

***Guide To
Energy Performance Contracting
(EPC)
State of Hawaii
2016 Revision***

Department of Business, Economic Development, & Tourism

Strategic Industries Division

Energy Efficiency Branch

December 2016

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The information contained in this document is current as of December 2016. You are welcome to use any material contained in this document, but we request that credit be given to the Department of Business, Economic Development, and Tourism (DBEDT) and it be cited as the source. This document is a revision of the *Guide to Energy Performance Contracting* (1998), revised in 2004, 2007 and 2011. This 2016 version has been prepared by David Birr, Synchronous Energy Solutions, Inc., for DBEDT.

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LIST OF ABBREVIATIONS

ARRA	American Recovery and Reinvestment Act
B&F	Hawaii State Department of Budget and Finance
BTU	British Thermal Unit
New CREBs	New Clean Renewable Energy Bonds
DAGS	Hawaii Department of Accounting and General Services
DBEDT	Hawaii Department of Business, Economic Development, and Tourism
DOE	U.S. Department of Energy
ECM	Energy (and/or Water) Conservation Measure
EPA	U.S. Environmental Protection Agency
EPC	Energy Performance Contract or Contracting
ESPC	Energy Savings Performance Contract
ESCO	Energy Services Company
FEMP	Federal Energy Management Program
GES	Guaranteed Energy Savings Contract
HVAC	Heating, Ventilation, Air Conditioning
HRS	Hawaii Revised Statutes
IGA	Investment Grade Energy Audit
IPMVP	International Performance Measurement & Verification Protocol
kWh	Kilowatt-Hour
LEED	Leadership in Energy Efficient Design
M&V	Measurement & Verification
NEBs	Non-Energy Benefits
NREL	National Renewable Energy Lab

O&M	Operations & Maintenance
PPA	Purchase Power Agreement
QECBs	Qualified Energy Conservation Bonds
RFP	Request for Proposals
SID	Strategic Industries Division (of DBEDT)
SPO	State Procurement Office

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1. INTRODUCTION

Most state and county agencies face increasing energy costs and the need to replace or upgrade aging, inefficient, and obsolete energy and water consuming equipment. Although these needs are often evident, capital improvement and operating budgets have typically been inadequate to fund the needed upgrades. To address these concerns, energy performance contracting (EPC) has been developed as an approach to implementing energy and water conservation measures in a facility or facilities, using guaranteed energy and water savings to finance the projects. The Hawaii Energy Office <http://energy.hawaii.gov/energy-performance-contracting> of the Department of Business, Economic Development, and Tourism (DBEDT) has prepared this *Guide* to help state and county agencies using the State Procurement Office (SPO) Vendor List to competitively procure the services of an Energy Service Company (ESCO) to develop an EPC to achieve energy and water savings in their facilities.

For a list of pre-qualified ESCOs see https://spo.hawaii.gov/wp-content/uploads/2016/11/PL_VL-12-11.pdf.

The purpose of this *Guide* is to educate key decision makers on how to effectively design and manage an energy performance contracting project. As described in this *Guide*, energy performance contracting (EPC), allows agencies to implement energy and water saving projects that budget constraints otherwise prevent. Under an EPC, an ESCO conducts an investment grade audit (IGA) of the agency's facilities which identifies potential energy and water conservation project(s). These projects can then be implemented using the avoided future utility and maintenance costs to pay for new energy and water conservation equipment, the ESCO's services (e.g., project development, training, commissioning and savings measurement and verification), and financing. The agency can install new high efficiency lighting, cooling, and other equipment without incurring any up-front project costs, which is very advantageous when the needed capital improvement funds are not in the current budget. The

opportunities to save energy cost-effectively, in buildings with large lighting and equipment loads, have increased significantly. For example, the savings performance of lighting technologies, cooling equipment, and direct digital control systems has improved dramatically in the last five years. Increases in costs for electricity, natural gas, and water in the last few years have made many efficiency projects more economically feasible. After project costs have been paid off, the agency owns the equipment and retains all of the savings for the remaining useful life of the equipment.

A key aspect of this approach is that the ESCO provides a corporate guarantee that the energy and water savings, which must be measured and verified at specific intervals over the term of the contract, will cover all project costs including project financing. If the savings guarantee is not met, the ESCO is obligated to pay the difference to the agency. The use of measurement and verification and continuous commissioning help the agency and the ESCO ensure that the savings guarantee and equipment performance levels are met.

This *Guide* describes how Hawaii's state and local agencies may implement EPC projects using the process developed by the Dept. of Accounting and General Services (DAGS) as described in Section 4, "The Energy Performance Contracting Process." In Section 2, "What is an Energy Performance Contract?" the differences between conventional construction contracts and long term energy performance contracts, are explained. Features of various project financing options for energy performance contracts and the criteria for evaluating and selecting a project financing mechanism are described in Section 3, "Energy Performance Contract Financing." The later phases of managing and monitoring an EPC project are described in Section 5, "Managing and Monitoring the Energy Performance Contract." Section 6, "Measuring and Verifying Energy Savings and Commissioning," discusses how to commission the equipment and measure and verify energy, water and operational savings over the term of the contract. The importance and the benefits of having a plan for long term maintenance services are enumerated in

Section 7, “Maintenance Plan and Services.” Examples of several government agency EPC projects in Hawaii, including project costs and savings data, are contained in Section 8, “Energy Performance Contracting in Government Agencies.” EPC references and sources of additional information are listed in Section 9, “References and Sources of Further Information.” In addition, there are over a dozen appendices to this guide that contain the sample procurement documents used in the DAGS process, including contracts, technical exhibits, sample financing agreements and other resource information.

The use of energy performance contracts by State of Hawaii agencies is authorized (and encouraged) by Hawaii Revised Statutes (HRS) Sections 36-41, 196-21 and 196-22, as amended (see Appendix A for the full statutes). See Figure 1-1 on the following page for a summary of the statutes’ major provisions.

In summary, these statutes require State of Hawaii agencies to reduce energy, water, and operations and maintenance costs in their facilities through the use of energy-savings contracts, including energy performance contracts. In addition, agencies that implement energy savings projects may continue to receive budget appropriations for utilities that shall not fall below the level prior to implementing the energy project and which appropriations shall increase in proportion to any escalation in the agency’s overall budget for the duration of the EPC or project repayment term.

Figure 1-1
Key Provisions of Hawaii’s Energy Performance Contracting Law (HRS §36-41)

Type of Provision	Description of Provision
Title of Act	Energy retrofit and performance contracting for public facilities
Applicability	All Agencies including any executive department, independent commission, board, bureau, office, or other establishment of the State or any county government, the judiciary, the University of Hawaii, or any quasi-public institution that is supported in whole or in part by state or county funds.
Definitions	<p>“Energy performance contract” means an agreement for the provision of energy services and equipment, including but not limited to building or facility energy conservation enhancing retrofits, water saving technology retrofits, and alternate energy technologies, in which a private sector person or company agrees to finance, design, construct, install, maintain, operate, or manage energy systems or equipment to improve the energy efficiency of, or produce energy in connection with, a facility in exchange for a portion of the cost savings, lease payments, or specified revenues, and the level of payments is made contingent upon the verified energy savings, energy production, avoided maintenance, avoided energy equipment replacement, or any combination of the foregoing bases. Energy conservation retrofits also include energy saved off-site by water or other utility conservation enhancing retrofits.”</p> <p>“Facility” means a building or buildings or similar structure, including the site owned or leased by, or otherwise under the jurisdiction of, the agency.</p> <p>“Financing agreement” shall have the same meaning as in section 37D-2 (any lease purchase agreement, installment sale agreement, loan agreement, line of credit, or other agreement of the department or, with the approval of the director, and any agency, to finance the improvement, use, or acquisition of real or personal property that is or will be owned or operated by one or more agencies of the State, the department, or any agency, or to refinance previously executed financing agreements including certificates of participation relating thereto.)</p> <p>“Guaranteed-savings plan” means an agreement under which a private sector person or company undertakes to design, install, operate, and maintain improvements to an agency’s facilities and the agency agrees to pay a contractually specified amount of verified energy savings.</p> <p>“Verified” means the technique used in the determination of baseline energy use, post-installation energy use and energy and cost savings by the following measurement and verification techniques: engineering calculations, metering and monitoring, utility meter billing analysis,</p>

Type of Provision	Description of Provision
	computer simulations, mathematical models, and agreed upon stipulations by the customer and the energy service company.
Procurement	Request for Proposals
Selection of ESCO	Agency may select the most qualified proposal or proposals on the basis of the experience and qualifications of the proposers, the technical approach, the financial arrangements the overall benefits to the agency and other factors determined by the agency to be relevant and appropriate.
Term	Up to 20 years
Contract Provisions	<p>Any contract entered into shall contain the following annual allocation dependency clause:</p> <p><i>The continuation of this contract is contingent upon the appropriation of funds to fulfill the requirements of the contract by the applicable funding authority. If that authority fails to appropriate sufficient funds to provide for the continuation of the contract, the contract shall terminate on the last day of the fiscal year for which allocations were made.</i></p> <p>Any energy performance contract may provide that the agency shall ultimately receive title to the energy system being financed under the contract.</p>
Savings Guarantee	<p>Any energy performance contract shall provide that total payments shall not exceed total savings. For any guaranteed-savings plan:</p> <p><i>(A) The payment obligation for each year of the contract, including the year of installation, shall be guaranteed by the private sector person or company to be less than the annual energy cost savings attributable under the contract to the energy equipment and services. Such guarantee, at the option of the agency, shall be a bond or insurance policy, or some other guarantee determined sufficient by the agency to provide a level of assurance similar to the level provided by a bond or insurance policy; and</i></p> <p><i>(B) In the event that the actual annual verified savings are less than the annual amount guaranteed by the energy service company, the energy service company, within thirty days of being invoiced, shall pay the agency, or cause the agency to be paid, the difference between the guaranteed amount and the actual verified amount.</i></p>
Financing	See Definition of "Financing Agreement"

Type of Provision	Description of Provision
Required Approvals	Except as otherwise provided by law, the agency that is responsible for a particular facility shall review and approve energy performance contract arrangements for the facility.

2. WHAT IS AN ENERGY PERFORMANCE CONTRACT?

This section provides an overview of energy performance contracts, what sets them apart, and their benefits.

2.1 Overview of Energy Performance Contracting

An energy performance contract (EPC) is a comprehensive agreement in which an energy services company (ESCO) performs an investment grade energy audit, and develops, designs, arranges financing for, installs, and often maintains energy- and water-saving improvements for a customer, such as a state or county agency. The ESCO also guarantees that the future avoided utility costs and operational savings generated by the project will be sufficient to pay for all project costs including financing and maintenance costs over the term of the contract. Third-party lending institutions generally finance EPC projects and EPC contract terms can be up to 20 years. Annual energy savings are contractually guaranteed by the ESCO. To ensure accountability, all EPCs include a formal measurement and verification (M&V) plan that specifies procedures the ESCO must follow to demonstrate that the installed energy conservation measures are delivering the guaranteed savings. If the savings guarantee is not met in a given year, the ESCO must pay the agency the difference between the guaranteed amount and the actual verified amount. This savings guarantee places the risk of performance on the ESCO, not the agency.

2.2 How Are EPCs Different?

Energy performance contracting differs significantly from conventional contracting methods typically used by state and county agencies to procure energy efficiency services and equipment, as discussed below.

2.2.1 Conventional Contracting

The conventional, *design-bid-build* process of purchasing energy-efficiency improvements can require several separate solicitations and contract awards. First, an

agency solicits engineering services for a study to identify potential energy conservation measures at a specified facility. After reviewing the completed study, the agency selects the measures to be implemented and solicits proposals for engineering design services. Once the designer is selected and completes the plans and specifications, the agency issues one or more invitations for bids to select companies who will install the improvements. While conventional contracts are awarded on the basis of lowest responsible bid, unlike EPC, they do not offer fixed-price certainty due to the common practice of many change orders. Finally, the agency solicits bids to request preventive maintenance services for any equipment the facility is unable to maintain with in-house staff. Throughout this process, the agency must identify and set aside adequate funding to pay for the various design and construction costs.

In recent years, several state and county agencies have employed a *design-build* contracting system to implement construction projects. Design-build is similar to performance contracting in that it brings the design and construction professionals together onto a single project team, working under a single contract. This approach eliminates the need for multiple solicitations and contract awards, and condenses the project schedule by overlapping the design and construction phases of the project.

2.2.2 Energy Performance Contracting

An EPC allows for a comprehensive approach to energy and water savings that is more desirable and cost effective than a single measure approach (e.g. lighting only). Projects rely on the technical expertise of an energy services company (ESCO) to design and build a comprehensive and creative technical solution to rising energy costs. One of the most significant benefits of energy performance contracting for governments is that it allows ESCO-guaranteed future utility and operating cost savings to pay for improvements.

Energy performance contracts go further than the typical design-build contract. EPCs include a measurement and verification plan to validate utility and operating savings,

require that the measured utility and other operational savings cover all project costs and usually use third party financing to fund the project. ESCOs are required to guarantee utility savings and, based on an annual reconciliation, reimburse the agency for any savings that fall short of what was guaranteed by the ESCO. Also, with an EPC an agency buys a guaranteed performance result, not just new equipment. See Figures 2-1 and 2-2 on the following page for the differences in project savings performance levels between conventional contracting and energy performance contracting. Performance contracts also contain guarantees of environmental comfort parameters, such as ventilation rates, temperature, and light levels.

Energy performance contracting streamlines the conventional procurement process by using a single Request for Proposals (RFP) to solicit ESCOs that have the capabilities to provide all aspects of a comprehensive project, and one Guaranteed Energy Services (GES) contract with the selected ESCO. The ESCO approach provides a more flexible iterative project development process, which results in a more integrated comprehensive design solution. The EPC approach can integrate both supply and demand solutions to provide the best overall project value. By reducing the number of contracts and steps required to complete the conventional procurement, the EPC procurement approach can reduce project costs by 10-15%. Using the performance contracting approach creates a mini-design competition between ESCOs, which results in more flexibility in defining the project scope. The ability to select equipment and services based upon their quality and value, rather than lowest first cost, is a significant advantage for delivering the lowest life-cycle cost. Selecting high quality equipment reduces the risk of poor project performance. Based on their experience in delivering projects in existing buildings and their requirement to guarantee project performance, ESCOs are more diligent in designing feasible and constructible projects. When the low bid procurement process results in the minimization of engineering time at the expense of a quality design, it often underperforms EPC projects in which the performance results of the design are guaranteed. Having a single provider deliver a comprehensive

project increases accountability for project performance and reduces administrative costs compared to a piecemeal implementation of project components.

A more detailed description of the energy performance contracting process can be found in Section 4 of this *Guide*.

Figure 2-1
Savings Erosion Over Time: Typical of Conventional Energy Projects

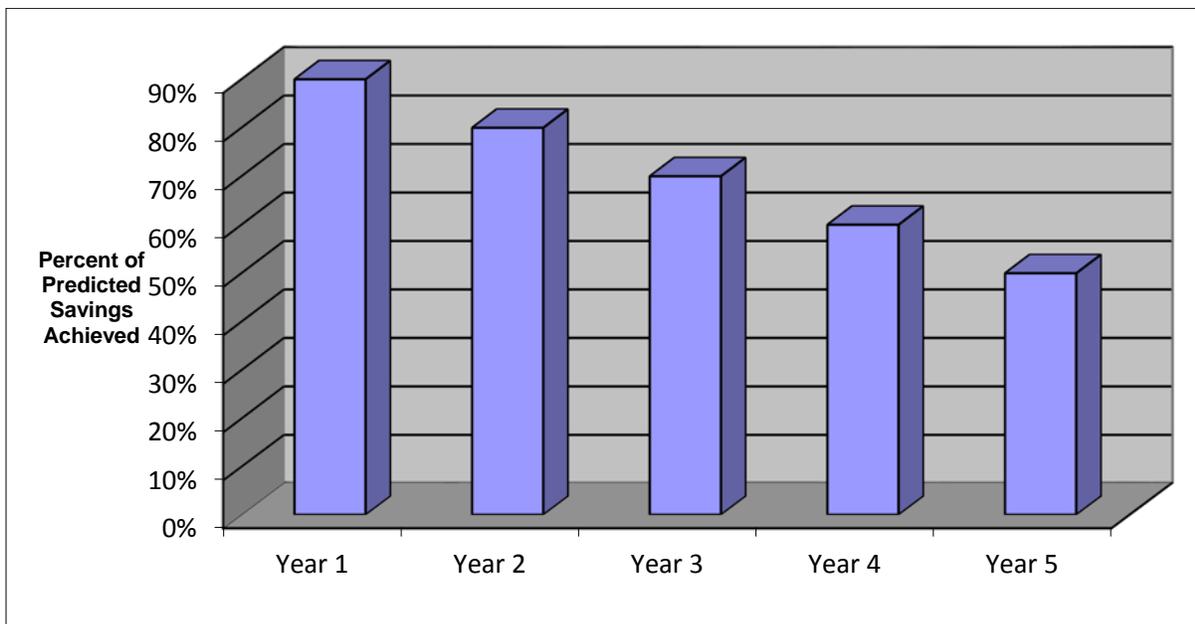
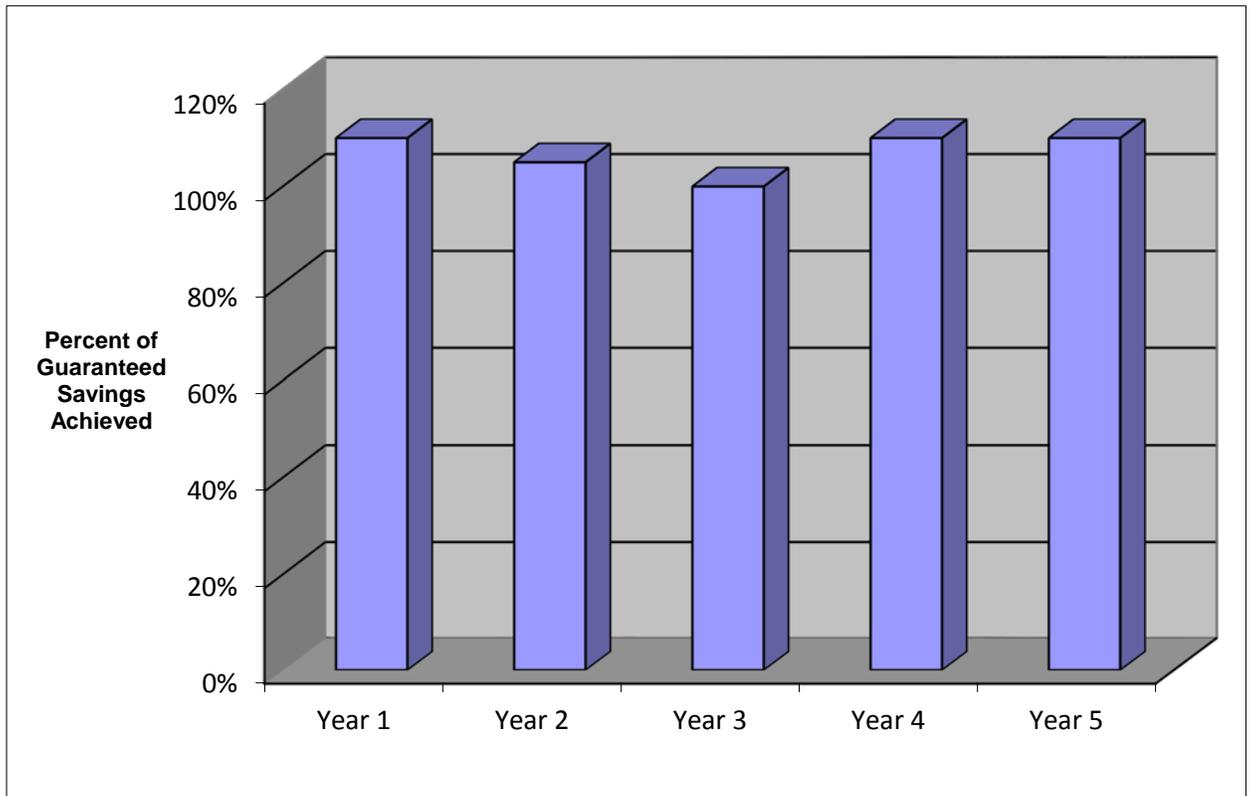


Figure 2-2
Stable Savings Guaranteed Over Time: Typical of EPC Projects



2.3 Business Case for an EPC

Energy performance contracting offers a number of benefits that address the concerns of many agencies in dealing with increased energy costs and the need to replace worn-out equipment, while lacking the necessary funding, expertise, or resources. The beneficial aspects of an EPC include the following:

- An EPC pays for itself over the term of the contract. The EPC is structured so that the ESCO is responsible for the actual level of energy savings achieved. By law, the annual energy cost savings produced by the project are contractually guaranteed by the ESCO to be greater than annual project costs. As savings must be guaranteed by the ESCO, it is in the ESCO's interest to achieve the

guaranteed energy savings and ensure that the savings are maintained for each year of the contract term.

- A single procurement is used to purchase a complete package of equipment and services in which a single ESCO is accountable for project development, design, procurement, installation, and maintenance of the energy conservation measures to guarantee optimum savings and performance. The ESCO is contractually obligated to complete the process from design to installation by a certain date, which contributes to an agency's ability to reap energy, water, and cost savings sooner rather than later.
- The ESCO can arrange or assist the agency in securing project financing. Limited access to capital funds routinely delays the delivery of comprehensive capital improvements. The approval process for new capital appropriations often results in the failure to obtain sufficient capital funds to implement needed energy efficiency projects.
- Energy cost savings from an EPC can be used to pay for an efficiency project that can include needed non-energy capital improvement projects. Budgetary concerns and funding constraints often result in the delay (and sometimes omission) of needed equipment replacement, maintenance, and renovation. Using performance contracts can be a much faster way to deliver energy efficiency projects. The total project cost savings from a faster project delivery can be as much as 10-15% of project costs. Many public agencies do not have enough staff or the appropriate technical expertise to manage these complex projects in-house. In-house staff does not have financial incentive to guarantee the energy savings results of projects. Also the traditional procurement process for capital projects often requires the acceptance of low-bid equipment instead of a best-value project design that minimizes life-cycle costs. Using the

traditional capital budget process to contract for design and then to separately contract to construct and install a large complex comprehensive energy project (\$25+ million) may take as long as six years or more when an ESCO could design, install, and deliver in three years or less.

- Significantly reducing future energy consumption reduces the risk of energy supply price spikes. In Hawaii the fuel adjustment charge is based on oil prices which can vary significantly and increase the value of long-term avoided utility costs.

- A comprehensive approach offered by using EPC maximizes the capture of savings opportunities available from a specific building or set of buildings. It minimizes the ratio of project management costs to the total savings produced from the project. The EPC approach reduces the time required to select and analyze data on feasible measures, and to secure project approvals and initiate project construction. It also provides financial leverage to do more expensive individual measures that would not be economical to do on a stand-alone basis. A comprehensive project allows the measures with quick paybacks to subsidize those with longer paybacks. A common error is for a facility to fund and implement quick payback measures (i.e., less than 5 years) prior to a performance contract. The agency then has lost the opportunity to maximize project scope by using savings from short payback items to pay for longer payback measures.

- Energy system repair and maintenance costs associated with inadequate, aging, or outdated equipment are a substantial component of operating and maintenance costs. A properly implemented EPC can significantly reduce these costs. Replacing equipment near the end of its useful life, which has very high maintenance and repair costs, can produce significant operation and

maintenance (O&M) cost savings. See Appendix O for the economic evaluation of O&M cost savings.

- Improving temperature control, ventilation rate, and light levels, as part of an EPC will increase building occupant comfort, resulting in fewer complaints. The economic benefits for human health and productivity from better thermal, visual, and acoustic comfort, and better indoor air quality could be worth as much as the annual utility cost savings. Properly measuring these benefits could lead to decisions to make larger investments in improving indoor environmental quality.
- As part of its performance-contracting obligation, the ESCO will provide up-to-date technical training to facility staff and building occupants on the proper operation and maintenance of the installed equipment. This training is important to maintain the persistence of savings. Energy performance contracting generates a stream of savings which can be used to prevent underfunding future maintenance requirements.
- When in-house expertise is limited, the ESCO contract can be structured to include a cost that may be used to pay for an independent performance contract manager or consultant to oversee the ESCO and represent the agency's interests.
- Many ESCOs have staff that are LEED* accredited professionals and familiar with the U.S. Environmental Protection Agency's (EPA's) Energy Star tools and resources and can help facilities qualify for these programs.

*LEED is the acronym for "Leadership in Energy and Environmental Design," a green building rating system developed by the U.S. Green Building Council, that provides a list of standards for environmentally sustainable construction.

- Utility costs and O&M savings pay all of the costs associated with the energy efficiency improvements and ongoing annual ESCO services. This allows projects to be paid for using the costs that will be avoided from existing utility and O&M budgets and no up-front funds are needed. See Table 2-1 for the Department of Accounting and General Services (DAGS) EPC Case Study for an estimate of the value of utility and O&M savings.
- ESCOs commonly retain local subcontractors to work on a performance contract. This leads to economic development benefits, including the creation of “green” jobs and contributions to local economic growth. See Table 2-1 for an estimate of the jobs created/retained from the DAGS project.
- By reducing utility consumption of fossil fuels, electricity and water, performance contracting projects significantly reduce air pollution and preserve scarce resources. Table 2-1 contains an estimate of the many benefits derived from the DAGS project. See Appendix N for a comparison of the project economics of the conventional and EPC project delivery analysis methods.

**Table 2-1
DAGS Project Case Study: Benefits of Project Implementation***

Project Savings	Project Years**			Annual Energy Savings	Annual Environmental Benefits
	Year 1	Year 2	Years 3-20		
Jobs Created/Retained	421	421	20		
kWh				6,619,813	
KW				14,529	
H ₂ O (kGal)				19,426	
Sewer (kGal)				53,225	
Energy Savings (\$)				\$3,550,703	
O&M Savings (\$)				\$906,859	
Total Annual Savings (\$)				\$4,457,562	
Carbon Dioxide (CO ₂) (lbs)					11,363,217
Nitrous Oxide (NO _x) (lbs)					30,699

Sulfuric Oxide (SO _x) (lbs)		34,865
Equivalent Trees Planted (acres)		2,158
Cars Removed from Roads		1,739

*Based on an energy performance construction project valued at \$36,873,266, with an estimated annual value of project support services, including O&M, training and M&V, of \$1,847,418.

**Information reported by NORESCO based on U.S. Department of Energy guidelines, which assumes that “1 job is created/retained for every \$92,000 in project costs.” Jobs created include electrical, mechanical, controls and maintenance. For Years 1 and 2, 401 project construction jobs and 20 support jobs are created/retained. In Year 3 through Year 20, 20 support jobs are created/retained and continue for the project term.

2.4 Economic Analysis of EPC Projects

The economic analysis of individual EPC projects focuses on the projected cash flow, which includes annual savings and costs over the term of the project. The accuracy, reasonableness and clarity of the estimated cost and savings information described are critical to conducting an effective economic analysis. The interest rate and any escalation rates applied to project savings have a very significant effect on the project cash flow over time due to the long lengths of these contracts (i.e., 20 years). It is important to select escalation rates that are realistic so that the economic valuation of future savings is reasonable. It is also important to compare the difference between the projected savings and the guaranteed savings. This difference provides an important hedge against project savings performance risk. When reviewing project cash flows some decision-makers forget that these numbers are best estimates based on numerous variables (e.g., proper operation and maintenance of new equipment) rather than fixed numbers. The quality of analysis which supports the estimates of costs and savings is what determines the confidence level which can be assigned to the numbers in the cash flow. In addition to utility cost savings, O&M cost savings are usually included in the project cash flow. In Section 2.5, a large variety of non-energy benefits are described, along with suggestions on how to evaluate those non-energy benefits.

A comprehensive analysis of project economics must determine where to draw the system boundary for the analysis. Will the system boundary simply be the cost and

benefits associated with a specific agency budget, or will the value of project benefits that impact the utility system, the local economy, and the larger environment be accounted for as part of the analysis? The term of the analysis is also important. Focusing on short term annual analysis of project performance must be balanced with evaluating the long term net value of the project using life cycle cost analysis.

When the annual financing payment is deducted from the total guaranteed project cost savings, there will be a net annual savings reported in the annual cash flow analysis. Depending upon how large the difference is between projected and guaranteed cost savings, this net savings may significantly understate the annual net value of the project. This would be especially true for projects that produce large non-energy benefits, which are not specifically accounted for in the cash flow. Typical economic analysis of EPC projects focuses a lot of attention on the specific cost components of the project (e.g., investment grade audit, design engineering fees, construction management, etc.). While review of these costs for reasonableness is certainly appropriate, it would be useful to focus a similar level of effort at estimating and quantifying all the benefits that are produced by the project.

While the purpose of the cash flow is to demonstrate that project benefits will fully amortize project costs over the term of the agreement, there may be significant project benefits which extend beyond the contract term. The following is a hypothetical example of the potential long-term benefits created by an ESCO project if a variety of non-energy benefits were included in the economic analysis:

If guaranteed annual utility savings over the 20-year term of the contract were \$20 million, then it is possible that O&M savings may be as much as \$4 million over the term of the contract. If annual avoided line losses of electrical energy and annual capacity cost savings to the utility company were counted as additional benefits created by the project, these could be worth as much as \$6 million over the term of the contract. The

economic development benefits from jobs created by the project could also be worth as much as \$6 million over the term of the contract. While environmental benefits from reduced emissions and environmental compliance costs could be worth another \$2 million. If the cumulative value of these non-energy benefits were included in the analysis of project savings, the total value of savings over the contract term would increase from \$20 million to \$38 million. Most EPC projects are implemented in public agencies whose goals of economic development and environmental protection can be advanced by these projects. A strong case can be made that accounting for these non-energy benefits is a public duty for government agency projects.

2.5 Economic Analysis of Direct and Indirect Non-Energy Benefits (NEBs)

Retail utility prices do not reflect all the environmental costs of energy use. They are also distorted due to historical large government subsidies for fossil fuels which mask their real cost. Investments in new utility company generating capacity create very few jobs compared to similar investments in energy efficiency. Evaluating energy efficiency projects based on retail utility rates significantly understates the real value of energy efficiency investments. Below are lists of the direct and indirect non-energy benefits which may apply to specific EPC projects, as well as some suggestions on how to quantify these benefits.

Direct NEBs

- Operations and maintenance savings
- In-house labor savings
- Demand response incentives
- Utility rebates
- Reduced environmental compliance costs
- Reduced insurance costs
- Reduced waste disposal costs
- Avoided capital costs

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- Improved value of building assets
 - Correction of power factor problems

Indirect NEBs

- Improved occupant comfort
- Improved operational control of equipment and systems
- Equipment standardization
- Improved reliability of equipment performance
- Improved indoor environmental quality
- Improved occupant productivity
- Improved occupant health
- Economic value of avoided environmental emissions
- Economic value of increased floor space due to reduced space of new equipment
- Enhanced public image and political credit for project benefits
- Meets identified target energy efficiency or renewable energy goals
- Economic development benefits including jobs created
- Compliance with health, life and safety codes
- Use of environmentally friendly materials
- Reduced liability costs
- Avoided line losses of electrical energy before the building electric meter
- Avoided capacity costs due to reduced demand for generation, transmission and distribution for the utility
- Improved resilience to withstand natural and man-made disasters
- Extended equipment life

How to Economically Evaluate NEBs

- Extent to which the NEB is based on observable data which can be measured or is based on credible engineering calculations
- Accurate analysis time period for accounting for NEBs values

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- Value placed on the specific NEBs by project decision-makers
 - Relative value of NEBs in the project cash flow
 - Cost-effective data collection for establishing baseline and contract period NEBs
 - Estimation of the potential of the long term value of NEBs and their impact on the size of the project
 - Proper definition of the system boundaries for the economic analysis of NEBs (e.g. agency budget, utility system benefits, societal benefits)
 - Selection of reasonable escalation and discount rates for economic valuation of NEBs
 - Definition of the level of measurement effort required to provide adequate credibility for specific NEBs

3. ENERGY PERFORMANCE CONTRACTING FINANCING

The most economical approach for public agencies is to secure their own EPC project financing, with assistance from the ESCO, and to require the ESCO to provide the savings guarantee. The savings guarantee is structured to use the avoided future utility and O&M savings to cover the annual financing payments and other project costs which is a key advantage of energy performance contracts. Therefore, it is important that utility budgets be funded at baseline consumption levels for the duration of the contract which is authorized under Hawaii's EPC statute. The tax-exempt status granted to a public agency enables it to access lower-cost financing than would be available to an ESCO.

Using this approach the ESCO:

- Arranges or facilitates the necessary construction financing
- Arranges or facilitates long-term financing so that the annual repayment obligation is less than the project's annual guaranteed achieved savings
- Is contractually liable to pay the agency for any shortfalls if the project's guaranteed annual achieved savings are less than the financing payments

Successful EPC financing guidelines generally include:

- **Short Transaction Cycle:** Project financing that can be readily obtained and financing agreements can be executed quickly after receipt of project technical approvals
- **Flexibility of Financing:** Using third-party tax-exempt financing, which can be customized to maximize agency benefits
- **Construction Progress Payments:** The standard industry practice of funding the project costs into an escrow account and making progress payments authorized by the agency to the ESCO during construction
- **Leverage of Financial Incentives:** The ability to leverage financial incentives offered by Hawaii Energy and other government incentive programs
- **Reduced Project Transaction Cost:** Encouraging, when appropriate, the capture of transaction cost efficiencies by combining capital funds with EPC financing. A

more comprehensive project can be implemented more rapidly and with lower project management costs when available capital funds are combined with an EPC project

- **Transaction Cost Financing:** Typically, transaction costs (e.g. bond counsel and legal costs) are minimal and can be included in the project cost to reduce or eliminate the upfront, out-of-pocket expenses of the agency in connection with EPC financing

Most ESCOs have established relationships with financial institutions willing to provide financing for EPC projects. While the repayment obligation ultimately resides with the agency, the ESCO is financially liable for the savings guarantee needed to cover the financing payments and other project costs.

The quick access to cost-effective tax-exempt financing allows agencies to pay for capital projects without waiting for capital appropriations. Savings from comprehensive energy efficiency projects occur over time, irrespective of how the agency pays for the project. By deferring the implementation date of a project for years at a time, the savings that would have occurred had that project been implemented earlier represents the cost of delay which can be a significant amount in lost savings. See the example given on the Cost of Delay contained in the sidebar. Budgeted operating funds are typically used to pay utility invoices so when a portion of those utility funds is invested in needed energy savings capital improvements, rather than buying energy from the utility, the state receives a greater value from its limited budget resources.

***COST OF DELAY:
DAGS EXAMPLE***

The annual value of energy savings from the DAGS project was \$3.55 million or approximately \$300,000 per month. If DAGS had had to wait for two extra years for capital appropriations for the cost of this project, the cost of delay would have been over \$7 million (24 months X \$300,000). The value of these lost energy savings was so large that it eliminated any financial advantage of waiting until appropriated funds were available.

An ESCO is effectively a competitive energy services provider that provides greater value than the utility is able to provide for the same or lower cost.

There are a number of factors to consider when assessing financing options for guaranteed energy savings projects:

- **Size of project investment:** Project investment varies depending upon the level of annual energy savings that can be achieved.
- **Length of financing term:** Hawaii statutes allow for contract terms up to 20 years.
- **Type of financing instrument:** Examples of financing methods are General Obligation [G.O.] bonds, Tax-Exempt Lease-Purchase [TELP] agreements and Certificates of Participation [COPs].
- **Interest rate:** Interest rates vary with the type of financing used and length of financing term.
- **Flexibility of escrow account structure:** The structure of the escrow account varies with the type of financing used.
- **Flexibility of financing instrument to fund project “soft costs”:** Most financing methods allow funding of “soft cost” such as design, engineering, construction management, etc.
- **Credit worthiness of the agency and ESCO:** The higher the credit ratings of the agency and ESCO the easier it is to obtain financing and a lower interest rate.
- **Length of construction period:** Depending on project size and complexity, the construction period typically takes 12-24 months.
- **Construction period financing:** Currently, most financing methods count the construction period as part of the financing term.
- **Equipment ownership:** In most financings, title to the equipment resides with the agency. The financier retains a security interest in the equipment.

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- **Project bonding requirements:** Payment and performance bonds are required for project construction.
 - **Financing repayment schedule:** Repayment schedules can be variable with levelized or escalating payments which track the rising value of savings over time.

3.1 *Financing Mechanisms*

Capital for energy-efficiency improvements is available from a variety of public and private sources. In general, the following financing mechanisms are available for investments in energy efficiency and renewable energy projects:

- Currently available internal funds
- Traditional debt financing (e.g., G.O. bonds)
- Tax-exempt lease-purchase agreement (TELP) and certificates of participation (COPs)
- Utility rebates and state and local government financial programs
- Special federal programs (e.g., Qualified Energy Conservation Bonds [QECBs], New Clean Renewable Energy Bonds [New CREBs])
- Power purchase agreements (PPAs)

Regardless of which financing mechanism is chosen, the following information will be needed by the bank or leasing company prior to financing:

- Equipment description
- Cost of equipment
- Amount to be financed
- Financing term
- Repayment frequency
- Delivery date of equipment
- Anticipated funding date

3.1.1 Currently Available Internal Funds

Energy improvements are paid for by the direct allocation of appropriated funds from an agency's operating or capital budgets. Such allocations are normally made as a part of the agency's annual budgeting process. For large energy performance contracts, the levels of internal budget funds (if available) are usually insufficient to cover total project costs.

