a 5.0 horsepower supply fan, hot deck with an associated hot water heating coil and three-way control valve, cold deck with an associated single pass, domestic chilled water cooling coil and two-way control valve, mixing dampers with full economizer capability, and six associated control zones.

AH-2 is a dual deck, constant volume, multi-zone air handling unit equipped with a two-speed (high and low) 15.0 horsepower supply fan, hot deck with an associated hot water heating coil and three-way control valve, cold deck with an associated single pass, domestic chilled water cooling coil and two-way control valve, mixing dampers with full economizer capability and seven associated control zones.

AH-3 is a single zone, constant volume air handling unit manufactured by the Dunham-Bush Co. This unit is equipped with a 5.0 horsepower supply fan, hot water heating coil with an associated three-way control valve, single pass, domestic chilled water cooling coil with an associated two-way control valve, and mixing dampers with full economizer capability.

AH-4 is a single zone, constant volume air handling unit manufactured by the Dunham-Bush Co. This unit is equipped with a 5.0 horsepower supply fan, hot water heating coil with an associated three-way control valve, single pass, domestic chilled water cooling coil with an associated two-way control valve, and mixing dampers with full economizer capability.

Domestic Water Heaters

DWH-1 is a gas fired domestic water heater manufactured by A.O Smith; model BTR 198 110. This water heater has a storage capacity of 110 gallons and has a BTU input rating of 199,000.

DWH-2 is an electric domestic water heater manufactured by Rheem; model 81MV52D. This water heater is equipped with a 4.5 kW heating element driven by 240 volt single phase power, and has a 50 gallon storage capacity.

Municipal Court Services Building (MCS):

The Municipal Court Service Building is served by a single, 3-ton Trane gas pack (GP-1); model number YCC036F1H0BH.

GP-1 is equipped with a fractional horsepower supply fan; gas fired heat exchanger, direct expansion (DX) cooling, and mixing dampers with full economizer capability. A programmable thermostats provides runtime and temperature control. Minimum outside air and economizer operation is accomplished with microprocessor and enthalpy controls internal to the unit.

Police Annex Building (PA):

The Police Annex is served by two forced air furnaces; F-1 and F-2.

Furnace F-1 is split heat pump, forced air furnace manufactured by Carrier; model 40YR024300. This unit is equipped with a .25 horsepower supply fan, evaporator coil with associated split heat pump, a 6.0 kW electric strip heater, and fixed minimum outside air ductwork. A programmable thermostat provides the runtime and temperature control for F-1.

Furnace F-2 is split heat pump, forced air furnace manufactured by Trane; model 4TEC3F48. This unit is equipped with a .50 horsepower supply fan, evaporator coil with associated split heat pump, a 15.0 kW electric strip heater, and fixed minimum outside air ductwork. A programmable thermostat provides the runtime and temperature control for F-2.

Smith Building (SB):

The Smith Building is served by a packaged rooftop air handling unit (AHU-1).

Air handling unit AHU-1 is a Carrier unit; model 50DD024400NC. This unit is equipped with a 10 horsepower supply fan, direct expansion cooling, electric resistance heat and mixing dampers with full economizer capability.

Library Building (LB):

Mechanical system for the Library Building include a gas fired hot water boiler (B-1), a direct expansion (DX) air cooled chiller (CH-1), a constant volume air handling unit (AHU-1), twenty-two associated by-pass terminal units; seven of which are equipped with electric resistance heat, and several electric radiators for perimeter heat. Domestic hot water is provided by an electric domestic water heater located in the main mechanical room.

Building Controls

Controls for the Library consist of a hybrid digital and pneumatic control system. Runtime control for the HVAC equipment is accomplished with a 365 day digital time clock, while pneumatics with electronic interface provide temperature control for the occupied spaces and the air handling system.

These controls are inefficient, out of calibration, and are no longer supported by the manufacturer.

Heating Water System

Heating hot water for the Library Building is provided by a gas fired Kewanee boiler; model 3R3-KG0. This boiler provides hot water for the main air handling unit only and has a rated capacity of 468,000 BTU's.

Cooling System

Cooling for the AHU-1 is provided by an air cooled, direct expansion chiller manufactured by Trane; model RAUA-5004-RB. This chiller is equipped with a single compressor and six associated 1.5 horsepower condensing fans.

Air Handling Unit

A Trane "Climate Changer" air handling unit provides primary air to by-pass terminal units' through-out the library. This air handling unit is equipped with a 25.0 horsepower supply fan, hot water heating coil, direct expansion (DX) cooling coil, mixing dampers with full economizer capability, and an associated 10.0 horsepower return/exhaust fan.

Washington Center - Performing Arts Building (WC):

Mechanical systems for the Performing Arts Building include a chilled water system, main air handling unit (AHU-1), dressing room air handling unit (AHU-2), two small packages rooftop heat pumps (HP-1 and HP-2) which serve the administration areas, and the auxiliary Stage package heat pump (HP-3). HVAC controls at the Washington Center consist on programmable thermostats and manual controls.

Chilled Water System

The chilled water system at the Washington Center consists of a water chiller (WC-1), cooling tower (CT-1), two condenser water pumps (CWP-1 and CWP-2), and two chilled water pumps (CHWP-1 and CHWP-2).

A 75 ton Dunham-Bush vertical screw chiller model PCWX080 provides chilled water for AHU-1 and AHU-2 in the basement of the Washington Center. Chilled water is distributed to the air handling units via CHWP-1 and CHWP-2; base mounted, end suction pumps manufactured by Paco. These pumps are equipped with 2.0 horsepower motors and are designed to deliver 105 GPM at 44 feet of head.

CT-1 provides the media for cooling the condenser water for WC-1. This is a 75 ton closed circuit water cooler manufactured by Baltimore Air Coil; model J0605B40R. Condenser water is distributed between the chiller and cooling tower by condenser water pumps CWP-1 and CWP-2; base mounted end suction pumps manufactured by Paco. These pumps are equipped with 5.0 horsepower motors and are designed to deliver 125 GPM at 72 feet of head.

Air Handling Units

AHU-1 is a Governair air handling unit; model RSA-06. This unit is equipped with a 40 horsepower supply fan with associated Variable Frequency Drive (VFD), a 75 kW electric resistance heating coil, chilled water cooling coil, and mixing dampers with full economizer capability.

This unit is designed to provide 34,000 CFM of conditioned primary air to pressure independent Variable Air Volume (VAV) terminal units.

AHU-2 and AHU-3 are McQuay air handling units; model LSL104CH. AHU-2 is a 100% outside air supply fan that provide ventilation air for the dressing rooms. This unit is equipped with a 1.5 horsepower supply fan, heat recovery coil, and a 21 kW electric resistance heating coil. AHU-3 is an exhaust fan that provides exhaust air and pressure control for the dressing rooms. This unit is equipped with a 1.5 horsepower exhaust fan and a heat recovery coil.

A run-around heat recovery loop circulates a mixture of water and glycol between the two units to transfer heat from AHU-3 exhaust air to AHU-2 supply air.

HP-1 is a 3 ton packaged rooftop heat pump manufactured by Carrier. This unit is equipped with a fractional horsepower supply fan, reversing valve, and mixing dampers with full economizer capability. Runtime and temperature control is accomplished via programmable thermostat. Solid state controls internal to the unit modulate the mixing dampers and provide enthalpy economizer control.

Heat Pump HP-2 is a 1-1/2 ton packaged rooftop heat pump manufactured by Carrier. This unit is equipped with a fractional horsepower supply fan, reversing valve, and mixing dampers with full economizer capability, and is rated for 18,000 Btuh at 980 CFM. Runtime and temperature control is accomplished via programmable thermostat. Solid state controls internal to the unit modulate the mixing dampers and provide enthalpy economizer control.

Heat Pump HP-3 is a 12-1/2 ton packaged rooftop heat pump manufactured by Carrier. This unit is equipped with a ½ horsepower supply fan, reversing valve, and mixing dampers with full economizer capability, and is rated for 150,720 Btuh at 8,000 CFM. Runtime and temperature control is accomplished via programmable thermostat. Solid state controls internal to the unit modulate the mixing dampers and provide enthalpy economizer control.

Domestic Water heater

Domestic hot water for the Washington Center is provided by DWH-1; an electric water heater manufactured by A.O. Smith. DWH-1, model DVE-150-1-60, operates on 208 volt three phase power and is equipped with four each 15 kW electric heating elements; 60 kW total.

Olympia Center (OC):

Mechanical systems for the Olympia Center consist of a gas fired boiler (B-1) and associated heating water and boiler circulation pump (HP-1 and HP-2), a heat recovery chiller (CH-1) and associated cooling tower (CT-1) and condenser and chilled water circulating pumps (CDP-1 and CP-1), five main air handling units (ASU-101 through ASU-501), two kitchen make-up air handling systems (ASU-502 and ASU-503), and multiple return and exhaust air handling systems.

Building Controls

The Olympia Center is controlled by an antiquated Barber-Coleman network 8000 control system. This control system utilizes a combination of digital, electronic and pneumatic controls, and is tied to an Energy Management System (EMS) which has remote monitoring capability. Equipment scheduling is performed by the EMS. Electronic thermostats monitor space temperature and pneumatic actuators and valves are utilized at the air handling unit level. This system is original to the construction of the Olympia Center.

Heating Water System

The heating water system at the Olympia Center consist of a gas fired hot water boiler (B-1), a boiler circulating pump (HP-2), a heating water circulating pump (HP-1), and air handling unit heating coil circulating pumps (HP-101 through HP-501).

Boiler B-1 is a Burnham gas fired boiler; model PF-507. This boiler is located in the mechanical penthouse and has a BTU output rating of 1,116 MBH.

Heating water circulating pump HP-1 is a base mounted, end suction circulating pump manufactured by Paco. This pump is equipped with a 3.0 horsepower motor and is rated for 200 GPM at 34 feet of head.

Boiler circulating pump HP-2 is an inline circulating pump manufactured by Paco. This pump is equipped with a 3.0 horsepower motor and is rated for 200 GPM at 25 feet of head.

Chilled Water System

The chilled water system consists of a chiller (CH-1), cooling tower CT-1, condenser water pump (CDP-1), chilled water pump (CP-1), and air handling unit chilled water coil circulating pumps (CP-101 through CP-501).

Chiller CH-1 is a heat recovery chiller manufactured by McQuay. This chiller has a rated capacity of 135 ton of refrigerant effect with 400 GPM of chilled water leaving at 42 degrees F and 400 GPM of condenser water leaving at 85 degrees F. This unit also has a heating capacity and a 1,000 MBH of heating with 200 GPM of heating water leaving at 105 degrees F and 400 GPM of chilled water leaving at 52 degrees F.

Cooling tower CT-1 is a closed circuit cooling tower manufactured by Baltimore Air Coil (BAC). This unit is equipped with a 3.0 horsepower supply fan and is has a cooling capacity of approximately 167 ton at 400 GPM and a 10 degree temperature differential.

Condenser water pump CDP-1 is a base mounted end suction pump manufactured by Paco. This pump is equipped with a 10 horsepower motor and is rated for 400 GPM at 60 feet of head.

Chilled water pump CP-1 is a base mounted end suction pump manufactured by Paco. This pump is equipped with a 5 horsepower motor and is rated for 400 GPM at 30 feet of head.

Air Handling Units

Air handling unit ASU-101 is a Pace constant volume, triple deck multi-zone air handling unit. This unit is equipped with a 15.0 horsepower supply fan, 5.0 horsepower return/exhaust fan, hot deck heating coil with an associated three-way diverting valves and coil circulating pump, cold deck cooling coil with an associated three-way diverting valve and coil circulating pump, ventilation deck for economizer cooling, mixing dampers with full economizer capability, and 11 associated control zones.

Air handling unit ASU-201 is a Pace constant volume, triple deck multi-zone air handling unit. This unit is equipped with a 15.0 horsepower supply fan, 5.0 horsepower return/exhaust fan, hot deck heating coil with an associated three-way diverting valve and coil circulating pump, cold deck cooling coil with an associated three-way diverting valve and coil circulating pump, ventilation deck for economizer cooling, mixing dampers with full economizer capability, and 8 associated control zones.

Air handling unit ASU-301 is a Pace constant volume, triple deck multi-zone air handling unit. This unit is equipped with a 10.0 horsepower supply fan, 3.0 horsepower return/exhaust fan, hot deck heating coil with an associated three-way diverting valve and coil circulating pump, cold deck cooling coil with an associated three-way diverting valve and coil circulating pump, ventilation deck for economizer cooling, mixing dampers with full economizer capability, and 10 associated control zones.

Air handling unit ASU-401 is a Pace constant volume, single-zone air handling unit. This unit is equipped with a 5.0 horsepower supply fan, 1.0 horsepower return/exhaust fan, heating coil with an associated three-way diverting valve and coil circulating pump, cooling coil with an associated three-way diverting valve and coil circulating pump, and mixing dampers with full economizer capability.

Air handling unit ASU-501 is a Pace constant volume, single-zone air handling unit. This unit is equipped with a 2.0 horsepower supply fan, heating coil with an associated three-way diverting valve and coil circulating pump, cooling coil with an associated three-way diverting valve and coil circulating pump, and mixing dampers with full economizer capability.

Domestic Hot Water

Domestic hot water for the Olympia Center is provided by a PVI gas fire water heater; model 40G125A-PG. This water heater has a storage capacity of 125 gallons and a BTU input rating of 400,000. This system is also equipped with an associated domestic hot water circulation pump.

Family Support Center (FSC):

Heating Ventilation and Air Conditioning (HVAC) for the Family Support Center is provided by five rooftop heat pumps (HP-1 through HP-5). Runtime and temperature control is accomplished by programmable thermostats. Microprocessor controls internal to the units provide the economizer operation and minimum outside air.

HP-1 is a constant volume, single zone heat pump manufactured by Carrier. This unit is equipped with a fractional horsepower supply fan, reversing valve, an electric resistance heater; utilized during defrost mode, mixing dampers with full economizer capability and enthalpy control.

HP-2 is a constant volume, single zone heat pump manufactured by Carrier. This unit is equipped with a fractional horsepower supply fan, reversing valve, an electric resistance heater; utilized during defrost mode, mixing dampers with full economizer capability and enthalpy control.

HP-3 is a constant volume, single zone heat pump manufactured by Carrier. This unit is equipped with a fractional horsepower supply fan, reversing valve, an electric resistance heater; utilized during defrost mode, mixing dampers with full economizer capability and enthalpy control.

HP-4 is a constant volume, single zone heat pump manufactured by Carrier. This unit is equipped with a fractional horsepower supply fan, Heat pump with associated reversing valve, an electric resistance heater; utilized during defrost mode, mixing dampers with full economizer capability and enthalpy control.

HP-5 is a constant volume, single zone heat pump manufactured by Carrier. This unit is equipped with a fractional horsepower supply fan, Heat pump with associated reversing valve, an electric resistance heater; utilized during defrost mode, mixing dampers with full economizer capability and enthalpy control.

Maintenance Facility (MF):

Mechanical system at the Maintenance Facility consists of a wide variety of HVAC equipment; including gas fired radiant heaters, gas fired heating and ventilation units, gas fired and electric unit heaters and gas fired forced air furnaces with split direct expansion cooling. The majority of these systems are controlled by 365 day programmable thermostats. There are also a few manual style thermostats.

Main Fire Station (MFS):

The Main Fire Station is served by seven forced air furnaces; HVAC-1 through HVAC-7. These systems are controlled by 365 day programmable thermostats.

HVAC-1 is a constant volume, single zone high efficiency gas furnace manufactured by Carrier; model 58DXC040-GG. This unit is equipped with a fractional horsepower supply fan, gas fired furnace, split system direct expansion cooling, and mixing dampers with full economizer capability.

HVAC-2 is a constant volume, single zone high efficiency gas furnace manufactured by Carrier; model 58DXC040-GG. This unit is equipped with a fractional horsepower supply fan, gas fired furnace, split system direct expansion cooling, and mixing dampers with full economizer capability.

HVAC-3 is a constant volume, single zone high efficiency gas furnace manufactured by Carrier; model CD5AXA036. This unit is equipped with a fractional horsepower supply fan, gas fired furnace, split system direct expansion cooling, and mixing dampers with full economizer capability.

HVAC-4 is a constant volume, single zone high efficiency gas furnace manufactured by Carrier; model 58DXC100-LG. This unit is equipped with a fractional horsepower supply fan, gas fired furnace, split system direct expansion cooling, and mixing dampers with full economizer capability.

HVAC-5 is a constant volume, single zone high efficiency gas furnace manufactured by Carrier; model 58DXC060-GG. This unit is equipped with a fractional horsepower supply fan, gas fired furnace, split system direct expansion cooling, and mixing dampers with full economizer capability.

HVAC-6 is a constant volume, single zone high efficiency gas furnace manufactured by Carrier; model 58DXC040-GG. This unit is equipped with a fractional horsepower supply fan, gas fired furnace, split system direct expansion cooling, and mixing dampers with full economizer capability.

HVAC-7 is a constant volume, single zone high efficiency gas furnace manufactured by Frigidaire; model FG6RL-080C-16B. This unit is equipped with a fractional horsepower supply fan, gas fired furnace, split system direct expansion cooling, and mixing dampers with full economizer capability.

Police Station - West Side (WPS):

The West Side Police Station is served by a forced air furnace; F-1. This unit is controlled by 365 day programmable thermostat.

Furnace F-1 is a Lennox Pulse direct vent forced air furnace; model C14411FF. This unit is equipped with a fractional horsepower supply fan; gas fired heat exchanger, direct expansion cooling with remote condensing unit, and a fixed minimum outside air damper.

Fire Station - West Side (WFS):

The West Side Fire Station is served by two forced air furnaces; F-1 and F-2. These systems are controlled by 365 day programmable thermostats

Furnace F-1 is a forced air furnace manufactured by Carrier; model 58MXA1100-20. This unit is equipped with fractional horsepower supply fan, gas fired heat exchanger, direct expansion (DX) cooling with remote condensing unit, and fixed minimum outside air.

Furnace F-2 is a forced air furnace manufactured by American Standard; model AUX060C936C2. This unit is equipped with fractional horsepower supply fan, gas fired heat exchanger, direct expansion (DX) cooling with remote condensing unit, and fixed minimum outside air.

Fire Station - East Side (EFS):

The East Side Fire Station is served by a forced air furnace; F-1. This unit is controlled by a 365 day programmable thermostat.

Furnace F-1 is a forced air furnace manufactured by Rheem; model RAMB-042JBZ. This unit is equipped with a fractional horsepower supply fan, gas fired heat exchanger, direct expansion (DX) cooling with remote condensing unit, and fixed minimum outside air. This unit provides conditioned air to variable air volume terminal units.

Priest Point Park (PPP):

Priest Point Park facilities building and wood shop are served by an old oil fired forced air furnaces; F-1 (Facilities) and F-2 (wood Shop). These units are controlled by 365 day programmable thermostats.