3.1.2 Traditional Debt Financing

Energy-efficiency improvements for state and county facilities can be financed through (a) commercial loans and (b) from proceeds from General Obligation Bonds. The bonds are attractive to the financial market because they are backed by the full faith and credit of the issuer. This means that the state or county pledges its authority to tax, raise and collect sufficient funds to satisfy the bond obligations. These financings are considered to be "debt" from a constitutional standpoint, and there are statutory debt restrictions that may limit their availability if the issuer is close to its debt ceiling limit. Approval to issue the bonds must be obtained from the legislature or by public referendum that can impose significant project implementation delays. Energy projects must also compete with the bond financing of other essential government services and capital project needs. Debt financings often involve relatively high costs of issuance related to underwriter's fees and bond counsel fees.

3.1.3 Tax-Exempt Lease-Purchase Agreement and Certificates of Participation

Tax-Exempt Lease-Purchase (TELP) Agreement

A TELP agreement is an effective alternative to traditional debt financing (bonds, loans, etc.) because it allows a public organization to pay for energy upgrades by using money that is already set-aside in its annual utility budget. When properly structured, this type of financing makes it possible for public sector agencies to draw on dollars to be saved

in future utility bills to pay for new energy-efficiency equipment and related services today.

Because the interest component of the lease payments to the financing institution is exempt from federal income taxes, (IRS Code Section 47(c)(2)(B)(v))the financier is able to pass these tax savings back to the agency in the form of lower interest rates. In addition, costs of issuance, if any, for a TELP are minimal.

In Hawaii, a TELP agreement does not constitute a long-term “debt” obligation because of non-appropriation language that must be written into the lease-purchase agreement. This language effectively limits the payment obligation to the agency’s current operating budget period (typically 12 months). The agency will, however, have to assure lenders that the energy efficiency projects being financed are considered to be of *essential use* (i.e., essential to the operation of the agency), which minimizes the non-appropriation risk to the lender. If for some reason future funds are not appropriated, the equipment is returned to the lender and the repayment obligation is terminated. A TELP agreement typically does not require legislative or voter approval. This type of financing also allows the agency to receive title to the equipment with an equipment security interest held by the lender. The ready access to TELP financing makes this method the most attractive and commonly used method for financing guaranteed energy savings projects by public agencies.

Key features of TELP financing include:

- All project “soft” costs -- audits, design, engineering, installation and construction management fees, finance and legal fees, construction interest, etc. -- can be financed
- The agency (Lessee) takes title to the equipment at the beginning of the lease term
- The investor retains a first security interest in the equipment

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- Lease payments are subject to annual appropriations each fiscal year (technically, does not create long-term debt)
 - Construction financing can be arranged with net construction interest costs capitalized in the lease proceeds. Lease funds are placed in an escrow account which is managed by a trustee and all interest earnings on undisbursed construction monies accrue to lessee
 - Flexible repayment schedules can be arranged
 - Fast access to funding

Certificates of Participation

Certificates of Participation (COPs) can also be used to finance projects and are structured similarly to a TELP, with repayment by the agency subject to annual appropriations. COPs can have lower interest rates for larger projects (e.g., more than \$5 million), but the transaction costs of COPs are higher than for a TELP, so the total cost of project financing must be evaluated to determine which is the most advantageous financing mechanism. In addition, COPs issued publicly require upfront and ongoing disclosure by the state (similar to G.O. bonds). The investor holding the certificate receives a portion of each lease payment as tax-exempt interest.

When a financing agreement is part of a state government performance contract, the agreement becomes subject to HRS Section 37D. The prior written approval of the Director of Budget and Finance (B&F) and the Attorney General are therefore required before implementation of any financing agreement. In the case of a financed lease, the B&F may become the lessee. Early consultation with B&F and the Attorney General is strongly recommended.

3.1.4 Utility Rebates and State and Local Government Incentive Programs

While not strictly a project financing mechanism, utility and/or public benefit fund incentives can be used to reduce the overall cost of a project and decrease the amount

that needs to be financed. As of 2009, Hawaii Energy, the Public Benefits Funds Administrator for the Public Utilities Commission offers three types of incentives:

- **Commissioning Study Reimbursement** - for building owners to evaluate or re-evaluate the effectiveness of and efficiency of current building systems for optimum performance;
- **Prescriptive Rebates** - cash rebates for purchasing and installing prescribed energy-efficiency systems (lighting, air conditioning, etc.); and
- **Customized Rebates** - awarded for purchasing and installing worthy energy systems not specifically covered by the prescriptive rebates.

For more information, visit the Hawaii Energy website: <https://hawaiienergy.com/for-businesses/incentives>

Some state and local governments issue special financing alternatives for energy efficiency and renewable energy projects. For example, the Honolulu City Council approved Bill 14, which included a \$7.85 million bond for solar and energy-efficiency retrofits for Honolulu public buildings. When evaluating these special financing alternatives, it is critical to determine the timing of the receipt of any incentive (for example, whether the incentive will be received at the time the financing is originated, or whether the incentive will be received after completion of the project's construction).

3.1.5 Special Federal Programs

Qualified Energy Conservation Bonds (QECBs) <http://energy.gov/eere/slsc/qualified-energy-conservation-bonds>

A QECB is a taxable instrument issued by a state or local government to finance one or more “qualified conservation purposes.” QECBs provide a federal income tax credit to investors on quarterly credit allowance dates, or a QECB can be structured to provide a direct-pay interest subsidy from the U.S. Treasury to the state. From the issuer’s perspective, the federal government income tax credit results in the federal government paying a significant portion of the interest costs on the QECB. QECBs can be structured as a TELP or bond financing.

The American Recovery and Reinvestment Act (ARRA) of 2009 increased the allocation for new QECBs to \$3.2 billion and it is estimated that approximately 40% of the QECB allocation has been issued as of October 31, 2016 according to information collected by the Energy Programs Consortium which can be found at <http://www.energyprograms.org/wp-content/uploads/2016/08/qecbupdate103116.pdf>. The QECBs must be issued by a governmental agency. There is a cap on the amount allocated to various governmental entities and there are limits on the financing term. Projects that qualify for QECBs must reduce energy consumption in publicly owned buildings by 20%. The applicable tax credit rate, which determines the cost of financing, is based on Treasury estimates of the yields on outstanding bonds from market sectors selected by Treasury, with a rating of between A and BBB for bonds of a similar maturity.

Currently, as of the date of this guide, the market rate for QECBs is around 4.64%. The maximum maturity and applicable credit rate for QECBs are published daily by the Bureau of the Public Debt at <http://www.treasurydirect.gov>.

New Clean Renewable Energy Bond (CREBs) <http://www.energy.gov/savings/clean-renewable-energy-bonds-crebs>

New CREBs can be used for qualified projects: wind, solar, geothermal, biomass, landfill gas, trash combustion, hydroelectric, and functionally related and subordinate facilities. Qualified borrowers include governmental and tribal bodies, mutual and cooperative electric companies, and public power providers. The increased allocation for the New CREBs under the 2009 American Recovery and Reinvestment Act (ARRA) is \$2.4 billion, and does not have an expiration date under the law. One-third of this allocation is for governmental bodies.

It is important to note that QECBs and New CREBs can be structured with repayment by the state being subject to annual appropriations of funds. If structured this way, QECBs

and New CREBs are not deemed to be “bonds” or “debt” from a constitutional standpoint and, therefore, do not require legislative or voter approval.

3.1.6 Power Purchase Agreements (PPA)

In a power purchase agreement (PPA), a third party investor owns and operates the equipment (usually for large renewable energy projects and cogeneration projects). PPAs require an agency to take the electricity output from the third party-owned equipment as its first priority for power needs as part of a long-term agreement to supply energy at a specified price. A PPA requires no up-front capital investment by the customer, and the ESCO handles the equipment installation and O&M on behalf of the customer. The cost of power is based on a long-term rate with a pre-determined annual escalator. Additional information can be found in the National Renewable Energy Lab’s (NREL) publication: <http://www.nrel.gov/docs/fy10osti/46668.pdf>

3.2 Recommended Financing Approach

A tax-exempt lease purchase (TELP) agreement facilitated by the ESCO is the most widely available method used by public agencies to finance EPC projects. A list of evaluation criteria for project financing can be found in Appendix P. The quick access to tax-exempt lease financing makes this method, especially when combined with available utility rebates, an attractive way for public agencies to finance energy projects. A Sample Equipment Lease Financing Agreement is located in Appendix L.

3.3 Financing Regulations for State Agencies

As mentioned in the introduction to this Guide, the use and financing of energy performance contracts by State of Hawaii agencies must conform to Hawaii Revised Statutes Sections 36-41 and 196-21. Section 196-21 states that agencies shall maximize their use of alternative financing contracting mechanisms, including energy performance contracts. Both Sections 36-41 and 196-21 also state:

Agencies that perform energy efficiency and renewable energy system retrofitting may continue to receive the budget appropriations for energy expenditures at an amount that will not fall below the pre-retrofitting energy budget, but will rise in proportion to any increase in the agency's overall budget for the duration of the performance contract or payment term.

These statutes allow the agency to retain their original budget for utility costs even though future utility bills will be reduced as a result of the installed energy and water conservation measures. The difference between the original utility consumption and reduced future consumption creates the avoided utility costs that pay the cost of the EPC. For example, if utility rates were to rise by 20%, the cost of the original utility consumption level would also rise by 20%. The value of the future avoided utility cost would be the change in consumption level times the higher utility rate. The ability of the agency to retain its full utility budget is essential to a performance contract.

4. THE ENERGY PERFORMANCE CONTRACTING PROCESS

The steps necessary to initiate and complete the process of awarding an EPC are summarized in Table 4-1. As shown, the process begins with the identification of a potential energy efficiency project or projects, proceeds through the designation of an EPC project team and project manager and concludes with the selection of an ESCO and award of the performance contract. Each of these steps is described in further detail in the following paragraphs.

**Table 4-1
Steps in the Energy Performance Contracting Process**

<u>STEP</u>	<u>ACTION</u>	<u>DURATION</u>
1	IDENTIFY POTENTIAL ENERGY EFFICIENCY PROJECT(S)	1-2 MONTHS
2	DEFINE AND DEVELOP THE PROJECT <ul style="list-style-type: none"> ▪ IDENTIFY EPC PROJECT TEAM AND PROJECT MANAGER ▪ PREPARE PROJECT TECHNICAL FACILITY PROFILE FOR INCLUSION IN THE REQUEST FOR PROPOSSALS (RFP) 	1 MONTH
3	SELECT A CONTRACTOR (ESCO) <ul style="list-style-type: none"> ▪ DRAFT AND ISSUE AN REQUEST FOR PROPOSAL (RFP) ▪ CONDUCT PRE-PROPOSAL MEETING AND SITE VISIT ▪ EVALUATE PROPOSALS AND SELECT AN ESCO ▪ NEGOTIATE AND AWARD THE INVESTMENT GRADE AUDIT AGREEMENT 	3-4 MONTHS (or longer depending on project complexity)
4	INITIATE PROJECT <ul style="list-style-type: none"> ▪ ESCO CONDUCTS INVESTMENT GRADE ENERGY AUDIT ▪ AGENCY REVIEWS AND ACCEPTS INVESTMENT GRADE ENERGY AUDIT REPORT 	3-6 MONTHS (or longer depending on project complexity)
5	FINALIZE GUARANTEED ENERGY SAVINGS (GES) CONTRACT <ul style="list-style-type: none"> ▪ NEGOTIATE FINAL PROJECT SCOPE AND ARRANGE FINANCING 	2 MONTHS

4.1 Step One – Identify Potential Energy Efficiency Project(s)

There are a number of technical and project management considerations to evaluate when selecting a suitable project for an energy performance contract. In general, the facility should have high annual energy use, coupled with sufficient energy saving opportunities to generate the cash flow needed to amortize all project costs over the contract term and attract ESCOs interest. Some ESCOs are willing to implement projects for smaller facilities, but generally make those decisions on a case-by-case basis.

Good candidate projects for EPC will possess most of the following characteristics:

- Minimal availability of funds for energy related capital improvements
- Annual utility costs greater than \$500,000
- Aging buildings and equipment
- Recurring maintenance problems or high maintenance costs
- Comfort complaints
- Limited in-house energy management expertise
- Too many demands on maintenance staff
- No recent upgrades of lighting, air conditioning, or controls systems
- Energy-using equipment that is ready for replacement
- Large amounts of deferred maintenance

Often, it makes economic sense to combine several facilities into a single project.

Multiple building projects with excessive energy costs are usually very attractive to ESCOs and allow the agency to finance and obtain a greater number of energy improvements through a single procurement. Within individual facilities, quick payback measures (e.g., lighting) can be bundled with longer payback measures (e.g., boilers) to create an economically viable project. For additional project site selection criteria, see Appendix B.

In addition to the technical considerations for project site selection, it is important for the agency's management staff to support the project to ensure the success of the EPC project from development through the contracting process and overall project implementation. Management buy-in will be vital to guiding the project through the various review and approval processes and key to keeping the project on track.

Figure 4-1 contains some of the prerequisites for agency management to assess before undertaking an EPC project.

Figure 4-1

Management Assessment for a Successful EPC Project

Administrative Considerations

- Recognizes the need for energy efficiency improvements
- Has identified a target list of potential improvements
- Committed to comprehensive building efficiency solutions
- Willing to partner and share data with an ESCO
- Open to new energy efficiency solutions (e.g., water, renewables)
- Values the improved knowledge about how their buildings operate
- Values continued commissioning to optimize and verify system performance
- Recognizes the value of buying best quality equipment
- Committed to using life-cycle costing for evaluating building solutions
- Views maintenance investments as insurance that provides reliable building operation
- Interested in comparing the selected facility against energy performance benchmarks
- Recognizes that it may be advantageous to hire a contractor to assist with review of measurement and verification reports from ESCO

Financial Considerations

- Top financial decision makers understand the value of EPC
- Understands the economic cost of delaying EPC projects
- Understands the impact of poor indoor environmental quality on employee health and productivity
- Willingness to account for all costs and savings in various budget categories (e.g., energy, maintenance, health and productivity, environmental emissions, utility system cost savings)
- Values guaranteed savings performance
- Understands the trade-off between capital and operating budgets
- Willingness to incorporate capital dollars into an EPC project
- Motivated to reduce energy consumption

4.2 Step Two – Define and Develop the Project

4.2.1 Identify EPC Project Team and Project Manager

It is essential that agency leadership provide explicit and practical support to the Project Team and Project Manager. Agency leadership and the Project Manager must also:

- Commit to supporting the team with training and information on performance contracting;
- Focus on supporting and assembling an EPC project team with a broad range of expertise including facilities planning, procurement, budget and finance, maintenance, and legal; and
- Commit to the development and management of an EPC that will benefit the agency.

An EPC Project Manager should be identified who can assemble a project team comprised of individuals possessing a variety of expertise including:

- Technical expertise to assist with site selection, RFP evaluation process, review of the final energy audit report, development of the final scope of work and any other technical issues
- Knowledge of procurement and contracting procedures to ensure that the process follows applicable rules during the RFP and contracting phases
- Experience working with budget, finance and legal staff for final project approvals.

In addition, because a third-party financing agreement will likely be required to fund the EPC, in the case of state agencies, the State Department of Budget and Finance and the Attorney General’s office should be notified about the project early in the process.

It is important that the EPC Project Manager be from the implementing agency and someone who is willing, able and authorized to oversee the project and act as an internal champion and project advocate. In agencies where the preferred in-house expertise might not be available, upon request, the Department of Accounting and General Services (DAGS) may be able to provide technical assistance with the EPC project. It may be possible to include the hiring of an outside consultant to provide technical assistance as a requirement in the EPC project scope contained in the RFP. Even with technical assistance from DAGS or an outside consultant, the full participation and involvement of agency staff is very important and will significantly enhance the prospects for a successful project.

4.2.2 Prepare Project Technical Facility Profile for Inclusion in the RFP

Rather than pre-determining a detailed scope of work specifying which energy and water projects the ESCO should undertake, the EPC model uses the ESCO's technical expertise to help identify and assess the energy and water saving opportunities that may be feasible.

The Technical Facility Profile contains a general technical overview of the selected project site and will need to be completed by the agency and accompany the RFP when it is issued. ESCOs will need enough technical details about the facility to adequately assess the opportunity to develop and implement a successful project. Generally, such information includes the facility's size, energy use, equipment, hours of operation, occupancy, maintenance problems and any planned equipment replacement or building renovation. At a minimum, a brief description of the premises and all major energy-using equipment should be provided. Several years of past utility consumption data, preferably by fuel unit and cost, also should be included. Instructions for preparing the Technical Facility Profile are located in Appendix D.

4.3 Step Three – Select a Contractor (ESCO)

The State Procurement Office (SPO) has worked with DAGS to establish a qualified list of ESCOs to provide EPC services in Hawaii. The pre-approved individual ESCO proposals included maximum audit costs, mark-ups and fees. See Appendix C for the SPO Vendor List for Energy Savings Performance Contracting Services or see SPO’s Vendor List at https://spo.hawaii.gov/wp-content/uploads/2016/11/PL_VL-12-11.pdf.

Participating jurisdictions may select qualified ESCOs from the Vendor List for the purpose of seeking proposals for their projects, but are not mandated to solicit proposals from the listed Energy Service Companies. Waivers from the use of the Vendor List will not be required. Nevertheless, state agency participants who purchase EPC services from other sources will have to comply with Hawaii Revised Statutes, Chapter 103D, and these procurement rules will apply unless the agency is exempt from HRS Chapter 103D.

DAGS has developed a standardized Request for Proposals (RFP) that meets the provisions of Hawaii Revised Statutes, Section 36-41, which requires that energy performance contracts be awarded through a public Request for Proposals (RFP) process.

4.3.1 Draft and Issue the Request for Proposals (RFP)

The standard RFP developed by DAGS is located in Appendix F and defines the purpose and goals of the project, scope of the project, project schedule, the procurement process, evaluation criteria, special contractual terms and conditions, and specific corporate and technical information to be submitted by the ESCO in writing. The primary purpose of the RFP is to give form and substance to the project and to establish the ground rules for the ESCO selection and contracting process. Development of objective evaluation criteria is critical for ensuring that the most qualified ESCO is selected. This process is designed to identify the most qualified ESCO to implement the

EPC project, based on a comparison of the ESCOs relative abilities, experience and expertise. Since the selected ESCO may be a partner for as long as 20 years, it is also important to select an ESCO that the agency is comfortable working with and that shares the agency's goals. The RFP process is a good way to compare ESCOs technical approaches to the project, and evaluate their capabilities and commitment.

The RFP should clearly state the purpose, goals, selection process, proposal requirements, and a description of the proposal attachments for the project, such as the following:

PURPOSE: The (Agency) is issuing this Request for Proposals for the purpose of awarding a contract to an energy savings company (ESCO) that can provide energy performance contracting services for (agency). Based upon the project scope, financing, and technical considerations, it is possible this project will be implemented in phases. (Agency) reserves the right to amend its contract with the ESCO for the purpose of implementing future phases.

GOALS: (Agency's) overall goals include:

- To increase energy efficiency and building performance with the goal of reducing energy usage and demand;
- To improve management and efficiency of utility usage through monitoring and submetering;
- Reduce facilities life cycle costs including maintenance, equipment replacement, energy and water utilities, waste disposal, emergency power outages, environmental compliance costs, etc.;
- To improve indoor environmental quality for occupants; and
- To address deferred repair and maintenance projects.
- To maximize the reduction of environmental emissions

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- Maximize revenue from utility rebates or other incentives
 - Improve operational control of the facilities including functional interoperable controls
 - Comprehensive education and communication program to maximize project performance and public awareness of project benefits

(The Agency) is interested in contracting one (1) ESCO for a full range of energy services and energy-related capital improvements (energy conservation measures or ECMs), financed through an EPC project with (agency) at the Project Sites. The ECMs and services may include, but are not limited to, an investment grade audit; the design, acquisition, installation, modification, commissioning, maintenance and operation of existing and new equipment; and the training of agency's personnel. These improvements are intended to reduce energy consumption and related costs associated with the ventilation and air conditioning systems; lighting systems; building envelope; the hot water systems; water consumption; sewage costs; and other energy using devices. The ECMs and services will also look for savings which may not reduce consumption but are aimed at cost savings; demand reductions; on-site generation; electrical submetering; and automated utility bill auditing, utility rate changes and distribution system upgrades. ECMs must result in a guaranteed minimum energy savings with the ESCO payments linked to actual documented energy and cost reductions. Any stipulated energy and/or operational cost savings that may be attributed to this project will be rigorously reviewed and, if agreed to, will be limited to those that can be thoroughly documented and verified by the ESCO and approved by the agency. Reductions in operations and maintenance costs will require the definition and quantification of baseline costs from documented operations and maintenance cost records.

The savings achieved by the ECMs must be sufficient to cover all project costs including service maintenance costs, commissioning, savings performance monitoring, and

consultant reviews fees on an annual basis for the duration of the contract term. The contract must provide that the savings in any year are guaranteed to the extent necessary to make payments under the contract during that year. ESCOs will be required to guarantee energy and cost savings on an annual basis. No credit for the achievement of savings above and beyond the annual guarantee will be credited to satisfy performance guarantees in future years of the contract. Annual reconciliation of the achieved savings will be required.

SELECTION OF ESCO TO DEVELOP THE PROJECT: (Agency) will select the best qualified ESCO to negotiate an Investment Grade Audit (IGA) for the Project Site that will result in a set of ECMs. The IGA will include:

1. An executive summary
2. Measures evaluated but not recommended
3. Proposed project or measure specific baselines
4. ECM descriptions
 - a. Existing conditions
 - b. Existing deficiencies
 - c. Narrative description of proposed improvements
 - d. Scope of work
 - e. Equipment manufacturer or type
 - f. Energy and demand savings calculations
 - g. Commissioning procedure
 - h. Environmental impacts
 - i. Training required
 - j. Operation and maintenance cost savings calculations, if any
5. IGA shall also include the following schedules
 - a. Equipment to be installed by ESCO
 - b. Description of premises: pre-existing equipment inventory
 - c. Energy saving guarantee

-
- d. Compensation to ESCO
 - e. Baseline utility consumption and utility rates (e.g., electricity, demand, and water)
 - f. Savings measurement & calculation formulae: methodology to adjust baseline
 - g. Construction and installation schedule
 - h. Systems start-up and commissioning
 - i. Standards of comfort
 - j. ESCO's maintenance responsibilities
 - k. Agency's maintenance responsibilities
 - l. Facility maintenance checklist
 - m. ESCO's training responsibilities
 - n. Financing schedule
 - o. Proposed final project cost & proposed final project cash flow analysis with owner options for early buy out of EPC
 - p. Estimated pre- and post-retrofit Energy Star ratings for facilities
 - q. Proof of performance and payment bonding capability
 - r. Equipment warranties

PROPOSALS. The proposal is considered an intent to perform. The Technical Energy Assessment ("TEA") with potential Energy Conservation Measure ("ECM") improvements in the proposal, which provides the preliminary construction budget with estimated energy savings and guaranteed energy savings ("GES"), provides a baseline. Any subsequent ESCO GES proposal needs to stay within 20% of the baseline costs and savings with the exception or unforeseen conditions as negotiated with the (Agency).

PROPOSAL ATTACHMENTS

a. Cover Letter

The ESCO will provide a one-or two-page letter indicating its desire to be considered for the project. The ESCO shall identify a single point of contact for the ESCO and the address, business telephone, and email address to which questions should be directed. An authorized representative(s) of the ESCO's organization shall sign the letter and the proposal. Each proposal shall be signed in ink by a person authorized to act for the ESCO submitting the Proposal. Evidence of the signer's authority to act on behalf of the ESCO shall be submitted with the Qualifications Proposal.

b. Attachment A: ESCO Profile Form.

Provide a complete response to the information requested in Attachment A to this RFP.

c. Attachment A-1: Technical Energy Assessment ("TEA").

Provide complete responses to the information requested in Attachment A-1 to this RFP.

d. Attachment A-2: Sample Documents.

e. Provide sample documents for the items listed below.

- i. Sample Annual Customer Savings Report for an Actual Similar Project
- ii. Actual Commissioning Report for a Central Chiller Plant which includes the results of comprehensive functional performance tests
- iii. Sample Measurement and Verification Plan and Report
- iv. Sample IGA for a Similar Project

The RFP should clearly state that guaranteed energy savings must pay for all project costs and ongoing services (e.g., maintenance and savings measurement and verification etc.) for the duration of the contract. This requirement establishes the financial performance parameters of the installed project.

The RFP addresses the essential components common to an EPC and contains the following information:

- A completed Technical Facility Profile that identifies the facilities to be considered, their current energy use, size and any unique conditions
- The scope of services requested, including the energy audit, engineering design services, equipment installation and construction management, equipment commissioning, energy savings measurement and verification, assistance with project financing, equipment maintenance and operation, and training services
- Contractual terms and conditions that will apply to the project
- A description of the required proposal format and content
- A list of sample documents:
 - Customer Annual Savings Report for an actual similar project
 - Project Commissioning Plan and Actual Commissioning Report for A Central Chiller Plant, which includes the results of functional performance tests
 - Measurement and Verification Plan and Report
 - IGA with costs for a similar project
- Instructions for proposal submission, and a timetable for proposal review and ESCO selection
- The evaluation criteria that will be used as the basis for selection, including the relative importance of price and other evaluation factors

The RFP should be sent to at least three (3) ESCOs to ensure adequate competition among technically qualified firms. Agencies may invite all of the pre-qualified ESCOs to submit proposals or they may solicit additional information from the pre-qualified

ESCOs as the basis for selecting a subset of pre-qualified ESCOs to receive the agency's RFP.

Based on the project scope, financing, and technical considerations, agencies may want to implement their projects in phases rather than issuing a new RFP for each phase.

Therefore, if agencies decide to implement their projects in phases or decide to reserve the option to implement their projects in phases, then the RFP must state that the project may be implemented in phases and the agency reserves the right to amend its contract with the ESCO without conducting a new procurement process. Figure 4-2 summarizes key information requested in the RFP.

Figure 4-2
Key RFP Information Requested

- Experience with implementing performance contracting arrangements
- Understanding of and experience with energy measures likely to be installed
- Financial stability and experience with project financing
- Background and EPC experience of all project personnel assigned to the project
- Performance record of past EPC projects managed by the ESCO's personnel who will be assigned to the project
- Calculation methods used to compute base-year utility use and project savings
- Savings measurement and verification and project monitoring methods
- Proposed approach to ongoing maintenance and other services
- Proposed structure for the savings guarantee and ESCO fee payments
- Technical energy audit cost
- Training services for the facility staff
- Sample investment-grade technical energy audit, project commissioning plan and report, maintenance plan, measurement and verification report, and customer savings report
- Statement that it is possible this project may be implemented in phases and the agency reserves the right to amend its contract with the ESCO for the purpose of implementing future phases

4.3.2 Conduct Pre-Proposal Meeting and Site Visit

Following release of the RFP but before submission of proposals, it is recommended that a pre-proposal meeting and a site visit be scheduled for all selected ESCOs. The purpose of the meeting and site visit is to answer any questions regarding the RFP and for potential proposers to become acquainted with the proposed project facilities, interview facility and agency staff, and clarify technical matters.

The site visit will provide the information necessary to prepare an accurate and credible estimate of the cost to conduct the IGA that each ESCO must include in their proposals. The ESCOs' ability to provide a relevant sample audit, commissioning plan, M&V plan, and O&M plan will depend on observations made during the site visit. For very large and complex projects, ESCOs may request, and should be afforded, the opportunity to make additional visits to the proposed facilities.

4.3.3 Evaluate Proposals and Select an ESCO

Based on the evaluation criteria in the RFP, proposing ESCOs qualifications are evaluated based on their project team, areas of technical expertise, past project experience, and preliminary project costs. ESCOs are also required to submit a preliminary cash flow analysis that illustrates how the project will financially perform over the term of contract. The Hawaii Administrative Rules provide that the agency's procurement officer, or an evaluation committee selected by the procurement officer, evaluate and rank the proposals. It is recommended that members of the agency's EPC project team also serve on the proposal evaluation committee.

The composition of an evaluation committee can involve any number of agency personnel, including, but not limited to:

- Facility/Operating Engineers
- Maintenance Staff
- Procurement Officer

-
- Energy Manager/Designated Project Manager
 - Administrative/Financial Manager
 - DAGS Technical Advisors/Consultants

However the committee is assembled, it is important to include individuals involved with daily facility operations during the entire procurement and evaluation process. Using a committee allows the evaluation team to benefit not only from the various expertise within the agency and the on-site knowledge of facility staff, but also from the EPC experience of personnel from other State and local agencies (such as DAGS and DBEDT). It is strongly recommended that the evaluation committee receive training on the evaluation process. Agencies may contact DAGS for additional evaluation information and training assistance.

It is recommended that the evaluation committee members review all written submissions before they begin their rankings. This initial review familiarizes them with each proposal's content, how the information is presented and organized, and further gives the evaluators a sense of the variations in qualifications between competing ESCOs.

It is important to note that this is a comparative evaluation methodology. Team members will be ranking the competing ESCOs in comparison to each other, not to an abstract standard. A simple way to conduct these evaluations is with a side-by-side comparison of the written submissions on each specific evaluation criterion. A numerical scoring system is used to rank the proposals as they compare to each other for each criterion.

The Hawaii Administrative Rules for competitive sealed proposals allow oral interviews to be conducted with the competing offerors and discussion of potential clarifying changes in their proposals. It is important to select an ESCO that agency and facility

staff can relate to over an extended period of time. Oral interviews with the ESCOs project teams are strongly recommended. The use of a numerical ranking system to evaluate the ESCOs should also be used to evaluate and rank the oral interviews.

It is useful for two sets of questions to be prepared in advance of the interviews. One set of questions should be asked of **all** ESCOs on a variety of topics. The second set of questions should be based on the specific information contained in each ESCO's proposal. It is recommended that one evaluation committee member be designated as the question facilitator. However, the format should be open enough so that all members of the evaluation committee have the opportunity to ask questions as they arise.

It is suggested that each ESCO be preliminarily ranked immediately following their oral interview. At the conclusion of all oral interviews, evaluators may re-rank the companies based on having heard all of the interviews and discuss their impressions with other team members.

By tabulating the numerical ranking data collected from the written proposal review and oral interview phases, a final ranking for each ESCO can be determined. The highest-ranked ESCO should be notified of its selection, and invited to enter into negotiations for the investment grade energy audit agreement and Guaranteed Energy Savings (GES) Contract.

4.3.4 Negotiate and Award the Investment Grade Audit Agreement

After the agency has approved the selection of an ESCO, negotiation of the investment grade energy audit agreement begins. The standardized IGA Agreement developed by DAGS is located in Appendix G. Once signed by both parties, this agreement authorizes the ESCO to conduct the audit of the project facilities. The IGA phase is crucial because it is the point at which you have the most leverage and can, therefore, obtain the best

possible project for your facilities. The ESCO will pay careful attention to your input at this time. Once the IGA is completed, it will be more difficult for the ESCO to make significant changes to the project scope. Under an EPC project, the negotiated cost of the audit will be rolled into the project financing and repaid from the project savings. If the agency decides not to proceed with the project after the audit is completed, the agency is obligated to pay the ESCO for the audit.

An IGA is the technical and economic foundation of a successful EPC project. The IGA needs to provide sufficient technical detail so that a technically competent reviewer can effectively assess the ESCO's proposed project. The results of the IGA must also establish and define appropriate consumption baselines for all utilities (e.g., gas, water, electric, etc.) to allow a realistic analysis of potential energy and cost savings. It also provides a description of the analysis methods, data logger measurements, savings calculations, and economic assumptions used to calculate savings. Lastly, the IGA should include the installed cost, annual cost savings, annual maintenance cost impacts, simple payback, expected measure life, environmental impacts for each proposed energy and water saving measure, and a full analysis and definition of baseline consumption for each utility type. See Appendix M for an evaluation checklist for the agency's review of the IGA.

4.4 Step Four – Initiate Project

4.4.1 ESCO Conducts Investment Grade Energy Audit

The ESCO initiates the audit by collecting data and background information concerning facility operation and energy use for the most recent three years. It will be important for the agency to work diligently to furnish the ESCO with any operational data it may request including information not previously provided in the Technical Facility Profile.

The ESCO then interviews appropriate management, engineering, and maintenance personnel regarding equipment usage, operating schedules, recurring maintenance problems, significantly high maintenance costs, comfort complaints, and any energy or water using equipment that is ready for replacement. The ESCO will also complete an on-site engineering survey of facilities and inspect any major energy-using equipment, including lighting, air conditioning systems, electric motors, water usage, automatic temperature control systems, hot water systems, etc. (a more detailed list of potential energy conservation and water measures (ECMs) is located in Appendix E). The resulting data are used to develop a preliminary list of potential ECMs. At this phase, the ESCO will also determine baseline energy and water consumption for the individual systems that would be affected by the potential ECMs. In large facilities, representative equipment sampling permits economies of scale in the audit, which helps to reduce audit costs.

It is important that the ESCO conduct a thorough and comprehensive technical and economic facility analysis since this analysis serves as the basis for the project's design and savings performance.

Since the audit results contain most of the technical information that will be incorporated into the final contract, the agency needs to conduct a rigorous technical review before negotiating the final contract.

The time required to complete an IGA varies by the facility size and complexity, and data quality and availability. Typically, the time to conduct an audit ranges from three to six months but could take longer for a large complex project. It is important to provide adequate time for the ESCO to complete a comprehensive and thorough IGA. Otherwise, there is the risk that important information will not be covered until the construction of the project is underway, which can have significant consequences for project costs and savings.

4.4.2 Agency Reviews and Accepts Investment Grade Energy Audit Report

The ESCO's IGA Report that will be submitted to the agency for review and approval describes the potential for utility savings, the approximate cost of the energy and water saving measures necessary to achieve these savings, and a cash flow projection indicating the overall financial performance of the project. A description of analysis methodologies, supporting calculations, and assumptions used to develop a baseline and estimate savings will be included. A properly documented baseline needs to be included in the report. The agency needs to negotiate with the ESCO as to which savings will be included in the project economic analysis. Including all types of allowable savings (e.g., O&M savings, reduced environmental emissions, improved maintenance productivity, utility rebates, demand response credit, increased reliability, increased power quality, etc.) can significantly expand the project scope. Refer back to the discussion in section 2.3 on the business case for a further discussion of non-energy benefits.

The agency should also meet with the ESCO during the IGA process to discuss the proposed energy and water conservation measures and projected project costs and savings. The agency should provide a description of the plan for the proposed long-term use of the project facilities over the contract term. It should also identify any known capital projects that are likely to impact the proposed project scope. The goal is to structure a project that meets agency needs and is technically and economically feasible. In addition to specific technical measures and supporting technical and financial documentation the IGA report will include:

- **Commissioning Plan** - establishes a systematic process of ensuring that the proposed array of energy conservation measures will be installed and tested to perform according to the design intent and the facility's operational needs. The plan also should address a continuous commissioning process to assure the performance of the ECMs over the

life of the project. The initial commissioning report should certify that all newly installed equipment is operating and performing in accordance with the design parameters contained in the commissioning plan. Prior to conducting commissioning, agencies and ESCOs should develop and agree on the commissioning approach and format for commissioning reports so that what is developed will be followed during the commissioning process. The agency may want to require that agency personnel or designated third-party agency representatives be present during commissioning inspections and tests. The RFP could require that the ESCOs submit a commissioning plan and a commissioning report of a similar type project.

- **Measurement and Verification (M&V) Plan** – explains how the guaranteed savings from each of the proposed ECMs will be measured and verified. Agency staff should receive basic training on how to understand and interpret the results of M&V reports. Section 6 discusses the M&V process in further detail.
- **Operations and Maintenance (O&M) Plan** – describes the activities the ESCO and the agency will perform related to preventative, predictive, and conditioned-based maintenance to prevent equipment failure or decline, with the goal of increasing efficiency, reliability, and safety. O&M responsibilities of the ESCO and agency personnel should be clearly defined in the plan, as well as any training the ESCO will provide. See Section 7 for a fuller discussion of the O&M Plan and Services.

4.5 Step Five – Finalize the Guaranteed Energy Savings (GES) Contract

4.5.1 Negotiate Final Project Scope and Arrange Financing

The final GES contract serves as the blueprint for how the project will operate over the contract term. The GES should clearly define each party's roles and responsibilities and

should explicitly state how the project is expected and guaranteed to perform. The relationship between the agency and the ESCO - including who will do what, when, at what cost, and under what conditions - needs careful review. Due to the long-term nature of this relationship, the contract should be specific yet flexible enough to accommodate both current and future facility needs.

The main body of the contract frames the basic legal provisions and allocates specific responsibilities to each party. It specifies governing laws, conditions of default and remedies, regulatory requirements (e.g., insurance, labor and wage rates, code compliance, etc.), and indemnification provisions. The contract can be customized to accommodate additional terms and conditions as necessary.

The standard GES contract developed by DAGS for state agencies is located in Appendix H. This GES contract addresses the usual legal provisions and protections covered in an EPC project and can be customized to reflect the policies and requirements of other agencies in Hawaii.

Since individual projects and circumstances vary, agencies should consult appropriate legal counsel about individual ESCO projects and work closely with them to incorporate any special contract terms and conditions into the DAGS GES contract.

Hawaii Revised Statutes Sections 36-41 and 196-21 require that the following conditions be included in any performance contract entered into by a State agency:

- The term of any energy-savings contract entered into pursuant to this section shall not exceed 20 years;
- Any contract entered into shall contain the following annual allocation dependency clause: *The continuation of this contract is contingent upon the appropriation of funds to fulfill the*

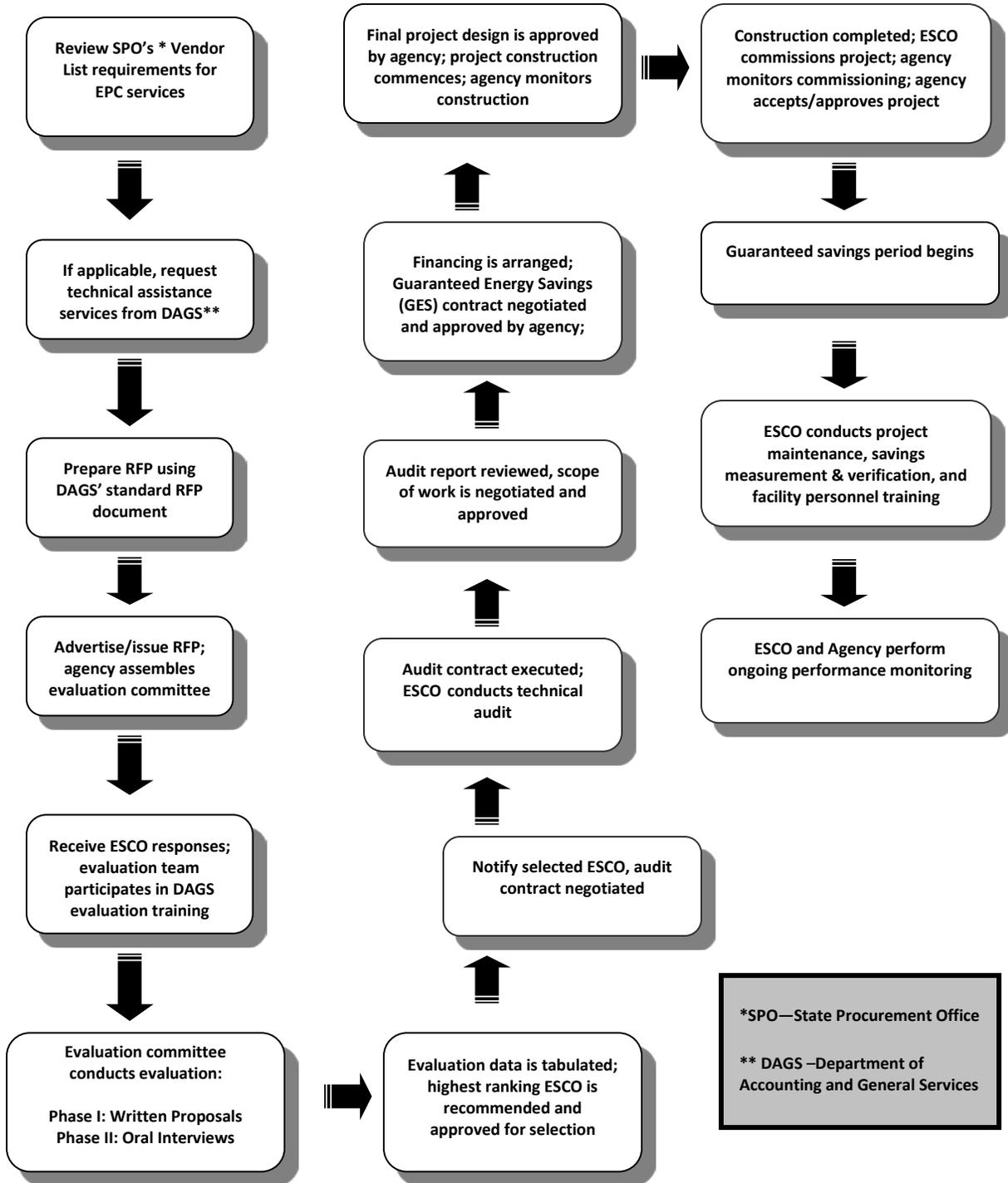
requirements of the contract by the applicable funding authority. If that authority fails to appropriate sufficient funds to provide for the continuation of the contract, the contract shall terminate on the last day of the fiscal year for which allocations were made.

- Any energy-savings contract may provide that the agency ultimately shall receive title to the energy system being financed under the contract; and
- Any energy-savings contract shall provide that total payments shall not exceed total savings.

The State of Hawaii Equipment-Lease Rider contains additional terms and conditions that must be applied to any lease agreement entered into by state agencies and is located in Appendix K.

Figure 4-3 on the following page outlines the procedural steps for developing and implementing the EPC process.

**Figure 4-3
Energy Performance Contracting Process Flowchart**



*SPO—State Procurement Office
** DAGS –Department of Accounting and General Services

5. MANAGING AND MONITORING THE ENERGY PERFORMANCE CONTRACT

It is necessary to properly plan for the various project phases before the start of construction. Managing the EPC project involves several specific stages, including:

- **The Design Phase** – consists of the final design details and installation planning for the agreed-upon energy conservation measures (ECMs).

Considerations should include:

- Paying careful attention to sizing equipment correctly
 - Evaluating interactions between equipment to maximize system performance and efficiency
 - Clearly defining the scope of work in sufficient detail
 - Basing designs on accurate existing conditions data
 - Designing projects to minimize life cycle costs
 - Simplifying equipment and materials inventory requirements by standardizing design choices
 - Reviewing long-term operations and maintenance implications
 - Developing a schedule of review meetings with complete written meeting minutes
-
- **The Construction Phase** – Completion of the installed ECMs should include:
 - Focusing on the review and approval process
 - Coordinating early with other construction projects to avoid confusion and delays
 - Keeping complete written records
 - Monitoring construction progress regularly
 - Spot-checking installations to identify quality control issues

-
- **The Commissioning Phase** – to assure installed ECMs are operating as designed and maintaining the guaranteed savings. When evaluating the commissioning process, consider the following questions:
 - Is the commissioning plan appropriate and does it meet the project needs?
 - Are the commissioning personnel qualified?
 - Is the test equipment calibrated?
 - Are the data accurate?
 - Is there an agreed-upon commissioning approach and commissioning report format for agency and ESCO personnel to follow and verify optimization of installed ECMs?
 - Are the technicians doing what they say they are doing?
 - Who is the agency representative or third-party agency representative to observe the commissioning inspections and tests?
 - If the ESCO is doing its own commissioning, who's monitoring the commissioning process?

 - **Performance Monitoring** – monitoring of maintenance activities, standards of service and comfort and utility savings over the life of the performance contract. Some key questions for performance monitoring include:
 - What data will be collected, measured, calculated, simulated, or estimated to monitor performance?
 - What will be the content and format for the data in the performance monitoring reports?
 - How will maintenance tasks be allocated based on cost and capability between the agency and ESCO?
 - Does the responsible party have the required expertise, time, and budget to achieve the desired outcomes?

-
- Who's verifying the guaranteed savings?

 - **Measurement and Verification** --The formal measurement and verification of utility savings is discussed in Section 6 of this guide.

The key to successfully managing the EPC project through these phases is to facilitate timely and effective communication between the ESCO, the agency's EPC project team, and key facility staff. Meetings held at major project milestones establish a pattern of communication and mutually agreed benchmarks that can then be used to monitor and facilitate the progress of the project.

Table 5-1 on the following page, summarizes major milestones and topics that need to be discussed and addressed. In addition to the these meetings, a schedule of regular (weekly) project meetings during the construction phase helps prevent surprises and keeps the ESCO on track.

**Table 5-1
Milestone Meetings in Managing the Various Phases of an EPC**

<u>PHASE</u>	<u>ACTION</u>
<i>DESIGN</i>	PRE-DESIGN MEETING <ul style="list-style-type: none"> ▪ ISSUE NOTICE TO PROCEED WITH DESIGN AND INSTALLATION PLANNING INSTALLATION PLANNING MEETING <ul style="list-style-type: none"> ▪ PRESENT AND DISCUSS INSTALLATION PLANS ▪ PRESENT, NEGOTIATE AND APPROVE COMMISSIONING PLAN ▪ WEEKLY STATUS REPORT MEETINGS
<i>CONSTRUCTION</i>	INITIAL CONSTRUCTION MEETING <ul style="list-style-type: none"> ▪ REVIEW PAYMENT AND PERFORMANCE BONDS ▪ REVIEW AND APPROVE CONSTRUCTION PLAN AND SCHEDULE ▪ PROVIDE A LIST OF CONTACTS AND REVIEW SITE ACCESS AND ADMINISTRATIVE PROCEDURES ▪ ISSUE NOTICE TO PROCEED WITH CONSTRUCTION WEEKLY PROGRESS MEETINGS <ul style="list-style-type: none"> ▪ PROVIDE CONSTRUCTION PROGRESS REPORTS

	<ul style="list-style-type: none"> ▪ REVIEW AND RESOLVE ANY CONSTRUCTION ISSUES
COMMISSIONING	<p>ISSUE NOTICE OF CONSTRUCTION COMPLETION (CERTIFICATE OF SUBSTANTIAL COMPLETION)</p> <p>REVIEW AND APPROVE:</p> <ul style="list-style-type: none"> ▪ PLAN FOR ACCEPTANCE TESTING OF WORK ▪ PLAN FOR FACILITY PERSONNEL TRAINING ▪ PLAN FOR INSTALLATION DOCUMENTATION ▪ SCHEDULE FOR YEAR-ONE PREVENTIVE MAINTENANCE ▪ SCHEDULE FOR YEAR-ONE MEASUREMENT ACTIVITIES
PERFORMANCE MONITORING	<p>ANNUAL PROJECT REVIEW MEETING</p> <ul style="list-style-type: none"> ▪ REVIEW OF ANNUAL RECONCILIATION REPORT AND STANDARDS OF SERVICE ▪ REVIEW SCHEDULE FOR NEXT YEAR'S MEASUREMENT ACTIVITIES ▪ REVIEW SCHEDULE FOR PREVENTIVE MAINTENANCE AND TRAINING ▪ DISCUSS AND RESOLVE OTHER OUTSTANDING ISSUES

Although management of the design and construction phases of the EPC seems essentially the same as the management of a large design-build retrofit project, performance contracts are more complex. Guaranteed Energy Savings contracts incorporate a number of technical schedules that specify various requirements of performance over different time periods. The energy savings guarantee, commissioning, staff training, equipment maintenance, monitoring standards of service and comfort, and measuring and verifying savings are also important contract schedules. Unlike construction management efforts that are completed once the installation has been accepted, these other activities require ongoing attention for the duration of the GES contract (up to twenty years) in order to receive full value from the project. Oversight of M&V, commissioning, and the effective maintenance of the installed equipment are all essential to maximizing project performance.

The annual project review meetings, and inspections recommended during the performance monitoring phase, are not a substitute for the regular tracking of maintenance activities or maintaining the specified equipment operating parameters

and schedules. Rather, they supplement these ongoing activities and provide an opportunity for a comprehensive review of the performance of the project on a facility-wide basis. They also serve as an annual opportunity for facility staff and the ESCO to discuss strategies for optimizing project results.

6. MEASURING AND VERIFYING ENERGY SAVINGS & PROJECT COMMISSIONING

An EPC project should include monitoring of equipment, savings measurement and verification (M&V), and project commissioning in order to ensure persistent energy savings and reliable equipment performance.

In large buildings, computerized equipment monitoring provides better control of energy consumption. Regular equipment monitoring maximizes the persistence of cost savings over the contract term by improving access to and understanding of data on equipment performance, which allows for agency staff to optimize system performance. Periodic savings reports provide valuable data for cost accounting and budget forecasting. Verification of the value of achieved savings provides project performance accountability for the savings guarantee.

6.1 *Measurement and Verification*

The foundation of an EPC is the assumption that the installed ECMs will result in reduced energy use, allowing the avoided cost savings to be used to pay for project financing and ESCO services for the duration of the contract. Measurement and verification (M&V) is the formal process of determining and documenting that the installed ECMs are producing the guaranteed savings.

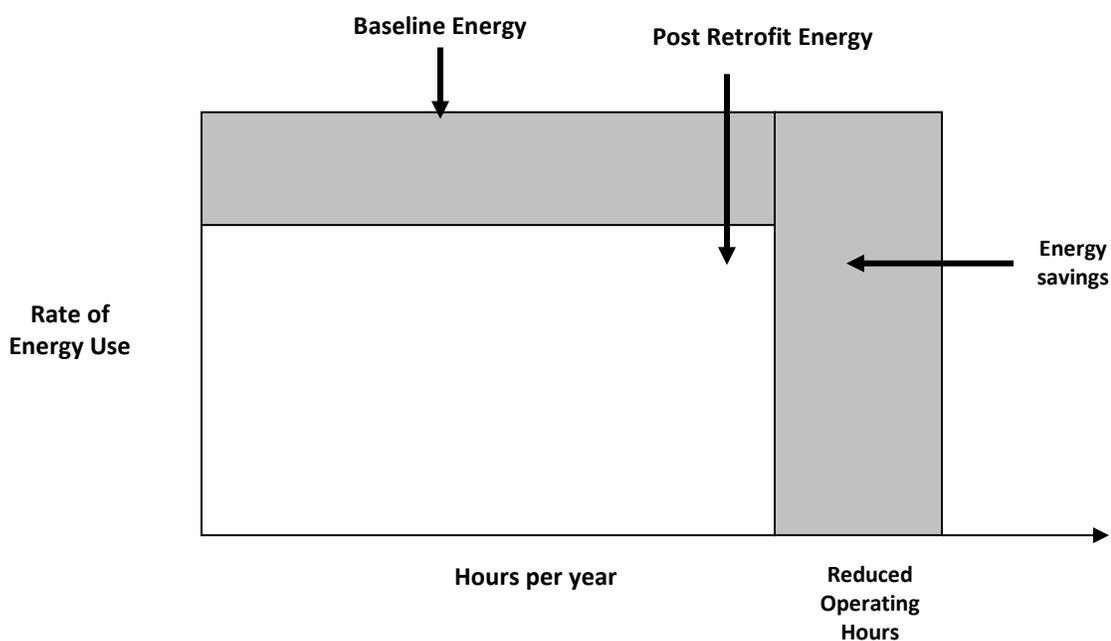
When properly applied, M&V can:

- Accurately estimate energy savings for a project
- Allocate project performance risks to the appropriate parties
- Estimate emissions reductions from energy savings
- Quantify improvements in indoor environmental quality
- Give the ESCO a feedback mechanism on the quality of their engineering
- Maximize persistence of utility cost savings
- Reduce operations and maintenance costs (e.g., automatic dial-up alarms)

- Provide benchmarking data for cost reductions in similar buildings

Measurement and verification procedures allow quantification and calculation of the utility savings performance. Savings are determined by comparing baseline utility consumption to post-project utility consumption and accounting for non-project related impacts on utility consumption (e.g., the addition of new plug load equipment like computers). Energy savings are created by reducing the rate of energy use of specific pieces of equipment and their annual operating hours as shown in Figure 6-1 below. These changes are possible because the new high efficiency equipment and controls are able to deliver the same or improved levels of lighting, ventilation air, and thermal services to the building occupants.

Figure 6-1
Energy Savings Depend on Performance and Usage



6.1.1 Measurement and Verification (M&V) Plan

An M&V plan is an integral part of an energy performance contract. This plan is a set of agreed-upon metrics and procedures that are used to establish baseline performance as well as to verify actual energy savings. In other words, the M&V plan defines precisely

what "energy savings" means for an energy efficiency project, and specifically how savings will be quantified. The M&V plan also addresses unforeseen events that may occur over the course of the performance contract, such as changes in utility rates; variations in weather; or changes in building use, occupancy, and operating hours. A sample M&V plan is located in Appendix J.

The RFP should request from each ESCO a sample M&V report and a sample commissioning report. Before any M&V and commissioning commence, agreement should be on what each report will cover regarding procedure, content, and format.

A good M&V plan should:

- Agree on report strategy, procedure, format and information to be provided in the report
- Identify and establish utility baselines for the project(s)
- Define the boundaries (individual energy systems or whole building) of the ECMs for savings determination, and rigorously document the methodology for determining the baseline conditions and the resultant baseline energy data
- Identify appropriate M&V options for different ECMs that are acceptable to the agency
- Specify quality control procedures for data collection and timely performance monitoring, as well as the format in which annual M&V reports will be submitted
- Provide cost effective M&V methods to verify project performance

The selection of the appropriate method to calculate the energy baseline and measure energy savings depends partially on what energy efficiency measures are adopted. Because of this, the ESCO should describe the method(s) used to calculate the energy baseline and measure energy savings in its IGA. The agency would then have an

opportunity to review and approve or modify the ESCO's proposed method(s) in their review of the IGA.

One of the most contentious issues with respect to M&V has been the use of stipulated calculations for estimating savings. (According to the International Performance Measurement and Verification Protocol [IPMVP], whenever a parameter is not measured, it should be treated as a stipulated value; see Option A in Table 6-1.) At the heart of the debate is that M&V strategies that emphasize submetering can be very expensive and may not provide enough value to justify the expense. Indeed, there are measures for which stipulations based on reasonable calculations and industry data can substitute for expensive instrumentation, reducing the cost of verifying project performance. Some EPC customers, without fully realizing the risk/benefit profile of specific measures, have agreed to unreasonable stipulations, opting for the lowest cost M&V option while sacrificing the opportunity to more accurately measure savings results. More recently, U.S. DOE has been recommending Option D as the best practice.

To stipulate a parameter is to hold its value constant, regardless of what the actual value is during the contract term. A stipulation in an M&V plan is an agreement between the agency and the ESCO to accept a defined value of a specific factor (e.g., operating hours) in determining the baseline and/or post-installation energy consumption used to calculate the guaranteed savings. If related requirements are met (e.g., satisfactory commissioning results were submitted, annual verification of proper equipment operation is performed and necessary maintenance is being conducted), the guarantee is considered to have been met.

Stipulated values must be based on reliable, traceable and documented sources of information, such as:

- Standard lighting tables from major manufacturers
- Equipment Manufacturer's specifications

-
- Building occupancy schedules
 - Maintenance logs
 - Performance curves published by national organizations
 - Weather data from government agencies
 - Standard performance degradation curves

6.1.2 Process Overview of Measurement and Verification (M&V)

Initial M&V Activity

- Review data from equipment inspections and the investment grade audit
- Identify appropriate methods of M&V for various measures and project sites
- Identify any non-energy savings
- Describe equations used for analysis of data collected
- Describe how baseline conditions were defined (e.g., existing equipment performance levels, space conditions, etc.)

Data Collection

- Describe what data will be measured and the time intervals used for measurement
- Identify the location of facilities from which data was collected
- Describe measurement equipment used, explain how the measurement instruments were calibrated, and the date of the last calibration

Witness Measurements

- Identify who will be present on behalf of the agency to witness measurements by ESCO staff or contractors
- Provide a sign-off sheet showing that all parties have witnessed the measurements taken on a specific date at a specific location

Review Calculations

- Document a savings analysis calculation related to the specific M&V approach used for each savings measure

Identify calculations that clearly identify all the data sources, including assumptions and estimated values

Analysis and Interpretation of Calculation Results

- Provide a narrative discussion that compares measured and calculated savings results to expected target savings performance
- Present calculations completely and clearly
- Explain clearly and completely the estimated values and how they were estimated
- Explain any significant variance from savings targets, including any adjustments to savings calculations due to changes in operating conditions or maintenance failures

Identifying Roles of Participants in the M&V Process

Identify specific ESCO, agency staff and or contractors along with their specific responsibilities in the M&V review process. It is more efficient to have these responsibilities assigned to a small dedicated group of people than to have them broadly distributed over too many different staff.

Chain of Custody for Review and Approval of M&V Reports

- The ESCO should formally submit its M&V report to the agency and specify the process for report review.
- A formal letter from the agency engineering program manager should be sent to the ESCO once the M&V report has been reviewed and approved.

Evaluating Trend Data from Monitoring Equipment Operation and Conditions

- If possible, it is suggested that performance parameters be verified through an energy management control system during the performance period.
- Frequency of monitoring should be adequate to detect any material variance from savings performance targets.
- Accurate monitoring data with acceptable precision should be provided in easy to understand graphic formats.
- Agency staff should be provided with sufficient training to properly evaluate and use the data.
- ESCO staff and subcontractors will provide the training on how to properly analyze and use the data.
- Building operators need timely and focused data to provide feedback on savings performance.
- Data tables can be filtered to track equipment status, day type, temperature bins, etc.

Evaluating Impact of Scope Changes and Performance Deficiencies on Savings

- The quantitative savings impacts of scope and schedule changes needs to be clearly and completely described to avoid confusion when evaluating summary savings performance tables in the annual M&V report.

Evaluating Operations and Maintenance Impacts on Savings Performance – Review questions to evaluate O&M activities by ECM:

- Have operations and maintenance requirements been met?
- Who was responsible for performing which operations and maintenance tasks?
- What major maintenance items were completed?
- What service calls or repair activities were conducted by the ESCO?
- What identified deficiencies need to be addressed by the owner?

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- What are the impacts of those O&M deficiencies on the generation of savings?

Post-Installation M&V Reports

- Detailed list of installed equipment and parameters to be monitored
- Sampling plan, including details of usage groups and sample sizes
- Duration, frequency, interval and other requirements of measurement
- Monitoring equipment to be used
- Calibration requirements and procedures
- Expected accuracy of measurements.
- Quality control procedures to be used
- Form of data to be collected
- Sample data collection forms
- Details of any changes between contract and as-built conditions, including any changes to estimated energy savings
- Documentation of post-installation verification activities and performance measurement conducted
- Performance verification
- Documentation of construction period savings
- Status of rebates and incentives
- Dates when the measures were installed
- Agency approval of post-installation M&V reports

Annual M&V Activities and Reports Summary

- **Changes in operation that increase or decrease annual utility usage** can be tracked by keeping good operator logs of building operating parameters, staying on top of trend logs for major equipment from the DDC system, and reviewing field reports from ESCO-provided inspections to track equipment condition.

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- **Interval data or time estimates** for changes in operating conditions and the equipment system parameters affected by these changes provide some of the data needed to calculate impacts on energy consumption and load profiles.
 - **Energy saving-related improvements that affect annual utility usage** need to be evaluated. If not metered, then spot measurements can be taken and operating hours collected from data loggers or estimates as the basis for engineering calculations of the impacts on energy consumption.
 - **Inadequate routine equipment maintenance situations that reduce an ESCO's performance guarantee.** The contract should define the maintenance responsibilities of the ESCO and the agency. If the agency fails to fulfill the maintenance responsibilities, then an adjustment to the guarantee may be required to account for the impacts on energy consumption. This would not typically invalidate a guarantee, but may require a guarantee adjustment if there is a material impact as defined by the contract.
 - **Changes in utility rates that differ from the projected contract utility escalation rates over the guarantee period.** ESCOs cannot control utility rate risk. This is a risk that an agency faces with or without an ESCO project. With an ESCO project the value of avoided utility costs due to reductions in energy consumption is actually greater if utility rates increase faster than the contract escalation rates. If rates increase more slowly than contract escalation rates, the cost of utility consumption will decrease. The value of those cost reductions will be significantly more than the reduction in the value of savings from the ESCO project. The agency is much better off in terms of mitigating utility rate risk, by having implemented an ESPC project.
 - **How and by whom the above conditions are tracked.** As previously noted both the ESCO and agency have M&V and O&M responsibilities as defined in the contract. To the extent these responsibilities are unspecified, they will fall to the agency. Responsibility for reporting material changes and the savings adjustment process should be clearly defined in the contract.

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- **How equipment warranty issues are handled.** During the warranty period defined in the contract (usually the manufacturer's warranty period, unless a longer ESCO warranty period is negotiated), the ESCO will act as agent for the agency to pursue warranty claims. Subsequent to that period, the agency will have to pursue warranty claims against the manufacturer on its own. Sometimes technical support is provided by the ESCO especially for major equipment.
 - **How equipment life cycle replacements are handled.** Unless the contract specifies that the ESCO will replace any equipment that fails outside the warranty period, the costs of equipment replacement beyond the warranty period would be borne by the agency, just like in any other construction contract. Extended warranties may be available and ESCOs may be willing to purchase them on the agency's behalf. The cost- benefit of any extended warranty should be carefully evaluated.

6.1.3 Measurement and Verification (M&V) Best Practices

The U.S. Department of Energy, recognizing significant potential for energy efficiency investment, began in 1994 to work with industry to develop a set of best practices for M&V. This work led to the establishment of the International Performance Measurement & Verification Protocol (IPMVP). The latest revision of the IPMVP was released in January 2012. The IPMVP is used throughout the United States and the world to help standardize concepts and options for measuring and verifying energy and water savings.

The IPMVP offers four options for measuring and verifying performance and energy and water savings. These options, titled A, B, C, and D, are the cornerstones of the standardized set of procedures contained in the IPMVP. In brief, Options A and B focus on the performance of specific ECMs. Option C assesses the energy savings at the whole-facility level by analyzing metered utility costs before and after the implementation of ECMs. Due to the high cost of savings adjustments required to

evaluate the impacts of facility changes on metered utility consumption, Option C has fallen out of favor as a method, except for use on a short-term basis or in very simple buildings. Option D is based on computer models of the energy performance of equipment or the whole facility, calibrated against historical utility consumption data to verify the accuracy of the simulation model.

Recommended agency best practices for review and evaluation of the annual reconciliation report:

- **Review trend log data reports** for implemented ECMs to show conformance with savings calculations and target savings.
- **For building controls savings persistence**, ESCO performance may include proof of some degree of continuous tuning of controls, as well as monitoring the controls over time.
- **Accompany ESCO staff** during their field verification work for the M&V reconciliation report.
- **Conduct independent “spot checks”** of field verification work.
- **Schedule regular meetings with ESCO staff** to discuss status of any adjustments. A comprehensive data file on measure performance should be continually updated by both parties. At a minimum, agency staff should provide the ESCO with a description of any major change and/or design documents and when the change began or took effect. ESCO staff should review changes and provide agency with proposed adjustments to be incorporated into the M&V reconciliation report, if mutually agreed.
- **If necessary, hire 3rd party consultants** with expertise in M&V for EPC projects to provide agency with technical support and assistance for review of reconciliation reports, especially if changes to calculations are needed.
- **Develop detailed numeric and graphic economic presentations** to explain avoided costs resulting from the project which clarify changes in consumption of

utility units, effects of utility rate escalation, and avoided cost benefits to budgets resulting from the project.

- **If an Energy Manager is employed by the ESCO using project funds**, understand what responsibilities the manager has and when the agency needs to hire 3rd parties.
- **Use Energy Star Portfolio Manager to establish** electricity and water usage of the building baseline and monitor annual consumption during the guarantee period to double check reasonableness of the M&V reconciliation report findings and determinations.

Establish Information Library

- Determine location of the information library
- Select staff who will be responsible for overseeing the information library

Evaluate M&V Report Data Quality on the Criteria Below

- Complete for all measures
- Accurate data quality checked by ESCO prior to agency review
- Conservative assumptions and savings calculations
- Consistent format for presenting results
- Transparent and fully articulated analysis of data
- Relevant tables and graphs for performance evaluation
- Adequate ESCO staff oral and written responses to requests for clarification
- Can be reviewed in a cost-effective manner
- Data is adequate to support agency internal and external project management
- Data provided improves facility operating resiliency through better visibility of equipment condition and operation
- Provides credible data to document environmental benefits of savings.
- All electronic data is stored securely and is accessible in a user friendly format

-
- Effectively communicates the project performance results.

Factors that affect the appropriate choice of M&V option include:

- Value of projected savings
- Cost of M&V options
- Level of savings uncertainty
- Number and complexity of savings measures
- Quality of baseline data available
- Type of equipment load impacts savings performance uncertainty
 - Constant load, constant operating hours (e.g., new lighting, lamps, ballasts)
 - Constant load, variable operating hours (e.g., lighting controls)
 - Variable load, variable operating hours (e.g., chillers and cooling equipment)

What matters in evaluating an M&V report is the degree of confidence associated with savings measurements and calculations. It is important to focus the M&V effort on the larger sources of energy savings and the savings that are the most uncertain. Usually a few measures will produce 80 percent of the total annual savings.

Each M&V Option and its relative accuracy and cost is explained in further detail in Table 6-1.

**Table 6-1
Description of IPMVP Options**

OPTION	DESCRIPTION & RELATIVE ACCURACY	RELATIVE COST
A. Partially Measured Retrofit Isolation	Savings are determined by partial field measurements of an ECM's energy use. Some but not all parameters may be stipulated. Used when highly accurate measurements are not necessary or economically viable.	Lowest cost option
B. Retrofit Isolation	Savings are determined by short-term or continuous field measurement of an ECM's energy use. Used to track long-term performance when accurate savings measurements are needed.	Medium to high cost
C. Whole Facility	Savings are determined by measuring energy use at the whole facility level. Short-term or continuous measurements are taken throughout the post-retrofit period.	Medium to high cost
D. Calibrated Simulation	Savings are determined through simulation of the energy use of components or the whole facility. Simulation routines must be demonstrated to adequately model actual energy performance measured in the facility. Typically used for new construction or where baseline data are unavailable or unreliable.	Medium to high cost

Option A is the most common method of savings verification. Estimates of the operating characteristics of the equipment are confirmed by spot measurements (e.g., power draw in wattage for light fixtures or fan motors). Other measurements may include hours of equipment operations (e.g., data loggers track equipment runtimes). With Option A, at least one equipment performance parameter must be measured. Parameters that are not measured are estimated based on assumptions, observations, reports or analysis of historical manufacturer's data on the project equipment. With Option A, baseline adjustments are less likely to be required since repeated measurements may not be required if equipment inspections verify proper equipment operation and maintenance over the contract term. This is the reason why option A is a less expensive measurement method. Reviewing the ESCO's completed post-

installation report is especially critical for projects using Option A. For many savings measures with low uncertainty, it is the best value choice for measurement and verification of savings.

Relative Frequency of M&V Options in Federal Government Projects (*Source: FEMP M&V Guide 4.0*)

- Option A – 61%
- Option B – 17%
- Option C – 8%
- Option D – 14%

Supplemental Measurement and Verification Activities for Option A

- Annual inspections – Field inspect a sample of equipment to evaluate its potential to properly operate and deliver savings. Spot measurements may be used for checking a savings value (e.g., how many kW). Confirm that the project is installed and operating per the design specifications and that the baselines are appropriate.
- Monitoring the delivery of equipment operations and maintenance services is essential to maintaining savings performance.
- Review of assumptions and operating hours is determined by physical inspections and spot use of data loggers.

Further information regarding measurement and verification can be found in the *M&V Guidelines* document published by the Federal Energy Management Agency (FEMP) and accessed at http://energy.gov/sites/prod/files/2016/01/f28/mv_guide_4_0.pdf and the *M&V Resource List*, a frequently updated document that provides an extensive collection of resources and tools available to help users apply the International Performance Measurement and Verification Protocols.

Appendix I contains the FEMP Risk and Responsibility Matrix which addresses the risk variables associated with an EPC project. Section 9 of this document provides links to the web pages where these documents are available.

6.2 Commissioning and Retro-commissioning

Hawaii Revised Statutes Section 196-11 defines commissioning, as follows:

Commissioning means a quality-oriented process, which takes place during design and construction, for achieving, verifying, and documenting that the performance of facilities, systems, and assemblies meets defined objectives and criteria with regards to energy conservation design strategies and energy performance of buildings.

“Retro-commissioning”, is the process of monitoring a facility after construction is complete. It is addressed under HRS 196-11 as:

Retro-commissioning means a quality-oriented process which takes place after systems have been placed in operation, for achieving, verifying and documenting that the performance of facilities, systems, and assemblies perform as closely as possible to defined performance criteria, with regards to energy conservation design strategies and the energy performance of buildings.

It is desirable to include commissioning and retro-commissioning activities in an energy performance contract.

6.2.1 Why Do Commissioning?

Field studies show that building energy-systems rarely function to their full potential. Poorly designed systems, improper equipment selection, inferior equipment installation, insufficient maintenance, and improper system operation all reduce energy cost savings.

Typical problems in non-commissioned energy projects include:

- Serious air flow problems
- Poor documentation of project installation and operational requirements
- Underutilized energy management systems for optimum comfort and efficiency
- Incorrect lighting and equipment schedules
- Incorrect cooling and heating sequences
- Improperly installed or missing equipment
- Incorrect calibration of controls and sensors
- Lack of building operator training
- Short cycling of HVAC equipment
- Malfunctioning economizers

The value of commissioning has become more important in recent years because of the following:

- There is more diversity in the number of building specialized systems that need to be integrated
- Building systems, especially building controls, are much more complex
- HVAC systems are being designed with less excess capacity
- Building and safety codes are becoming more stringent
- There is wider recognition of the economic value of health and productivity benefits from properly operating buildings
- Rising building operation costs make efficient operation more valuable

6.2.2 EPC Project Commissioning Benefits

Depending on the complexity of the project, commissioning costs can vary significantly. Many investments in commissioning pay back in savings in less than three years. Commissioning can reduce future equipment repair costs, downtime, and replacement costs by 15 percent or more. Detecting equipment performance problems while under warranty can reduce agency costs by getting equipment manufacturers and ESCOs to remedy problems.

Benefits of commissioning include:

- **Increased building staff knowledge and improved equipment operation**
Project commissioning provides the agency staff the knowledge to optimize equipment operating conditions and control. System level optimization improves coordination between building systems and enhances overall building performance. Improved systems control extends equipment life and improves operating reliability and efficiency.
- **Better planning and coordination for smoother equipment start-up**
During project construction, commissioning provides better planning, coordination, and communication between the ESCO and agency. This results in shorter punch lists, and fewer callbacks. Commissioning also provides faster and smoother equipment start-up due to systematic equipment and control system testing procedures.
- **Better up-front performance accountability**
Since problem prevention is less expensive than problem correction, commissioning provides front-end performance accountability and quality control. This can provide quick feedback to design professionals on the dynamic

performance of their design. Proper commissioning can also reduce liability risks from equipment failure.

- **Improved building control and performance**

Perhaps the most valuable benefit from commissioning comes from better building control that improves thermal comfort and indoor air quality. These help reduce occupant temperature complaints and employee absenteeism, increase staff retention, and save the agency money. While difficult to quantify, the annual health and productivity benefits of a comfortable building are likely to be worth more than the annual energy and operating cost savings.

6.2.3 Examples of Projects that Require Commissioning

- **Boilers, Furnaces, and Chillers:** Check for proper sizing, controls, efficiency criteria, and performance testing
- **Energy Management Systems:** Conduct functional performance tests on control capabilities, review sensor locations and calibration, and thoroughly train system operators
- **Air and Water Distribution Systems:** Check fan and pump motor sizing, system alignment and control, air filtration, and test and balance air, and water delivery systems
- **Lighting Control Systems:** Conduct functional performance tests, and control calibration

6.2.4 How Commissioning Works

During project design, the ESCO and agency need to identify the facility's commissioning requirements and prepare a plan. Effective commissioning requires the use of consistent performance criteria to guide the decision process from design through project acceptance. The ESCO should review the design documents with the agency and if applicable, incorporate the commissioning requirements into their bid specifications.

From these requirements, the scope of the commissioning plan can be developed. The plan should include a commissioning schedule, all documentation requirements, and specific team member responsibilities. Commissioning activities need to be an integral part of the construction schedule.

Generally, pre-functional equipment checklists are used to evaluate proper equipment installation. Separate functional performance tests are used to verify proper equipment operation. Based on the results of functional performance tests, equipment is either accepted by the agency or performance deficiencies are corrected and then retested.

A commissioning report that documents the commissioning process and a training manual for system operation and maintenance should be prepared for the agency.

Model commissioning documents and specifications are available from the Building Commissioning Association at <http://www.bcx.org/knowledge-center/>

Keys to successful commissioning include:

- Start early during project design and establish a commissioning schedule
- Use an ESCO qualified to do commissioning or an outside commissioning expert
- Develop a clear and detailed scope of work
- Incorporate commissioning requirements into the subcontract specifications, if applicable
- Require an initial planning meeting
- Require regular progress reports

7. MAINTENANCE PLAN AND SERVICES

Energy performance contracts are used to purchase a wide variety of building equipment and services. In addition to equipment installation, the ESCO may propose various repair and maintenance services. As part of the EPC project, ESCOs often propose repairs to existing systems, such as re-installation of damaged or missing controls or repairs of leaks in chilled water or landscape irrigation piping. Generally, the ESCO assumes responsibility for preventive maintenance and repairs to all new equipment installed. Existing maintenance contracts can often be renegotiated to revise the scope of services or, in some cases, eliminated due to the installation of new equipment. The ESCO may also offer to take responsibility for maintenance and even operation of some existing equipment. For example, the ESCO may offer to provide remote monitoring and adjustment of temperature setpoints with a computerized building control system.

Because any equipment installed is ultimately owned by the facility, the ESCO also provides documentation for all installed equipment, including as-built drawings and operating manuals. The ESCO also trains the on-site facility staff to operate and maintain the equipment. In some cases, ESCOs even pay the costs to have facility personnel attend training programs provided by equipment manufacturers.

For those agencies where in-house maintenance expertise is limited, the cost structure of an EPC can be arranged to allow for the retention of an ESCO-provided maintenance manager or technicians to support long-term project performance.

Because EPC projects often reduce equipment operating hours, equipment life is extended, which reduces future equipment replacement costs. Reduced runtime hours also limit the frequency of required preventative maintenance tasks. Better monitoring of equipment operating conditions increases the reliability of equipment performance. Increased building occupant satisfaction with working conditions and reduced sick leave are potential benefits of better maintenance.

The ability to quantify the value of these operations and maintenance savings requires a long period of evaluation to determine the net benefits (e.g., reduced equipment repair and replacement occurs over a period of 20 years). Existing agency maintenance staff can focus on preventative strategies if the ESCO project significantly reduces the time they spend on hot and cold comfort calls.

With planning and persistence, EPC projects can result in the capture of significant O&M savings. Filters must be cleaned, controls optimized, drive belts repaired, and HVAC systems repaired in a timely and consistent manner every year of the 20-year performance contract. Consider performance-based maintenance as a form of comprehensive, continuous commissioning. Maintenance should be condition-based, relying on measured parameters, such as run time, vibration analysis, thermographic and ultrasonic testing, and operating efficiency. High quality data on equipment performance is required for an effective maintenance program.

Be sure to specify how access to key project replacement parts and equipment will be available for quick delivery to avoid performance problems.