Furnace F-1 is a Toridheet oil fired furnace; model L62-112. This furnace is equipped with a .25 horsepower supply fan, oil fired heat exchanger, and fixed minimum outside air.

The associated programmable thermostat is set up to operate seven day a week from 5:00 Am to 10:00 PM. The day occupied set point is 69 degrees F, and the night setback temperature set point is 62 degrees F.

Furnace F-2 is an old oil fired furnace manufactured by Thermo-pride; model QH5-85. This unit is equipped with a.33 horsepower supply fan, oil fired heat exchanger, and fixed minimum outside air.

C. LIGHTING SYSTEMS

The lighting systems throughout the City of Olympia consist mainly of T-12 lamps with magnetic ballasts. In addition, numerous HID and incandescent lamps were found. The proposed lighting retrofits will replace the T-12 lamps and magnetic ballasts with T-8 lamps and electronic ballast technology resulting in reduced maintenance and improved systems. These retrofits will also enhance lighting levels in many areas that are currently under lit, and will enrich color rendering throughout the facilities. In addition, many HID and incandescent fixtures will be retrofitted or replaced with fluorescent technology.

Exit lights are incandescent, with a few LED fixtures.

Recommended lighting retrofits and replacements will include the following facilities:

- City Hall
- Municipal Court Services
- Police Annex
- Smith Building
- Library
- Washington Center
- Olympia Center
- Family Support Center
- Maintenance Facility
- Main Fire Station
- West Side Police Station
- West Side Fire Station
- East Side Fire Station
- Command Training Center
- Firing Range

D. WATER SYSTEMS

All of the water using systems associated with the City of Olympia energy study consist of interior plumbing (faucets, urinals, water closets), kitchen equipment (dishwashers, disposals, tray sinks), clothes washers and mechanical systems (boiler and chilled water system makeup).

Recommended plumbing retrofits and replacements will include the following facilities:

- City Hall
- Municipal Court Services
- Police Annex
- Smith Building
- Library
- Washington Center
- Olympia Center
- Family Support Center
- Maintenance Facility
- Main Fire Station
- West Side Police Station
- West Side Fire Station
- East Side Fire Station
- Command Training Center
- Firing Range

Clothes washers at the Maintenance Facility and the West Side Fire Station will be replaced with water saving cloths washers.

E. BUILDING SHELL

No conservation measures related to the building shell were recommended.

II. ENERGY CONSERVATION MEASURES (ECM's) TO BE INSTALLED

A. HVAC SYSTEMS

City Hall (CH)

ECM-CH-M1 – Controls Upgrade (EECBG FUNDING): This measure will retrofit/replace and upgrade the existing pneumatic and electronic controls with new Direct Digital Controls (DDC) and tie the new controls to a city wide Energy Management System (EMS).

ECM-CH-M2 – Finned Tube Radiator Control (EECBG FUNDING): This measure will upgrade the existing pneumatic controls with new Direct Digital Controls (DDC) and tie the new controls to a city wide Energy Management System (EMS).

ECM-CH-M3 – Add Dedicated Chiller: This measure will install a new air cooled chiller to eliminate the city water single pass cooling.

ECM-CH-M5 – Replace Boiler (EECBG FUNDING): This measure will replace the existing boiler with two new high efficiency condensing boiler.

ECM-CH-M9 – Re-pipe HW Circ. Pump: This measure will re-pipe the HW circulating pump to reduce friction losses of the current configuration.

ECM-CH-M10 – VFD for HW Circ. Pump (EECBG FUNDING): This measure will install a VFD on the existing hot water circulation pump.

Smith Building (SB)

ECM-SB-M1 Controls Upgrade - This measure will retrofit/replace and upgrade the existing electronic controls with new Direct Digital Controls (DDC) and tie the new controls to a city wide Energy Management System (EMS). This performs controls at the main air handling unit level only.The new system will also be fully commissioned for proper operation.

Library Building (LB)

ECM-LB-M1 – Controls Upgrade: This measure will retrofit/replace and upgrade the existing pneumatic and electronic controls with new Direct Digital Controls (DDC) and tie the new controls to a city wide Energy Management System (EMS).

ECM-LB-M2 – Replace Boiler: This measure will replace the existing boiler with a new high efficiency condensing boiler.

ECM-LB-M3 – VAV Retrofit: This measure will replace the existing by-pass terminal units with new pressure independent VAV terminal units.

Washington Center (WC)

ECM-WC-M1b – Controls Upgrade (AHU Level Only): This measure will retrofit/replace and upgrade the existing pneumatic and electronic controls at the air handling unit level only with new Direct Digital Controls (DDC) and tie the new controls to a city wide Energy Management System (EMS).

Olympia Center - Community Center (CC)

ECM-CC-M1 – Controls Upgrade: This measure will replace existing programmable thermostats with new Direct Digital Controls (DDC) and tie the new controls to a city wide Energy Management System (EMS).

ECM-CC-M3 – Control dampers and VFD's: This measure will install VFD's on the supply and return fan, two-position control dampers in specified zones, and occupancy sensors in the associated spaces. The zone dampers will close to minimum position, and the space temperature will be set to a day unoccupied set point when the associated space goes unoccupied.

ECM-CC-M4 – Replace Boiler: This measure will replace the existing boiler with a new high efficiency condensing boiler.

ECM-CC-M5 – Fuel Switch DWH: This measure will replace the existing electric domestic water heater with a new high efficiency gas fired water heater.

Main Fire Station (MFS)

ECM-MFS-M2 – Retro-commissioning: This measure will commission the existing stand-alone controls for proper operation. This measure will only be performed if the control measure is not selected, as that measure includes commissioning.

ECM-MFS-M3 – Replace DWH: This measure will replace the existing standard efficiency gas fired domestic water heater with a new high efficiency gas fired water heater.

B. LIGHTING SYSTEMS

City Wide

ECM-CITY-L1 – Lighting Retrofit/Replacement: This measure will retrofit/replace any remaining T-12, magnetic ballast, and incandescent fixtures with T-8, electronic ballast and compact fluorescent technology. This measure will also replace any incandescent exit signs with new LED exit signs, provide retrofit alternatives for exterior lighting systems, and provide occupancy sensors in areas of fluctuating occupancy.

- All remaining T-12 fixtures will be retrofit or replaced with T-8 lamps and electronic ballasts (new lamps will be 28 watt T-8).
- Existing T-8 fixtures will be retrofit with reflectors to reduce the number of lamps per fixture, and replace 32 watt lamps with 28 watt lamps.
- Interior HID fixture will be replaces with T-8 lamps and electronic ballasts where applicable.
- Incandescent exist signs will be replaced with new LED exit signs.
- Any remaining incandescent fixture will be replaced or retrofit with compact fluorescent technology.

Facilities receiving lighting retrofit/replacements are as follows:

- City Hall; including the Police Department and Jail
- Municipal Court Services
- Police Annex
- Smith Building
- Library
- Washington Center
- Olympia Center
- Family Support Center
- Maintenance Facility
- Main Fire Station
- West Side Police Station
- West Side Fire Station
- East Side Fire Station
- Command Training Center
- Firing Range

C. WATER USING SYSTEMS

City Wide

ECM-CITY-W1 – Water Retrofit: This measure will install water conservation devices and replace inefficient systems to save water and reduce energy used for heating water. Recommended retrofits and replacements are as follows:

- Replace existing 3.5 Gallons per Flush (GPF) toilets with new 1.6 GPF toilets, flush valve and toilet seats. The existing 1.6 GPF toilets to remain as-is.
- Replace existing 3.5 GPF urinals with new 1.0 Pint per Flush (PPF) Urinals.
- Install vandal-proof flow ½ Gallons per Minute (GPM) control aerators on faucets. This retrofit applies only to faucets that are used for hand washing.

Facilities receiving water retrofit/replacements are as follows:

- City Hall; including the Police Department and Jail
- Municipal Court Services
- Police Annex
- Smith Building
- Library
- Washington Center
- Olympia Center
- Family Support Center
- Maintenance Facility
- Main Fire Station
- West Side Police Station
- West Side Fire Station
- East Side Fire Station
- Command Training Center
- Firing Range

ECM-CITY-W3 - Replace Clothes Washers - This measure will replace old cloth washers with new high efficiency water saving cloth washers.

D. GENERAL CONSERVATION MEASURES

City Wide

ECM-CW-G3 - Pipe insulation: This measure will insulate any uninsulated hot water, chilled water or domestic hot water piping.

ECM-CW-G5 - Vending Misers: This measure will install vending misers on soda machines to set he machines back during unoccupied times.

III. ESCO (Energy Services Company) SERVICES

Quantum Engineering will provide the following services:

1. Energy Audit: The energy audit is complete and is attached as Exhibit 1.

2. Design Services: Provide a detailed engineering design as needed to obtain Owner review and approval of the proposed system, and to obtain competitive bids. Provide construction support services, start-up, and testing. Provide as-built drawings and relevant O&M manuals.

3. Construction: Provide, or cause to be provided, all material, labor, and equipment, including paying for permits, fees, bonds, and insurance, required for the complete and working installation of the ESCO equipment.

   a) The ESCO may perform portions of the construction work, or may subcontract portions to qualified firms. In either case, the ESCO will share information regarding actual costs of the work with the Owner.

   b) The lighting retrofit is substantially a maintenance activity. As such, lighting maintenance workers will be used to perform fixture retrofits. These workers will be paid the applicable Washington State Department of Labor & Industries prevailing wage for the county of the work, under a classification of "Electrical Fixture Maintenance Workers" or equivalent.

   c) When the ESCO has completed the installation of the Equipment, including start-up and operation verification and training in accordance with the Proposal, the ESCO will provide to Owner a "Notice of Commencement of Energy Savings" and Owner shall have 10 days within which to accept the Notice.

   d) At the conclusion of the last phase of the project, the ESCO will submit a "Notice of Substantial Completion" to the Owner.