8. ENERGY PERFORMANCE CONTRACTING BY HAWAII GOVERNMENT AGENCIES

Energy performance contracting has been used for over 30 years by state and local government agencies throughout the United States to promote energy efficiency. The popularity of the ESCO delivery model for energy efficiency projects has grown very rapidly. ESCO industry annual revenues almost tripled over the 10 years from 1998 to 2014, rising from \$1.5 billion to over \$5 billion.

In Hawaii, DBEDT's Energy Performance Contracting Program began in 1988. The State Judiciary, Hawaii Public Housing Authority, Hawaii Healthcare Systems Corporation, County of Kauai, County of Hawaii, and the City and County of Honolulu are actively involved in energy performance contracting. Examples of EPC projects by State and County agencies (investment and cost savings are in 2009 dollars) include:

- **University of Hawaii at Hilo and Hawaii Community College.** The first EPC for State of Hawaii facilities encompassed over fifty buildings on the University of Hawaii and Hawaii Community College campuses at Hilo, Island of Hawaii. The EPC began in October 1996, and ran through February 2007. As of December 2010, the \$11 million investment in energy efficiency retrofits had produced an estimated \$52.5 million in energy cost savings, and these savings will continue to accrue over the life of the installed improvements. In addition, over \$200,000 in maintenance savings is being achieved annually.
- **Hawaii County.** The Hawaii County Building was retrofitted with energy efficient equipment in March 1997 using a performance contract. Total investment was \$688,000, and energy use was reduced by 30%, or about \$73,000 per year. Hawaii County also retrofitted 27 fire and police stations around the island at a total cost of \$635,200, with approximately

\$68,000 in annual energy cost savings. A \$1,500,000 EPC for the Hilo and Kona Public Safety Buildings has produced \$869,000 in savings to date.

- **Kauai County.** In 1998, Kauai County retrofitted 29 government facilities and buildings with energy savings equipment. Total investment was \$878,000, with cumulative savings to December 2010, of \$735,300.
- **City and County of Honolulu.** Under its Energy Services Performance Contracting program, the City and County replaced traffic lights at 400 intersections with red and green LED lights in 2001. This entailed a \$2.6 million investment, and \$529,000 in annual cost savings being realized. More recent EPC projects include the 2006-2007 retrofit of the Fasi Municipal Building, a \$7.2 million investment with \$450,000 in guaranteed annual cost savings, and the Police Department Headquarters, a \$1.3 million project with \$223,000 guaranteed annual cost savings. These projects were financed with City bond funds, saving 2% in interest rate relative to a tax-exempt lease financing. Savings measures include: lighting and HVAC retrofits and improvements, and upgrade of energy management control systems. Average energy cost savings are about 33%.
- **Hawaii Healthcare Systems Corporation (HHSC).** HHSC has undertaken energy efficiency projects at five state hospitals (Kona Community Hospital, Hilo Medical Center, Maui Memorial Hospital, Maluhia Hospital (Oahu), and Kauai Veteran's Medical Center). HHSC's ESCO estimates a total investment of \$32.3 million for these projects, and a cumulative energy cost savings of \$46 million as of December 2010.
- **The Judiciary.** The Hawaii State Judiciary's EPC project for a \$2.0 million lighting retrofit of five courthouses (four on Oahu and one on Maui) was completed in April 2004. The project achieved a 16% energy savings and a reduction of 2 million kilowatt hours. There was a 12% demand reduction of over 400 kilowatts. This equates to an annual savings to the

Judiciary of \$253,000 (1995 electric rates). Performance measures included converting from T12 to T8 lamps with electronic ballasts, LED exit signs, occupancy sensors, delamping with reflectors, and repairing damaged wiring. The Judiciary received a \$97,000 utility rebate for the project that was credited to their utility bills.

- **Department of Accounting and General Services (DAGS).** DAGS has a \$37 million ESCO project under construction in 10 state buildings. It includes a \$3 million photovoltaic project on the roof of the Kalanimoku Building. Improvements include a new energy management system, new HVAC equipment, new chillers, lighting and water conservation. DAGS qualified for \$224,000 in Hawaii energy rebates and a \$3 million DOE grant for the PV system. Annual utility savings are estimated to be \$3.5 million. It will save over 6.6 million kWh per year.
- **Public Safety Department.** The investment grade audit has been completed for four correctional facilities. The project will cost about \$25 million. The projected savings for water are over 60%. Annual estimated utility savings (i.e., water, electricity, gas) will be over \$2.3 million. Savings measures include low-flow plumbing fixtures, lighting and new cooling equipment. It will create 260 new jobs during the two-year construction phase. The project qualifies for \$82,000 of Hawaii Energy rebates.

9. REFERENCES AND SOURCES OF FURTHER INFORMATION

9.1 *State of Hawaii Energy Resources*

State of Hawaii, Hawaii Revised Statutes, Section 36-41- “Energy retrofit and performance contracting for public facilities”

http://www.capitol.hawaii.gov/hrscurrent/Vol01_Ch0001-0042F/HRS0036/HRS_0036-0041.htm

State of Hawaii, Hawaii Revised Statutes, Section 196-21 - “Financing mechanisms”

http://www.capitol.hawaii.gov/hrscurrent/Vol03_Ch0121-0200D/HRS0196/HRS_0196-0021.htm

State of Hawaii, Hawaii Revised Statutes, Section 196-22 – “State Energy Projects”

http://www.capitol.hawaii.gov/hrscurrent/Vol03_Ch0121-0200D/HRS0196/HRS_0196-0022.htm

State of Hawaii, Department of Business, Economic Development and Tourism (DBEDT)
Hawaii State Energy Office

<http://energy.hawaii.gov/>

EPC Documents and Resource Information

<http://energy.hawaii.gov/energy-performance-contracting>

State of Hawaii Department of Accounting and General Services

<http://pwd.hawaii.gov/>

Hawaii Energy

<http://www.hawaiienergy.com/>

9.2 *State Energy Performance Contracting Programs*

Performance Contracting and Energy Efficiency in the State Government Market

<https://eetd.lbl.gov/publications/performance-contracting-and-energy-0>

State of Colorado Website on Energy Performance Contracting

<https://www.colorado.gov/pacific/energyoffice/public-energy-performance-contracting>

State of Illinois Energy Performance Contracting Program

<https://www.illinois.gov/dceo/whyillinois/TargetIndustries/Energy/Pages/EnergyPerformanceContractingProgram.aspx>

State of Washington website on Energy Savings Performance Contracting

<http://des.wa.gov/services/facilities-leasing/energy-program/energy-savings-performance-contracting>

9.3 International Performance Measurement and Verification Protocol (IPMVP)

IPMVP Public Library of Documents

<http://www.evo-world.org/>

Lawrence Berkeley National Laboratory

<http://mnv.lbl.gov/>

9.4 Project Commissioning

Commissioning Guidance for Energy Savings Performance Contracts

http://www1.eere.energy.gov/femp/pdfs/comm_guide_espc.pdf

9.5 Other References

National Association of Energy Service Companies

<http://naesco.org/>

Energy Services Coalition Website

<http://www.energyservicescoalition.org/resources/index.html>

U.S. Environmental Protection Agency

Energy Star Website

<http://www.energystar.gov/>

Cash Flow Opportunity Calculator

http://www.energystar.gov/ia/business/cfo_calculator.xls

APPENDIX A

HAWAII STATUTES: ENERGY RETROFIT AND PERFORMANCE CONTRACTING FOR PUBLIC FACILITIES

§36-41 Energy retrofit and performance contracting for public facilities.

(a) All agencies shall evaluate and identify for implementation energy efficiency retrofitting through performance contracting. Agencies that perform energy efficiency retrofitting may continue to receive budget appropriations for energy expenditures at an amount that shall not fall below the pre-retrofitting energy budget but shall rise in proportion to any increase in the agency's overall budget for the duration of the performance contract or project payment term.

(b) Any agency may enter into a multi-year energy performance contract for the purpose of undertaking or implementing energy conservation or alternate energy measures in a facility or facilities. An energy performance contract may include but shall not be limited to financing options such as leasing, lease-purchase, financing agreements, third-party joint ventures, guaranteed-savings plans, or energy service contracts, or any combination thereof; provided that in due course the agency may receive title to the energy system being financed. Except as otherwise provided by law, the agency that is responsible for a particular facility shall review and approve energy performance contract arrangements for the facility.

(c) Notwithstanding any law to the contrary relating to the award of public contracts, any agency desiring to enter into an energy performance contract shall do so in accordance with the following provisions:

(1) The agency shall issue a public request for proposals, advertised in the same manner as provided in chapter 103D, concerning the provision of energy efficiency services or the design, installation, operation, and maintenance of energy equipment or both. The request for proposals shall contain terms and conditions relating to submission of proposals, evaluation and selection of proposals, financial terms, legal responsibilities, and other matters as may be required by law and as the agency determines appropriate;

(2) Upon receiving responses to the request for proposals, the agency may select the most qualified proposal or proposals on the basis of the experience and qualifications of the proposers, the technical approach, the financial arrangements, the overall benefits to the agency, and other factors determined by the agency to be relevant and appropriate;

(3) The agency thereafter may negotiate and enter into an energy performance contract with the person or company whose proposal is selected as the most qualified based on the criteria established by the agency;

(4) The term of any energy performance contract entered into pursuant to this section shall not exceed twenty years;

(5) Any contract entered into shall contain the following annual allocation dependency clause:

"The continuation of this contract is contingent upon the appropriation of funds to fulfill the requirements of the contract by the applicable funding authority. If that authority fails to appropriate sufficient funds to provide for the continuation of the contract, the contract shall terminate on the last day of the fiscal year for which allocations were made";

(6) Any energy performance contract may provide that the agency shall ultimately receive title to the energy system being financed under the contract;

(7) Any energy performance contract shall provide that total payments shall not exceed total savings; and

(8) For any guaranteed-savings plan:

(A) The payment obligation for each year of the contract, including the year of installation, shall be guaranteed by the private sector person or company to be less than the annual energy cost savings attributable under the contract to the energy equipment and services. Such guarantee, at the option of the agency, shall be a bond or insurance policy, or some other guarantee determined sufficient by the agency to provide a level of assurance similar to the level provided by a bond or insurance policy; and

(B) In the event that the actual annual verified savings are less than the annual amount guaranteed by the energy service company, the energy service company, within thirty days of being invoiced, shall pay the agency, or cause the agency to be paid, the difference between the guaranteed amount and the actual verified amount.

(d) For purposes of this section:

"Agency" means any executive department, independent commission, board, bureau, office, or other establishment of the State or any county government, the judiciary, the University of Hawaii, or any quasi-public institution that is supported in whole or in part by state or county funds.

"Energy performance contract" means an agreement for the provision of energy services and equipment, including but not limited to building or facility energy conservation enhancing retrofits, water saving technology retrofits, and alternate energy technologies, in which a private sector person or company agrees to finance, design, construct, install, maintain, operate, or manage energy systems or equipment to improve the energy efficiency of, or produce energy in connection with, a facility in exchange for a portion of the cost savings, lease payments, or specified revenues, and the level of payments is made contingent upon the verified energy savings, energy production, avoided maintenance, avoided energy equipment replacement, or any combination of the foregoing bases. Energy conservation retrofits also include energy saved off-site by water or other utility conservation enhancing retrofits.

"Facility" means a building or buildings or similar structure, including the site owned or leased by, or otherwise under the jurisdiction of, the agency.

"Financing agreement" shall have the same meaning as in section 37D-2.

"Guaranteed-savings plan" means an agreement under which a private sector person or company undertakes to design, install, operate, and maintain improvements to an agency's facility or facilities and the agency agrees to pay a contractually specified amount of verified energy cost savings.

"Verified" means the technique used in the determination of baseline energy use, post-installation energy use, and energy and cost savings by the following measurement and verification techniques: engineering calculations, metering and monitoring, utility meter billing analysis, computer simulations, mathematical models, and agreed-upon stipulations by the customer and the energy service company.

[L 1986, c 72, §1; am L 1989, c 275, §1; am L Sp 1993, c 8, §54; am L 1997, c 192, §1; am L 2000, c 158, §1; am L 2004, c 98, §1]

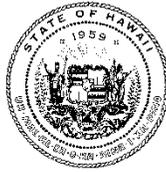
APPENDIX B

SITE SELECTION CRITERIA

- ✓ **Energy STAR rating score of 50 or less, or uses more than 24 kWh/sf**
- ✓ **Very low efficiency of major energy consuming equipment**
- ✓ **Excessive run times and operating hours for equipment**
- ✓ **Lighting system equipment older than 10 years of age**
- ✓ **Most primary HVAC equipment older than 10 years of age**
- ✓ **Most building controls older than 10 years of age, or no building controls**
- ✓ **Expensive external maintenance contract costs in excess of \$50,000 /year**
- ✓ **Internal staff overtime maintenance costs in excess of \$10,000/year**
- ✓ **High inventory costs for equipment and materials**

APPENDIX C

VENDOR LIST



**STATE OF HAWAII
STATE PROCUREMENT OFFICE**

P.O. Box 119
Honolulu, Hawaii 96810-0119
Tel: (808) 586-0554
email: state.procurement.office@hawaii.gov
<http://spo.hawaii.gov>
Twitter: [@hawaiispo](https://twitter.com/hawaiispo)

February 2, 2017

TO: Executive Departments/Agencies City and County of Honolulu
(Excludes University of Hawaii) Honolulu Board of Water Supply
Department of Education County of Hawaii
(Excludes Charter Schools) County of Hawaii – Department of Water Supply
Hawaii Health Systems Corporation County of Maui
(Excludes Regional System Boards and Hospitals) County of Kauai
Office of Hawaiian Affairs Kauai County Council
Judiciary County of Kauai – Department of Water

FROM: For Sarah Allen, Administrator *Mara Smith*

SUBJECT: **Change No. 9**
SPO Vendor List Contract No. 12-11
ENERGY SAVINGS PERFORMANCE CONTRACTING (ESPC) - STATEWIDE
RFP-12-005-SW
Expires: March 31, 2017

The following changes have been made to the vendor list contract:

1. The vendor information page for Ameresco/Pacific Energy JV is updated.
2. Participating jurisdictions currently engaged or planning to utilize SPO Vendor List Contract No. 12-11 are advised to allocate sufficient time to fully execute an Investment Grade Audit (IGA) contract or a Guaranteed Energy Savings (GES) contract, prior to the vendor list contract expiration of March 31, 2017.

The current vendor list contract incorporating Change No. 9 is available on the SPO website: <http://spo.hawaii.gov>. Click on *Price & Vendor List Contracts* on the home page.

If you have any questions, please contact Stanton Mato at (808) 586-0566 or stanton.d.mato@hawaii.gov.

**STATE OF HAWAII
STATE PROCUREMENT OFFICE**

SPO Vendor List Contract No. 12-11
Replaces SPO Vendor List Contract No. 09-01
Includes Change No. 9
Effective 2/3/2017

ENERGY SAVINGS PERFORMANCE CONTRACTING (ESPC)-STATEWIDE
(RFP-12-005-SW)
April 1, 2016 to March 31, 2017

PARTICIPATING JURISDICTIONS listed below have signed a cooperative agreement with the SPO and are authorized to utilize this vendor list contract.

Executive Departments/Agencies (Excludes University of Hawaii)	City and County of Honolulu
Department of Education (Excludes Charter Schools)	Honolulu Board of Water Supply
Hawaii Health Systems Corporation (Excludes Regional System Boards and Hospitals)	County of Hawaii
Office of Hawaiian Affairs	County of Hawaii – Department of Water Supply
Judiciary	County of Maui
	County of Kauai
	Kauai County Council
	County of Kauai – Department of Water

The participating jurisdictions are not required, but may purchase from this price list contract, and requests for exception from the contract are not required. Participating jurisdictions are allowed to purchase from other contractors, however, HRS chapter 103D and the procurement rules apply to purchases using the applicable procurement method and its procedures, such as small purchases or competitive sealed bidding. The decision to use this contract or to solicit pricing from other sources will be at the discretion of the participating jurisdiction.

POINT OF CONTACT. Questions regarding how to use this vendor list contract should be directed to Chris Kiminaka, DAGS - Public Works Division at (808) 586-0499.

Questions regarding which jurisdiction can utilize this SPO vendor list contract and project status reporting should be directed to Stanton Mato, SPO at (808) 586-0566.

Procurement questions or concerns may be directed as follows:

Jurisdiction	Name	Phone	FAX	E-mail
Executive (Excludes University of Hawaii)	Stanton Mato	586-0566	586-0570	stanton.d.mato@hawaii.gov
DOE (Excludes Charter Schools)	Procurement Staff	675-0130	675-0133	DOEProcure@notes.k12.hi.us

Jurisdiction	Name	Phone	FAX	E-mail
HHSC (Excludes Regional System Boards and Hospitals)	Joe Evanoff	733-4168	733-4460	jevanoff@hhsc.org
OHA	Phyllis Ono-Evangelista	594-1833	594-1865	phylliso@oha.org
Judiciary	Tritia Cruz	538-5805	538-5802	tritia.l.cruz@courts.hawaii.gov
C&C of Honolulu	Procurement Specialist	768-5535	768-3299	bfspurchasing@honolulu.gov
Honolulu Board of Water Supply	Vicki Kitajima	748-5151	550-9193	vkitajima@hbws.org
County of Hawaii	Jeffrey Dansdill	961-8440	961-8248	jdansdill@co.hawaii.hi.us
County of Hawaii – Department of Water Supply	Ka'iulani Matsumoto	961-8050 ext.224	961-8657	kmatsumoto@hawaiidws.org
County of Maui	Greg King	249-2403	249-0839	greg.king@co.maui.hi.us
County of Kauai	Ernest Barreira	241-4295	241-6297	ebarreira@kauai.gov
Kauai County Council	Lisa Ishibashi Scott Sato	241-4820 241-4810	241-6349 241-6349	lishibashi@kauai.gov ssato@kauai.gov
County of Kauai – Department of Water	Fay Tateishi	245-5423	245-5813	ftateishi@kauaiwater.org

PRE-QUALIFIED Energy Service Company (ESCO):

- AECOM Technical Services, Inc.
- Ameresco/Pacific Energy JV
- Honeywell International Inc.
- Johnson Controls Inc.
- Noresco LLC
- OpTerra Energy Services, Inc.

BACKGROUND AND PURPOSE OF THE VENDOR LIST CONTRACT

A request for proposals was issued to solicit interested Energy Service Companies (ESCOs) to submit their qualifications-based information for consideration. The primary intent of this selection process is to:

1. Increase the number of successful *energy savings performance contracts* (ESPC) statewide, as a means to implement comprehensive energy-efficiency projects in existing State or County facilities that would otherwise be cost-prohibitive;
2. Provide *State or County agencies* (Agencies) the opportunity to procure services of qualified ESCOs in a timely and cost-effective way;
3. Ensure minimum qualifications of ESCO's to implement successful ESPC projects; and
4. Offer all qualified ESCOs the opportunity of equal access to work generated by the agencies.

Pre-qualified ESCOs are eligible to participate in a secondary solicitation process, the *Invitation For Proposals* (IFP), that will result in the agencies entering into an *Investment Grade Audit* (IGA) contract with one (1) selected ESCO for development of an IGA report that contains proposed energy conservation measures (ECMs) with ESCO performance guarantees for a maximum project cost. Thereafter, the final IGA report findings and determinations may be the basis for a subsequent *Guaranteed Energy Savings* (GES) contract with the selected ESCO for implementation of approved ECMs under design-build coordination.

ESPC will enable facility owners to accomplish energy efficiency and energy conservation goals by primarily paying for ECMs conducted under ESPC projects through the facility owner's annual energy savings cash flow model that will result from ESCOs guaranteed energy savings GES tied to implementation of approved ECMs. However, this should not be construed to limit the State or county agency's flexibility in financing their ESPC project, such as use of bonds, operating funds, Federal funds, etc.

Enabling statutory authority for energy performance contracting can be found in Hawaii Revised Statutes (HRS) chapters 36 (§36-41) and 196. For information on use of financing agreements review requirements of HRS chapter 37D.

ESPC PROJECT STATUS REPORTS. Agencies are required to submit an on-going ESPC project status report via email to stanton.d.mato@hawaii.gov at the SPO. Report 1 through 4 shall be submitted to the SPO in sequence when all the applicable bullet points are completed within each report. The email is titled, *ESPC PROJECT STATUS REPORT – AGENCY NAME & PROJECT ID#*.

Report #1: [Facility Owner Information] When an agency decides to utilize the *SPO Vendor List Contract No. 12-11* (VL#12-11), the agency shall submit Report #1 via email to the SPO with the following information:

- Department/Division
- Contact Name, Phone Number and Email Address
- ESPC Project Title and Project Identification Number
- List which market sector(s) are being utilized, including the general scope of work for each market sector listed.
- List of ESCOs to be solicited for the ESPC project, and the facility owner's basis for "short-listing" ESCOs for the ESPC project, if applicable. Interest from at least three (3) ESCOs shall be solicited for each ESPC project.

Report #2: [IFP Implementation Phase] Agency shall submit Report #2 to the SPO when all applicable bullet points below are completed.

- State the names of the ESCOs receiving a Solicitation of Interest letter.

- State the names of the ESCOs who responded to the Solicitation of Interest letter and are interested to participate in the IFP.
- State the names of the ESCOs who are invited to the kickoff meeting scheduled by the facility owner or agency.
- State the distribution and response due date for the IFP.
- State the highest ranked ESCO and the pre-determined dollar amount in \$USD.

Report #3: [IGA Phase]

- Agency shall submit Report #3 to the SPO when the IGA is executed. Include the execution date.

Report #4: [GES Phase] Agency shall submit Report #4 to the SPO when all applicable bullet points are completed.

- The execution date and projected cost of the GES.
- The execution date and cost of GES contract amendments (if applicable).
- The execution date for third party financing agreement (if applicable).
- The *Notice to Proceed* (NTP) date for the GES contract if known.
- The start and end date for the GES Performance Guarantee period.
- The total cost of the ESPC project (CIP funds, 3rd party financing, etc.).

INSTRUCTIONS FOR USE OF THE VENDOR LIST CONTRACT

1. When utilizing VL#12-11, agencies shall solicit proposals through a secondary solicitation process, the IFP. If the agency does not solicit interest from a minimum of three (3) ESCOs, the agency is required to solicit interest from all ESCOs listed on the VL#12-11.
2. Pre-qualified ESCOs may be required to provide copies of their RFP response to the agencies upon request. The request may be of any additional information pertaining to personnel performing specific services under an ESPC. Information may include, but not be limited to: education, experience, work history, professional certifications, and specific roles or responsibilities on the ESCO team. The selection of a pre-qualified ESCO through the VL#12-11 is based on a secondary solicitation process through the issuance of an IFP.

VENDOR LIST CONTRACT PROJECT PHASES

1. General Solicitation Process
 - a. Agency Secondary Solicitation Process Overview
 - (1) The *Facility Owner* (FO) identifies the *facility/site or facilities/sites*(FS).
 - (2) The FO may procure a third party independent consultant to assist the FO through the general solicitation process and to evaluate the IFP and IGA proposal.
 - (3) The FO shall prepare an IFP document for the specific ESPC project that includes the technical information about the FS as can be assembled by the FO, evaluation criteria, objectives for the project and any other conditions of the project. (Refer to Paragraph 1d)
 - (4) The FO should determine the interest of the ESCOs by formally notifying all ESCOs on the VL#12-11 or follow the process as described in Paragraph 1c below. A *Request For Information* (RFI) specific to the project being considered may be used to determine interest. The failure of the ESCO to respond by the response date or a negative response may be used to reduce the number of ESCO's that will receive an IFP. Distribute the IFP to qualified, interested ESCO's and disclose in the IFP if a mandatory facility walk-through is required.
 - (5) If a walk-through and inspection of the FS with the ESCOs is required, ample time should be provided for the ESCOs to determine their subsequent *Energy Conservation Measure* (ECM) proposal to substantiate their *Technical Energy Assessment* (TEA).
 - (6) The ESCOs will develop their proposals including the preliminary TEA and required cost information.
 - (7) The ESCOs shall submit their proposals to the FO.
 - (8) The FO shall review the following items submitted by the ESCOs.
 - (i) Written Proposals,
 - (ii) Client References,
 - (iii) Oral Interviews. (Allow adequate time between ESCO interviews).
 - (9) The FO shall select the highest-ranked ESCO based on the evaluation criteria stated in the IFP to develop a final IGA report for the ESPC project.
 - (10) The FO shall execute an IGA contract with the selected ESCO to develop the final IGA report.

- (11) The FO shall review the IGA results, negotiate with the ESCO as necessary, and choose to either pursue implementation of approved ECMs under a subsequently executed Guaranteed Energy Savings (GES) contract or settle payment of the IGA cost with the selected ESCO.
 - (12) After the final IGA is accepted, the FO may negotiate and execute an ESPC GES agreement and any other necessary agreements or contracts. If applicable, a separate lease financing agreement may be negotiated and executed with a third party financial institution.
 - (13) The design and construction begins with the ESCO providing oversight during design-build work that is reviewed and approved by representative FO staff.
 - (14) All construction of the ECM's are completed and accepted, including commissioning.
 - (15) The GES performance period begins.
 - (16) The ongoing maintenance of the ECM's are implemented by the FO, its service contractors or the ESCO if negotiated, as required to maintain the performance guarantee.
 - (17) There is ongoing annual *Measurement and Verification* (M&V) to confirm that ESCO performance guarantees for the completed ECMs are being met.
 - (18) There may be other ongoing services as may be negotiated with the ESCO.
- b. Distribution of the IFP document shall be to all qualified and interested ESCOs listed on the VL#12-11. However, if the FO submits a written inquiry to all ESCOs on the VL#12-11 to determine interest in the agencies proposed ESPC project, the agency shall send the IFP document to only the ESCOs that responded favorably in writing to that inquiry, or the agency may use the optional process (Paragraph 1(c)) to create a shorter and more manageable ESCO list.
- c. Optional. The FO process to create a shorter and more manageable ESCO list from the VL#12-11.
- (1) A selection committee comprised mainly of FO staff will select three (3) or more pre-qualified ESCO's listed on the established VL#12-11 using the following general process:
 - (i) Review the 5-page overview of each currently eligible ESCO from the ESCO's response to RFP-12-0005-SW.
 - (ii) Consider the ESCO's involvement in the particular market sector or similar sector that is related to the type of facility/project being considered.
 - (iii) Consider the size of facility/project being considered.
 - (iv) Review of information provided in ESCO's response to RFP-12-005-SW.
 - (v) Other factors of importance shall be determined by the FO.
 - (2) The FO shall document the basis for selecting ESCOs to receive a Solicitation of Interest letter for the ESPC project.
 - (3) If an ESCO declines the FO invitation, it is not required to select another ESCO to take its place.
- d. The IFP solicitation document provided to prospective ESCOs from the VL#12-11 should include the following at a minimum:
- (1) Technical scope of the project (may include information on the facilities, project goals or objectives that are important to the FO, improvement projects completed and proposed, multiple years of utility data, etc.);
 - (2) Selection process and evaluation criteria;

- (3) Project schedule; and
 - (4) Special project terms and conditions
 - (i) Technical
 - (ii) Contractual
 - (iii) Legal (e.g. HRS references, Equipment Lease Rider, general conditions, etc.)
2. ESCO proposal in response to the IFP, developed at no cost to the FO, should contain, at a minimum, the following:
- a. TEA with possible ECM improvements that provide guaranteed energy savings. This includes an overview summary table that lists the project budget estimate and related energy savings for each possible ECM considered with other line item project costs (such as IGA development cost, commissioning, construction contingency allowance, etc.) that roll up to the maximum project cost.
 - b. Preliminary TEA cost estimates with estimated energy savings that need to stay within 20% of the final IGA report that a selected ESCO will be paid to develop for the ESPC project and any subsequently executed GES contract, with the exception for unforeseen conditions as negotiated with the FO. The FO may specify the format and type of information required in the GES contract submittal documents. This should include a cash flow analysis over the full term of the ESPC contract, not to exceed 20 years including the construction period in accordance with HRS Chapter 36-41. The cash flow analysis, at a minimum, should show all annual costs, savings (e.g., ECM savings, operational savings, etc.), rebates, renewable energy impacts, estimated maintenance costs for ECM's, and any other items required by the FO for the full term of the project (up to a maximum of 20 years inclusive of the construction period). Assumptions or the basis for the costs and savings estimates should be clearly stated.
 - c. Actual ESCO team to be used for the FO's specific facilities or project and their percentage of time on the project by person.
 - d. If facility energy simulation modeling is used to model existing conditions and to predict ECM performance (i.e. energy savings or use), the ESCO should disclose all assumptions used in developing the models for each facility and approach used in the models. Deviations from standard protocols or procedures required by the specific model (e.g., eQuest) should be noted and explained.
 - e. Project cost breakdown for (as applicable): the final IGA report; commissioning; monitoring and verification (M&V) services; training of FO staff; operations and maintenance (O&M) services; ESCO management costs for design-build coordination work; project contingency; and implementation of approved ECMs.
 - f. If innovative or exotic technologies are being proposed by the ESCO, information should be provided on previous installations on similar projects, including cost and performance results, and the ESCOs current availability of resident expertise or demonstrated consultant relationships established (e.g., expertise and experience on installation and operation of a biomass boiler to gasify green waste, water flush control devices for correctional facilities, etc.) to implement the technology.
 - g. Warranties for all equipment and materials installed under the ECMs should include a description of terms and conditions, who is responsible to perform under the warranties.
 - h. Operational and maintenance responsibilities for all completed and installed ECMs with description of terms and conditions on who is responsible for handling emergency responses and routine repair situations.

3. Proposal evaluation is completed by a selected committee comprised mainly of FO staff who review and evaluate the TEA proposals that interested ESCOs submitted for the IFP solicitation process. The committee selects one (1) ESCO to do an IGA with project development proposals. The FO will execute an IGA contract with the selected ESCO.
4. Evaluation criteria used by the selection committee, which may be modified by the FO as necessary, should generally include:

Qualifications and Project Experience

- a. Qualifications and experience of ESCO's personnel with GES contracts on projects similar to the FO's project.
- b. Reliability of equipment performance on past projects.
- c. Documented energy savings on past projects similar to the FO's project.
- d. Quality and completeness of past project documentation.

Project Management

- a. Clear assignment of responsibility for various project tasks to specific individuals.
- b. Ability to effectively manage project design, construction and complete the project on schedule and within budget.
- c. Quality of approach to operations and maintenance.
- d. Quality of monitoring, maintenance, measurement and verification services, and reporting on past projects.
- e. Clarity, organization, and level of detail in written proposal.
- f. Quality of communication skills by ESCO's representatives at the oral interview.

Technical Approach

- a. Quality of technical approach, including methods of analysis and understanding of existing building systems and conditions, documentation for measures installed.
- b. Quality of approach to project commissioning.
- c. Quality of sample IGA for projects similar to the FO's project.
- d. Quality of baseline energy calculations and methodology for handling modifications/changes to the baseline.
- e. Quality of proposed training for facility staff.
- f. Quality of approach to savings measurement and verification.
- g. Quality of sample documentation.
- h. Quality of customer savings reports for similar clients to the FO.
- i. Quality of preliminary technical approach based on the TEA developed after the facility walk-through.

Financial Stability

- a. Financial soundness and stability of ESCO.
- b. Demonstrated ability to provide or arrange project financing.
- c. Reasonableness of investment grade audit costs. For example, is it reasonable when compared with industry standards (i.e., Are the costs high or low?).
- d. Reasonableness of Preliminary Cash Flow Analysis.
- e. Quality and cost of the financial guarantee of savings. For example, this may relate to the ratio of annual cost to annual savings. A ratio of 95% would allow a 5% margin of uncertainty. Another item might be the cost of their annual guarantee of savings compared to the annual savings (e.g., annual cost of M&V and O&M compared to annual savings). A ratio of 5% may be more reasonable than a ratio of 40% of the annual savings.

Other

- a. The FO may require additional criteria unique to its own facility/project requirements and situation.
5. IGA contract shall be handled as follows:
- a. Clearly state that the FO owns all information contained in the IGA contract and has the right to use the information to its benefit.
 - b. An executed IGA contract will authorize the selected pre-qualified ESCO to complete an IGA report that has proposed ECM improvements with ESCO guaranteed energy savings and construction budget cost estimates for the proposed ECM improvements, which the FO can use to secure ESPC project funding from a third party financial institution.
 - c. The final IGA report will set specific expectations and provide a detailed process for both the selected pre-qualified ESCO and the FO. The final IGA report will define:
 - (1) Deliverables to the FO;
 - (2) Identify and evaluate ECM measures and define the proposed ESPC project scope;
 - (3) All project costs;
 - (4) Cash-flow savings;
 - (5) Cash-flow model over the proposed GES financing term;
 - (6) Be the basis for an ESPC project that will present aggregated measures which can be financed through ESCO GES project;
 - (7) Will incorporate applicable State laws that directly impact implementation of ESPC services for the FO;
 - (8) A design and construction schedule for the implementation of all ECM's; and
 - (9) Bond and insurance requirements.
 - d. FO shall have no payment obligations to the selected pre-qualified ESCO for the final IGA with project development proposals that is conducted under the executed IGA contract if:
 - (1) FO and selected pre-qualified ESCO shall execute a GES contract for an ESPC project that includes the payment for the IGA that was accepted by the FO and the ESCO proposal for FO approved ECM improvements can be incorporated at no "up-front cost" to the FO into a GES contract or agreement or
 - (2) ESCO determines at any time during the IGA development process that the GES needed to meet the FO's energy saving goals, terms and conditions cannot be attained and the IGA is terminated by written notice from the selected pre-qualified ESCO to the FO; or
 - (3) Final IGA with project development proposals do not contain a package of *energy savings* which, if implemented, will provide the FO with the cash flow savings sufficient to fund FO with payments for all costs and fees associated with the proposed ESPC project, which includes but is not limited to:
 - (i) Fee associated with the completion of the final IGA;
 - (ii) All payments on a lease purchase agreement to finance the proposed ECM improvements;
 - (iii) Any annual fees for monitoring and maintenance incurred by the selected pre-qualified ESCO and any other annual fees (such as for staff training, etc); and

- (iv) Analysis is to be based on proposed financing terms, including a conventional, fully amortized lease-purchase agreement not to exceed the GES duration over a fixed rate or interest actually available to the FO.

IMPLEMENTATION OF APPROVED ENERGY SAVINGS PERFORMANCE CONTRACT (ESPC) PROJECT

1. Upon satisfactory completion of the IGA, the FO has the option to implement an ESPC project that is based on approved ECM improvements from the final IGA report that is to be implemented by the selected/pre-qualified ESCO under an executed GES contract. It is intended that the executed GES contract will define:
 - a. Final agreed upon scope of work with all associated costs;
 - b. Mutual responsibilities for the selected/pre-qualified ESCO and the FO, as well as approved ECM improvements;
 - c. Equipment and labor costs associated with them;
 - d. All guaranteed energy savings;
 - e. Maintenance cost savings; and
 - f. ECMs are owned by the FO who may use it for its benefit with no limitation on use.

At a minimum, the executed GES contract will also incorporate applicable State laws that directly impact ESPC services for agencies, including bond and insurance requirements. The contract should also indicate that the ESCO will need to at all times, observe and comply with applicable county, State and Federal laws, ordinances, rules and regulations.

2. A separate State financing agreement may be executed to address payment schedules for *design-build* work by the selected pre-qualified ESCO and payment schedules for third party financial institutions (if needed) from the *cash flow model* based on ESCO GES.
3. After execution of a GES contract for an approved ESPC project, it is intended the selected pre-qualified ESCO will proceed to final design, construction, and commissioning of approved ECM improvements.

GES PERFORMANCE DURATION PERIOD

1. It is anticipated the duration period of executed GES contracts with the selected pre-qualified ESCO will begin upon substantial completion of completed ECM improvements by the selected pre-qualified ESCO.
2. It is also anticipated over the duration of the GES contract, the selected pre-qualified ESCO may still be responsible for providing a number of services until the end of the GES contract, such as but not limited to:
 - a. Measurement and verification of savings (e.g., energy, water, wastewater, operational costs, etc.);
 - b. FO staff training;
 - c. Reporting as required by the FO;
 - d. Possibly, contract maintenance services; and
 - e. Other services as required by the FO.

CERTIFICATE OF INSURANCE

Requirements for submission of proposals for the ESPC:

1. The ESCO shall maintain in full force and effect during the life of this contract, liability and property damage insurance to protect the Contractor and his subcontractors, if any, from claims for damages for personal injury, accidental death and property damage which may arise from operations under this contract, whether such operations be by himself or by an subcontractor or anyone directly or indirectly employed by either of them. If any subcontractor is involved in the performance of the contract, the insurance policy or policies shall name the subcontractor as additional insured.
2. As an alternative to the Offeror providing insurance to cover operations performed by a subcontractor and naming the subcontractor as additional insured, Contractor may require subcontractor to provide its own insurance, which meets the requirements herein. It is understood that a subcontractor's insurance policy or policies are in addition to the Contractor's own policy or policies.
3. The following minimum insurance coverage(s) and limit(s) shall be provided by the Contractor, including its subcontractor(s) where appropriate:

- Commercial General Liability Insurance

Commercial general liability insurance coverage against claims for bodily injury and property damage arising out of all operations, activities or contractual liability by the Contractor, its employees and subcontractors during the term of the Contract. This insurance shall include the following coverage and limits specified or required by any applicable law: bodily injury and property damage coverage with a minimum of \$1,000,000 per occurrence; personal and advertising injury of \$1,000,000 per occurrence; broadcasters' liability insurance of \$1,000,000 per occurrence; and with an aggregated limit of \$2,000,000. The commercial general liability policy shall be written on an occurrence basis and the policy shall provide legal defense costs and expenses in addition to the limits of liability stated above. The Contractor shall be responsible for payment of any deductible applicable to this policy.