4. Construction Management: Provide construction management services to coordinate and supervise the work. The owner is expected to coordinate day-to-day communications with tenants and any scheduling of tenant relocations in and around occupied areas. The ESCO will provide construction superintendence of the work, and will coordinate any impact upon building tenants with the Owner.

5. Operation training: The ESCO will provide on-going training for the building staff during construction.

6. Performance Maintenance: The ESCO will provide on-going monitoring and support services to help insure the predicted savings are achieved throughout the first year of the agreement. Specific tasks will include:

   a) Year One (the first year following Notice of Commencement of Energy Savings):

      (1) *Semi-annual review of Energy Management System (EMS) and system performance.* This will be done via trend logs of system performance. A brief report will indicate system performance for the first six months, with a detailed report at the end of the year.

      (2) *Semi-annual analysis of functionality of lighting equipment.* This will be done via review of the installed lighting systems.

      (3) *Attend one annual meeting* to review the ESCO equipment performance and reconcile energy savings.

7. Equipment Maintenance: The ESCO will provide no equipment maintenance or repairs after the warranty period. Following the completion of the installation and Owner acceptance of the Equipment, the Owner shall provide all necessary service, repairs, and adjustments to the Equipment so that the Equipment will perform in the manner and to the extent set forth in the Proposal. The ESCO shall have no obligation to service or maintain the Equipment after the warranty period.

8. Operation and Maintenance Procedures: None provided.

9. Warranty: The ESCO will warrant equipment for one year following Notice of Substantial Completion. The ESCO will specify a 5-year warranty on lighting ballasts. For all other equipment, the ESCO will obtain an extended warranty or service agreement only if this does not cause the Guaranteed Maximum Cost to be exceeded.

10. Hazardous Waste: Should the project require removal or disposal of hazardous material, the ESCO may have the hazardous material or substances removed and disposed of at the request of the Owner. The ESCO will not assume ownership of the material, but may act on behalf of the Owner to properly remove and dispose of the material. The Owner shall pay the ESCO for the cost of such work. The Owner agrees and acknowledges that it has not relied on or employed the ESCO to analyze or identify the presence of any hazardous substance on the Owner's premises. The cost of hazardous material abatement and disposal is not included in this proposal, with the exception of PCB ballasts.

IV. PROJECT COSTS

A. MAXIMUM PROJECT COST

The ESCO guarantees that the Maximum Project Cost will not exceed two million three hundred thirty-four thousand four hundred thirty-eight no/100 Dollars (). This cost does not include sales tax or E&AS Project Management Fees. With sales tax and E&AS fees, the Project Cost is two million five hundred ninety-two thousand seven hundred sixty-five and no/100 Dollars (). The ESCO does not guarantee the value of sales tax, E&AS fees, or the utility incentive.

B. PROJECT COST TABLE

PROJECT COSTS & ENERGY SAVINGS

PROJECT COSTS

	ESPC FUNDING			BLOCK GRANT FUNDING		TOTAL COMBINED PROJECT COSTS
	Mechanical and Water	Lighting	Total Project costs	Mechanical and Water - EECBG	Total Project costs	
Engineering Audit	$ 47,304	$ -	$ 47,304			$ 47,304
Estimated Labor and Material Cost	$ 1,161,907	$ 259,950	$ 1,421,857	$ 253,950	$ 253,950	$ 1,675,807
Design @ 8.0% of Labor & Material	$ 92,953	$ -	$ 92,953	$ 20,316	$ 20,316	$ 113,269
Design @ 4.00% of Labor & Material'	$ -	$ 10,398	$ 10,398			$ 10,398
Construction Mgt @ 5.0% of Labor & Material	$ 58,095	$ 12,997	$ 71,093	$ 12,698	$ 12,698	$ 83,790
Bonding @ 1.6% of Labor & Material	$ 18,591	$ 4,159	$ 22,750	$ 4,063	$ 4,063	$ 26,813
ESCO overhead and profit @ 17.5% of Labor & Material	$ 203,334	$ 45,491	$ 248,825	$ 44,441	$ 44,441	$ 293,266
Subtotal:	$ 1,582,184	$ 332,996	$ 1,915,179	$ 335,468	$ 335,468	$ 2,250,647
Construction contingency @ 5% of CC	$ 58,095	$ 12,997	$ 71,093	$ 12,698	$ 12,698	$ 83,790
Subtotal - Maximum Project Cost:	$ 1,640,279	$ 345,993	$ 1,986,272	$ 348,166	$ 348,166	$ 2,334,438
Est. Sales Tax @ 8.50% of Maximum Project Cost	$ 139,424	$ 29,409	$ 168,833	$ 29,594	$ 29,594	$ 198,427
E&AS Project Management Fees			$ 59,900	$ -	$ -	$ 59,900
Three (3) Years Technical Monitoring and Support			$ -			$ -
TOTAL PROJECT PRICE:	$ 1,779,703	$ 375,403	$ 2,215,005		$ 377,760	$ 2,592,765
Estimated Utility Incentive			$ 608,269		$ -	$ 608,269
Estimated Client Net Cost			$ 1,606,736			$ 1,984,496
EECBG Funds			$ -		$ 130,600	$ 130,600
Capital Repair and Replacement - Fund 129			$ 319,400			$ 319,400
Amount to be financed by client:			$ 1,287,336		$ 247,160	$ 1,534,496

C. ITEMS INCLUDED IN MAXIMUM PROJECT COST

1. Maximum project costs include the following:

   a) Engineering audit, including the cost for preparation of this proposal. This is a fixed fee.

   b) Engineering design. This is a fixed fee.

   c) Construction management services. This is a fixed fee.

   d) Installation of the ESCO Equipment including the following costs:

      (1) All costs paid by the ESCO for the installation of the ESCO equipment. This includes costs paid to subcontractors or directly to ESCO personnel, when related to installation or system verification of the ESCO equipment.

      (2) The portion of reasonable travel, lodging & meals expenses of the ESCO or of its officers or employees incurred while traveling in discharge of duties connected with the Work.

      (3) Cost of all equipment, materials, supplies and equipment incorporated in the Work, including costs of transportation thereof.

      (4) Cost or rental charges, including transportation and maintenance, of all materials, supplies, equipment, temporary facilities and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost less salvage value on such items used but not consumed which remain the property of the ESCO.

      (5) Cost of premiums for all bonds and insurance, which the ESCO is required to purchase and maintain.

      (6) Sales, use or similar taxes related to the Work and for which the ESCO is liable imposed by a governmental authority.

      (7) Permit fees, royalties, and deposits lost for causes other than the ESCO's negligence.

      (8) Losses and expenses not compensated by insurance or otherwise, sustained by the ESCO in connection with the Work, provided they have resulted from causes other than the fault or neglect of the ESCO. Such losses shall include settlements made with the written consent and approval of the Owner. If, however, such loss requires reconstruction and the ESCO is placed in charge thereof, he shall be paid for his services a fee.

      (9) Minor expenses such as copies, long distance telephone calls, telephone service at the site, express mail services, and similar petty cash items.

      (10) Demolition cost and cost of removal of all debris.

      (11) Costs incurred due to an emergency affecting the safety of persons and property.

      (12) Other costs incurred in the performance of the Work if and to the extent approved in advance in writing by the Owner.

      (13) The cost of construction financing including contingency and an allowance for Owner initiated scope improvements.

(14) Cost of equipment startup, training, system verification and balancing performed by the ESCO.

(15) Bonding, Liability Insurance, and Builder's Risk Insurance.

(16) ESCO fee. This includes the ESCO's remuneration for compensation of personnel, expenses, risks related to the project, and profit. This is a fixed fee.

(17) Metering equipment costs for any permanent metering or monitoring equipment left on site.

(18) The ESCO shall provide a Schedule of Values at the end of construction bidding. The schedule of values will include all costs related to the installation of the ESCO equipment, excepting fixed fee items.

D. CONSTRUCTION CONTINGENCY

A construction contingency of(not including sales tax) has been established for this project. The ESCO is authorized to expend the contingency for items necessary to complete the original scope of this project at its sole discretion. The ESCO shall not be allowed to mark-up contingency funds expended for items included in the original Scope of this project. The ESCO and Owner will jointly manage any contingency left after the project scope is completed. The ESCO shall be allowed to mark-up items beyond the original scope and approved by Owner. All unused construction contingency funds shall reduce the overall project cost to the Owner.

E. ONGOING SERVICES

Ongoing monitoring services for the first year are included in the project fees. After the end of Year 1, the ESCO will present a proposal to the Owner for ongoing monitoring & verification services. These services will monitor energy savings and energy savings measures, provide engineering assistance in maintaining the savings, as described in Section III. The owner may cancel these services at any time.

F. ACCOUNTING RECORDS

The ESCO shall check all material, equipment and labor entering into the Work and shall keep such full and detailed accounts as may be necessary for proper financial management under this Agreement. The accounting system shall be satisfactory to the Owner. The Owner shall be afforded access to all the ESCO's records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda and similar data relating to this Contract, and the Contract shall preserve all such records for a period of three years, or for such longer period as may be required by law, after the final payment.

G. RECONCILIATION OF LABOR & MATERIAL COSTS

1. The financed amount is based on an estimate of Labor & Material costs. In recognition that actual Labor & Material costs may vary from the estimate, the following procedures are established to reconcile this difference:

a) When actual Labor & Material costs exceed the estimated Labor & Material costs (plus Contingency), the additional expense will be borne by the ESCO without affecting the Owner's payment.

b) When actual Labor & Material costs are less than the estimated Labor & Material costs (plus Contingency), the remaining funds will be retained by the Owner.