- Automobile Liability Insurance

Automobile liability insurance covering owned, non-owned, leased, and hired vehicles with a minimum of \$1,000,000 for bodily injury for each person, \$1,000,000 for bodily injury for each accident, and \$1,000,000 for property damage for each accident.

- Professional Liability Insurance

Professional liability insurance coverage consisting of errors and omissions covering the Contractor against claims which may arise as a consequence of errors or omissions for any negligent act or omission to act while rendering professional services under the Contract (including any such claims which may arise in connection with the services provided under the Contract), with a minimum of

\$1,000,000 per claim limit and \$1,000,000 aggregate limit; The provisions of this paragraph shall survive the expiration or earlier termination of the Contract;

- Appropriate levels of per occurrence insurance coverage for workers' compensation and any other insurance coverage required by federal or State law.
4. The Contractor will immediately provide written notice to the contracting department or agency should any of the insurance policies evidenced on its Certificate of Insurance form be cancelled, limited in scope, or not renewed upon expiration.
 5. Each insurance policy required by this contract, including a subcontractor's policy, shall contain the following clauses:
 - *The State of Hawaii is added as an additional insured as respects to operations performed for the State of Hawaii.* (Not applicable to Professional Liability insurance).
 - *It is agreed that any insurance maintained by the State of Hawaii will apply in excess of, and not contribute with, insurance provided by this policy.*
 6. Upon Contractor's execution of a contract for an ESPC Project, the Contractor agrees to deposit with the State of Hawaii certificate(s) of insurance necessary to satisfy the State that the insurance provisions of the contract has been complied with and to keep such insurance in effect and the certificate(s) therefore on deposit with the State during the entire term of construction phase work for the contract, including those of its subcontractor(s), where appropriate. Upon request by the State, Contractor shall be responsible for furnishing a copy of the policy or policies.
 7. Failure of the Contractor to provide and keep in force such insurance shall constitute a material default under the Contract, entitling the State to exercise any or all of the remedies provided in the Contract (including without limitation terminating the Contract). The procuring of any required policy or policies of insurance shall not be construed to limit the Contractor's liability hereunder, or to fulfill the indemnification provisions of the Contract. Notwithstanding said policy or policies of insurance, the Contractor shall be responsible for the full and total amount of any damage, injury, or loss caused by the Contractor's negligence or neglect in the provision of services under the Contract.
 8. Procuring of such required insurance shall not be construed to limit pre-qualified ESCO's liability hereunder nor to fulfill the indemnification provisions and requirements of this contract. Notwithstanding said policy or policies of insurance, pre-qualified ESCO shall be obliged for the full and total amount of any damage, injury, or loss caused by negligence or neglect connected with this contract.

COMPLIANCE PURSUANT TO HRS §103D-310(c). Prior to awarding this contract, the SPO verified compliance of the Contractor(s) named in the SPO Vendor List Contract No. 12-11. *No further compliance verification is required prior to issuing a contract, purchase order or pCard payment when utilizing this contract.*

VENDOR AND PRODUCT EVALUATION form SPO-012, for the purpose of addressing concerns on this vendor list contract, is available to agencies at the SPO website: <http://spo.hawaii.gov>. Click on *Forms* on the home page.

PRICE OR VENDOR LIST CONTRACT AVAILABLE ON THE INTERNET at the SPO website: <http://spo.hawaii.gov>. Click on *Price & Vendor Lists Contracts* on the home page.

PRE-QUALIFIED ESCO INFORMATION

AECOM TECHNICAL SERVICES, INC.

Local Contact Information:

Contact Name: Rae M. Loui

Address: 1001 Bishop Street, Suite 1600
Honolulu, HI 96813

Phone: (808) 529.7221

Cell: (808) 286.3352

Fax: (808) 524.8677

E-mail: rae.loui@aecom.com

Payment Address: AECOM Technical Services, Inc.
1178 Paysphere Circle
Chicago, IL. 60674

Vendor Code: 311499-01

Pre-qualified Market Sectors:

School Districts – small (1-5 schools) or rural over 2 hours from major metropolitan area

School Districts – large

Higher Education Facilities – Universities and major colleges

Higher Education Facilities – Community colleges and small/rural colleges

County Facilities

Office Buildings

State Facilities

State Department of Defense/Military Facilities

Correctional Facilities - (prisons, community correctional centers, detention facilities)

Transportation Facilities (airport, harbor, highways, parking structure, tunnels, transit, etc.)

Sport Complexes, stadiums, arenas, athletic fields, recreational facilities, etc.

Other Government facilities, libraries, data/communication centers laboratories, etc.

Multifamily Buildings – high rise or large buildings

Multifamily Buildings – smaller scale multi-plex buildings

Multifamily Buildings – mix of building types

Community-Wide Efforts – multiple entities in partnership or other example

Judicial Facilities

Military Facilities

Pumping Stations (includes water and wastewater facilities)

Treatment plants (includes water and wastewater)

Refuse or Solid Waste facilities (includes landfills, resource recover, recycling)

Maintenance support facilities (includes baseyards, corporation yards, maintenance, storage facilities)

AMERESCO/PACIFIC ENERGY JV

Local Contact Information:

Contact Name: Greg Sheindin
Address: 1188 Bishop Street, Suite 606
Honolulu, HI 96813
Phone: (808) 364-1301
Cell: (808) 364-1301
E-mail: gsheindlin@ameresco.com

Contact Name: Ron Haxton
Phone: (509) 343-5358
E-mail: rhaxton@ameresco.com

Payment Address: 111 Speen Street, Suite 410
Framingham, MA 01701

Vendor Code: 321677-00

Pre-qualified Market Sectors:

School Districts – small (1-5 schools) or rural over 2 hours from major metropolitan area

School Districts – large

Higher Education Facilities – Universities and major colleges

Higher Education Facilities – Community colleges and small/rural colleges

County Facilities

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Maintenance support facilities (includes baseyards, corporation yards, maintenance, storage facilities)

HONEYWELL INTERNATIONAL, INC.

Business Address: 250 Ward Avenue, S-100
Honolulu, HI 96814

Contact: Les Koss
Phone: (808) 591-6705
Fax: (808) 591-6721
E-mail: les.koss@honeywell.com

Payment Address: Honeywell International Inc.
12490 Collections Center Drive
Chicago, IL 60693

Vendor Code: 275928-00

Pre-qualified Market Sectors:

School Districts – small (1-5 schools) or rural over 2 hours from major metropolitan area

School Districts – large

Higher Education Facilities – Universities and major colleges

Higher Education Facilities – Community colleges and small/rural colleges

County Facilities

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JOHNSON CONTROLS INC.

Business Address: 420 Waiakamilo Road
Suite 101
Honolulu, HI 96817

Contact: Michael Trovato
Phone: (916) 996-9920
Fax: (916) 294-8889
e-mail: Michael.Trovato@jci.com

Payment Address: Johnson Controls, Inc.
PO Box 730068
Dallas, TX 75373

Vendor Code: 80955-01

Pre-qualified Market Sectors:

School Districts – small (1-5 schools) or rural over 2 hours from major metropolitan area

School Districts – large

Higher Education Facilities – Universities and major colleges

Higher Education Facilities – Community colleges and small/rural colleges

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NORESCO LLC

Business Address: 3375 Koapaka Street, Suite F220-26
Honolulu, HI 96819

Contact: Rob Reading
Phone: (808) 833-7777 ext. 2601
Fax: (808) 834-1813
Cell: (916) 770-7396
E-mail: rreading@noresco.com

Payment Address: 4 Penn Center West, Suite 220
Pittsburgh, PA 15276

Vendor Code: 282685-01

Pre-qualified Market Sectors:

School Districts – small (1-5 schools) or rural over 2 hours from major metropolitan area

School Districts – large

Higher Education Facilities – Universities and major colleges

Higher Education Facilities – Community colleges and small/rural colleges

County Facilities

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Maintenance support facilities (includes baseyards, corporation yards, maintenance, storage facilities)

OPTERRA ENERGY SERVICES, INC.

Business Address: 1099 Alakea Street, Suite 2500
Honolulu, HI 96813

Contact: Brandon Hayashi
Phone: (808) 518-2045
Mobile: (808) 600-4289
E-mail: bhayashi@opterraenergy.com
Website: www.opterraenergy.com

Payment Address: OpTerra Energy Services, Inc.
P.O. Box 31001-2204
Pasadena, CA 91110-2204

Vendor Code: 334926-00

Pre-qualified Market Sectors:

School Districts – small (1-5 schools) or rural over 2 hours from major metropolitan area

School Districts – large

Higher Education Facilities – Universities and major colleges

Higher Education Facilities – Community colleges and small/rural colleges

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Maintenance support facilities (includes baseyards, corporation yards, maintenance, storage facilities)

APPENDIX D

TECHNICAL FACILITY PROFILE

SECTION I: GENERAL FACILITY DATA

Please use additional pages as required.

1. Name of Building _____
2. Address of Building _____
3. Primary Use _____
4. Building Engineer _____ Phone: _____

SECTION II: OPERATING DATA

1. Please describe the manufacturer(s), age, type and condition of the HVAC control system(s) used in the building(s).
2. If you have an operating Energy Management System (EMS) controlling your building, please list the manufacturer, year installed and operating conditions.

SECTION III: PHYSICAL DATA

1. _____ Gross floor area (SF)
2. _____ Weekly operating hours
3. _____ # of workers on main shift
4. _____ # of personal computers
5. _____ Percent of floor area that is air conditioned (>=50%, <50%, or none)
6. _____ Percent of floor area that is heated (>=50%, <50%, or none)

SECTION IV: ENERGY SYSTEMS DATA

Please provide as much of the following information as is available.

1. Briefly describe the major type(s) of HVAC system(s) serving your building (i.e.; terminal reheat, multizone, variable air volume, etc.) Indicate the main fuels used to operate the heating and cooling systems.

- Estimate the percentage of total area lighted by fluorescent ballasts and bulbs, and incandescent bulbs. Estimate the approximate annual hours of operation for each type of lighting. If you have a significant amount of HID lighting, please describe it in similar terms. Indicate the percentage of fluorescent lighting, if any, which has been upgraded to electronic ballasts and T-8 lamps. Describe the age of existing fixture and ballast systems for each lighting type.

SECTION V: IMPROVEMENT OPPORTUNITIES

- Briefly describe any serious equipment, operating, or comfort problems in your building(s). Identify any major mechanical, control or electrical systems scheduled for replacement during the next five years.
- Briefly list any major energy conservation options identified by a previous analysis of your building.

SECTION VI: ENERGY AND WATER CONSUMPTION DATA

Please summarize utility consumption and costs for all fuel types, including water, over the last three (3) years for each project site using the forms that follow. If you are buying contract gas, give your monthly price history, if available, on a separate sheet for your cost of gas. Please attach copies of all utility rate schedules that apply to your building.

ELECTRIC CONSUMPTION

Name of Facility: _____ Type of Fuel: _____
 Location: _____ Name of Utility: _____

Billing Month/Yr.	# Days	Demand KW	# of KWH	Total Cost
Jan.				
Feb.				
Mar.				
June				
July				
Aug.				
Sept.				
Oct.				
Nov.				
Dec.				
TOTALS				

Billing Month/Yr.	# Days	Demand KW	# of KWH	Total Cost
Jan.				
Feb.				
Mar.				
June				
July				

Aug.				
Sept.				
Oct.				
Nov.				
Dec.				
TOTALS				

Billing Month/Yr.	# Days	Demand KW	# of KWH	Total Cost
Jan.				
Feb.				
Mar.				
June				
July				
Aug.				
Sept.				
Oct.				
Nov.				
Dec.				
TOTALS				

SYNTHETIC NATURAL GAS

Name of Facility: _____

Location: _____

Name of Utility: _____

Billing Month/Yr.	# Days	# of Therms	# of CCF	Total Cost
Jan.				
Feb.				
Mar.				
June				
July				
Aug.				
Sept.				
Oct.				
Nov.				
Dec.				
TOTALS				

Billing Month/Yr.	# Days	# of Therms	# of CCF	Total Cost
Jan.				
Feb.				
Mar.				
June				
July				
Aug.				

Sept.			
Oct.			
Nov.			
Dec.			
TOTALS			

Billing Month/Yr.	# Days	# of Therms	# of CCF	Total Cost
Jan.				
Feb.				
Mar.				
June				
July				
Aug.				
Sept.				
Oct.				
Nov.				
Dec.				
TOTALS				

WATER

Name of Facility: _____

Location: _____

Name of Utility: _____

Billing Month/Yr.	# Days	# Gallons	Sewage Charges	Total Cost
Jan.				
Feb.				
Mar.				
June				
July				
Aug.				
Sept.				
Oct.				
Nov.				
Dec.				
TOTALS				

Billing Month/Yr.	# Days	# Gallons	Sewage Charges	Total Cost
Jan.				
Feb.				
Mar.				
June				
July				
Aug.				

Sept.				
Oct.				
Nov.				
Dec.				
TOTALS				

Billing Month/Yr.	# Days	# Gallons	Sewage Charges	Total Cost
Jan.				
Feb.				
Mar.				
June				
July				
Aug.				
Sept.				
Oct.				
Nov.				
Dec.				
TOTALS				

OTHER

Name of Facility: _____

Location: _____

Type of Fuel: _____

Name of Utility: _____

Billing Month/Yr.	# Days	# of Units (Specify)	Other charges (if applicable)	Total Cost
Jan.				
Feb.				
Mar.				
June				
July				
Aug.				
Sept.				
Oct.				
Nov.				
Dec.				
TOTALS				

Billing Month/Yr.	# Days	# of Units (Specify)	Other charges (if applicable)	Total Cost
Jan.				
Feb.				
Mar.				
June				
July				
Aug.				

Sept.				
Oct.				
Nov.				
Dec.				
TOTALS				

Billing Month/Yr.	# Days	# of Units (Specify)	Other charges (if applicable)	Total Cost
Jan.				
Feb.				
Mar.				
June				
July				
Aug.				
Sept.				
Oct.				
Nov.				
Dec.				
TOTALS				

SITE BASELINE DATA COLLECTION

Please provide as much of the following information as is available.

1. What is your current annual maintenance budget? \$ _____
2. What is the total square footage managed with that budget? _____
3. What is your current maintenance budget for internal staff (salaries and benefits)?
\$ _____
4. What is your annual budget for external maintenance contracts? \$ _____
5. What is the average number of square feet managed per maintenance staff person?

6. What is your current estimate of deferred maintenance in total dollars and dollars per square foot? \$ _____ \$/sf _____
7. What is your current capital budget allocation as a percentage of your total capital budget requests? _____%
8. What is the total annual number of facility maintenance complaints? _____
9. What is the total number of occupants in the building? _____
What is the average number of square feet of building space per building occupant?

10. What is the average number of annual sick days per worker? _____
11. What is the annual number of voluntary worker resignations? _____
12. Please estimate the percentage of your annual maintenance budget that is spent on corrective or reactive maintenance. \$ _____
Please estimate the percentage of your annual maintenance budget that is spent, on preventative, predictive, or proactive maintenance. \$ _____
13. Can you identify any specific building system that has a potentially large negative impact on employee health, productivity or morale? ___ Yes ___ No
If yes, what is that building system?
14. Do you currently track indoor air comfort and air quality complaints? ___ Yes ___ No
15. Do you survey building occupants annually as to IAQ, comfort, and lighting?
___ Yes ___ No

APPENDIX E: ENERGY EQUIPMENT AND SERVICES LIST

Energy Conservation Measure	Facility #							
CONTROLS								
Proper scheduling of lighting and HVAC								
Proper sequence of operations for heating and cooling								
Proper calibration of sensors								
Review control strategies								
Proper air and water-side economizer operation								
Supply and return fan interlock								
Optimize start time for air handlers & stop time for heating/cooling systems								
Soft start centrifugal chillers using current limiting								
Control economizer minimum position and makeup air handler air volumes based on input from new CO ₂ sensors								
Control airside economizers based on comparative energy content of outside air and return air								
Test calibration and adjustment of flow and pressure sensors and setpoints for all variable volume fans and pumping systems								
Test, calibration and adjustment of temperature sensors and control valves								
Demand limiting								
Control calibration								
Economizer control for free cooling								
Self-tuning control loops								
EMS load shedding								
EMS temperature setups								
Temperature resets on fan coil, cold deck and hot deck								
Reduce over ventilation								
Proper pump sequencing								
Direct coupled network control based on demand for cooling								
VAV box optimization								
Trend logs and predictive sensing								
Consistent facility operation								
Adaptable control sequences								
Parking garage control								

Energy Conservation Measure	Facility #							
COOLING								
Pitch the cooling tower blades to the maximum angle consistent with the motor-plate amperage requirements								
Install velocity regain (VR) fan cylinders – will generate approximately 7 percent more air flow because they relieve the exit pressure which the fan works against								
Remove splash deck on cooling tower and replace with efficient redistribution decks or target orifice nozzles								
Existing spray systems in counterflow cooling towers are greatly improved by installing non-corroding polyvinylchloride (PVC) piping in conjunction with non-clogging, non-corroding square-spray ABS plastic nozzles								
Change to high-efficiency, dense-film fill (cellular fill) to increase capacity of existing tower								
Chiller staging								
Operate at the highest possible evaporator temperature and pressure								
Cooling tower optimization								
Pre-cooling								
Filter chiller water								
Upgrade cooling tower (parabolic stack, high CFM blades, temperature controls)								
Refrigerant charge adjustment								
Chiller staging/modulation (soft start, variable soft load, reset of supply/return water, demand reduction on start of 2 nd chiller)								
High COP chillers								
Cleaning condenser coils								
Clean heat exchangers								
Water side economizer								
Double bundle chiller heat recovery								
Central/satellite chillers								
Variable speed chiller retrofit								
Chemical-less condenser water treatment								
HEATING								
Energy efficient boilers								
HVAC								
Low leakage dampers								

Energy Conservation Measure	Facility #							
Duct leakage repair								
Low friction ducts								
Downsize cooling equipment								
Desiccant dehumidification								
Re-sheaving of fans								
Starter upgrade								
Variable air volume with VFD								
Variable volume pumping								
Proper sizing of equipment to eliminate short cycling								
Waste heat reclamation								
Clean/replace coils								
Air balancing								
LIGHTING								
LED lighting								
25 watt T-8 lamps								
Occupancy sensors/daylighting controls								
Dimmable electronic ballasts								
Tandem wiring of high efficiency ballasts								
High efficiency metal halide fixtures								
Control light distributions								
Task lighting								
Bi-level Switching								
PLUG LOAD								
Minimization of plug-load from office equipment								
ENVELOPE								
Heat reflective window film								
Reflective roof coating								
WATER HEATING								
Load control of electric water heaters								
Low-flow water equipment								
Fuel conversion (electric to gas)								
MOTORS								
High PF of new motors								
Motor downsizing								

Energy Conservation Measure	Facility #							
Motor slip spec (keep speed low when at part load)								
High efficiency motors								
MISCELLANEOUS								
Data center efficiency improvements								
Education/training								
Fleet management								
RENEWABLE								
Photovoltaics								
Urban wind								
<p>DISCLAIMER: <i>This report was prepared as an account of work sponsored by the United States Government. Neither the United States nor the United States Department of Energy, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness or usefulness of any information, apparatus, product or process disclosed, or represents that its use would not infringe privately-owned rights. Reference herein to any specific commercial product, process or services by trade name, mark, manufacturer or otherwise, does not necessarily constitute or imply its endorsement, recommendation or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States government or any agency thereof.</i></p>								
<p>Inquiries, comments and suggestions may be referred to Strategic Industries Division, Attention: E. Raman, P.O. Box 2859, Honolulu, HI 96804 or (808) 587-3806.</p>								

APPENDIX F

STATE OF HAWAII

STANDARD INVITATION FOR PROPOSALS (IFP)

**ENERGY SAVINGS PERFORMANCE
CONTRACTING, STATEWIDE FACILITIES**

PROJECT NO. _____

(INSERT NAME OF AGENCY)

STATE OF HAWAII

INVITATION FOR PROPOSALS

FOR ENERGY SAVINGS PERFORMANCE CONTRACTING

(INSERT PROJECT NAME)

PROJECT NO.

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PART IV - EVALUATION CRITERIA FOR IFP

PART V - PROJECT TERMS AND CONDITIONS FOR IGA REPORT AND
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PART VI – ADDITIONAL INSTRUCTIONS FOR FUTURE CONTRACTS.....

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ATTACHMENT A-1 – ESCO’S PRELIMINARY TECHNICAL PROPOSAL

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ATTACHMENT D - TECHNICAL FACILITY PROFILES

PART I. GENERAL INFORMATION

I-1. PURPOSE. This Invitation For Proposals (IFP) contains the information and requirements for Energy Service Companies (ESCOs) from the DAGS-State Procurement Office (SPO) vendor list (RFP No. RFP-08-022-SW, Energy Savings Performance Contracting Services) of “pre-qualified ESCOs” to prepare and submit to _____, State of Hawaii (hereinafter referred to as “Owner”) a Preliminary Technical Proposal for an energy savings performance contract (ESPC) project at the facilities identified in Attachment C (hereinafter referred to as “Project Site”). This IFP, with any amendments, contains the only instructions governing the proposals and material to be included therein; a description of the service to be provided; general evaluation criteria; and other proposal requirements. This IFP is to be used in conjunction with the DAGS-SPO vendor list for “pre-qualified ESCOs” and vendor list instructions.

I-2. AUTHORITY. This Invitation for Proposals (IFP) is subject to the provisions and requirements of SPO vendor list RFP No. RFP-08-022-SW - Energy Savings Performance Contracting Services, Hawaii Revised Statutes (HRS) 36-41, HRS196 and any other applicable Federal, State or County law, rule or regulation. Submission of a valid executed proposal by any ESCO shall comply with the requirements above and the terms and conditions of this IFP.

Any agreement arising out of this IFP is subject to the approval of the State Department of the Attorney General as to form, and as required by statute, regulation, rule, order, or other directive.

I-3. ISSUING OFFICE. This IFP is issued for Owner by the Issuing Office listed below and is the sole point of contact for this IFP.

NAME: _____
POSITION: _____
ADDRESS: _____
EMAIL: _____

Questions and requests for clarification on this Invitation for Proposals must be submitted ***in writing*** by the dates indicated in **Part III, Project Schedule**. Responses to all written inquiries will be answered by addendums.

No verbal inquiries will be addressed. In the event it becomes necessary to revise any part of this IFP, an addendum will be issued. Only written modifications will be legally binding. No employee or agent of the Owner may verbally alter the contents of this IFP.

Communication with other officials of the Owner, the Selection Committee, or others associated with the project with regard to this IFP is prohibited.

I-4 RESPONSE DATE. To be considered, proposals must be received by _____am/pm **(insert time)**, on _____ **(insert date)**, at _____ **(insert location)** on the

date designated in Proposals delivered after that time will not be considered. Late or incomplete proposals will not be accepted regardless of the reason.

Submit To: **(Insert name and address)**

I-5. GOAL. The Owner's overall goals are:

- To increase energy efficiency and building performance with the goal of reducing energy usage and demand;
- Reduce facilities life cycle costs including: maintenance, equipment replacement, energy and water utilities, waste disposal, emergency power outages, etc.;
- To improve indoor environmental quality for occupants; and
- To address deferred repair and maintenance projects.

Owner is interested in contracting one (1) ESCO for a full range of energy services and energy-related capital improvements ("energy conservation measures" or "ECMs"), financed through an ESPC project with Owner at the Project Sites. The ECMs and services may include but are not limited to an investment grade audit; the design, acquisition, installation, modification, maintenance and operation of existing and new equipment; and the training of Owner's personnel. These improvements are intended to reduce energy consumption and related costs associated with the heating, ventilation and air conditioning systems; lighting systems; building envelope; the hot water systems; water consumption; sewage costs; and other energy using devices. The ECMs and services will also look for savings which may not reduce consumption but are aimed at cost savings such as fuel switching; demand reductions; on-site generation; electrical submetering; and automated utility bill auditing, utility rate changes and distribution upgrades. ECMs must result in a guaranteed minimum energy savings with the ESCO payments linked to actual documented energy and cost reductions. Any stipulated energy and/or operational cost savings that may be attributed to this project will be rigorously reviewed and, if agreed to, will be limited to those that can be thoroughly documented and verified by the ESCO and approved by Owner. Reductions in operations and maintenance costs will require the definition and quantification of baseline costs from documented operations and maintenance cost records.

The savings achieved by the ECMs must be sufficient to cover all project costs including service maintenance costs and monitoring fees on an annual basis for the duration of the contract term. The contract must provide that the savings in any year are guaranteed to the extent necessary to make payments under the contract during that year. ESCOs will be required to guarantee energy and cost savings on an annual basis. No credit for the achievement of savings above and beyond the annual guarantee will be credited to satisfy performance guarantees in future years of the contract. Annual reconciliation of the achieved savings will be required.

I-6. DESCRIPTION OF THE PROCUREMENT PROCESS. To achieve this goal Owner will evaluate proposals according to the following process:

- 1.) **SUBMISSION OF WRITTEN PROPOSAL.** Interested ESCOs will participate in the mandatory walk-throughs of all project buildings and must submit their proposals (All Attachments listed in Part II) by the required deadline. Owner, through its designated representatives on the Evaluation Committee, will review and evaluate the proposals in response to this IFP based on the evaluation criteria identified in **Part IV, Evaluation Criteria for IFP.**

- 2.) **ORAL INTERVIEW.** ESCOs will be required to participate in an oral interview. The purpose of this session is to allow the ESCO to explain its proposal in more detail and for the Owner to ask clarifying questions. Oral interview answers will be graded as part of the Part IV, Evaluation Criteria for IFP overall grading.

- 3.) **SELECTION OF ESCO TO DEVELOP THE PROJECT.** Owner will select the best qualified ESCO to negotiate an Investment Grade Audit (IGA) for the Project Site that will result in a set of ECMs. The IGA will include:
 1. **An executive summary**
 2. **Measures evaluated but not recommended**
 3. **Proposed project or measure specific baselines**
 4. **ECM descriptions**
 - a. Existing conditions
 - b. Existing deficiencies
 - c. Narrative description of proposed improvements
 - d. Scope of work
 - e. Equipment manufacturer or type
 - f. Energy savings calculations
 - g. Commissioning procedure
 - h. Environmental impacts
 - i. Training required
 - j. Operation and maintenance cost savings calculations, if any
 5. **IGA shall also include the following schedules**
 - a. Equipment to be installed by ESCO
 - b. Description of premises: pre-existing equipment inventory
 - c. Energy saving guarantee
 - d. Compensation to ESCO
 - e. Baseline energy consumption and utility rates
 - f. Savings measurement & calculation formulae: methodology to adjust baseline
 - g. Construction and installation schedule
 - h. Systems start-up and commissioning
 - i. Standards of comfort
 - j. ESCO's maintenance responsibilities
 - k. Agency's maintenance responsibilities
 - l. Facility maintenance checklist
 - m. ESCO's training responsibilities
 - n. Financing schedule
 - o. Proposed final project cost & proposed final project cash flow analysis
 - p. Estimated pre- and post-retrofit Energy Star ratings for facilities

- q. **Proof of performance and payment bonding capability**
- r. **Equipment warranties**

- 4.) **INVESTMENT GRADE AUDIT AGREEMENT.** If Owner decides to proceed with the IGA, Owner will execute a consultant services agreement with the selected ESCO.
- 5.) **ENERGY SAVINGS PERFORMANCE CONTRACT.** Owner shall have the option to negotiate an energy savings performance contract (ESPC) with the selected ESCO that performed the IGA. If Owner decides not to enter into an ESPC with the selected ESCO after the IGA has been accepted, Owner agrees to pay the fee indicated for the completed IGA report as set forth in the executed consultant services agreement.
- I-7. **REJECTION OF PROPOSALS.** Owner reserves the right to reject at any time any and all proposals received (in accordance with the DAGS-SPO Vendor List instructions).
- I-8. **INCURRING COSTS.** Owner is not liable for any cost or expenses incurred by ESCOs in the preparation of the proposal, for performing any analysis, or for attendance at any conferences and meetings related to this IFP.
- I-9. **PRE-PROPOSAL CONFERENCE.** The pre-proposal conference is mandatory and will be held prior to the facility walk-throughs.
- I-10. **CONFIDENTIALITY.** The contents of any Proposal shall not be disclosed to parties other than the Owner or its evaluation consultants during the review, evaluation, discussion, or negotiation process. Once a contract is executed with the successful proposer, all Proposals, successful and unsuccessful, become available for public inspection.

A Proposal may contain financial information, legitimate trade secrets or other proprietary data which the Proposer may consider to be confidential. If the Proposer desires such trade secrets or proprietary data to be held in confidence by Owner the Proposer shall specifically designate and identify the portion(s) of the Proposal which the Proposer desires to be held in confidence and the reason such portion should be held in confidence. The Owner will consider the Proposer's designation and the basis for such a designation request. If the Owner disagrees with the Proposer's designation or the basis thereof, the Owner will so inform the Proposer. Any dispute between the Proposer and the Owner over such designation or the basis thereof will be resolved in accordance with the applicable statutes and rules, including Chapter 103D, HRS and its rules and regulations, and the Uniform Information Practices Act, Chapter 92F, HRS. The portion of the Proposal which the Proposer designates as confidential shall be readily separable from the Proposal in order to facilitate eventual public inspection of the non-confidential portion of the Proposal. The total contract price is not considered confidential and will not be withheld from public inspection.

Proprietary information, such as all copyrighted material, trade secrets or other proprietary information, that Proposers claim should be held in confidence by the Owner, should be separately bound and labeled with the words "Proprietary Information", see §3-122-58, HAR. Appropriate references to this separately bound information must be made in the body of the Proposal. Designating all or nearly all the

Proposal as proprietary may result in the rejection of the Proposal. The STATE may also reject any Proposal containing designated proprietary information the STATE believes it cannot fairly evaluate.

In the event a Proposer claims that any portion of the Proposal should be held in confidence by the Owner, the Proposer is required to state in the Proposal that:

"The Proposer shall indemnify, defend and hold harmless the STATE from and against any and all claims, demands, suits, actions, causes of action, judgments, liabilities, losses, damages, costs and expenses (including reasonable attorney's fees and litigation costs) arising from or related to the STATE's refusal to disclose copyrighted material, trade secrets or other information claimed to be proprietary by the Proposer to any person making a request therefore."

Failure to include such a statement in its Proposal shall constitute a waiver of any right the Proposer may have to prevent the STATE from disclosing information deemed proprietary by the Proposer.

The STATE reserves the right to make use of any and all information or ideas contained in the Project Proposals.

- I-11. RESTRICTION OF CONTACT.** From the issue date of this IFP until a determination is made regarding the final selection of one ESCO, all contacts with Owner's personnel concerning this IFP, must be made only through the Issuing Officer.
- I-12. NEWS RELEASES.** News releases and media contacts regarding this project will be only be made by Owner, unless Owner directs otherwise in specific instances.
- I-13. PROPOSALS.** The proposal is considered an intent to perform. The Technical Energy Assessment (TEA) with potential Energy Conservation Measure (ECM) improvements in the proposal which provides the preliminary construction budget with estimated energy savings and guaranteed energy savings (GES) provides a baseline. Any subsequent ESCO GES proposal needs to stay within 20% of the baseline with the exception or unforeseen conditions as negotiated with the Owner.
- I-14. INFORMATION CONCERNING SMALL BUSINESS ENTERPRISES.** The State of Hawaii encourages all small business enterprises to compete for, win, and receive contracts for goods, services, and construction. To the extent possible or feasible, ESCO compliance with this Hawaii policy is desired. However, use of small business enterprises is not a pre-requisite requirement or an evaluation criterion for selection under this IFP process.
- I-15. CAMPAIGN CONTRIBUTIONS BY STATE AND COUNTY CONTRACTORS.** ESCOs are hereby notified of the applicability of Section 11-205.5, HRS, which states that campaign contributions are prohibited from contractors for State and County contracts.
- I-16. SITE VISITS.** During the IFP process, Owner will arrange walk-through inspection tours of the Project Sites. Buildings, dates and times will be announced at the Pre-proposal conference (**see Part I-9**). Site representatives will be available to answer questions about

the operation of facilities. Any technical information supplemental to material contained in this IFP will be made available for review and inspection.

PART II. IFP INFORMATION REQUIRED FROM ESCOS

Proposals are to be straightforward, concise presentations without extraneous material. An official authorized to bind the ESCO must sign the proposal. The proposal must remain valid for no less than ninety (90) calendar days from proposal submittal date. All Proposals become the property of the Owner. Proposals must be a complete response to the IFP. Proposals shall address the items listed in Part IV, Evaluation Criteria for IFP and shall be limited to thirty (30) single-sided pages, excluding attachments. One original, XX (xx) copies and one (1) electronic pdf copy of the proposal, including attachments shall be submitted. The original copy shall contain original signatures of the signed documents. Font size may be no smaller than 10 point. No other distribution is to be made by the ESCO.

II-1. Proposal Attachments

Attachment A: ESCO Profile Form. Provide a complete response to the information requested in **Attachment A** to this IFP.

Attachment A-1: Technical Energy Assessment (TEA). Provide complete responses to the information requested in **Attachment A-1** to this IFP.

Attachment A-2: Sample Documents: Provide sample documents of the items listed below.

Sample Customer Savings Report
Sample Project Commissioning Plan
Sample Measurement and Verification Plan
Sample IGA

II-2. Attachment B: ESCO's Preliminary Project Cost and Cash Flow Analysis. Provide the information requested in **Attachment B** to this IFP. ESCOs are required to use and follow the instructions and submit the required information in the format found in **Attachment B** to this IFP.

II-3. Required Compliance Documentation

The ESCOs shall submit the following documents with their proposal due to the fast-track nature of the project schedule:

- a. Tax Clearance Requirements (Chapter 237, HRS): Submit a tax clearance certificate from the Hawaii State Department of Taxation (DOTAX) and the Internal Revenue Service (IRS). The certificate is valid for six (6) months from the most recently approved stamp date on the certificate. The certificate must be valid on the date received by the Department.

- 1) DOTAX TAX CLEARANCE APPLICATION Form A-6 (Rev 2003) is available at DOTAX and IRS (State of Hawaii) offices or DOTAX website, and by mail or fax:
 - a) DOTAX website: www.state.hi.us/tax/alphalist.html#a
 - b) DOTAX forms by fax/mail: (808) 587-7572 or 1-800-222-7572
 - 2) Mail, fax or submit in person completed tax clearance application forms to the Department of Taxation, Taxpayer Services Branch or to the address listed on the application. Facsimile numbers are:
 - a) DOTAX: (808) 587-1488 b) IRS: (808) 539-1573
 - 3) DOTAX will return the form to the ESCOs. The ESCOs are reminded that they are responsible to submit the applications for the tax clearance directly to DOTAX or IRS and not to the Owner.
- b. DLIR Certificate of Compliance (Chapter 383 – Unemployment Insurance, Chapter 386 – Worker’s Compensation, Chapter 392 – Temporary Disability Insurance, and 393 – Prepaid Health Care, HRS): Submit a certificate of compliance from the Hawaii State Department of Labor and Industrial Relations (DLIR). The certificate is valid for six (6) months from the date of issue. The certificate must be valid on the date received by the Department.
- 1) DLIR APPLICATION FOR CERTIFICATE OF COMPLIANCE WITH SECTION 3-122-112, HAR, form LIR#27 is available at DLIR website or at the neighbor island DLIR District Office.
 - a) DLIR website: www.dlir.state.hi.us/LIR#27
 - 2) Mail, fax or submit in person completed application form to the Department of Labor and Industrial Relations, Administrative Services Office at the address listed on the application.
 - 3) DLIR will return the form to the ESCOs. The ESCOs are reminded that they are responsible to submit the application for the certificate directly to DLIR and not to the Owner.
- c. DCCA Certificate of Good Standing: Submit a certificate of good standing issued by the Department of Commerce and Consumer affairs (DCCA), Business Registration Division (BREG). The certificate of good standing is valid for six (6) months from the date of issue. Certificates must be valid on the date received by the Department.
- 1) DCCA CERTIFICATE OF GOOD STANDING is available from the business registrations website or by telephone. ESCOs are advised there are costs associated with registering and obtaining the certificate.
 - a) DCCA form website: www.BusinessRegistrations.com
 - b) DCCA telephone: (808) 586-2727, M-F 7:45 to 4:30 HST
 - 2) Submit the application per DCCA’s requirements.

- 3) DCCA will return the form to the ESCOs. The ESCOs are reminded that they are responsible to submit the application for the certificate directly to DCCA and not to the Owner.
- d. In lieu of the clearances and certificates described in items a, b and c above, to meet the requirement of §3-122-112, HAR, ESCOs may apply and register at the “Hawaii Compliance Express” website:
<http://vendors.ehawaii.gov/hce/splash/welcome.html>

PART III. PROJECT SCHEDULE

(SUBJECT TO CHANGE AT THE DISCRETION OF Owner)

<u>Activity</u>	<u>Date</u>
Issue IFP	Week 1
Pre-Proposal Conference	Week 2
Deadline for Preliminary Inquiries 10 am:	Week 3
First Addendum Issued:	Week 4
Facility Walk Throughs	Weeks 3-5
Deadline for Written Inquiries 10 am:	Week 7
Second Addendum Issued:	Week 8
Proposals Due 4 pm:	Week 10
Oral Interviews	Week 13
Notice of Selected ESCO	Week 14
IGA Contract Executed	Week 16
IGA Draft Due	Week 22
IGA Completed	Week 28
Energy Savings Performance Contract Negotiations	Weeks 29-33
Energy Savings Performance Contract Executed	Week 36

All Time is shown as Hawaiian Standard Time (HST)

PART IV. EVALUATION CRITERIA FOR IFP

The criteria listed below will be used in the evaluation of the responses. Responses will be evaluated based on the completeness and quality of the information provided in the proposal, attachments, client references and oral interviews. Failure to provide any of the requested information may result in disqualification. Percentage weights for each category are indicated.

IV-1. Qualifications and Project Experience (30 points)

- Qualifications and experience of ESCO's personnel with guaranteed energy savings contracts on projects similar to the Owner's project.
- Reliability of equipment performance on past projects.
- Documented energy savings on past projects similar to the Owner's project.
- Quality and completeness of past project documentation.
- Quality of client references.

IV-2. Project Management (25 points)

- Clear assignment of responsibility for various project tasks to specific individuals.
- Ability to effectively manage project construction and complete the project on schedule and within budget.
- Quality of approach to operations and maintenance.
- Quality of monitoring, measurement and verification services, and reporting on past projects.
- Clarity, organization, and level of detail in written proposal.
- Quality of communication skills of the ESCO's representatives at the oral interview.
- Quality of maintenance on past projects.

IV-3. Technical Approach (25 points)

- Quality of technical approach, including methods of analysis and understanding of existing building systems and conditions.
- Quality of approach to project commissioning.
- Quality of sample investment grade audit for project similar to the Owner's project.
- Quality of baseline energy calculations and methodology for handling modifications/changes to the baseline.
- Quality of proposed training for facility staff.
- Quality of approach to savings measurement and verification.
- Quality of customer savings reports for similar clients to the Owner.
- Quality and feasibility of proposed preliminary technical measures.

IV-4. Financial Approach (10 points)

- Financial soundness and stability of ESCO.
- Capability to develop projects which qualify for attractive financing terms.
- Reasonableness of investment grade audit costs.
- Reasonableness of Preliminary Project Costs and Cash Flow Analysis.
- Cost of annual fees for measurement and verification of savings.

IV-5 Innovation (10 points)

- Quality of proposed innovative ECMs.
- Quality of benefits from innovative ECMs.
- Ability to implement innovative ECMs.

PART V. PROJECT TERMS AND CONDITIONS FOR IGA REPORT AND ESPC PROJECT

These sections describe the minimum conditions Owner will accept from the selected ESCO. **Part V-1 defines the Scope of Services, and Part V-2 defines Key Contractual Provisions.**

V-1. SCOPE OF SERVICES: (TECHNICAL REQUIREMENTS).

- A. Owner reserves the right of final approval of any selected equipment or modifications proposed. Only prior reviewed and approved equipment and modifications will be permitted. Review and approval shall be conducted by Owner in a timely manner.
- B. The selected ESCO will be required to work with current building management and maintenance personnel, to coordinate construction and provide appropriate training in the operation of all retrofits. No equipment shall be installed that will require the hiring of additional personnel by Owner unless contract negotiations produce an explicit exemption from this rule for a specific installation.
- C. The selected ESCO must provide two (2) complete sets and one (1) electronic pdf copy of reproducible "as built" and record drawings of all existing and modified conditions associated with the project, conforming to typical engineering standards. These should include architectural, mechanical, electrical, structural, and control drawings and operating manuals to be submitted within 30 days of the completed installation.
- D. The selected ESCO shall be responsible for the proper removal and disposal offsite of all packaging materials and all replaced or demolished materials or equipment.

V-2. CONTRACTUAL PROVISIONS FOR IGA REPORT AND ESPC PROJECT.

- A. The contents of this IFP, the selected ESCO's proposal, the final contract for the IGA report and the "Guaranteed Energy Savings (GES)" contract may become part of the contract for this ESPC project.
- B. The selected ESCO must carry the level of insurance required by Owner for the IGA and the construction and operations phases.
 - a. The ESCO shall maintain in full force and effect during the life of this contract, liability and property damage insurance to protect its employees, contractor and subcontractors, if any, from claims for damages, for personal injury, accidental death and property damage which may arise from operations under this contract, whether such operations be by himself or by an contractor or subcontractor or anyone directly or indirectly employed by either of them. If any subcontractor is***

involved in the performance of the contract, the insurance policy or policies shall name the contractor or subcontractor as additional insured.

- b. As an alternative to the ESCO providing insurance to cover operations performed by a subcontractor and naming the subcontractor as additional insured, ESCO may require subcontractor to provide its own insurance, which meets the requirements herein. It is understood that a subcontractor's insurance policy or policies are in addition to the ESCO's own policy or policies.**
- c. The following minimum insurance coverage(s) and limit(s) shall be provided by the ESCO, including its contractor or subcontractor(s) where appropriate. **(Insert appropriate insurance coverage as required).**

<u>Coverage</u>	<u>Limits</u>
Commercial General Liability Including Completed Operations	\$1,000,000 per occurrence/ \$2,000,000 aggregate
Automobile Liability	\$1,000,000 per accident
Professional Liability	\$1,000,000 per occurrence/ \$2,000,000 aggregate
Performance and Payments	Amount of contract bond
Installation Floater	Based upon cost of equipment

Each insurance policy required by this contract, including a subcontractor's policy, shall contain the following clauses:

1. "This insurance shall not be canceled, limited in scope of coverage or non-renewed until after 30 days written notice have been given to the Owner's issuing officer for this contract."
2. "The Owner is added as an additional insured as respects to operations performed for the State of Hawaii." **(Not applicable to Professional Liability insurance.)**
3. "It is agreed that any insurance maintained by the Owner will apply in excess of, and not contribute with, insurance provided by this policy."

The minimum insurance required shall be in full compliance with the Hawaii Insurance Code throughout the entire term of the contract, including supplemental agreements.

Upon ESCO's execution of a contract for an Investment Grade Audit or an ESPC Project, the ESCO agrees to deposit with the Owner certificate(s) of insurance necessary to satisfy the Owner that the insurance provisions of the contract has been complied with and to keep such insurance in effect and the certificate(s)

therefore on deposit with the Owner during the entire term of construction phase work for the contract, including those of its subcontractor(s), where appropriate. Upon request by the Owner, the ESCO shall be responsible for furnishing a copy of the policy or policies.

Failure of the ESCO to provide and keep in force such insurance shall be regarded as material default under this contract, entitling the Owner to exercise any or all of the remedies provided in this contract for a default of the ESCO.

The procuring of such required insurance shall not be construed to limit the ESCO's liability hereunder nor to fulfill the indemnification provisions and requirements of this contract. Notwithstanding said policy or policies of insurance, the ESCO shall be obliged for the full and total amount of any damage, injury, or loss caused by negligence or neglect connected with this contract.

- C. All drawings, reports and materials prepared by the ESCO in performance of the contract shall become the property of Owner and shall be delivered to Owner as needed or within 10 (ten) days after construction is completed and accepted by Owner that the project is fully installed and operating.
- D. The selected ESCO must secure all necessary licenses and permits and comply with all federal, state and county laws, rules and regulations with respect to this project. All work completed under this contract must be in compliance with all building codes and appropriate accreditation, certification and licensing standards.
- E. The selected ESCO will be required to guarantee energy and cost savings on an annual basis. No credit for the achievement of savings above and beyond the annual guarantee will be credited to satisfy performance guarantees in future years of the contract. Annual reconciliation of the achieved savings will be required.
- F. Open book pricing of all costs and mark-ups for labor, materials and services received during the project development, implementation and performance period phases of the project is required.
- G. **ENERGY STAR:** Using the EPA's ENERGY STAR tools and resources for each eligible facility, the selected ESCO will be required to provide an estimated pre-retrofit Energy Performance Rating using Portfolio Manager and an estimated post-retrofit Energy Performance Rating using the Delta Score Estimator as part of the Investment Grade Audit. As part of the final contract, the selected ESCO will also be required to submit an updated ENERGY STAR rating for each eligible facility upon completion of each guarantee year. Information regarding ENERGY STAR tools and resources, and a list of eligible facility types can be found at:

http://energystar.gov/index.cfm?c=tools_resources.bus_energy_management_tools_resources
<http://www.energystar.gov/index.cfm?c=delta.index>
http://www.energystar.gov/ia/business/cfo_calculator.xls

PART VI. ADDITIONAL INSTRUCTIONS FOR FUTURE CONTRACTS

- VI-1. OWNER PARTICIPATION DURING THE IGA REPORT AND ESPC PROJECT.** Owner shall review and approve equipment specifications and installation plans for all ECM prior to the implementation of any improvements or modifications. Owner approval shall be issued within 30 days of their receipt of the proposed ECM. During the implementation of ECM, Owner shall make routine inspections and be present during any equipment and systems commissioning procedures conducted by the selected ESCO and prior to the selected ESCO issuing of a Notice to Owner that it has installed and commenced operating all of the Equipment and systems.
- VI-2 EXECUTION OF THE CONTRACT.** Upon acceptance of the ESCO's proposal by the Owner, the ESCO shall provide satisfactory performance and payment bonds, within ten (10) calendar days after award of the GES contract or within such further time as granted by the Owner. No proposal or contract shall be considered binding upon the Owner until the contract has been fully executed by all parties.
- VI-3 PERFORMANCE, LABOR AND MATERIAL PAYMENT BONDS.** At the time of execution of the contract, and prior to the start of construction, the ESCO shall obtain good and sufficient performance and payment bonds covering the construction of the energy conservation measures (ECMs) described in the GES contract. The bond, shall be in an amount equal to one hundred percent (100%) of the total lump sum installation cost of construction of the ECMs. The bond will not be required to cover the operation and maintenance of the ECMs after construction is complete. The form and content of such bonds shall be in a form acceptable to the Owner.

Acceptable performance and payment bonds shall be limited to the following:

- a. Surety bonds underwritten by a company licensed to issue bonds in this State; or
- b. A certificate of deposit; credit union share certificate; or cashier's, treasurer's, teller's or official check drawn by, or certified check accepted by, and payable on demand to the State by the bank, a savings institution, or credit union insured by the Federal Deposit Insurance Corporation (FDIC) or the National Credit Union Association (NCUA).
 - 1) These instruments may be utilized only to a maximum of \$100,000.
 - 2) If the required security or bond amount totals over \$100,000, more than one instrument not exceeding \$100,000 each and issued by different financial institutions shall be acceptable.

If the ESCO fails to deliver the required performance and payment bonds, the ESCO's award shall be cancelled.

- VI-4. MINIMUM WAGE RATES.** All work for ECM under ESPC projects shall be done in compliance with Chapter 104, HRS, "Prevailing Wages for Public Works Project".

**ATTACHMENT A
ESCO PROFILE FORM**

NOTE: If this project is proposed to be implemented as a joint venture or partnership, this Attachment A should be completed for each firm, including client references for energy performance contracting projects implemented by each firm.

1. Firm Name: _____

Business Address: _____

City: _____ State: _____ Zip Code: _____

a. Names and Titles of Two Contact People

1) _____ Phone (_____) _____

2) _____ Phone (_____) _____

b. Submittal is for

Parent Company (List any Division or Branch Offices to be involved in this project)

Division (attach separate list if more than one is to be included)

Subsidiary

Branch Office: _____

Name of Entity: _____

Address: _____

2. Type of Firm Corporation Partnership Sole Proprietorship Joint Venture

3. Federal Employer Identification Number: _____

4. Year Firm was Established: _____

5. Name and Address of Parent Company, (if applicable)

6. **Former Firm Name(s), (if applicable):** _____

7. **Minority Business Enterprise**

a. *Please indicate if your firm is a recognized Minority Business Enterprise* Yes No

b. **If yes, please indicate the appropriate category**

Native American Hispanic Asian-Pacific American

Asian-Indian American Black Other _____

8. **Five Year Summary of Contract Values for Energy Performance Contracting Projects**

20__ : \$ _____ (to date) 20__ : \$ _____ 20__ : \$ _____

20__ : \$ _____ 20__ : \$ _____

NOTE: All questions must be addressed by the ESCO in order for this qualification form to be properly completed. Failure to answer any question, or comply with any directive contained in this form may be used by the Owner as grounds to find them ineligible. If a question or directive does not pertain to your organization in any way, please indicate that fact with the symbol N/A. For additional space attach 8-1/2" x 11" sheets and indicate reference number (i.e., 12a, 12b, etc.) to correspond to each question.

9. **CORPORATE BACKGROUND/HISTORICAL DATA**

a. How many years has your firm been in business under its present business name?
Years _____

b. Indicate all other names by which your firm has been known and the length of time known by each name.

c. How many years has your firm been involved in energy performance contracting?
_____ Years

d. Indicate the number of all energy performance contracting projects implemented by and currently under contract with your firm. Limit your response to ONLY those projects that have been managed directly by the specific branch, division, office or any individual in such branch, division or office that will be specifically assigned to this project. Attach additional sheets as necessary.

e. Please identify all states in which your firm is legally qualified to do business.

10. PERSONNEL INFORMATION

- a. Please indicate the number of full time personnel employed by your firm and the number available to work on this project.
- b. **Project Team Members.**

Briefly describe the relevant experience, qualifications and educational background for each individual team member assigned to Owner’s project using the format provided below. Do not include individual resumes in lieu of this information.

Name of Project Team Member:	
Current Job Title: Job responsibilities: Number of years with ESCO: Primary Office Location:	
Employment History Company Name: Primary job responsibilities: Number of years with firm:	
Educational Background List all academic degrees, certifications, professional affiliations, relevant publications and technical training.	
List all guaranteed energy performance contracting projects this individual has been involved with during past 5 years. Include project location, type of facilities, year implemented and dollar value of installed project costs.	
Describe the specific role and responsibilities this individual had for each listed project.	
Provide a detailed description of the role and responsibilities this individual will have for the duration of this project.	
Describe any other relevant technical experience.	
Indicate the total years of relevant energy-related experience for this individual.	

- c. Submit an organizational chart that clearly identifies the roles and relationships of all key team members.
- d. Indicate whether your firm is currently accredited by the National Association of Energy Service Companies (NAESCO). ESCOs are not required to be accredited by NAESCO. All NAESCO accredited ESCOs will receive additional points.
- e. Certify that your firm will comply with all terms and conditions contained in the Owner's Invitation for Proposals (IFP) and contract documents.
- f. Briefly describe the types of financing used by your firm for past energy performance contracts, including the source of funds and the potential dollar amounts currently available to your firm to finance these types of projects.

11. FINANCIAL REFERENCES

- a. Provide a company prospectus to include a Balance Sheet and Cash Flow statement not more than fifteen (15) months old.
- b. Please provide the name, address, and the telephone number of the firm(s) that prepared the Financial Statements.
- c. Please enclose banking references including financial institution, address, contact person, telephone number, and specific information on your firm's credit that may be used to fund construction for large-scale projects.
- d. Maximum individual project and aggregate bonding limits.
- e. Please certify that your company does not owe the State of Hawaii any taxes.
- f. Please certify that your company is not currently under suspension or debarment by the State of Hawaii, any other state, or the federal government.
- g. Please identify your firm's legal counsel for this project. Give the name and address of the primary individual responsible for contract negotiation.

12. PROJECT HISTORY & CLIENT REFERENCES

Using the following forms, list five (5) energy performance contracting projects currently in repayment and under contract with your firm which most resemble the scope of this project and list all energy performance contracting projects performed in the State. Limit your response to ONLY those projects that have been managed directly by the specific branch, division, office or any individual in such branch, division or office who will be specifically assigned to this project. Projects with installed costs of less than \$500,000 or single technology (e.g. lighting only, controls only, etc.) will not be considered. Attach additional sheets as necessary. Please put an asterisk by those project references involving buildings similar to the building(s) described in Attachment C. All information is required.

Project Name, Location and Owner	
Project Dollar Amount (installed project costs)	
Primary ECMs Installed	
Date Construction Started	
Date Constructed Completed	
Guarantee Period Start & End Dates	
Dollar Value of <u>Projected</u> Annual Energy Savings	
Dollar Value of <u>Guaranteed</u> Annual Energy Savings	
Dollar Value and Type of Annual Operational Cost Savings (if applicable) (e.g., outside maintenance contracts, material savings, etc.)	
Method(s) of Savings Measurement and Verification	
Provide the names of the primary personnel involved in this project and their specific roles and responsibilities.	
Provide CURRENT and ACCURATE telephone and FAX numbers of the Owner(s)' representatives with whom your firm did business on this project. You should ensure that all representatives are familiar with this project.	

13. SUMMARY OF ENERGY SAVINGS PERFORMANCE DATA

For each project described above, complete the following table. Energy savings data must be provided in fuel units.

ANNUAL ENERGY SAVINGS

	Projected	Guaranteed	Achieved				
			Year 1	Year 2	Year 3	Year 4	Year 5
KWH							
KW							
Therms							
Water kGallons							
Other (Specify)							

ANNUAL ENERGY SAVINGS

	Projected	Guaranteed	Achieved				
			Year 1	Year 2	Year 3	Year 4	Year 5
KWH							
KW							
BTUs							
Water Gallons							
Other (Specify)							

ATTACHMENT A-1
ESCO's TECHNICAL ENERGY ASSESSMENT

Each respondent is required to fully answer all questions in each category listed below. Respondents must also include a Table of Contents, which indicates the section and page numbers corresponding to the information included. Failure to submit the required information as specified in this IFP will result in the deduction of points.

1. PROJECT MANAGEMENT

1.0 Project Summary.

Summarize the scope of services (design, financial, operations, maintenance, training, etc.) offered by your firm for this project including the added value to Owner of your firm's services.

1.1 Project Work Plan and Milestones.

Describe your proposed management plan for accomplishing the work. Provide a proposed project schedule and a sample timeline of milestones necessary to implement all phases of the project.

1.2 Training Provisions.

Describe your firm's proposed approach to providing technical training for facility personnel. Indicate the proposed number of personnel to be trained and the type and frequency of training to be provided for the duration of the contract. Indicate how your firm will address any turnover of key facility personnel as it relates to project performance.

1.3 Project Financing.

Describe your firm's preferred approach to providing or arranging financing for this project. Describe the structure of the financing arrangement including projected interest rate, financing term, repayment schedule, equipment ownership, security interest required, the responsibilities/liabilities of each party, and any special terms and conditions that may be associated with the financing of this project. Describe how construction will be financed.

2. SITE SPECIFIC

2.0 Technical Site Assessment.

Based upon your preliminary technical energy assessment and available information, discuss the site conditions, status of building systems, current operating procedures and potential cost-effective energy improvement opportunities. Describe any equipment modifications, installations or replacements at the facilities that you propose to implement and those which warrant further study. Describe any operational changes you would recommend. If innovative or exotic technologies are being proposed please provide information on previous installations

on similar projects, including cost and performance results, and your company's in-house expertise or subcontractor relationship established to implement the technology.

2.1 Energy Baseline Calculation Methodology and Measurement and Verification Plan

Describe in the methods used to compute baseline energy use. Describe any computerized modeling programs used by your firm to establish baseline consumption. Please summarize procedures, formulas and methodologies including any special metering or equipment, your firm will use to measure and calculate energy savings for this project. Describe the methods used to adjust the guaranteed level of savings from any material changes that occur due to such factors as weather, occupancy, facility use changes etc. Indicate any operational cost savings opportunities and how such savings are to be identified, documented and measured. Describe your firm's proposed approach to treatment of savings achieved during construction and how those savings will be documented and verified.

2.3 Equipment Maintenance Approach

Please describe any major changes in operations or maintenance for this project that your company anticipates. Include a description of the types of maintenance services projected for this project. Please discuss the role of Owner's personnel in performing maintenance on the new and existing equipment. Discuss the relationship of maintenance services to the savings guarantee, any required duration of the maintenance agreement and what impact termination of maintenance prior to the end of the contract term would have on the savings guarantee.

ATTACHMENT A-2 SAMPLE DOCUMENTS

Each ESCO shall provide sample documents of the items listed below:

- Sample Customer Savings Report
- Sample Project Commissioning Plan
- Sample Measurement and Verification Plan
- Sample IGA with costs

ATTACHMENT B
ESCO's Preliminary Project Cost and Cash Flow Analysis
State of Hawaii
Energy Savings Performance Contracting Project

Project Name:

Agency Name:

ESCO Name:

Fee Category	Fees ⁽¹⁾ Dollar (\$) Value	Percentage of Hard Costs
Estimated Value of Hard Costs ⁽²⁾ :		
Project Service Fees		
Investment Grade Audit		
Design Engineering Fees		
Construction Management		
System Commissioning		
Initial Training Fees		
Contingency Costs		
Construction Interest		
Project Service Fees Sub Total		
TOTAL FINANCED PROJECT COSTS:		

PROPOSED ANNUAL SERVICE FEES

First Year Annual Service Fees	Fees ⁽¹⁾ Dollar (\$) Value	Percentage of Hard Costs
Measurement and Verification		
ENERGY STAR™ Services		
Maintenance		
Performance Monitoring		
On-going Training Services		
Verification Reports		
TOTAL FIRST YEAR ANNUAL SERVICES		

NOTES:

1. Fees should include all mark-ups, overhead, and profit. Figures stated as a range will not be accepted.
2. The total value of Hard Costs is defined in accordance with standard AIA definitions that include:
 Labor Costs, Subcontractor Costs, Cost of Materials and Equipment, Temporary Facilities and Related Items,
 and Miscellaneous Costs such as Permits, Bonds Taxes, Insurance, Mark-ups, overhead and profit, etc.

ESCO's proposed interest rate available at the time of submission:

Financial Institution:

Contact person:

ESCO's PRELIMINARY ANNUAL CASH FLOW ANALYSIS

For the purposes of preparing the Preliminary Cost Proposal and Preliminary Cash Flow Analysis, a 20-year contract term and interest rate of ___% must be used. (NOTE: Owner should supply all indicated escalation rates.)

Financed Project Costs: _____
 Finance Term: 20 years
 Annual Interest Rate: _____
 Construction Months _____
 Annual Payment _____
 Principal _____
 Interest _____

Escalation Rate by Utility/Fuel
 Electric: _____%
 Water: _____%
 Other (specify): _____

Escalation Rate for Annual Fees: _____%

Yr.	Electric Cost Savings	Water Cost Savings	Other Please Specify	Operational Cost Savings	Total Cost Savings	Maintenance Monitoring, M&V, & Training Fees	Guaranteed Cost Savings	Financing Payment	Net Savings
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
Total									

ATTACHMENT C

STATE OF HAWAII

PROJECT SITE(S)

(PLEASE INSERT ADDRESSES FOR THE PROJECT SITE(S) LISTED)

ATTACHMENT D

STATE OF HAWAII

TECHNICAL FACILITY PROFILE(S)

TECHNICAL FACILITY PROFILE(S)

SECTION I: GENERAL FACILITY DATA

Please use additional pages as required.

1. Name of Building _____
2. Address of Building _____
3. Primary Use _____
4. Building Engineer _____ Phone: _____

SECTION II: OPERATING DATA

1. Please describe the manufacturer(s), age, type and condition of the HVAC control system(s) used in the building(s).
2. If you have an operating Energy Management System (EMS) controlling your building, please list the manufacturer, year installed and operating conditions.

SECTION III: PHYSICAL DATA

1. _____ Gross floor area (SF)
2. _____ Weekly operating hours
3. _____ # of workers on main shift
4. _____ # of personal computers
5. _____ Percent of floor area that is air conditioned (>=50%, <50%, or none)
6. _____ Percent of floor area that is heated (>=50%, <50%, or none)

SECTION IV: ENERGY SYSTEMS DATA

Please provide as much of the following information as is available.

1. Briefly describe the major type(s) of HVAC system(s) serving your building (i.e.; terminal reheat, multizone, variable air volume, etc.) Indicate the main fuels used to operate the heating and cooling systems.
2. Estimate the percentage of total area lighted by fluorescent ballasts and bulbs, and incandescent bulbs. Estimate the approximate annual hours of operation for each type of lighting. If you have a significant amount of HID lighting, please describe it in similar terms. Indicate the percentage of fluorescent lighting, if any, which has been upgraded to electronic ballasts and T-8 lamps. Describe the age of existing fixture and ballast systems for each lighting type.

SECTION VI: ENERGY AND WATER CONSUMPTION DATA

Please summarize utility consumption and costs for all fuel types, including water, over the last three (3) years for each project site using the forms that follow. If you are buying contract gas give your monthly price history, if available, on a separate sheet for your cost of gas. Please attach copies of all utility rate schedules that apply to your building.

ELECTRIC CONSUMPTION

Name of Facility: _____

Type of Fuel: _____

Location: _____

Name of Utility: _____

Billing Month/Yr.	# Days	Demand KW	# of KWH	Total Cost
Jan.				
Feb.				
Mar.				
June				
July				
Aug.				
Sept.				
Oct.				
Nov.				
Dec.				
TOTALS				

Billing Month/Yr.	# Days	Demand KW	# of KWH	Total Cost
Jan.				
Feb.				
Mar.				
June				
July				
Aug.				
Sept.				
Oct.				
Nov.				
Dec.				
TOTALS				

Billing Month/Yr.	# Days	Demand KW	# of KWH	Total Cost
Jan.				
Feb.				
Mar.				
June				
July				
Aug.				
Sept.				
Oct.				
Nov.				
Dec.				

TOTALS				
---------------	--	--	--	--

SYNTHETIC NATURAL GAS

Name of Facility: _____

Location: _____

Name of Utility: _____

Billing Month/Yr.	# Days	# of Therms	# of CCF	Total Cost
Jan.				
Feb.				
Mar.				
June				
July				
Aug.				
Sept.				
Oct.				
Nov.				
Dec.				
TOTALS				

Billing Month/Yr.	# Days	# of Therms	# of CCF	Total Cost
Jan.				
Feb.				
Mar.				
June				
July				
Aug.				
Sept.				
Oct.				
Nov.				
Dec.				
TOTALS				

Billing Month/Yr.	# Days	# of Therms	# of CCF	Total Cost
Jan.				
Feb.				
Mar.				
June				
July				
Aug.				
Sept.				
Oct.				
Nov.				
Dec.				
TOTALS				

WATER

Name of Facility: _____

Location: _____

Name of Utility: _____

Billing Month/Yr.	# Days	# Gallons	Sewage Charges	Total Cost
Jan.				
Feb.				
Mar.				
June				
July				
Aug.				
Sept.				
Oct.				
Nov.				
Dec.				
TOTALS				

Billing Month/Yr.	# Days	# Gallons	Sewage Charges	Total Cost
Jan.				
Feb.				
Mar.				
June				
July				
Aug.				
Sept.				
Oct.				
Nov.				
Dec.				
TOTALS				

Billing Month/Yr.	# Days	# Gallons	Sewage Charges	Total Cost
Jan.				
Feb.				
Mar.				
June				
July				
Aug.				
Sept.				
Oct.				
Nov.				
Dec.				
TOTALS				

OTHER

Name of Facility: _____

Location: _____

Type of Fuel: _____

Name of Utility: _____

Billing Month/Yr.	# Days	# of Units (Specify)	Other charges (if applicable)	Total Cost
Jan.				
Feb.				
Mar.				
June				
July				
Aug.				
Sept.				
Oct.				
Nov.				
Dec.				
TOTALS				

Billing Month/Yr.	# Days	# of Units (Specify)	Other charges (if applicable)	Total Cost
Jan.				
Feb.				
Mar.				
June				
July				
Aug.				
Sept.				
Oct.				
Nov.				
Dec.				
TOTALS				

Billing Month/Yr.	# Days	# of Units (Specify)	Other charges (if applicable)	Total Cost
Jan.				
Feb.				
Mar.				
June				
July				
Aug.				
Sept.				
Oct.				
Nov.				
Dec.				
TOTALS				

SITE BASELINE DATA COLLECTION

Please provide as much of the following information as is available.

1. What is your current annual maintenance budget? \$ _____
2. What is the total square footage managed with that budget? _____
3. What is your current maintenance budget for internal staff (salaries and benefits)?
\$ _____
4. What is your annual budget for external maintenance contracts? \$ _____
5. What is the average number of square feet managed per maintenance staff person?

6. What is your current estimate of deferred maintenance in total dollars and dollars per square foot? \$ _____ \$/sf _____
7. What is your current capital budget allocation as a percentage of your total capital budget requests? _____%
8. What is the total annual number of facility maintenance complaints? _____
9. What is the total number of occupants in the building? _____
What is the average number of square feet of building space per building occupant?

10. What is the average number of annual sick days per worker? _____
11. What is the annual number of voluntary worker resignations? _____
12. Please estimate the percentage of your annual maintenance budget that is spent on corrective or reactive maintenance. \$ _____
Please estimate the percentage of your annual maintenance budget that is spent, on preventative, predictive, or proactive maintenance. \$ _____
13. Can you identify any specific building system that has a potentially large negative impact on employee health, productivity or morale? ___ Yes ___ No
If yes, what is that building system?
14. Do you currently track indoor air comfort and air quality complaints? ___ Yes ___ No
15. Do you survey building occupants annually as to IAQ, comfort, and lighting?
___ Yes ___ No

APPENDIX G

INVESTMENT GRADE AUDIT AGREEMENT

This Energy Audit Agreement is entered into on _____, 200_, by and between _____ (the "**Customer**") and _____ (the "**Company**"). The Customer and the Company are referred to herein as the "**Parties**".

Whereas, the Customer has issued an Invitation for Proposals (IFP) to identify a qualified Energy Service Company (ESCO) to implement an energy performance contract (EPC);

Whereas, the Company submitted a response to the IFP and participated in a competitive procurement process designed by the Customer to identify a qualified ESCO;

Whereas, the Customer has selected the Company as a result of its competitive procurement process;

Whereas, the Customer is responsible for the operation, management and maintenance of _____ (the "**Facility**");

Whereas, a comprehensive energy use and savings analysis (the "**Energy Audit**") must be performed at the Facility in order to determine the feasibility of entering into an Energy Performance Contracting Project to provide for the installation and implementation of energy conservation measures (ECMs) at the Facility;

Whereas, if the ECMs are demonstrated to be feasible, and if the amount of energy savings can be reasonably ascertained and guaranteed in an amount sufficient to cover all costs associated with an energy performance contracting project at the Facility, the Parties intend to negotiate an Energy Services Agreement (ESA) under which the Company shall design, procure, implement, provide training, maintain and monitor such energy conservation measures at the Facility;

Therefore, the Parties agree as follows:

ARTICLE 1: SCOPE OF ENERGY AUDIT

The Company will perform the Energy Audit and prepare a detailed engineering and economic report (the "Report") which specifically identifies the energy improvements and operational changes which are recommended to be installed or implemented at the Facility. The Report shall contain detailed projections of energy and cost savings to be obtained at the Facility as a result of the installation of the recommended energy conservation measures (ECMs). The savings calculations must utilize assumptions, projections and baselines which best represent the true value of future energy or operational savings for the Facility, including accurate marginal cost for each unit of savings at the time the audit is performed; documented material and labor costs actually avoided; adjustments to the baseline to reflect current conditions at the Facility, compared to the historic base period; calculations which account for the interactive

effects of the recommended ECMs; etc. The Report shall clearly describe how utility tariffs were used to calculate savings for all ECMs. The Report shall describe the Company's plan for installing or implementing the measures in the Facility, including all anticipated costs associated with such installation and implementation. The primary purpose of the Report is to provide an engineering and economic basis for negotiating an ESA between the Customer and the Company; however, the Customer shall be under no obligation to negotiate such a contract. The Company shall perform the following tasks in performing the Energy Audit and preparing the Report:

A. Collect General Facility Information

The Company shall collect general Facility information such as: size, age, construction type, condition and general use of the Facility. The Company shall also collect and summarize Facility utility cost and consumption data for the most recent 36-month period. Company shall evaluate the impact on utility cost and consumption for any energy measures currently being installed or currently contemplated to be installed by the Customer in the Facility which will remain separate from the Energy Services Agreement for the duration of that agreement.

Customer shall furnish (or cause its energy suppliers to furnish) all available records and data concerning energy and water usage for the Facility for the most current 36 month period, if available, including: Utility records; occupancy information; descriptions of any changes in the structure of the Facility or its heating, cooling, lighting or other systems or energy requirements; descriptions of all major energy and water consuming or energy and water saving equipment used in the Facility; and, description of energy management procedures presently utilized. The Facility shall also furnish a record of any energy related improvements or modifications that have been installed during the past three years, or are currently being installed or are currently contemplated to be installed by the Customer in the Facility separate from the Energy Service Agreement for the duration of that agreement. The Customer shall also provide copies of drawings, equipment logs and maintenance work orders to the Company insofar as this information is readily available.

B. Inventory Existing Systems and Equipment

Company shall compile an inventory based on a physical inspection of the major electrical and mechanical systems at the Facility, including:

- Cooling systems and related equipment
- Heating and heat distribution systems
- Automatic temperature control systems and equipment
- Air distribution systems and equipment
- Outdoor ventilation systems and equipment
- Kitchen and associated dining room equipment, if applicable
- Exhaust systems and equipment
- Hot water systems
- Electric motors 5 HP and above, transmission and drive systems
- Interior and exterior lighting
- Laundry equipment, if applicable
- Water consumption end uses, such as restroom fixtures, water fountains, irrigation, etc.
- Other major energy using systems, if applicable

The inventory shall address the following considerations:

1. The loads, proper sizing, efficiencies or hours of operation for each system; (Where measurement costs, facility operating or climatic conditions necessitate, engineering estimates may be used, but for large fluctuating loads with high potential savings, appropriate measurements are required unless waived by the Customer).
2. Current operating condition for each system;
3. Remaining useful life of each system;
4. Feasible replacement systems
5. Hazardous materials and other environmental concerns

The Company shall use data loggers and conduct interviews with Facility operation and maintenance staff regarding the Facility's systems operation, occupancy patterns and problems with comfort levels or equipment reliability.

C. Establish Base Year Consumption and Reconcile with End Use Consumption Estimates

Company shall examine the most recent 36 months of utility bills and establish Base Year consumption for electricity, fossil fuels and water by averaging; or selecting the most representative contiguous 12 months. Company shall consult with Facility staff and account for any unusual or anomalous utility bills which may skew Base Year consumption from a reasonable representation.

Company shall estimate loading, usage and/or hours of operation for all major end uses representing more than 5% in aggregate of total Facility consumption including, but not limited to:

- Water
- Lighting
- Heating
- Cooling
- HVAC motors (fans and pumps)
- Plug load
- Kitchen equipment
- Other equipment
- Miscellaneous

Where loading and/or usage are highly uncertain Company shall employ spot measurement and/or short term monitoring at its discretion, or at the request of the Customer. Reasonable applications of measurement typically include variable loads that are likely candidates for conservation measures, such as cooling equipment. The annual end use estimated consumption shall be reconciled with the annual Base Year consumption to within 5% for electricity (kWh), fossil fuels and water. The contribution to electric peak demand for each end use shall also be reconciled to within 5% of the annual Base Year

peak. The “miscellaneous” category shall not be more than 5%. The purpose of this is to place reasonable limits on potential savings.

D. Develop List of Potential Energy Conservation Measures (ECMs)

The Company shall:

1. Identify and propose potential ECMs for installation or implementation at the Facility(s), including cut sheets on proposed equipment.¹ For non-standard ECMs provide information regarding product site installations.
2. Provide a detailed estimate of the cost, savings and life expectancy of each proposed ECM.
3. Specify Facility(s) operations and maintenance procedures which will be affected by the installation/implementation of the proposed ECMs.
4. Provide analysis methodology, supporting calculations and assumptions used to derive baselines (e.g. lighting operating hours) and estimate savings. Provide the existing and proposed air and hot water temperatures, amount of outdoor air ventilation (CFMs) lighting and acoustic levels. Provide copies of the utility tariffs and commodity price histories used in savings calculations. Manual calculations should disclose essential data, assumptions, formulas, etc. so that a reviewer could replicate the calculations based on the data provided.
5. For savings estimates using computer simulations, the Company shall provide access to the program and all inputs and assumptions used, if requested by the Agency.
6. Provide a detailed preliminary savings measurement and verification plan for each proposed ECM.
7. Provide a detailed preliminary commissioning plan for the proposed ECMs.
8. Provide detailed calculations for any rate saving proposals.
9. Provide detailed supporting calculations for any proposed maintenance, material or other operational savings. Describe annual variances in savings from year to year (e.g. lighting, warranties).
10. Estimate any environmental costs or benefits of the proposed ECMs (e.g. disposal costs, avoided emissions, water conservation, etc.). Provide emissions reductions data for NOX, CO2 and SO2. Segment emissions data for direct site emissions reductions (e.g. fossil fuels) and indirect emissions reduction data (e.g. electricity/water).

¹ **(Optional)** ECMs of particular interest to Agency are specified in Attachment A and should be addressed in the Report. The attached list is not intended to be exhaustive nor limit the Company's evaluation and development of a comprehensive list of potential ECMs.

11. For all proposed ECMs, Company shall comply with all applicable state, federal and local codes and regulations in effect at the time of this analysis.

This list shall be compiled and submitted to the Customer within ___ days (120 days is recommended) of the execution of this Project Development Agreement.

E. Select Final Recommended ECMs

Company shall, in consultation with the Customer, recommend specific ECMs from its preliminary compilation for installation and implementation at the Facility.

F. Cost and Fee Estimates

Company shall provide detailed estimates of costs associated with the installation, implementation and commissioning of each of the ECMs proposed in the Audit including breakouts for labor, materials, and equipment. In addition, project cost data must be provided in the format included in Attachment B: ESCO Cost Proposal and Cash Flow Analysis.

Company shall also provide estimates of monthly costs associated with sustaining the project performance including breakouts for maintenance fees, monitoring fees, and training fees.

G. Savings Estimates

The Customer has endeavored to provide the Company with sufficient general and specific guidance in this Article 1 to develop the savings estimates for the Report. In the event that questions arise as to the calculation of savings or whether certain items will be allowed as savings, the Company should seek written guidance from the Customer. The Customer reserves the right to reject items claimed as savings which are not in the Customer's utility budget line or which have been claimed contrary to the guidance given in this agreement or contrary to written guidance given to Company. The Customer also reserves the right to reject Company calculations of savings when it determines that there is another more suitable or preferable means of determining or calculating such savings.