V. RECOMMENDATIONS FOR REPLACEMENT OF EXISTING EQUIPMENT

While this project does greatly improve the controls for the City of Olympia, further control improvements are recommended at the maintenance facility, Police Stations, and Fire Stations to bring the system up to the level of other facilities in the city.

VI. STANDARDS OF COMFORT SERVICE

A. HVAC COMFORT

The heating, ventilating and air conditioning (HVAC) systems provided by the ESCO will provide comfort and indoor air quality in accordance with Exhibit 3. This standard will pertain only to buildings and areas of buildings in which the ESCO is installing new HVAC equipment that has direct control over space comfort conditions. HVAC comfort conditions cannot be guaranteed when operable windows are open, and the outside air temperature is below 60 degrees F. Also, shop area systems will be designed to maintain proper heating conditions, and will not be designed for cooling load.

B. ILLUMINATION LEVELS

The lighting and illumination levels for lighting systems provided by the ESCO will comply with Exhibit 3.

VII. BASELINE ENERGY CONSUMPTION

City Hall

The average annual electrical usage (kWh) and demand (kW) for the City Hall in years 2007 and 2008 was 677,400 kWh and 1,350 kW with an associated cost of $57,494.

The average annual gas usage for the City Hall in years 2007 and 2008 was 28,549 therms with an associated cost of $35,127.

The average annual water usage for the City Hall in 2007 and 2008 was 27,111 CCF with an associated cost of $66,118.

Municipal Court Services

The average annual electrical usage (kWh) for Municipal Court Services in years 2007 and 2008 was 20,267 kWh with an associated cost of $1,883.

The average annual gas usage for Municipal Court Services in years 2007 and 2008 was 571 therms with an associated cost of $933.

The average annual water usage for Municipal Court Services in 2007 and 2008 was 84 CCF with an associated cost of $974.

Smith Building

The average annual electrical usage (kWh) and demand (kW) for the Smith Building in years 2007 and 2008 was 241,360 kWh and 662 kW with an associated cost of $22,166.

The average annual water usage for the Smith Building in 2007 and 2008 was 164 CCF with an associated cost of $1,239.

Library

The average annual electrical usage (kWh) and demand (kW) for the Library Building in years 2007 and 2008 was 373,520 kWh and 1,209 kW with an associated cost of $35,554.

The average annual gas usage for the Library Building in years 2007 and 2008 was 8,337 therms with an associated cost of $10,466.

The average annual water usage for the Library Building in 2007 and 2008 was 575 CCF with an associated cost of $5,474.

Washington Center

The average annual electrical usage (kWh) and demand (kW) for the Washington Center in years 2007 and 2008 was 621,900 kWh and 2,585 kW with an associated cost of $64,118.

The average annual gas usage for the Washington Center in years 2007 and 2008 was 124 therms with an associated cost of $392.

The average annual water usage for the Washington Center in 2007 and 2008 was 451CCF with an associated cost of $3,785.

Olympia Center

The average annual electrical usage (kWh) and demand (kW) for the Olympia Center in years 2007 and 2008 was 890,174 kWh and 2,695 kW with an associated cost of $83,486.

The average annual gas usage for the Olympia Center in years 2007 and 2008 was 40,385 therms with an associated cost of $50,032.

The average annual water usage for the Olympia Center in 2007 and 2008 was 1,551 CCF with an associated cost of $10,975.

Family Support Center

The average annual electrical usage (kWh) and demand (kW) for the Family Support Center in years 2007 and 2008 was 166,620 kWh and 843 kW with an associated cost of $17,302.

The average annual gas usage for the Family Support Center in years 2007 and 2008 was 690 therms with an associated cost of $1,086.

The average annual water usage for the Family Support Center in 2007 and 2008 was 319 CCF with an associated cost of $2,428.

Maintenance Facility

The average annual electrical usage (kWh) and demand (kW) for the Maintenance Facility in years 2007 and 2008 was 443,920 kWh and 1,208 kW with an associated cost of $40,450.

The average annual gas usage for the Maintenance Facility in years 2007 and 2008 was 20,074 therms with an associated cost of $24,708.

The average annual water usage for the Maintenance Facility in 2007 and 2008 was 1,391 CCF with an associated cost of $19,022.

OFD Headquarters

The average annual electrical usage (kWh) for the OFD Headquarters in years 2007 and 2008 was 181,960 kWh with an associated cost of $16,333.

The average annual gas usage for the OFD Headquarters in years 2007 and 2008 was 8,736 therms with an associated cost of $10,865.

The average annual water usage for the OFD Headquarters in 2007 and 2008 was 675 CCF with an associated cost of $6,336.

OPD West Side

The average annual electrical usage (kWh) for the OPD West Side in years 2007 and 2008 was 42,500 kWh with an associated cost of $3,874.

The average annual gas usage for the OPD West Side in years 2007 and 2008 was 730 therms with an associated cost of $1,134.

The average annual water usage for the OPD West Side in 2007 and 2008 was 44 CCF with an associated cost of $673.

OFD West Side

The average annual electrical usage (kWh) for the OFD West Side in years 2007 and 2008 was 68,838 kWh with an associated cost of $6,200.

The average annual gas usage for the OFD West Side in years 2007 and 2008 was 3,033 therms with an associated cost of $3,941.

The average annual water usage for the OFD West Side in 2007 and 2008 was 498 CCF with an associated cost of $2,836.

OFD East Side

The average annual electrical usage (kWh) for the OFD East Side in years 2007 and 2008 was 42,362 kWh with an associated cost of $3,851.

The average annual gas usage for the OFD East Side in years 2007 and 2008 was 1,553 therms with an associated cost of $2,138.

The average annual water usage for the OFD East Side in 2007 and 2008 was 577 CCF with an associated cost of $3,053.

Fire Command Training Center

The average annual electrical usage (kWh) for the Fire Command Training Center in years 2007 and 2008 was 6,780 kWh with an associated cost of $692.

The average annual gas usage for the Fire Command Training Center in years 2007 and 2008 was 666 therms with an associated cost of $1,054.

The average annual water usage for the Fire Command Training Center in 2007 and 2008 was 12 CCF with an associated cost of $585.

Priest Point Park

The average annual electrical usage (kWh) for Priest Point Park in years 2007 and 2008 was 99,013 kWh with an associated cost of $9,074.

The average annual fuel oil usage Priest Point Park in years 2007 and 2008 was 2,094 gallons with an associated cost of $7,784.

The average annual water usage for the Priest Point Park in 2007 and 2008 was 229 CCF with an associated cost of $2,046.

VIII. ESTIMATED ANNUAL SAVINGS AMOUNT AND UTILITY INCENTIVE

1. The ESCO estimates that annual electrical costs will be reduced by. This estimate is based on an annual consumption being reduced by kWh and demand being reduced by kW (based on the sum of the monthly peak demand).

2. The ESCO estimates that annual gas cost will be reduced by. This estimate is based on the annual consumption being reduced by Therms.

3. The ESCO estimates that annual water and sewer cost will be reduced by. This estimate is based on the annual consumption being reduced by CCF (hundred cubic feet).

4. The ESCO estimates that an incentive in the amount of $517,792 will be provided by Puget Sound Energy, and $90,477 will be provided by the City of Olympia and LOTT.

IX. METHOD OF CALCULATING ENERGY SAVINGS AND ENERGY COST SAVINGS

A. ENERGY AUDIT

The energy cost savings are calculated in Exhibit 1. These savings calculations have been reviewed and accepted by the Owner and the ESCO.

B. CALCULATION OF SAVINGS

1. The Owner and the ESCO agree that the energy savings exist if the ESCO equipment performs as described below:

   a) Lighting Systems installed by the ESCO: The lighting systems being replaced perform properly when new components with efficiencies at or greater than those in Exhibit 1 are installed.

   b) Energy Management System: The energy management system performs properly when HVAC systems are able to properly perform the following functions:

      - Start/Stop based on programmed schedule and/or occupancy sensors.
      - Night Setback operation to maintain minimum heating and cooling temperatures.
      - Economizer control operation that provides minimum outside air when the building is in a heating mode.

   c) Boiler System: The boiler system performs properly when the boiler combustion efficiency meets or exceeds 92%.

   d) Domestic Hot Water System: The domestic hot water system performs properly when the domestic hot water heater combustion efficiency meets or exceeds 90%.

   e) Water Conservation Components installed by the ESCO: The water conservation components being replaced perform properly when new components with efficiencies at or greater than those in Exhibit 1 are installed.

2. The Owner and the ESCO agree that the energy savings will be reduced at the rates listed below when the ESCO installed equipment is not performing as a result of the sole failure of the ESCO installed equipment. The Owner agrees to notify the ESCO by telephone within 2 working days of detecting any non-performing ESCO installed equipment, with a follow-up in writing within three business days. Should the ESCO installed equipment not perform in accordance with this Section, the Energy Cost Savings will be reduced by:

   a) HVAC & Controls: $0.01141 per square foot per failed area per week.

   b) Lighting: $0.00352 per square foot per failed area per week.

   c) Water: $0.00166 per square foot per failed area per week.

3. The ESCO shall have two weeks from notification to repair the ESCO equipment without reduction of savings.

4. Modifications to Baseline by Owner: The Owner shall maintain all existing facilities and installed equipment during the term of this contract at or

above current maintenance levels. Owner agrees to maintain the energy efficiency of the systems installed.