For the purposes completing the Cash Flow Analysis in Attachment B, the following items will be allowed as savings or in the development of savings:

- Escalation rates of _____% for natural gas²
- Escalation rates of _____% for electricity
- Escalation rates of _____% for oil
- Escalation rates of _____% for steam
- Escalation rates of _____% for water
- Escalation rates of _____% for other fuel type (specify)
- Escalation rates of _____% for operation and maintenance cost savings
- Escalation rates of _____% for material/commodity cost savings

² It should be noted that the base rate value for each fuel and water unit will not devalue in the event of any rate decrease. The customer reserves the right to impose ceiling rates for fuel escalations.

Escalation rates of _____% for allowable labor savings

The following items will not typically be credited as savings derived from a proposed ECM. The Company may seek exemptions from the Customer on a case-by-case basis. However, the final determination of allowable savings in each case considered shall reside with the Customer:

Customer in-house labor cost
Customer deferred maintenance cost
Offset of future Customer capital cost

H. Report Format

The Company shall prepare a two-volume report as follows:

Each volume should be submitted using 8 ½ " x 11" sheets of paper and a font size no smaller than 10 point. The pages in each volume should be numbered sequentially, include a Table of Contents and tabbed with the visible titles of corresponding Schedules (Volume 1) or Sections (Volume 2).

Volume 1 of 2 shall include the presentation of information in the following Schedules required for the Guaranteed Energy Services Agreement (GESA) to the extent the information has been developed during the course of performing the audit. Preliminary information and incomplete schedules will be finalized during audit negotiations, prior to execution of the ESA.

Schedules

Schedule A	Equipment to be Installed by Company
Schedule B	Energy Savings Guaranty
Schedule C	Compensation to ESCO
Schedule D	Description of the Premises
Schedule E	Calculation of Baseline/Benchmarks; Methodology to Adjust Baselines
Schedule F	Financing Agreement
Schedule G	Company Maintenance Responsibilities
Schedule H	Customer Maintenance Responsibilities
Schedule I	ECMs Operation Parameters/Standards of Comfort and Service
Schedule J	Company Training Responsibilities
Schedule K	Construction and Installation Schedule
Schedule L	Current and Known Future Capital Projects at the Premises
Schedule M	Pre-Installation Equipment Inventory
Schedule N	Methods of Savings Measurement and Verification
Schedule O	Systems Startup and Commissioning of ECMs
Schedule P	Alternative Dispute Resolution Procedures
Schedule Q	Insurance and Bonds
Schedule R	Warranties
Schedule S	Proposed Final Project Costs & Final Project Cash Flow Analysis (See Attachment B at the end of this Energy Audit Agreement)

Exhibits

Exhibit I Performance Bond/Construction Bond

- Exhibit II (i) Certificate of Acceptance—Energy Audit Report
- Exhibit II (ii) Certificate of Acceptance—Installed Equipment

Volume 2 of 2 shall include all of the information required in Section D and the Sections below, and presented in the following format:

1. **Executive Summary:** Provide an executive summary which describes the Facility(s), measures evaluated, analysis methodology, results and a summary table presenting the cost and savings estimates for each recommended measure. Include a summary of the recommended measures and costs using the table format provided below.

	ECM	TOTAL COST	ENERGY COST SAVINGS	SIMPLE PAYBACK
1.				
2.				
3.				
TOTALS				

2. **Measures Not Evaluated:** Include a discussion of measures not evaluated in detail and the explanation of why a detailed analysis was not performed.
3. **Baselines:** Provide a summary of all utility bills, consumption baselines and how they were established, and end use reconciliation with respect to the baselines including a discussion of any unusual characteristics and findings.
4. **ECM Summaries:** Provide detailed descriptions for each ECM including analysis method, supporting calculations (may be submitted in appendices), results, proposed equipment and implementation issues. Provide a financial analysis for each proposed ECM (See Section F).
5. **Cost and Savings Estimates:** Conclusions, observations and caveats regarding cost and savings estimates.
6. **Appendices:** Provide thorough appendices which document the data relied upon to prepare the analysis and how that data was collected.

I. Submission of the Report

The Report shall be completed within ____ days (120 days is recommended) of the date of execution of this Energy Audit Agreement. The cost for the completed Energy Audit and Report will be _____.

ARTICLE 2: ENERGY SERVICES AGREEMENT (ESA)

The Parties intend to negotiate an ESA under which the Company shall design, install and implement energy conservation measures which the Parties have agreed to and provide certain training, maintenance and monitoring services. However, nothing in this Agreement should be construed as an obligation on any of the Parties to execute such an ESA. The terms and provisions of such an ESA shall be set forth in a separate agreement.

ARTICLE 3: PAYMENT

Payment to Company for services performed in connection with the Energy Audit Agreement shall be made by Customer only in accordance with the provisions of Article 4 herein.

ARTICLE 4: TERMINATION

A. By Contractor:

Company may terminate this Agreement prior to the completion of the Energy Audit and Report or subsequent to the scheduled completion of the Energy Audit and Report if:

- (i) it determines that it cannot guarantee a minimum ___% savings in energy costs through the implementation of an energy performance contracting project at the Facility; or
- (ii) it determines that even though it can guarantee a ___% savings in energy costs, that amount would be insufficient to cover the costs associated with performing the Audit, installing energy conservation measures and related training, maintenance and monitoring services.

In the event Company terminates the Agreement pursuant to Section 4 A (i) or (ii) the Customer shall not be obligated to pay any amount to Company for services performed or expenses incurred by Company in performing the Energy Audit and Report required under this Agreement. Company shall provide the Facility with any Audit documents (preliminary notes, reports or analysis) which have been produced or prepared prior to the effective date of the termination. Company will return any documents or information that was provided by the Customer.

Termination under this section shall be effective upon Customer 's receipt of written notification from the Company stating the reason for the termination and all documents which support termination pursuant to 4 A (i) or 4 A (ii) herein.

B. By Customer:

Customer may terminate this Agreement:

- (i) If the Company fails to complete the Energy Audit and deliver the Report to the Customer by the date established in Article 1 H. above; or fails to obtain a written extension of that date from the Customer. Termination under this subsection B (i)

shall be effective upon Company's receipt of written notification from the Customer that the deadline for submission of the Energy Audit and Report has past. In this event, the Customer shall not be obligated to pay any amount to Company for services performed or expenses incurred by the Company in performing the Energy Audit and preparing the Report required under this Agreement. Company shall provide the Facility with any Audit documents (preliminary notes, reports or analysis) which have been produced or prepared prior to the effective date of the termination. Company will return any documents or information that was provided by the Customer.

- (ii) If, prior or subsequent to the completion of the Energy Audit or Report, the Company notifies the Customer in writing that it is unable to guarantee a sufficient level of savings pursuant to subsection 4 A (i) or (ii) above. Termination under this subsection B (ii) shall be effective upon Company's receipt of written notification of termination from the Customer. In this event, the Customer shall not be obligated to pay any amount to Company for services performed or expenses incurred by Company in performing the Energy Audit and preparation of the Report required under this Agreement. Company shall provide the Facility with any Audit documents (preliminary notes, reports or analysis) which have been produced or prepared prior to the effective date of the termination. Company will return any documents or information that was provided by the Customer.
- (iii) If, prior or subsequent to the completion of the Energy Audit or Report, the Customer notifies the Company in writing that it has elected to terminate this Agreement and not enter into an ESA, the Customer shall reimburse the Company for either the actual expenses incurred or percent of the Audit and Report completed as of the effective date of the termination, the amount being determined as fair and equitable by the Customer. Termination under this subsection B (iii) shall be effective upon Company's receipt of written notification from the Customer.

Company agrees to provide the Customer with any records of expenses incurred and any preliminary notes, reports or analyses which have been produced or prepared prior to the effective date of the termination. Such documentation shall be used by the Customer to determine the extent of work completed by Company prior to termination and shall become the property of the Customer.

If after completion and acceptance of the Energy Audit, the Customer does not enter into an ESA with the Company within _____ days (**60 days is recommended**) after written acceptance of the Energy Audit, the Customer agrees to reimburse the Company for the cost of the Energy Audit as detailed herein. Termination under this subsection B (iii) shall be effective upon Company's receipt of written notification from the Customer. The Energy Audit and Report will become the property of the Customer.

It is clearly understood by both parties hereto that, if the Parties successfully negotiate and execute an Energy Services Agreement, no payment shall be due for the Energy Audit or Report under the terms of this Agreement. This Agreement shall automatically terminate upon the execution of an ESA by Company and the Customer for an energy performance contracting project at the Facility. It is further understood that provisions for payment for the Energy Audit shall be incorporated into the ESA.

ARTICLE 5: STANDARD TERMS AND CONDITIONS

SECTION 1. Agreement Term

The Agreement term shall commence on the date the Agreement is executed by the Customer and end on _____, unless earlier terminated pursuant to the provisions of Article 4 hereof. Notwithstanding, Company shall adhere to the deadlines set forth in Article 1 regarding the completion and submittal of the list of ECMs and the Report.

SECTION 2. Materials, Equipment and Supplies

The Company shall provide or cause to be provided all facilities, materials, equipment and supplies necessary to perform the Energy Audit and prepare the Report.

SECTION 3. Patent and Copyright Responsibility

The Company agrees that any material or design specified by the Company or supplied by the Company pursuant to this Agreement shall not knowingly infringe any patent or copyright, and the Company shall be solely responsible for securing any necessary licenses required for patented or copyrighted material utilized by the Company in the performance of the Energy Audit and preparation of the Report.

SECTION 4. Customer Access to Records

The Customer shall have the right, throughout the term of this Agreement and for a minimum of ____ years following completion of the Agreement, to inspect, audit and obtain copies of all books, records and supporting documents which Company is required to maintain according to the terms of this Agreement.

SECTION 5. Personnel

All personnel necessary for the effective performance of the Energy Audit shall be employed by Company and its designated subcontractors, shall be qualified to perform the services required under this Agreement, and shall in all respects be subject to the rules and regulations of Company governing staff members and employees. Neither Company, its designated subcontractors, nor its personnel shall be considered to be agents or employees of the Customer.

SECTION 6. Compliance with Applicable Law

In performance of its obligations pursuant to this Agreement, Company shall comply with all applicable provisions of federal, state and local law. All limits or standards set forth in this Agreement to be observed in the performance required under this Agreement are minimum requirements, and shall not affect the application of more restrictive federal, state or local standards applied to the performance of the Agreement.

SECTION 7. Waivers

No right of either party hereto shall be deemed to have been waived by non-exercise thereof, or otherwise, unless such waiver is reduced to writing and executed by the party entitled to exercise such right.

SECTION 8. Assignment

This Agreement may not be assigned by the Company without the prior written consent of the Customer.

SECTION 9. Federal Taxpayer Identification Number and Legal Status Disclosure

Under penalty of perjury, the Company certifies that ___ - _____ is the Company's correct Federal Taxpayer Identification Number and that the Company is doing business as a Corporation.

SECTION 10. Governing Law

This Agreement shall be governed by and construed only in accordance with the laws of the State of Hawaii.

SECTION 11. Agreement

The following documents are incorporated in, and made a part of, this Agreement:

- Attachment A - Facility's Recommended ECMs (Optional)
- Attachment B – ESCO Cost Proposal and Project Cash Flow Analysis
(Note: Customer should include all required policy provisions which may include the following:)
- Attachment I - Drug Free Workplace Provisions
- Attachment II - Equal Employment Opportunity Clause
- Attachment III - Certification of Capacity to Contract
- Attachment IV- Americans with Disabilities Act
- Attachment V- Certifications

SECTION 12. Project Management

All necessary and ordinary communications, submittals, approvals, requests and notices related to Project work shall be issued or received by:

For Customer:

For Company:

SECTION 13. Amendments

This Agreement and Attachments referenced in Section 11 herein constitute the entire Agreement between the Parties. No amendment hereof shall be effective until and unless reduced to writing and executed by the Parties.

ARTICLE 6: EXECUTION

IN WITNESS WHEREOF, the parties have executed this Agreement this _____ day of _____, 20__.

CUSTOMER _____

COMPANY _____

BY: _____

BY: _____

TITLE: _____

TITLE: _____

BY: _____

BY: _____

TITLE: _____

TITLE: _____

BY: _____

BY: _____

ATTACHMENT A
ESCO's Proposed Project Costs and Cash Flow Analysis
State of Hawaii Energy Performance Contracting Project

Project Name:

Agency Name:

ESCO Name:

Fee Category	Fees ⁽¹⁾ Dollar (\$) Value	Percentage of Hard Costs
Estimated Value of Hard Costs ^{(2):}		
Project Service Fees		
Investment Grade Energy Audit		
Design Engineering Fees		
Construction Management		
System Commissioning		
Initial Training Fees		
Contingency Costs		
Construction Interest		
Project Service Fees Sub Total		
TOTAL FINANCED PROJECT COSTS:		

PROPOSED ANNUAL SERVICE FEES

First Year Annual Service Fees	Fees ⁽¹⁾ Dollar (\$) Value	Percentage of Hard Costs
Measurement and Verification		
ENERGY STAR™ Services		
Maintenance		
Performance Monitoring		
On-going Training Services		
Verification Reports		
TOTAL FIRST YEAR ANNUAL SERVICES		

NOTES:

1. *Fees should include all mark-ups, overhead, and profit. Figures stated as a range will not be accepted.*
2. *The total value of Hard Costs is defined in accordance with standard AIA definitions that include: Labor Costs, Subcontractor Costs, Cost of Materials and Equipment, Temporary Facilities and Related Items, and Miscellaneous Costs such as Permits, Bonds Taxes, Insurance, Mark-ups, Overhead and Profit, etc.*

ESCO's proposed interest rate available at the time of submission:

Financial Institution:

Contact person:

**ATTACHMENT A
ESCO's PROPOSED ANNUAL CASH FLOW ANALYSIS**

For the purposes of preparing the Preliminary Cost Proposal and Preliminary Cash Flow Analysis, a 20-year contract term and interest rate of ____% must be used.

Financed Project Costs: _____	Escalation Rate by Utility/Fuel (To be furnished by Agency)
Finance Term: <u>20 years</u>	Electric: _____
Annual Interest Rate: _____	Water: _____
Construction Months: _____	Other (specify): _____
Annual Payment _____	
Principal _____	
Interest _____	Escalation Rate for Annual Fees: _____

Year	Electric Cost Savings	Water Cost Savings	Other Please Specify	Operational Cost Savings	Total Cost Savings	Maintenance Monitoring, M&V, & Training Fees	Guaranteed Cost Savings	Financing Payment	Net Savings
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									

16									
17									
18									
19									
20									
Total									

**ATTACHMENT B -- FACILITIES RECOMMENDED ECM'S
(Optional)**

APPENDIX H

STATE OF HAWAII

GUARANTEED ENERGY SAVINGS CONTRACT

This **Guaranteed Energy Savings Agreement (GESA)**, dated as of _____, 201__, by and between the **Department of Public Safety (CUSTOMER)**, State of Hawaii with primary offices located at 919 Ala Moana Boulevard, Room 400, Honolulu, Hawaii 96813 and the **Department of Accounting and General Services (AGENT), State of Hawaii**, with primary offices located at 1151 Punchbowl Street, Room 426, Honolulu, Hawaii 96813, **(jointly known as STATE)** and NORESKO LLC with primary offices located at One Research Drive, Suite 400C, Westborough, MA 01581, **(COMPANY)**.

Recitals

WHEREAS, the **STATE** is authorized to enter into this Agreement as provided for in §36-41, State of Hawaii, Hawaii Revised Statutes;

WHEREAS, the **AGENT**, on behalf of the **CUSTOMER** issued an Invitation for Proposals to identify a qualified Energy Service Company to provide **energy conservation measures (ECMs)**, consisting of services, systems and facilities designed to reduce energy consumption and operating costs for the following facilities which are managed and operated by the **CUSTOMER**:

(List facilities)

WHEREAS, as a result of its competitive procurement process, the **AGENT** and the **CUSTOMER** has selected the **COMPANY** as a qualified provider to provide energy performance contracting services herein afterwards called **SERVICES**, which will result in decreased energy consumption and costs, and which may include but are not limited to the following: energy use analyses, the design and delivery of ECMs which consist of systems and devices to be installed and maintained on the Premises, guaranteed energy savings, the training of designated **CUSTOMER** employees, and the maintenance and monitoring of the **ECMs**, as authorized by the **CUSTOMER** and as provided herein, and measurement, verification and reporting of energy savings;

WHEREAS, under separate agreement with the **AGENT**, on behalf of the **CUSTOMER**, the **COMPANY** has performed a comprehensive Investment Grade Audit (IGA) and has prepared an Investment Grade Audit and Report that has been approved and accepted by the **STATE** as evidenced by the Investment Grade Audit and Report dated November 12, 2010 and the **STATE's** Acceptance Certification as set forth in Exhibit II (i), which has been signed by the **AGENT**, with the **CUSTOMER's** concurrence;

WHEREAS, the **COMPANY** has agreed to guarantee a level of energy savings to be achieved as the result of the professional services to be provided under this Agreement;

WHEREAS, the **STATE** has split responsibilities for this Agreement between the **Department of Public Safety (CUSTOMER)** and the **Department of Accounting and General Services (AGENT)**,

the State of Hawaii agencies involved have respectively agreed to accept and execute the responsibilities as outlined in this Agreement.

WHEREAS, the **STATE** objectives set for the energy savings performance contracting program are to: Increase energy efficiency and building performance with the goal of reducing energy usage and demand; to accelerate reducing life cycle cost of operating the buildings including maintenance cost, equipment services life, water use and solid waste generation; and to address the deferred repair and maintenance backlog of projects without CIP funds.

WHEREAS, the project supports the Governor's energy initiatives to: Reduce Hawaii's dependency on imported fossil fuels and associated greenhouse gas emissions; Use Energy Savings Performance Contracting as the delivery method for timely implementation of conservation and efficiency measures; Governor's agreement with U.S. Department of Energy on Hawaii's Clean Energy Initiative; and 70% Clean Energy by 2030 (40% renewable, 30% efficiency).

[NOTE: Should also include the following statements somewhere within the RECITALS:

WHEREAS, all approved **energy conservation measures (ECMs)** under this Agreement will be implemented by the **COMPANY** for a maximum project development cost not to exceed \$XXX, in accordance with the final IGA document November 12, 2010 and **Schedule C (Compensation to COMPANY)** of this Agreement.

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein, and intending to be legally bound hereby, the **STATE (AGENT and CUSTOMER)** and the **COMPANY** hereby covenant and agree as follows:

Article 1: The COMPANY's Rights and Responsibilities

1.1 Independent Company Status

The **COMPANY** is an independent company and in providing its **SERVICES** under this Agreement, shall not represent to any third party that its authority is greater than that granted to it under the terms of this Agreement.

1.2 Legal Responsibility

The **COMPANY** shall perform or cause to be performed the **WORK** (as defined under **Article 4.1**) and all other **SERVICES** (as referenced in the **RECITALS**) required by this Agreement. The **COMPANY** shall assure that all of the **WORK** is accomplished in a workmanlike manner and that all **SERVICES** which require the exercise of professional skills or judgment shall be accomplished by professionals qualified and competent in the applicable discipline and appropriately licensed in the State of Hawaii, if required by law. All **PROJECT DOCUMENTS** (as described under **Article 3.5**) that are required to be prepared by the **COMPANY** shall be in accord with all applicable codes, standards, and regulations and shall be prepared by qualified personnel. Where required by Hawaii law, **PROJECT DOCUMENTS** shall bear the stamp or seal of engineers licensed in the State of Hawaii. The **COMPANY** shall remain responsible for all **SERVICES** performed, whether by

the **COMPANY** or its subcontractors or others on its behalf, throughout the term of this Agreement.

If the **COMPANY** fails to comply with the foregoing standards, the **COMPANY** shall perform again, at its own expense, any and all **WORK** required to be re-performed as a direct or indirect result of such failure. Any review, approval, acceptance or payment for any and all of the **COMPANY'S** performance by the **STATE** shall not relieve the **COMPANY** of its responsibility for the **SERVICES** performed. This provision in no way limits the **STATE'S** rights against the **COMPANY** either under this Agreement in law or in equity.

Prior to execution of this Agreement, the **COMPANY** shall be responsible for submitting to the **AGENT**, proof of compliance with State of Hawaii contractual requirements, such as (but not limited to): tax clearance; Certification of Good Standing; and Certification of Compliance.

1.3 Insurance

The **COMPANY** shall purchase, maintain, and provide evidence of insurance coverage of the types, in the amounts and for the periods specified in **Schedule Q (Insurance and Bonds)**.

On the date described in **Article 5.2** hereof, the **STATE** shall be responsible for providing insurance coverage or self-insurance for the **ECMs**.

The **COMPANY** may not commence performance of the **WORK** or other **SERVICES** under this Agreement until all required insurance is obtained and evidence of it is received and approved by the **AGENT** as described in **Article 2.1**, but the failure of the **STATE** to obtain such evidence from the **COMPANY** before permitting the **COMPANY** to commence the **WORK** shall not be deemed to be a waiver by the **STATE**, and the **COMPANY** shall remain under a continuing obligation to obtain and maintain the required coverage and to supply evidence of coverage in accordance with **Schedule Q (Insurance and Bonds)**.

The **COMPANY'S** failure to obtain or keep such insurance in force shall constitute an Event of Default under this Agreement within the meaning of **Article 11**, and in addition to the remedies provided therein, the **AGENT** reserves the right to stop the **WORK** until evidence of the requisite coverage is provided. The **COMPANY** agrees that its subcontractors insurers shall waive their rights of subrogation against the **STATE**.

The **COMPANY** shall timely renew the required insurance as necessary to keep such coverage in effect for the periods specified in **Schedule Q (Insurance and Bonds)** and shall supply the **AGENT**, not less than thirty (30) days prior to any expiration or renewal dates for such insurance policies, with evidence of all required insurance including updated replacement Certificates of Insurance and amendatory riders or endorsements that clearly evidence the continuation of all coverage in the same manner, limits of protection, and scope of coverage, as was provided by the Certificates of Insurance, amendatory riders or endorsements originally supplied.

The **COMPANY** expressly understands and agrees that any insurance protection furnished by the **COMPANY** hereunder shall in no way limit its responsibility to indemnify, defend and hold harmless the **STATE** under the provisions of this Agreement.

1.4 Performance and Labor and Material Payment Bonds

The **COMPANY** shall prior to commencing the **WORK** deliver to the **AGENT** a Performance Bond and a Labor and Material Payment Bond securing its obligations to be performed under this Agreement until the Acceptance of the **WORK** by the **AGENT** and the **CUSTOMER**. Each bond shall be in the amount set forth in **Schedule Q (Insurance and Bonds)** hereof. The Payment and Performance Bonds required hereunder shall expire upon final acceptance of all **ECMs** required under this Agreement (including any applicable one year warranty period), and shall not secure any energy savings, measurement and verification obligations or maintenance/service obligations, which may be guaranteed by **COMPANY** under this Agreement.

Working days is defined as Monday to Friday, 7:45 – 4:30 pm that are not Hawaii State holidays or posted State furlough days.

Unless otherwise indicated, any reference to “days” in this Agreement shall refer to calendar days.

1.5 Cooperation with the CUSTOMER’S Consultants

The **STATE** reserves the right to designate authorized representatives or to retain consultants at its expense, including an Engineer, to act on its behalf with respect to administering the performance required under this Agreement throughout its term. The **STATE** and its representatives and consultants shall at all times have access to the **WORK**. The **COMPANY** agrees to cooperate with any representative of, or consultant retained by, the **STATE**.

1.6 Joint and Several Liability

Each and every obligation or undertaking herein to be fulfilled or performed by the **COMPANY** shall be the joint and several obligations of the **COMPANY** and its successors or assigns.

1.7 Miscellaneous

- (A) Other rights and responsibilities of the **COMPANY** are set forth throughout this Agreement and in the **PROJECT DOCUMENTS** described in **Article 3.5** hereof and are included under other titles, articles, sections and headings for convenience. It is the responsibility of the **COMPANY** to familiarize itself with all provisions of this Agreement and the **PROJECT DOCUMENTS** in order to understand fully the entirety of its rights and responsibilities hereunder.
- (B) The maximum project development cost under this Agreement will include an authorized project contingency allowance (to be not more than 5% of the total project development cost) which can be used to compensate the **COMPANY** for: unforeseen site conditions; hazardous materials abatement or removal; emergency service repairs; or other project costs authorized by the **STATE**. All remaining balance in the authorized

project contingency allowance under this Agreement will be returned to the **STATE** on the **Commencement Date** of the **COMPANY** performance guarantees.

Article 2: The **STATE'S** Rights and Responsibilities

2.1 Project Administration

During “design-build” implementation of approved **ECMs** under this Agreement, the **AGENT** personnel designated in **Article 10.9** shall be the principal point of contact primarily responsible for the administration, coordination and monitoring of **WORK** by the **COMPANY**. After acceptance of all completed **ECMs** by the **AGENT** and the **CUSTOMER**, the **CUSTOMER** personnel designated in **Article 10.9** shall be the principal point of contact between the **STATE** and the **COMPANY** relative to annual performance guarantees; monitoring and verification issues; and operational and maintenance considerations under this Agreement.

2.2 Responsibilities of the **STATE**

- (A). Tasks to be performed by the **AGENT** in the administration, coordination, and monitoring of this Agreement include, but are not limited to the following areas during the “design-build” phase and warranty period:
- (i) Review and approve required insurance coverage and bonds within ten (10) working days following receipt of such documents by the **AGENT** to ensure compliance with the terms of this Agreement;
 - (ii) Review and approve the **ECM** Submittals required under **Article 2.3** hereof within ten days (10) working days after receipt by the **AGENT** of such **ECM** submittals to ensure:
 - (a) That the design and installation of the **ECMs** is adequately described and illustrated;
 - (b) That the design and installation of the **ECMs** is consistent with current and known future capital projects at the Premises as defined in **Schedule L (Current and Known Future Capital Projects at the Premises)**; and
 - (iii) Review and approve all submittals required under **Articles 2.3 and 3.5** herein, in accordance with the timeframes set forth in **Schedule K (Construction and Installation Schedule)**.
 - (iv) The **AGENT** will formally in writing designate a **STATE** liaison (Project Coordinator) who will:
 - (a) Attend project meetings;
 - (b) Be the point of contact;

- (c) Have the authority to approve any material or schedule changes if needed;
- (d) Approve the completed **ECM** for Substantial Completion and Final Completion
- (e) Process **COMPANY** progress payments in accordance with **Schedule C (Compensation to COMPANY)**;
- (f) Respond to **COMPANY** Requests for Information (RFI).

(B). Tasks to be performed by the **CUSTOMER** under this Agreement include, but are not limited to the following areas:

- (i) **CUSTOMER** will provide the **COMPANY** office space for three (3) people in any of the buildings. The space will contain desks, reference table, and electrical outlets.
- (ii) **CUSTOMER** will provide any and all escorts required for activities associated with this Agreement to support the scheduled completion dates.
- (ii) **CUSTOMER** will provide two (2) parking places reserved for the **COMPANY**.
- (iv) **CUSTOMER** will provide lay down areas for storage of equipment and storage of installation materials,
- (v) **CUSTOMER** will adhere to **Schedule H - CUSTOMER Maintenance Responsibilities**.

2.3 ECMs Submittals

(A). The **COMPANY** will provide **ECM** submittals containing the following in reference information from Sections of the **Investment Grade Audit and Report (IGA document)** November 12, 2010, which are also found in the **Schedules** of this Agreement:

- (i) Existing Site Conditions (see Schedule D)
- (ii) Current Operating Procedures (see Schedule D)
- (iii) Proposed Modifications (see Schedules A, B, and I)
- (iv) Equipment Life Expectancy (see Schedules A, B, and I)
- (v) Operational Changes (see Schedules A, B, and I)
- (vi) Analysis Methodology & Supporting Calculations (see Schedule E)
- (vii) Assumptions / Standards of Operations (see Schedule E)
- (viii) Cut Sheets (see Schedule A)
- (ix) Environmental Benefits (see Schedule B)

(B). After the **STATE** has approved Exhibit II (i) Certification of Acceptance – Energy Audit Report (signed by the **AGENT**, with **CUSTOMER** concurrence), the **COMPANY** shall develop the detail design for the **ECMs** and provide sufficient detail to allow the **STATE** to complete the reviews described in **Article 2.2**, and shall include:

- (i) Date and revision dates
- (ii) Project Number and Title
- (iii) Names, as applicable, of the **STATE** representatives, subcontractor, sub-subcontractor, supplier, manufacturer or detailer
- (iv) Identification of product or material
- (v) Relation to adjacent structure or material

- (vi) Field Dimensions, clearly identified
 - (vii) Specification page and number
 - (viii) Specified standards, such as ASTM or ANSI
 - (ix) Identification of previously approved deviation from **PROJECT DOCUMENTS**
 - (x) Stamp or seal of the preparer of the **ECMs** submittal, and the **COMPANY'S** certification that it has reviewed and approved the submittal as to its accuracy and compliance with the provisions of this Agreement
 - (xi) Drawings, plans, specifications, shop drawings, product data, and where appropriate or reasonably required, product samples
- (C). Within ten (10) working days of receipt of the submittals, the **STATE** shall complete its review of the submittals and provide electronic approval of the submittal or if the submittal has not been approved, written explanation as to the reason therefore. The **COMPANY** shall submit a revised submittal within ten (10) working days to the **AGENT** for review and approval and the **STATE** shall have five (5) working days from receipt thereof to complete its review of the revised submittal. The **COMPANY** shall be responsible for any delays caused by rejection of incomplete or inadequate submittals. The **COMPANY** may not commence any of the **WORK** that requires the submittals without written approval from the **AGENT**.
- (D). The **COMPANY** responsibility for errors, omissions, deviation from existing conditions, or deviation from the **PROJECT DOCUMENTS** in submittals is not relieved by the **STATE'S** review and approval thereof.

2.4 Drawings, Specifications and Surveys Provided by the STATE (also known as Reference Documents)

- (A) Within five (5) working days after the request, the **STATE** will make available for review by the **COMPANY**, any of its working drawings and specifications concerning the Premises which are available to the **STATE** and which are reasonably necessary for the execution of the **WORK**.
- (B) Within five (5) working days after the request, the **STATE** shall provide the **COMPANY** with such surveys as it may have describing the physical characteristics, presence of hazardous materials, legal limitations, and utility locations for the site of the **WORK**.
- (C) Within five (5) working days after the request, the **STATE** will make available for review by the **COMPANY** such working drawings, specifications, surveys and "As-Built" drawings concerning the Premises which are available and which relate to work being performed by other Companies at the Premises;
- (D) All drawings, specifications, surveys and copies thereof furnished by the **CUSTOMER** are and shall remain **STATE** property, but **COMPANY** shall be granted a license to use such **STATE** property. The **STATE** shall hold the **COMPANY** harmless from any suit or proceeding which may be brought by a third party against the **COMPANY** or any of its subcontractors for the alleged infringement of any United States or foreign patents, copyrights, or trademarks, or for a misappropriation of trade secrets arising out of the use of the **STATE** provided property in the performance of this Agreement. All "As-

Built" drawings prepared under this Agreement, are and shall remain **STATE** property. With the exception of one set of such drawings, specifications, surveys and "As-Built" drawings for each party hereto, such drawings, specifications, surveys, and "As-Built" drawings are to be returned or suitably accounted for to the **STATE** on request at the completion of the **WORK**.

2.5 Ownership, Dissemination and Publication of Documents

The drawings, specifications, reports, renderings, models, electronic media, and all such other documents to be prepared and furnished by the **COMPANY** pursuant to this Agreement, shall be the property of the **STATE** upon full payment in accordance with **Article 6.1** and **Schedule C (Compensation to COMPANY)**, and the **STATE** shall have a license to use any copyrighted material contained in such documents. All documents listed above may be issued for informational purposes by the **STATE** without additional compensation to the **COMPANY**.

2.6 Interpretation of Agreement

The **AGENT** shall have the authority to determine questions of fact that arise in relation to the interpretation of this Agreement and the **COMPANY'S** performance hereunder. However, such determinations are subject to the Alternative Dispute Resolution procedures as described in **Schedule P (Alternative Dispute Resolution)**. Unless the Parties agree otherwise, or the **WORK** cannot be continued without a resolution of the question of fact, such determinations and Alternative Dispute Resolution procedures shall not be cause for delay of the **WORK**. The **COMPANY** shall proceed diligently with the performance of the **WORK** unaffected by the dispute and in accordance with the **AGENT'S** decision whether or not the **COMPANY** or anyone else has an active claim pending. Continuation of the **WORK** shall not be construed as a waiver of any rights accruing to the **COMPANY**.

Article 3: The Energy Conservation Project (The "PROJECT")

3.1 PROJECT Defined

The **COMPANY** shall design, procure, fabricate, and install the energy conservation measures (**ECMs**) specified in **Schedule A (Equipment to be Installed by COMPANY)** and provide training, commissioning, maintenance and monitoring, and all other **SERVICES** specified in this Agreement and the **PROJECT DOCUMENTS** set forth in **Article 3.5** at the Premises described in **Schedule D (Description of the Premises)**.

3.2 Investment Grade Audit and Report (IGA Document)

The **Investment Grade Audit (IGA) and Report** prepared by the **COMPANY** and accepted by the **STATE** contains specific recommendations and documentation concerning the energy conservation measures (**ECMs**), systems, and **SERVICES** to be provided at the Premises and is incorporated herein by reference.

3.3 Annual Energy Savings Guaranty

The **COMPANY** has formulated and guaranteed the level of energy and operating cost savings as provided for in **Schedule B (Energy Savings Guaranty)**, which will be achieved each year as a result of the performance by **COMPANY** of the **SERVICES** specified in this Agreement utilizing the Methods of Savings Measurement and Verification set forth in **Schedule N (Methods of Savings Measurement Verification)**.

3.4 Annual Review and Reimbursement

Energy savings achieved at the Premises shall be reported, reconciled and verified pursuant to the provisions of **Schedule N (Methods of Savings Measurement Verification)**. If said annual review, reconciliation, and verification of energy savings discloses that the **COMPANY** has failed to achieve the annual guaranteed energy savings and operating cost savings set forth in **Schedule B (Energy Savings Guaranty)**, the **COMPANY** will pay the **STATE** or the **STATE'S** designee, as may be directed by the **STATE**, the difference between the annual amount guaranteed and the amount of actual annual energy and operating cost savings achieved at the Premises. The **COMPANY** shall remit such payments to the **STATE** within thirty (30) days of written demand therefore by the **STATE**.

No excess annual savings will be credited to satisfy any past savings shortfalls or performance guarantees in future years of the Agreement.

3.5 PROJECT DOCUMENTS

(A) The **PROJECT DOCUMENTS** include:

- (i) The executed **Guaranteed Energy Savings Agreement and Schedules**
- (ii) The final **Investment Grade Audit and Report** dated ?????, which include **COMPANY ECM** Submittals specified in **Article 2.3**.
- (iii) State of Hawaii, Proof of Compliance Documents (see **Article 1.2**)
- (iv) Certificates of Insurance (see **Article 1.3**)
- (v) Executed Performance Bond and Labor and Material Payment Bond (see **Article 1.4**)
- (vi) Drawings, Specifications and Surveys furnished by the **STATE** (also known as Reference Documents) in accordance with **Article 2.4**.
- (vii) "Design-build" documents developed by the **COMPANY** for implementation of approved ECMs under this Agreement (which comply with all applicable codes, regulations, etc, and have the necessary professional stamps, certifications, permit approvals, etc)

(B) The Project Documents also include the following Schedules that are incorporated herein and made a part of this **Agreement** when approved by the **AGENT, CUSTOMER, and COMPANY**:

Schedule A	Equipment to be Installed by COMPANY
Schedule B	Energy Savings Guaranty
Schedule C	Compensation to COMPANY

Schedule D	Description of the Premises
Schedule E	Calculation of Baselines/Benchmarks; Methodology to Adjust Baselines
Schedule F	Financing Agreement (including the State “Equipment Lease Rider”)/Sources of Project Funding (DPW Form 17, project funding budget breakdown sheet)
Schedule G	COMPANY Maintenance Responsibilities
Schedule H	CUSTOMER Maintenance Responsibilities
Schedule I	ECMs Operating Parameters
Schedule J	COMPANY Training Responsibilities
Schedule K	Construction and Installation Schedule
Schedule L	Current and Known Future Capital Projects at the Premises
Schedule M	Pre-Installation Equipment Inventory
Schedule N	Methods of Savings Measurement and Verification
Schedule O	Systems Startup and Commissioning of ECMs
Schedule P	Alternative Dispute Resolution
Schedule Q	Insurance and Bonds (see Articles 1.3 and 1.4)
Schedule R	Warranties
Schedule S	Final Project Cost & Project Cash Flow Analysis
Attachment A	Construction Process Provisions
Exhibit I	Performance Bond/Construction Bond (see Article 1.4)
Exhibit II (i)	Certification of Acceptance--Energy Audit Report
Exhibit II (ii)	Certification of Acceptance of Substantial Completion— Installed Equipment
Exhibit II (iii)	Final Acceptance Certificate for Energy Conservation Project
Exhibit III	Change Order
Exhibit IV	Notice to Proceed

(C) Where there is a conflict or discrepancy between the **PROJECT DOCUMENTS**, the order of precedence shall be as follows:

1. Any approved change orders or amendments under this Agreement
2. **STATE** approved ECM Submittals under **Article 2.3(A)** of this Agreement
3. **Schedules** of this Agreement
4. The base Guaranteed Energy Savings Agreement (**Schedule B** and **Articles 1-14** in entirety)
5. Investment Grade Audit and Report dated November 12, 2010

3.5.1 Reference Documents Furnished by the STATE; No Warranty

Pursuant to **Article 2.4(C)**, the **STATE** shall make available for the **COMPANY’S** review and inspection, such Reference Documents as it may possess which relate to any work being performed by other Companies at the Premises under separate contracts with the **STATE** unrelated to the **COMPANY’S** performance of the **WORK** under this Agreement, including but not limited to drawings, specifications, surveys and “As-Built” drawings. The furnishing of such Reference Documents by the **STATE** shall not constitute a warranty as to the accuracy or completeness of such Reference Documents.