X. FINANCING

Project financing will be provided by the Owner.

XI. ENERGY SAVINGS GUARANTEE

1. The ESCO guarantees that the equipment will perform as indicated in Section IX - Method of Calculating Energy Savings and Energy Cost Savings. This performance level is guaranteed for one year following the notice of commencement of savings (defined as Years 1). Based on this performance, and as indicated in Exhibit 1, the electrical energy savings will not be less than 833,556 kilowatt-hours per year, and cumulative 2,081 kW per year; gas savings will be not less than 27,912 Therms per year, and water savings will not be less than 25,367 CCF per year. This amount is ninety percent (90%) of the estimated first year savings.

2. In the event that the guaranteed performance in year one, pursuant to Section IX Method of Calculating Energy Savings and Energy Cost Savings, is less than the guaranteed minimum, the ESCO shall pay the Owner the difference between the actual cost savings and the guaranteed amount.

XII. ESCO COMPENSATION

A. PAYMENTS

1. Owner agrees to make progress payments based on completion of each ECM as listed in Section II., and one subsequent payment for retention.

2. Retention will be released within 30 days after receipt of all lien releases, L&I, Revenue and Employment Security certificates and releases by Owner.

B. TAX INCENTIVES

1. Owner agrees to relinquish any and all tax credits and deductions associated with the project scope to the ESCO. This includes any tax deductions associated with the Federal Energy Policy Act of 2005. Upon determination of the value of these credits or deductions, the ESCO will credit a portion of these tax benefits back to the Owner.

XIII. TERM OF AGREEMENT

Subject to the following sentence, the term of this Contract shall be one year; measured beginning with the Notification of Commencement of Energy Savings. Nonetheless, the Contract shall be effective and binding upon the parties immediately upon its execution, and the period from contract execution until the Commencement Date shall be known as the "Interim Period". All energy savings achieved during the interim period will be fully credited to Customer, and may be used to offset any loss of energy savings; as mutually agreed to by the Owner and the ESCO.

XIV. TERMINATION VALUE

1. Upon commencement of energy savings, Owner may at any time terminate this Agreement.

2. Any termination shall fully and finally terminate and extinguish all of the Owner's rights and all of the ESCO's obligations under this agreement.

XV. PROJECT SCHEDULE

The ESCO will complete design work within six months of Notice to Proceed, and construction work will be substantially completed within twelve months of design acceptance. Final completion will be within thirteen months of design acceptance.

XVI. EXTENT OF SUBCONTRACTING

1. The ESCO may subcontract the design, construction management, start-up and training portions of this Contract to qualified firms at its sole discretion. Construction subcontracts will be awarded competitively.

2. The ESCO will endeavor to satisfy the MWBE goals of Washington State. The ESCO will not be required to meet these goals if the project budget is exceeded and cost effectiveness is impaired.

XVII. INSURANCE AND BONDING

1. The ESCO shall provide a payment and performance bond in accordance with Exhibit 3. Builders Risk Insurance will also be provided by the ESCO.

2. For the purposes of this Agreement, the "Sum Amount of Bond" shall be $1,847,343 . This amount does not include any construction contingencies.

   (1) The bond amount consists of the following:

   Labor and Material and Bond Cost $1,702,620

   Sales Tax $144,723

   Bond Total..... $1,847,343

   (2) Certificates of General Liability Insurance will be provided prior to Contract Signing. The State Of Washington shall be named as An Additional Insured on all insurance certificates.

3. The ESCO shall provide a payment and performance bond in the amount of 100% of the construction cost, as defined in the Energy Services Agreement Addendum. The amount shall include all authorized changes and state sales tax. The Bond shall be in the form attached to the Conditions of the Energy Services Agreement. The Contract listed on the bond form shall be the Addendum No. and Agreement No. which incorporates the work and the "Contract Date" shall be the date of the Addendum. The full and just sum of the Bond shall be as defined above and shall include the actual cost of purchasing and installing the ESCO Equipment, job superintendent and state sales tax. The Bond shall specifically exclude coverage for those portions of the Energy Services Agreement and/or Energy Services Agreement Addendum pertaining to design services, energy cost savings guarantee, maintenance guarantee, utility incentives, efficiency guarantees, and any other clauses which do not relate specifically to construction management and supervision of work for purchasing and installing of the ESCO Equipment, or for work to be accomplished by the Owner. The Bond shall be with a Surety or Bonding Company that is registered with the State of Washington Insurance Commissioner's Office.

XVIII. RENEGOTIATION

Both parties recognize that during the project implementation, the Owner and the ESCO may mutually agree to various modifications and that the energy savings may change as a result. Further, local code officials may require unanticipated changes to the project scope. In either event, both parties shall negotiate in good faith to restructure the project to maintain the intent of this Agreement.

XIX. EXHIBITS AND TABLES

Please see attached exhibits & tables

TABLE 1

Financial Analysis (Project Costs)

FINANCIAL ANALYSIS:

Project Name: City of Olympia - Energy Services

Date: October 1, 2009 **Recommended Measures**

Energy Services Project

I. PROJECT COSTS & ENERGY SAVINGS

PROJECT COSTS

	ESPC FUNDING			BLOCK GRANT FUNDING		TOTAL COMBINED PROJECT COSTS
	Mechanical and Water	Lighting	Total Project costs	Mechanical and Water - EECBG	Total Project costs	
Engineering Audit	$ 47,304	$ -	$ 47,304			$ 47,304
Estimated Labor and Material Cost	$ 1,161,907	$ 259,950	$ 1,421,857	$ 253,950	$ 253,950	$ 1,675,807
Design @ 8.0% of Labor & Material	$ 92,953	$ -	$ 92,953	$ 20,316	$ 20,316	$ 113,269
Design @ 4.00% of Labor & Material	$ -	$ 10,398	$ 10,398			$ 10,398
Construction Mgt @ 5.0% of Labor & Material	$ 58,095	$ 12,997	$ 71,093	$ 12,698	$ 12,698	$ 83,790
Bonding @ 1.6% of Labor & Material	$ 18,591	$ 4,159	$ 22,750	$ 4,063	$ 4,063	$ 26,813
ESCO overhead and profit @ 17.5% of Labor & Material	$ 203,334	$ 45,491	$ 248,825	$ 44,441	$ 44,441	$ 293,266
Subtotal:	$ 1,582,184	$ 332,996	$ 1,915,179	$ 335,468	$ 335,468	$ 2,250,647
Construction contingency @ 5% of CC	$ 58,095	$ 12,997	$ 71,093	$ 12,698	$ 12,698	$ 83,790
Subtotal - Maximum Project Cost:	$ 1,640,279	$ 345,993	$ 1,986,272	$ 348,166	$ 348,166	$ 2,334,438
Est. Sales Tax @ 8.50% of Maximum Project Cost -	$ 139,424	$ 29,409	$ 168,833	$ 29,594	$ 29,594	$ 198,427
E&AS Project Management Fees			$ 59,900	$ -	$ -	$ 59,900
Three (3) Years Technical Monitoring and Support			$ -			$ -
TOTAL PROJECT PRICE:	$ 1,779,703	$ 375,403	$ 2,215,005		$ 377,760	$ 2,592,765
Estimated Utility Incentive			$ 608,269		$ -	$ 608,269
Estimated Client Net Cost:			$ 1,606,736			$ 1,984,496
EECBG Funds			$ -		$ 130,600	$ 130,600
Capital Repair and Replacement - Fund 129			$ 319,400			$ 319,400
Amount to be financed by client:			$ 1,287,336		$ 247,160	$ 1,534,496

ESPC FUNDING CONTRACT VALUES			
Contract Values - Services	Contract Values - Construction	Contract Values - Contingency	
$ 47,304			
	$ 1,421,857		
$ 92,953			
$ 10,398			
$ 71,093			
	$ 22,750		
$ 248,825			
$ 470,572	$ 1,444,607		
		$ 71,093	
$ 470,572	$ 1,444,607	$ 71,093	
$ 39,999	$ 122,792	$ 6,043	
$ -			
$ 510,571	$ 1,567,398	$ 77,136	

EECBG FUNDING CONTRACT VALUES		
Contract Values - Services	Contract Values - Construction	Contract Values - Contingency
	$ 253,950	
$ 20,316		
$ 12,698		
	$ 4,063	
$ 44,441		
$ 77,455	$ 258,013	
		$ 12,698
$ 77,455	$ 258,013	$ 12,698
$ 6,584	$ 21,931	$ 1,079
$ 84,038	$ 279,944	$ 13,777

Incentive Amounts

Puget Sound Energy:	$ 517,792
City of Olympia and LOTT:	$ 90,477
	$ 608,269

TABLE 1

Financial Analysis (Years 1 through 6)

ANNUAL ENERGY SAVINGS

Unit Price		Lighting	HVAC	Water & Chemicals	Total	Annual $	Utility Costs
	Electrical Savings - PSE Rate Schedule 24 (kWh and $)	0	0	0	0	$ -	$0.0678/kW-hr
	Electrical Savings - PSE Rate Schedule 25 (kWh and $)	574,467	333,179	18,527	926,173	$ 60,580	$0.0654/kW-hr
	Electrical Savings - PSE Rate Schedule 25 (kW and $)	2,232	80	0	2,312	$ 16,799	$7.265/kW
	Natural Gas Savings (Therms and $)	-2,945	32,501	1,457	31,013	$ 37,116	$1.197 therm
	Fuel Oil Savings (Gals. And $)	0	0	0	0	$ -	$3.560 therm
	Water Only & Chemical Cost Savings	0	25,466	0	25,466	$ 56,643	$2.185/CCF
	Water, Sewer & Chemical Cost Savings	0	0	2,720	2,720	$ 20,666	$7.605/CCF
		$ 50,269	$ 116,914	$ 23,641	$ 190,824	$ 190,824	
kWh Savings		926,173	$ 60,580			$ 190,824	
kW Savings		2,312	$ 16,799	$ 77,379			
Therms		31,013	$ 37,116				
Fuel Oil		-	$ -				
CCF		28,186	$ 76,329	$ 190,824	$ 190,824		
90%		of savings =	kWh Savings	833,556			$ 171,742
			kW Savings	2,081			
			Therms	27,912			
			Fuel Oil	-			
			CCF	25,367			

Project Name: City of Olympia - Energy Services
Date: October 1, 2009

II. PROJECT CASH FLOW

	Year ending	2009	2010	2011	2012	2013	2014
	Reference year	0	1	2	3	4	5
PROJECT SAVINGS							
	Lighting Energy Savings	$0	$ 50,269	$ 51,023	$ 51,788	$ 52,565	$ 53,353
	HVAC & Water Savings	$0	$ 140,566	$ 142,664	$ 144,804	$ 146,976	$ 149,181
	Lighting Maint. Savings:	$0	$ 6,237	$ 6,237	$ 6,237	$ 6,237	$ 7,252
	HVAC Maint. Savings :	$0	$0.00	$0.00	$0.00	$0.00	$0.00
	Lighting Deferred Equip Savings:	$0	$0.00	$0.00	$0.00	$0.00	$0.00
	Other Savings :	$0					
	Total Savings:	0	**$197,061**	$199,924	$202,829	**$205,778**	**$209,786**
ANNUAL PROJECT COSTS							
	Amount Financed	$ (1,534,496)					
	Cash Payment	($319,400.00)					
	Annual Financing Costs		($192,248)	($192,248.02)	($192,248.02)	($192,248.02)	($192,248.02)
	Total Annual Costs to Client	($319,400.00)	($192,248)	($192,248.02)	($192,248.02)	($192,248.02)	($192,248.02)
NET ANNUAL CASH FLOW WHEN FINANCING PROJECT:							
	Based on savings from Utility & Maint. Equip. Costs		**$4,813**	**$7,676**	**$10,581**	**$13,530**	**$17,538**

TABLE 1

Financial Analysis (Years 7 through 15)

Project Name: City of Olympia - Energy Services
Date: October 1, 2009

II. PROJECT CASH FLOW

	Year ending	2016	2017	2018	2019	2020	2021	2022	2023	2024
	Reference year:	7	8	9	10	11	12	13	14	15
PROJECT SAVINGS										
	Lighting Energy Savings:	$ 54,966	$ 55,790	$ 56,627	$ 57,477	$ 58,339	$ 59,214	$ 60,102	$ 61,004	$ 61,919
	HVAC & Water Savings:	$ 153,690	$ 155,995	$ 158,335	$ 160,710	$ 163,121	$ 165,567	$ 168,051	$ 170,572	$ 173,130
	Lighting Maint. Savings:	$ 5,880	$ 5,880	$ 4,115	$ 4,115	$ 4,176	$ 4,239	$ 4,303	$ 4,367	$ 4,433
	HVAC Maint. Savings:	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	Lighting Deferred Equip Savings:	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	Other Savings:									
	Total Savings:	$214,535	$217,665	$219,077	$222,301	$225,636	$229,020	$232,456	$235,943	$239,482
ANNUAL PROJECT COSTS										
	Amount Financed									
	Cash Payment									
	Annual Financing Costs	($192,248.02)	($192,248.02)	($192,248.02)	($192,248.02)	$0.00	$0.00	$0.00	$0.00	$0.00
	Total Annual Costs to Client	($192,248.02)	($192,248.02)	($192,248.02)	($192,248.02)	$0	$0	$0	$0	$0
NET ANNUAL CASH FLOW WHEN FINANCING PROJECT:										
	Based on savings from Utility & Maint. Equip. Costs	$22,287	$25,417	$26,829	$30,053	$225,636	$229,020	$232,456	$235,943	$239,482

EXHIBIT 1

Energy Audit (Incorporated herein)

EXHIBIT 2

Bond Form

(Incorporated herein (AIA A312))

EXHIBIT 3

Energy Services Agreement

(Incorporated herein)

MASTER ENERGY SERVICES AGREEMENT

Statewide Energy Savings Performance Contracting Program — Agreement No.: 2011-169 B (2)

WA State Agencies, Colleges, Universities, School Districts and Municipalities — Date: April 19, 2011

The Energy Services Company (ESCO) named below has been pre-qualified to participate in the Statewide Energy Performance Contracting Program for State Agencies, Colleges, Universities, School Districts and Municipalities managed by Department of General Administration's (GA) Energy Program. Therefore, the Owner and the Energy Services Company named below do hereby enter into an Agreement under terms described in the following sections:

Authorization	Attachments:
Compensation	Conditions of the Master Energy Services Agreement
Project Conditions	Instructions to Bidders/General Conditions/Supplemental Conditions For State Facility Construction
	EPC Modifications to Instructions to Bidders/General Conditions/Supplemental Conditions For State Facility Construction

I. AUTHORIZATION:

Energy Services Company:

Ameresco Quantum, Inc.
222 Williams Avenue South, Suite 100
Renton, WA 98057
Telephone No. 206-522-4270
Fax No. 425-687-3173
E-mail Address moconnor@quantum-engr.com

By M.J. O'Connor
Name M.J. O'Connor
Title Vice President
Date 5/27/11

Owner:

Washington State Agency, College, University, School District or Municipality
Acting through the Department of General Administration, Facilities Division, Engineering and Architectural Services
P.O. Box 41012
Olympia, WA 98504-1012
Telephone No. (360) 902-7272

By Roger Wigfield
Name Roger Wigfield, P.E.
Title Energy Program Manager
Date 5/31/11

State of Washington Contractor's License No. AMEREQI892D2
State of Washington Revenue Registration No. 601 938 324
Federal Tax Identification No. 91-1956734
MWBE Certification No. _____

II. COMPENSATION:

Basic Compensation for the Energy Services Company (ESCO) will be derived from the successful completion of projects under Energy Services Authorizations for specific State Agencies, Colleges, Universities, School Districts and Municipalities. There is $0.00 compensation being provided under this Master Energy Services Agreement.

III. PROJECT CONDITIONS:

RECITALS

WHEREAS, GA is authorized by law to require the execution of public work and, is authorized by law to use energy performance-based contracting to achieve contractually specified energy savings; and,

WHEREAS, GA will enter into Interagency Agreements with State Agencies, Colleges, Universities, School Districts and Municipalities in the State of Washington to participate in the Statewide Energy Performance Contracting program; and,

WHEREAS, ESCO agrees to contract with GA to provide energy and utility efficiency services on a statewide and a project basis to Washington State Agencies, Colleges, Universities, School Districts and Municipalities working through GA's Energy Program; and,

WHEREAS, ESCO provides certain services and equipment intended to reduce energy consumption and costs, utility consumption and costs, and operation & maintenance (O&M) costs in buildings and facilities; and,

WHEREAS, It is the understanding of the parties that the Owner desires that ESCO guarantee the energy savings and that ESCO provide ongoing measurement and verification (M&V) services; and,

WHEREAS, The ESCO is ready, willing, and able to finance any cost-effective projects identified and is willing to be compensated for ESCO Services and ESCO Equipment out of energy and utility cost savings; utility payments; lease/purchase arrangements; and/or through Owner arranged financing.

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, it is agreed that:

The ESCO shall provide energy services called for in Section 2 of the attached *Conditions of the Master Energy Services Agreement* ("the Conditions") for:

- Washington State Agencies, Colleges, Universities, School Districts and Municipalities who have entered into an Interagency Agreement with GA and have selected an ESCO through GA's Energy Performance Contracting Program; and
- Projects in which the ESCO has signed an Energy Services Authorization with GA to implement the project.

A. COMPENSATION FOR ENERGY SERVICES:

Basic Compensation for the ESCO will be derived from the successful completion of projects under Energy Services Authorizations for specific State Agencies, Colleges, Universities, School Districts and Municipalities.

As Compensation for developing and submitting a written Detailed Investment Grade Energy Audit Report and Energy Services Proposal (ESP) in accordance with the Energy Services Authorization Scope of Work, the ESCO agrees to be reimbursed in accordance with Section 2.B., 2.C., and 2.D. of the Conditions.

In the event that the ESCO fails to conduct a Detailed Investment Grade Energy Audit or fails to present to the Owner a written ESP within the time specified, or does not present an ESP that meets the cost-effectiveness criteria (see section E. COST-EFFECTIVENESS CRITERIA), or does not propose to finance cost-effective Energy Efficiency Measures (EEMs), GA may terminate its Energy Services Authorization with the ESCO at no cost to the Owner. In the event the ESCO identifies cost-effective projects and the Owner elects to terminate the Authorization, the Owner shall compensate the ESCO for expenses associated with conducting the Audit and developing the ESP. WSST shall not apply to this payment.

Notwithstanding the attached Conditions; it is the understanding of the parties that all of the payments to the ESCO are dependent on energy savings; grants; loans; incentive payments from utilities and/or, other funding sources and that ESCO shall be paid in accordance with the provisions of Section 5, paragraph B of the Conditions.

In the event that Owner elects to finance the project in whole or in part, the State Agency, College, University, School District or Municipality and GA reserve the right to amend the terms, or to add new terms, to the Conditions that they deem necessary to obtain financing.

ESCO fees shall not exceed:

10% of labor and materials for design services
6% of labor and materials for construction management/administration
2% of construction costs as defined in the ESP for bonding
18% of labor and materials for overhead and profit

Supervision, as called for in the General Conditions, is included in Construction Management/Administration.

Exceptions to these maximum fees may be considered on a case by case basis.

It is also the understanding of the parties that the Owner requires that the ESCO guarantee energy savings and that the ESCO provide ongoing M&V. Any costs associated with the guarantee of savings are included in the ESCO's overhead and profit. The cost of M&V shall be

paid using energy savings and shall not exceed 7.5% of annual energy cost savings. Three years of M&V services should be included in the ESP project cash flow.

Open book pricing for construction will be required, such that the ESCO shall fully disclose all costs, including all costs of subcontractors and vendors. The ESCO shall maintain cost accounting records on work performed and shall preserve them for a period of three (3) years after final payment.

Owner's payments to ESCO shall be based on ESCO's actual construction costs and shall not exceed those costs described in the ESCO's ESP unless there are approved changes by the owner and GA. Final project cost reconciliation shall be performed at project completion.

Excess Savings: Annual cost savings in excess of the guaranteed savings amount will be retained by the State Agency, College, University, School District or Municipality, and will not be allocated to shortfalls in other years.

Owner's payment obligation to the ESCO for the cost of the ESCO's Detailed Investment Grade Energy Audit and ESP shall not exceed five-percent (5%) of the total project cost.

B. REIMBURSABLE EXPENSES:

Travel: Travel within a 50 mile radius of the ESCO's office is not reimbursable. Travel between a 50 and 350 mile radius may be negotiated as an additional service at not greater than the approved state rate ($0.51 per mile). Any cost reimbursement for travel beyond the 350 mile radius requires written justification and prior approval from the Owner. Per Diem Rates shall be in accordance with OFM guidelines (http://www.ofm.wa.gov/resources/travel/bwmap.pdf).

Payment requests for reimbursable expenses per Article VII shall reference the original written authorization (or Amendment) and shall include an itemized breakdown of the billing indicating unit cost and quantity of each item billed, copies of any supporting invoices, and/or other supplemental data as may be required by the authorization. Also include a summary sheet showing accumulation of reimbursable expenses with a breakdown by each authorization.

Miscellaneous, routine overhead expenses such as telephone and cell phone costs, mail, clerical and office supplies, computer, copying, fax, transportation, etc. incurred in the normal process of performing basic services are not reimbursable.

C. SCOPE OF WORK:

Projects will be incorporated into this Agreement by specific Authorization. The projects will include: conducting and providing a Detailed Investment Grade Energy Audit of the State Agency's, College's, University's, School District's or Municipality's facilities; *providing Energy Star ratings and entering 12 months of utility data into the Energy Star Portfolio Manager,* engineering and design of approved EEMs; financing of the EEMs; installation of the

EEMs; M&V of savings; and, ongoing engineering assistance to ensure that savings are achieved.

D. SCHEDULE FOR ENERGY SERVICES PROPOSAL COMPLETION:

This Agreement will continue until June 30, 2013 unless terminated sooner. For projects entered into as a result of this Agreement the Agreement will remain open until the projects are completed.

E. COST-EFFECTIVENESS CRITERIA:

It is the intent of this Agreement to maximize the value of the efficiency projects within the constraints of the Cost-Effectiveness Criteria. The following criteria will be used to determine the Cost-Effectiveness of EEMs proposed in the Energy Services Proposal submitted in response to a specific Authorization:

1. The Owner may use any combination of the following funding and payment options to discharge its obligations under the Energy Services Authorization:
   a. ESCO financing;
   b. ESCO arranged Municipal Lease financing (Municipalities and School Districts only);
   c. State Treasurer's Lease/Purchase or LOCAL Program;
   d. Energy cost savings, utility cost savings, and Owner and GA approved O&M savings;
   e. Grants, loans and/or incentives from utilities or other funding sources; and,
   f. The State Agency's, College's, University's, School District's or Municipality's capital budget and/or any other funds at the Owner's discretion.

2. The loan term may not exceed the economic life of the EEM or ten (10) years whichever is shorter, unless otherwise approved by the Owner and GA.

3. Not more than 90% of the Energy Cost Savings may be used to repay the loan, unless otherwise approved by the Owner and GA.

4. Up to 100% of utility grants or incentives may be used to defray project costs or to repay the loan.

5. Labor or maintenance cost savings shall not be included in Energy Cost Savings for the purpose of determining cost-effectiveness, unless specifically approved by the Owner and GA.

6. The cost of the EEMs will include the cost of the Detailed Investment Grade Energy Audit and preparation of the ESP; design; construction; ESCO's construction and project administration; commissioning; bidding; bonding; overhead and profit; permits; taxes; training; M&V, GA's project management fee; and, other costs that may be agreed to by the ESCO, the Owner and GA.

7. The State Agency's, College's, University's, School District's or Municipality's cash flow including savings, utility contributions, cost of M&V services, EEM costs, loan repayments, and debt service shall be neutral or positive with respect to the baseline cash flow and based on guaranteed savings.

8. Current utility cost rates shall be used for the purpose of calculating energy and utility cost savings. Energy and utility cost inflation factors shall not be used without the Owner's and GA's expressed approval.

F. VOLUNTARY MWBE UTILIZATION:

The following voluntary Minority and Womens Business Enterprises (MWBE) participation goals have been established for this project:

Minority Business Enterprises (MBE)	10%
Women Business Enterprises (WBE)	6%

Achievement of the goals is encouraged. However, no minimum level of MWBE participation shall be required. The ESCO may contact Office of Minority and Womens Business Enterprises (OMWBE) to obtain information on certified firms for potential sub-consultants or sub-contractors.

The ESCO shall send written notification to GA's project manager within thirty (30) days following execution of this Agreement listing MWBE firms intended for use, the tax identification number (TIN) for each firm and the anticipated dollar value of participation.

G. RECYCLING AND DISPOSAL:

The ESCO shall be responsible for recycling all fluorescent lamps, HID lamps and non-PCB ballasts.

The ESCO shall dispose of PCB ballasts through an approved hazardous waste vendor, using disposal by incineration method. The ESCO shall dispose of all other hazardous waste through an approved hazardous waste vendor. The ESCO shall furnish disposal manifests to the Owner.

The ESCO is encouraged to recycle all material that is removed from the facility or generated by the construction of the energy project and which is eligible for recycling.

H. INDOOR AIR QUALITY:

Installation of EEMs shall not sacrifice acceptable indoor air quality. The ESCO shall look for evidence of poor indoor air quality as part of the audit and design phases. Improvements shall be proposed which ensure that minimum outside air is supplied to occupied areas in accordance with the *Washington State Ventilation and Indoor Air Quality Code*. If there are pre-existing Indoor Air Quality deficiencies, the ESCO shall document conditions and recommend corrective

actions. The energy baseline may be adjusted to incorporate corrective actions prior to implementing Project's EEMs.

I. WATER EFFICIENCY:

Water efficiency opportunities in both buildings and grounds shall be aggressively investigated and analyzed. Water efficiency opportunities shall be described in the Energy Audit Report and Cost-Effective water efficiency projects shall be included in the Energy Services Proposal.

J. POWER QUALITY:

Power quality includes power factor, harmonic distortion, and voltage regulation. Power factor of all new equipment shall be 0.9 minimum. Total harmonic distortion (THD) shall not exceed 20 percent.

Maintaining good facility power quality is a joint responsibility of the Owner and the ESCO. The capacity, current loading, and condition of the existing electrical system shall be evaluated by the ESCO before proposing any electrical changes. Particular attention shall be paid to grounding and bonding systems and to dry type distribution transformers. Existing electrical system deficiencies shall be identified in a written report for the Owner's consideration.

If indicated by the evaluation, and if further requested by the Owner, the ESCO shall perform power quality monitoring prior to and after load modifications are made to insure that the overall electrical system operates within IEEE recommended limits for THD and voltage drop.

The establishment of a power quality baseline and the maintenance of acceptable power quality before, during and after installation of EEMs shall be included in the scope of the Energy Services Proposal if sensitive equipment is served by transformers to which non-linear devices will be added.

K. STANDARDS OF COMFORT:

The Standards of Comfort for the facility are as follow, unless otherwise negotiated by the parties:

1. Indoor Temperatures, **occupied:**
   - Winter Minimum – 70 degrees F
   - Winter Maximum – 74 degrees F
   - Summer Minimum – 72 degrees F (where mechanical cooling systems are employed)
   - Summer Maximum – 78 degrees F (where mechanical cooling systems are employed)

   Indoor Temperatures, **unoccupied:**
   - Minimum – 55 degrees F
   - Maximum – 85 degrees F (where mechanical cooling systems are employed)

2. Relative Humidity (If humidity control provided)
   - Minimum - 40%
   - Maximum – 60%

3. Minimum outside air per occupant shall be in accordance with American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) standards and *Washington State Ventilation and Indoor Air Quality Code.*

4. Illumination Levels:

   Illumination levels shall be as recommended by the Illuminating Engineer's Society of North America (IESNA). Design calculations shall be made for each space, using an 80% lamp depreciation/maintenance factor.

   Average illumination levels shall be checked in each space after 100 operating hours. Average illumination shall not be less than 12.5% above the design level.

   For primary and secondary schools, illumination will also meet 1997 WAC 246-366-120 lighting requirements.

L. FEDERAL REQUIREMENTS:

The client agency shall provide the ESCO with any additional contract language necessary to comply with federal requirements. The ESCO and their subcontractors are required to comply with all applicable federal regulations and/or reporting procedures.