3.5.2 Review of Reference Documents; Notification to the STATE

The **COMPANY** shall carefully review all Reference Documents, including all addenda, whether prepared by the **COMPANY**, its subcontractors or furnished by the **STATE** for errors, inconsistencies, or omissions relative to the performance of the **WORK**. Upon completion of its review of the Reference Documents, and prior to commencing the **WORK**, the **COMPANY** shall provide written notice to the **AGENT** that (i) there are no inconsistencies in the Reference Documents pertaining to the performance of the **WORK** at the Premises; or, (ii) specifying the nature of any conflicts or inconsistencies noted from the **COMPANY'S** review of the Reference Documents. All **WORK** to be performed under this Agreement by the **COMPANY** or its subcontractors, which the **PROJECT DOCUMENTS** indicate is will be in conflict with the ~~Project~~ Reference Documents or the work of other Companies performing on the Premises, shall be brought to the attention of the **STATE** before the **WORK** is commenced.

3.5.3 Correction of Conflicting Work

In the event that the **COMPANY** fails to properly prepare or review **PROJECT DOCUMENTS** or commences the **WORK** without providing notice to the **AGENT** of any conflict it discovers in the Reference Documents, the **COMPANY** shall, prior to Final Project Acceptance and upon written direction from the **AGENT**, remove all such **WORK** or portion thereof so conflicting, and rebuild it as directed at no additional cost to the **STATE**, provided that the Reference Documents furnished by the **STATE** have put the **COMPANY** on reasonable notice that an inconsistency, error, conflict, or omission existed.

Article 4: Implementation of the Energy Conservation Project (the "WORK")

4.1 Description of the WORK

- (A) Under this Agreement, the **WORK** includes: Design, procurement, fabrication, installation and commissioning of the **ECMs** specified in **Schedule A (Equipment to be Installed by COMPANY)**; **ECMs** Submittals under **Article 2.3**; any training services described in **Schedule J (COMPANY Training Responsibilities)**, which are integral to the operation of the **ECMs**; maintenance services to be provided by effective date under **Schedule G (COMPANY Maintenance Responsibilities)**; and measurements to be taken during construction in **Schedule N (Methods of Savings Measurement and Verification)**.
- (B) If needed/as applicable during the "design-build" phase, the **WORK** could also include: unforeseen site conditions; hazardous materials mitigation; authorized emergency repair services, etc which will be handled on a "case-by-case" basis (subject to **AGENT** review and approval of **COMPANY** scope and cost proposal breakdown) using project funding in an approved project contingency allowance.

- (C) The **WORK** does not include any **Post-Acceptance SERVICES** detailed in: **Schedule J (Company Training Responsibilities)**; **Schedule G (Company Maintenance Responsibilities)**; and **Schedule N (Methods of Savings Measurement and Verification)**.

4.2 Performance of the WORK

Construction and equipment installation shall proceed in accordance with the provisions contained in **Attachment A, Construction Process Provisions** and the project installation schedule approved by **AGENT** and attached hereto as **Schedule K (Construction and Installation Schedule)**.

4.3 Systems Startup/Commissioning

The **COMPANY** shall conduct a thorough and systematic performance test of each element and total system of the installed **ECMs** in accordance with **Schedule O (Systems Startup and Commissioning of ECMs)**. The **COMPANY** shall provide advance written notice of at least ten (10) working days to the **AGENT** of the scheduled test(s). The **STATE** shall have the right to designate representatives to be present at any or all such tests including representatives of the manufacturers of the **ECMs**. The **COMPANY** shall demonstrate that all **ECMs** installed comply with the requirements of the **PROJECT DOCUMENTS**. The **COMPANY** shall test all components and systems of the installed **ECMs**. The **COMPANY**, or its subcontractor(s), shall correct or adjust all deficiencies in operation of the **ECMs**.

Article 5: Dates and Term; Interim Period; Fiscal Funding

5.1 Execution Date and Notice to Proceed

- (A) Execution Date ("**Execution Date**") is the date this Agreement is fully executed. The **STATE** hereby represents and warrants to the **COMPANY** that the **STATE** has requested approval to secure project funding and intends to enter into an equipment lease-purchase agreement ("**LEASE**") with a third party lessor or pursue other project financing arrangements.
- (B) Notice to Proceed ("**Notice to Proceed**") is the date when the **AGENT** submits to the **COMPANY Exhibit IV – Notice to Proceed with WORK**. Upon issuance of the **Notice to Proceed** to the **COMPANY**, the **STATE** hereby represents and warrants to **COMPANY** that the **STATE** has project funding allocated and intends to enter into a **LEASE** with a third party lessor.
- (i) **CUSTOMER'S** obligation to make payments pursuant to the **LEASE** will commence on the date that all **ECMs** under this Agreement are installed and accepted by the **STATE**.
- (ii) **CUSTOMER** acknowledges and understands that the amount of the **LEASE** payments will be subject to current market conditions at the time of final credit approval and that the effectiveness of the **LEASE** will be subject to final credit approval.

(iii) **CUSTOMER** further acknowledges that its responsibility for the payments described in this Agreement are in no way contingent on the effectiveness of, or payments made under or pursuant to, the **LEASE**.

(C) During “design-build” implementation of approved **ECMs** under this Agreement, the **AGENT** will process progress payments to the **COMPANY**, in accordance with **Schedule C (Compensation to COMPANY)** and **Article 6.1**, using project funding that are deposited into an escrow account for that purpose.

5.2 Substantial Completion

Substantial Completion (“**Substantial Completion**”) means the date when **WORK** is sufficiently complete on a per **ECM per Building basis** in accordance with the Agreement so that the **CUSTOMER** can occupy or utilize the space and/or equipment for its intended use. The date of **Substantial Completion** shall be documented by **Exhibit II (ii) Certification of Acceptance of Substantial Completion—Installed Equipment for WORK on a per ECM per Building basis** which is signed by the **AGENT**, the **CUSTOMER**, and the **COMPANY**. The warranty period for the systems and equipment attached thereto shall begin on this **Substantial Completion date** on a per **ECM per Building basis**.

5.3 Commencement Date of Savings Guarantee

(A) The **Commencement Date** shall be the first day of the month after the month in which all of the **Schedules** are in final form and accepted by the **CUSTOMER** and the **COMPANY** shall have delivered a written Notice to the **CUSTOMER** that (i) it has completed the installation and commissioning and commenced operating all of the energy conservation measures (**ECMs**) specified in **Schedule A (Equipment to be Installed by COMPANY)**; (ii) no Event of Default under **Article 11** exists; and, (iii) the **Guaranteed Energy Savings Agreement (GESA)** set forth in **Schedule B (Energy Savings Guaranty)** is in full force and effect; and the **AGENT** has inspected and accepted said installation and operation as evidenced by the **Final Acceptance Certificate** for this Energy Conservation Project as set forth in **Exhibit II (iii)**.

(B) Compensation payments due to **COMPANY** for annual project monitoring, savings measurement and verification, reporting and maintenance services under this Agreement as set forth in **Schedule C (Compensation to COMPANY)** shall begin no earlier than the date of the **Final Project Acceptance**, pursuant to the **STATE** approved **Exhibit II (iii) Final Acceptance Certificate** for this Energy Conservation Project

5.4 Term of Agreement; Interim Period

(A) Subject to the following sentence, the term of this Agreement shall be twenty (20) years measured beginning with the **Commencement Date**. Nonetheless, the Agreement shall be effective and binding upon the parties immediately upon its execution (“**Execution Date**”), and the period running from **Notice to Proceed** until the **Commencement Date** shall be known as the “**Interim Period**.” All energy savings achieved during the **Interim Period** will be fully credited to the **CUSTOMER**.

- (B) Term of the **SERVICES** to be provided under **Schedule G (COMPANY Maintenance Responsibilities)** begins at the **Notice to Proceed** for one year with four extensions. Each year the **CUSTOMER** and the **COMPANY** will update the **Schedule G (COMPANY Maintenance Responsibilities)** compensation based on increases in the Consumer Price Index changes, Hawaii prevailing wages increases, and increases in taxes as outlined in **Schedule C (Compensation of to COMPANY)**. Additional extensions, if any, will be amendments to this Agreement (with **AGENT** concurrence).
- (C) The **COMPANY** and **CUSTOMER** (with **AGENT** concurrence) will also have the option to amend this Agreement for additions of equipment at the Premises not currently under **Schedule G (COMPANY Maintenance Responsibilities)**.

5.5 Non-appropriation of Funds

In accordance with **§36-41, State of Hawaii, Hawaii Revised Statutes**, the continuation of this Agreement is contingent upon the appropriation of funds by the State Legislature or budget authority to fulfill the requirements of the Agreement. If that authority fails to appropriate sufficient funds to provide for the continuation of the Agreement, the Agreement shall terminate on the last day of the fiscal year for which allocations were made. The termination shall be without penalty or expense to the **STATE** of any kind whatsoever, except as to the portions of payments for which funds were appropriated and budgeted or are otherwise available.

5.6 Non-substitution

In the event of a termination of this Agreement due to the non-appropriation of funds or in the event this Agreement is terminated by **COMPANY** due to a default by the **STATE**, the **STATE** agrees, to the extent permitted by Hawaii law, not to purchase, lease, rent, borrow, seek appropriations for, acquire, or otherwise receive the benefits of any of the same and unique **SERVICES** performed by **COMPANY** under the terms of this Agreement for a period of three-hundred sixty five (365) days following such default by the **STATE**, or termination of this Agreement due to non-appropriations.

Article 6: COMPANY Compensation

6.1 COMPANY Compensation for the WORK

Payments to the **COMPANY** for the **WORK** shall be made by the **AGENT** substantially in the amounts and in accordance with **Schedule C (Compensation to COMPANY)** hereto. The amount specified as Compensation for the **WORK** is inclusive of all costs and fees to be paid for the **WORK** pursuant to this Agreement including any maintenance, monitoring, savings measurement, verification and reporting, and training services provided prior to acceptance of the **PROJECT** by the **AGENT** and as provided for in **Schedule G (COMPANY Maintenance Responsibilities)**, **Schedule J (COMPANY Training Responsibilities)**, **Schedule N (Methods of**

Savings Measurement and Verification). The actual monthly billing will be based on the progress of the **WORK** and document(s) in the **COMPANY'S** monthly invoice to the **AGENT**.

6.2 Maintenance, Monitoring, Savings Measurement and Verification and any Post-Acceptance Training Fees

Payment to the **COMPANY** for **Post-Acceptance** maintenance, monitoring, savings measurement, verification and reporting, and Training services performed after the **Commencement Date** shall be made by the **CUSTOMER** pursuant to and in accordance with **Schedule C (Compensation to COMPANY)**.

Article 7: Acceptance

7.1 Acceptance of the WORK

Acceptance of the **WORK** shall occur on a per **ECM per Building basis** when the **COMPANY's** performance of that portion of the scope of the **WORK** is complete, in accordance with the **PROJECT DOCUMENTS** such that the **CUSTOMER** can utilize the installed **ECMs** for their intended use and the **STATE** has inspected and accepted said installation and operation as evidenced by the **Certification of Acceptance** as set forth in **Exhibit II (ii)**. The **COMPANY's** obligations under **Article 8.1 ECM Warranties** will begin upon Acceptance of the **WORK** on a per **ECM per Building basis**.

Final acceptance of all the **WORK** shall occur when the **COMPANY's** performance of the scope for the **WORK** is complete, in accordance with the **PROJECT DOCUMENTS** such that the **CUSTOMER** can utilize the installed **ECMs** for their intended use and the **STATE** has inspected and accepted said installation and operation as evidenced by the **Certification of Acceptance** as set forth in **Exhibit II (iii)**.

7.2 Required Acceptance Submittals by the COMPANY

The **COMPANY** shall submit the following documents to the **AGENT** with its **Notice of Final Completion**:

- (A) All Project Record Documents as described in **Article 3.5**;
- (B) All releases of liens arising out of this Agreement, or receipts in full in lieu thereof, which were not previously delivered, and an affidavit that so far as the **COMPANY** has knowledge or information, the releases and receipts include all labor and material for which a lien could be filed. The **COMPANY** shall submit lien waivers, sworn statements, guarantees, full releases, or other evidence reasonably satisfactory to the **AGENT** that there are no liens, claims, or stop notices pending, filed, or threatened against the **STATE**, the **COMPANY**, the **WORK** or the **ECMs** whatsoever. The **COMPANY** may, if any subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the **AGENT** to indemnify the **STATE** against any lien. If any lien remains unsatisfied after the **COMPANY** has received payment due for the **WORK**, the **COMPANY** shall refund to

the **STATE** all moneys that the **STATE** may be compelled to pay in discharging the lien, including all costs and reasonable attorney fees;

(C) Certificates of inspection for all **ECMs** that require local government inspection;

(D) **Final Acceptance Certificate** for this Energy Conservation Project.

(E) The **COMPANY** will be paid all retainage amounts at the completion of and acceptance by the **AGENT** of final punch list items.

Article 8: The Energy Conservation Measures (ECM)

8.1 ECM Warranties

The **COMPANY** warrants that all **ECMs** designed, procured, fabricated, and installed pursuant to this Agreement are new, in good and proper working condition and are of merchantable quality and fit for the particular purposes of enabling the **CUSTOMER** to reduce energy consumption and annual operating costs. The **COMPANY** further warrants that the **ECMs** are protected by appropriate written warranties covering all parts and equipment performance for the periods specified in **Schedule R (Warranties)**. The **COMPANY** shall deliver to the **AGENT** for inspection and approval all such written warranties and shall pursue rights and remedies against the manufacturer and each prior seller of the **ECMs** under the warranties in the event of equipment malfunction, improper or defective function, or defects in parts, workmanship, or performance. The **COMPANY** shall be responsible for managing all warranty activity during the warranty periods set forth in **Schedule R (Warranties)** beginning upon Substantial Completion of each **ECM** on a per **ECM per Building basis** and shall notify the **STATE** whenever defects in equipment, parts or performance occur which give rise to such rights and remedies and those rights and remedies are exercised by the **COMPANY**. The cost of any damage, loss or claims by any person arising out of the use or operation of the **ECMs** or damage to the **ECMs** and their performance, including damage to other property and equipment of the **CUSTOMER** or the Premises, due to the **COMPANY's** failure to exercise its warranty rights shall be borne solely by the **COMPANY**.

All transferable warranties shall be transferred and shall extend to the **CUSTOMER**. The warranties shall specify that only new, and not reconditioned, parts may be used and installed when repair is necessitated by malfunction. The **COMPANY** warrants that all workmanship, materials, and equipment used in conjunction with the **ECMs** will be in conformance with the **PROJECT DOCUMENTS** and free from defects for the period, commencing with the date of the **Substantial Completion** of each **ECM** on a per **ECM per Building basis** and continuing for the period set forth in **Schedule R (Warranties)**.

8.2 Correction of Warranted Work

(A) Commencing with the date of **Substantial Completion** of each **ECM** on a per **ECM per Building basis** and continuing for the warranty periods set forth in **Schedule R (Warranties)** for each **ECM**, or within such longer period of time as may be prescribed

by law or by the terms of any applicable special warranty required by the **PROJECT DOCUMENTS**, the **COMPANY** shall correct or replace all faulty, defective or nonconforming **WORK** in accordance with the timeframes set forth in **Article 8.2(C)**. After receipt of written notice from the **STATE** to correct such fault or defect, whether it was observed before or after acceptance of the **WORK** the **COMPANY** will correct the **WORK** unless the **STATE** has given the **COMPANY** a written waiver of the specific fault or defect. Notice may be given by telephone in the event of an emergency situation. The **COMPANY** shall bear all costs of replacing or correcting such faulty, defective or non-conforming **WORK**.

- (B) The **COMPANY** shall, at its own expense, remove from the Premises all portions of defective and non-conforming **WORK** that **COMPANY** is obligated to replace or correct under **Article 8.2** unless removal has been waived in writing by the **STATE**.
- (C) If the **COMPANY** fails to begin to correct faulty, defective or non-conforming **WORK** as provided under **Article 8.2** within twenty-four (24) hours after notice, in the case of emergency conditions, or within five (5) working days in other cases after the **COMPANY'S** receipt of written notice from the **AGENT** of such faulty, defective or non-conforming **WORK**, the **AGENT** may correct such work at the **COMPANY'S** expense including costs incurred due to the removal of faulty, defective or non-conforming and removal and storage of equipment or materials left at the Premises by the **COMPANY**. The **COMPANY** shall identify to the **AGENT** the expected repair time and make needed corrections within the stated time. The **COMPANY** shall make its best effort to expedite repairs that are considered emergency conditions.
- (D) If the **COMPANY** does not pay the cost incurred by the **AGENT** for such repair, removal and storage within ten (10) days of written demand therefore, the **STATE** may upon ten (10) additional days' written notice, sell any material and equipment not removed by the **COMPANY** at auction or at private sale and shall account for the net proceeds thereof, after deducting all the costs that should have been borne by the **COMPANY**. If such proceeds of sale do not cover all costs that the **COMPANY** should have borne, the difference shall be charged to the **COMPANY**. If the payments then or thereafter due the **COMPANY** are not sufficient to cover such amount, the **COMPANY** shall pay the difference to the **STATE**.
- (E) The **COMPANY** shall bear the cost of repairing or replacing all work of other Companies destroyed or damaged by such removal or correction.
- (F) Nothing contained in **Article 8.2** shall be construed to establish a period of limitation with respect to any other obligation that the **COMPANY** might have under the **PROJECT DOCUMENTS**. The establishment of the time period set forth in **Article 8.2(A)** above, relates only to the specific obligation of the **COMPANY** to correct the **WORK** and has no relationship to the time within which its obligation to comply with the **PROJECT DOCUMENTS** may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the **COMPANY'S** liability with respect to its obligations other than to specifically correct the **WORK**. Notwithstanding the provisions of **Article 8.2**, the **COMPANY** shall, on demand made by the **STATE**, at any time within the ten (10) year period following Acceptance, promptly repair or replace all defective or non-

conforming work resulting from fraudulent misrepresentation, fraudulent concealment or gross negligence by the **COMPANY** or its subcontractors in the performance of the **WORK**.

8.3 Location and Access

The **CUSTOMER** shall provide sufficient space at the Premises for the installation and operation of the **ECMs** for the term of this Agreement, including access as outlined in **Article 2.2(B) Responsibilities of the CUSTOMER** to allow the **COMPANY** to perform required maintenance, monitoring, and training services. The **CUSTOMER** shall provide access to the Premises for the **COMPANY** and its employees or subcontractors to install, adjust, inspect, maintain, and repair the **ECMs** in accordance with the terms of this Agreement during regular business hours, or such other reasonable hours as may be requested by the **COMPANY** and acceptable to the **CUSTOMER**. The **COMPANY's** access to correct any emergency condition shall not be unreasonably restricted by the **CUSTOMER**.

8.4 Company Maintenance and Monitoring Responsibilities for ECMs

The **COMPANY** shall be responsible for providing the maintenance, monitoring, repairs, and adjustments to the **ECMs** as set forth in **Schedule G (COMPANY Maintenance Responsibilities)**. All replacements of and alterations or additions to the **ECMs** shall become part of the **ECMs** and shall become the property of the **CUSTOMER**. Any replacements of and alterations or additions made by the **COMPANY** to the **CUSTOMER'S** pre-existing equipment, or equipment acquired by the **CUSTOMER** during the term of this Agreement, shall become part of said equipment and be owned by the **CUSTOMER**. The **COMPANY** shall be compensated for such maintenance and monitoring services pursuant to **Schedule C (Compensation to COMPANY)** hereof. In the event of the **COMPANY's** failure to provide maintenance, service, repairs and adjustments to the **ECMs**, as provided in **Schedule G (COMPANY Maintenance Responsibilities)** or if an **Event of Default** exists pursuant to **Article 11**, the **CUSTOMER** may withhold fees due to the **COMPANY** for such **SERVICES** until such repairs or adjustments are completed or such Event of Default is cured. The **CUSTOMER** shall notify the **COMPANY** in writing when any payments are so withheld. The withholding of fees by the **CUSTOMER** under **Article 8.4** shall not release the **COMPANY** from its obligation to provide the **Guaranteed Energy Savings (GES)** pursuant to **Article 3.3** and the **Schedule B (Energy Savings Guaranty)** hereof.

8.5 CUSTOMER Operating and ECMs Maintenance Responsibilities

The **CUSTOMER** shall be responsible for providing the maintenance, monitoring, service, repairs and adjustments to the **ECMs** as set forth in **Schedule H (CUSTOMER Maintenance Responsibilities)**, whereby the **CUSTOMER** shall not move, modify, remove, adjust, alter or change in any material way the **ECMs**, or any part thereof, during the term of this Agreement, without prior written direction or approval of the **COMPANY** (such approval not to be unreasonably withheld, conditioned or denied), except in the event of an occurrence reasonably deemed by the **CUSTOMER** or the **COMPANY** to constitute a bona fide emergency. The **CUSTOMER** acknowledges that substantial deviations from the operating parameters set forth in the **Schedules** of this Agreement may constitute a **Material Change** in accordance with **Article 9.3** hereof. In addition to the responsibilities set forth in **Schedule H (CUSTOMER Maintenance**

Responsibilities), the **CUSTOMER** shall use its best efforts to maintain the Premises in good repair and to protect and preserve the **ECMs** in good repair and condition in accordance with applicable manufacturers' recommendations which shall be provided to the **CUSTOMER** by the **COMPANY** and to maintain the operating conditions of all mechanical systems and energy related systems located at the Premises. The **COMPANY** shall notify the **CUSTOMER** of any improper maintenance or repair as soon as **COMPANY** has notice thereof. The **CUSTOMER** acknowledges that improper repairs or maintenance of the **ECMs** may constitute a **Material Change** in accordance with **Article 9.3**, and that the provisions of **Article 9.5** may be applicable.

8.6 Training by the COMPANY

The **COMPANY** shall conduct the training program described in **Schedule J (COMPANY Training Responsibilities)** hereto.

8.7 ECMs Upgrades; Alterations

The **COMPANY** shall have the right, at all times during the term of this Agreement, subject to a written approval signed by the **AGENT** and the **CUSTOMER**, to modify or replace any of the **ECMs** or install additional **ECMs** and to revise any procedures for the operation of the **ECMs** or implement other procedures at the Premises provided that: (i) such actions by the **COMPANY** do not result in modifying the standards of comfort and service set forth in **Schedule I (ECMs Operating Parameters)** without the express written approval of the **CUSTOMER**; (ii) such modifications or additions to, or replacements of the **ECMs**, and any operational changes, or new procedures are necessary to enable the **COMPANY** to achieve the energy savings guaranteed by the **COMPANY** at the Premises and (iii) any costs incurred relative to such modifications, additions or replacements of the **ECMs**, or operational changes or new procedures shall be the responsibility of the **COMPANY**. All modifications, additions or replacements of the **ECMs** or revisions to operating or other procedures shall be described in a supplemental **Schedule(s)** to be provided to the **AGENT** and the **CUSTOMER** for approval, which shall not be unreasonably withheld, and incorporated into this Agreement provided that any replacement **ECM** shall be new and have equal or better potential to reduce energy consumption at the Premises than the **ECM** being replaced. The **COMPANY** shall update any and all software to be used in connection with the **ECMs** in accordance with the provisions of **Schedule G (COMPANY Maintenance Responsibilities)**. All replacements of and alterations or additions to the **ECMs** shall become part of the **ECMs** described in **Schedule A (Equipment to be Installed by COMPANY)** and shall become the property of the **CUSTOMER**. The **COMPANY** and the **AGENT** shall determine in accordance with the provisions of **Article 9.5**, what, if any, adjustments to the Baseline/Benchmarks set forth in **Schedule E (Calculation of Baseline/Benchmarks; Methodology to Adjust Baselines)** are necessary due to upgrades or alterations of the **ECMs** which are necessary to enable the **COMPANY** to achieve the level of energy savings guaranteed by the **COMPANY**.

8.8 Malfunction and Emergencies

The **CUSTOMER** shall use its best efforts to notify the **COMPANY** or its designee within forty-eight (48) hours after the **CUSTOMER'S** actual knowledge of the occurrence of:

- 8.8.1** Any material malfunction in the operation of the **ECMs** or any pre-existing energy-related equipment;
- 8.8.2** Any material interruption or alteration of the energy supply to the Premises;
- 8.8.3** Any material alteration or modification in the **ECMs** or their operation; and
- 8.8.4** Any material alteration, modification or change in the Premises or the use of the Premises.

The **CUSTOMER** shall use its best efforts to notify the **COMPANY** as soon as reasonably possible shall be deemed satisfied if the **CUSTOMER** reports any said material malfunction, interruption, alteration, modification, or change within forty-eight (48) hours of the **CUSTOMER'S** actual knowledge thereof.

The **COMPANY** and the **AGENT** shall determine in accordance with **Article 9.5** what, if any, adjustments to the Baseline/Benchmarks set forth in **Schedule E (Calculation of Baseline/Benchmarks; Methodology to Adjust Baselines)** are necessary due to any of the events described under **Article 8.8**.

8.9 Responsibility for ECM Malfunction

During the **Interim Period**, including the applicable one-year warranty period, **COMPANY** agrees to compensate the **CUSTOMER** for damages to real or personal property, resulting from **ECM** malfunction due solely or in part to nonperformance or error by the **COMPANY**. Anything herein notwithstanding and with the exception of any indemnity obligations for third-party claims, in no event shall either the **STATE** or the **COMPANY** be liable to the other party for special, indirect, incidental or consequential damages, including commercial loss, loss of use, or lost profits, even if either party has been advised of the possibility of such damages.

8.10 Ownership of Certain Proprietary Property Rights (Software, Processes, Copyrights, Patents, Other Intellectual and Proprietary Rights, etc)

The **CUSTOMER** shall acquire no ownership interest in any software, formulas, patterns devices, secret inventions or processes, or copyright, patents, and other intellectual and proprietary rights, or similar items of property that are or may become used in connection with the **ECMs**. The **COMPANY** shall grant to the **CUSTOMER** a perpetual, irrevocable royalty-free license of any and all software or other intellectual property rights necessary for the **CUSTOMER** to continue to operate, maintain, and repair the **ECMs** in a manner that will maximize energy consumption reductions for the term of the Agreement. **CUSTOMER** shall be responsible for the cost of any software upgrades or new versions offered by the developers of the installed software, should the **CUSTOMER** select to upgrade the installed software.

Article 9: The Premises

9.1 Description of the Premises

The Premises in which the **ECMs** are to be installed and **SERVICES** are to be provided by the **COMPANY** under this Agreement are described in **Schedule D (Description of the Premises)**.

9.2 Ownership of Existing Property

The Premises and all equipment and materials existing at the Premises at the time of execution of this Agreement shall remain the property of the **CUSTOMER**.

9.3 Material Change Defined

A-Material Change (“**Material Change**”) shall include any change in or to the Premises, not covered by **Schedule B (Energy Savings Guaranty)**, whether structural, operational or otherwise in nature which reasonably could be expected, in the judgment of the **AGENT** and concurrence of the **COMPANY** to increase or decrease annual costs of energy usage by at least three percent (3%) of the expected energy consumption in the aggregate, after adjustments for climatic variations. Actions by the **CUSTOMER** that result in a **Material Change** which is subject to **Article 9.3**, include, but are not limited to the following:

- 9.3.1 Changes in the manner of use of the Premises by the **CUSTOMER**; or
- 9.3.2 Changes in the hours of operation for the Premises or for any equipment or energy using systems operating at the Premises; or
- 9.3.3 Permanent changes in the comfort and service operational parameters set forth in **Schedule I (ECMs Operating Parameters)**; or
- 9.3.4 Changes in the occupancy of the Premises; or
- 9.3.5 Changes in the structure of the Premises; or
- 9.3.6 Changes in the types and quantities of equipment used at the Premises; or
- 9.3.7 Modification, renovation or construction at the Premises; or
- 9.3.8 The **CUSTOMER’S** failure to provide maintenance of and repairs to the **ECMs** pursuant to **Article 8.5** hereof; or
- 9.3.9 Any significant damage to the Premises or the **ECMs** caused by fire, flood, or other casualty or any condemnation affecting a significant portion of the Premises; or
- 9.3.10 The permanent or temporary closing of a building at the Premises; or

9.3.11 Any other substantially changed condition, other than weather, affecting energy use at the Premises.

9.4 Reported Material Changes; Notice by CUSTOMER

The **CUSTOMER** shall use its best efforts to deliver to the **COMPANY** a written notice describing all actual or proposed **Material Changes** in the Premises or in the operations of the Premises no less than thirty (30) days before any actual or proposed **Material Change** is implemented.

Notice to the **COMPANY** of **Material Changes** which result because of a bona fide emergency or other situation which precludes advance notification shall be deemed sufficient if given by the **CUSTOMER** within forty-eight (48) hours after the event constituting the **Material Change** occurred or was discovered by the **CUSTOMER** to have occurred.

9.5 Reported Material Changes; Adjustments to Baseline/Benchmarks

Any changes in energy usage which occur as the result of a **Reported Material Change** shall be timely reviewed by the **COMPANY** and the **AGENT** to determine what, if any, adjustments to the Baseline/Benchmarks set forth in **Schedule E (Calculation of Baseline/Benchmarks; Methodology to Adjust Baselines)** are necessitated by such **Material Change(s)**. The **COMPANY** and the **AGENT** agree that any adjustments made to the Baseline/Benchmarks shall be in accordance with generally accepted engineering principles. Any disputes between the **COMPANY** and the **AGENT** concerning any such adjustment shall be resolved in accordance with the provisions of **Schedule P (Alternative Dispute Resolution Procedures)** hereto.

9.6 Unreported Material Changes

Upon and after the **Commencement Date** and in the absence of any **Reported Material Change(s)** in the Premises or in their operations, if energy savings deviate more than five percent (5%) percent during any year from projected energy savings for that year, after adjustment for changes in climatic conditions, then the **COMPANY** shall timely review such changes to ascertain the cause of such deviation. The **COMPANY** shall report its findings to the **STATE** in a timely manner consistent with **Schedule E (Calculation of Baseline/Benchmarks; Methodology to Adjust Baselines)**, **Schedule N (Methods of Savings Measurement and Verification)** and **Schedule B (Energy Savings Guaranty)**. The **COMPANY** and the **AGENT** shall determine what, if any, adjustments to the Baseline/Benchmarks set forth in **Schedule E (Calculation of Baseline/Benchmarks; Methodology to Adjust Baselines)** are necessary. Any disputes between the **COMPANY** and the **AGENT** concerning any such adjustment shall be resolved in accordance with the provisions of **Schedule P (Alternative Dispute Resolution)** hereto.

9.7 Handling of Hazardous Materials

All work completed under this Agreement must be in compliance with all applicable Federal, State and County laws, rules and regulations regarding waste disposal and treatment/disposal of any hazardous materials that could result from this project. **WORK** must also be in accordance with sound engineering and safety practices, and in compliance with all reasonable **STATE** rules relative to the premises. In the event the **COMPANY** encounters any such materials,

the **COMPANY** shall immediately notify **STATE** and stop work pending further instructions from the **STATE**. The **STATE** may, in its sole discretion, suspend work on that portion of the project pending removal of such materials, delete that portion of the **WORK** (as a credit to the **STATE**); or the **AGENT** will authorize the **COMPANY** to submit a scope and budget proposal breakdown for abatement or removal of the hazardous materials in a manner that will facilitate timely completion of **WORK** by the **COMPANY**, whereby the **COMPANY** will be compensated for this additional scope with **GESA** contract funds set aside as an authorized project contingency allowance. All hazardous substances not specifically included in the **COMPANY'S WORK**, however, remain the responsibility of **STATE** and the **COMPANY** shall assume no liability in connection with their removal, handling, transportation, and/or disposal unless authorized to do so by the **AGENT**. In all instances, with the only exception being those hazardous materials that **COMPANY** brings to the site, the **STATE** will be the "Generator" of record and sign any and all disposal documents (i.e. manifests, bills of lading, etc.) in order to document the abatement or removal of any such hazardous materials from the **STATE'S** site or Premises.

Article 10: General Terms and Conditions

10.1 Assignment

The **COMPANY** acknowledges that the **STATE** is induced to enter into this Agreement by, among other things, the professional qualifications of the **COMPANY**. The **COMPANY** agrees that neither this Agreement nor any right or obligation hereunder may be assigned in whole or in part, without the prior written approval of the **AGENT**.

10.1.1 Assignment by COMPANY

The **COMPANY** may, with prior written consent of the **AGENT**, which consent shall not be unreasonably withheld, delegate or assign its duties and its performance under this Agreement, and/or utilize subcontractors, provided that any assignee(s), delegatee(s), or subcontractor(s) shall honor the terms of this Agreement. Notwithstanding the provisions of this paragraph, the **COMPANY** shall remain jointly and severally liable with its assignee(s), or transferee(s) to the **AGENT** for all of its obligations under this Agreement.

10.1.2 Assignment by the CUSTOMER

The **STATE** may, transfer or assign this Agreement and its rights and obligations herein to a successor or purchaser of the Premises, or an interest therein, subject to the approval of the **COMPANY** that will not be unreasonably withheld.

10.2 Duty to Indemnify

The **COMPANY** shall defend, indemnify, keep and save harmless the **STATE** and its agents and employees against all suits, claims, damages, losses and expenses, including attorney's fees, caused by, growing out of, or incidental to, the wrongful or negligent performance of the **WORK**

under this Agreement by the **COMPANY** or its subcontractors to the fullest extent allowed by the laws of the State of Hawaii provided that the **AGENT** shall promptly notify the **COMPANY** of any suits or claims and shall allow **COMPANY**, at its sole expense, to settle or defend and control the defense of any suit based upon such claim or claims. In the event of any such injury (including death) or loss or damage, or claims therefore, the **COMPANY** shall give prompt notice to the **AGENT**. The **COMPANY'S** subcontractors shall include the foregoing as parties as to whom indemnification is due under their subcontracts. Provided, however, that in no event shall the **COMPANY** be obligated to indemnify the **STATE** to the extent that any injury or damage is caused by the negligence of the **STATE** or any entity or person for which the **STATE** is legally responsible.

10.2.1 Effect of Statutory Limitations

In the event of any claim against the **STATE** or against any of its officials or employees, in either their personal or official capacities, made by any direct or indirect employee or agent of the **COMPANY** or of any subcontractor, the **COMPANY'S** indemnification obligation shall not be affected by any limitation on the amount or type of damages, compensation or benefits payable to said employee or agent contained in any other type of employee benefit act.

10.2.2 Intellectual Property Claims Indemnification

The **COMPANY** shall protect, defend, indemnify, and hold the **STATE** harmless against and from any and all claims, judgments, amounts paid in settlement, costs and expenses, including reasonable attorneys' fees relating to alleged patent, trademark or copyright infringement, misappropriation of proprietary rights, or trade secrets or similar claims, resulting from actions taken by the **COMPANY** in connection with this Agreement.

10.3 Alternative Dispute Resolution (ADR)

The provisions for Alternative Dispute Resolution (ADR) attached as **Schedule P (Alternative Dispute Resolution Procedures)** shall govern the resolution of any disputes arising relative to the terms of, or performance required by, this Agreement.

10.4 No Waiver

The failure of **COMPANY** or the **AGENT** to insist upon the strict performance of the terms and conditions hereof shall not constitute or be construed as a waiver or relinquishment of either Party's right to thereafter enforce the same in accordance with this Agreement in the event of a continuing or subsequent default on the part of the **COMPANY** or the **STATE**, unless specifically waived.

10.5 Severability

It is agreed that the illegality or invalidity of any term or clause of this Agreement, shall not affect the validity of the remainder of this Agreement, and this Agreement shall remain in full force and effect as if such illegal or invalid term or clause were not contained herein.

10.6 Complete Agreement; Amendments

This Agreement, when executed, together with all Project Documents and Schedules referred to in **Article 3.5** and any other exhibits or attachments referred to in this Agreement, shall constitute the entire agreement between the Parties and this Agreement may not be amended or modified except by a written agreement signed by the Parties hereto.

10.7 Further Documents

The Parties shall execute and deliver all documents and perform all further acts that may be reasonably necessary to effectuate the provisions of this Agreement.

10.8 Applicable Law

This Agreement and the construction and enforceability thereof shall be interpreted under the laws of the State of Hawaii.

10.9 Notices

Two (2) copies of all notices required under this Agreement or contractual correspondence shall be in writing and shall be deemed properly served if delivered in person to the individual to whom it is addressed or, three (3) days after deposit in the United States mail, if sent postage prepaid by United States registered or certified mail, return receipt requested, as follows:

(A) To the **AGENT**:

Mr. Ernest Y.W. Lau
Public Works Administrator
Public Works Division
Department of Accounting and General Services
State of Hawaii
1151 Punchbowl Street, Room 426
Honolulu, Hawaii 96813

(B) To the **CUSTOMER**:

Mr. XXXX
Department of Public Safety
State of Hawaii
677 Ala Moana Boulevard, Room XXX
Honolulu, Hawaii 96XXX

(C) To the **COMPANY**:

Neil Petchers
NORESCO LLC

One Research Drive, Suite 400C
Westborough, MA 01581

10.10 Termination for Convenience by the STATE

Subsequent to the **Acceptance Date**, this Agreement may be terminated at the sole discretion of the **STATE** in accordance with the provisions of **Article 10.10**.

The **STATE** shall provide notice of its election to terminate to the **COMPANY** no later than thirty (30) days in advance of the end of the current guaranty period. The termination shall become effective on the last day of said guaranty period. The **COMPANY's** obligation to report, reconcile, and verify the energy savings achieved during the guaranty period proceeding termination remains in full force and effect, as does its obligation, pursuant to **Article 3.4** of this Agreement, to remit payment to the **STATE** in the event that the energy savings have not been achieved at the level guaranteed by the **COMPANY**.

The termination of this Agreement by the **CUSTOMER** shall release the **COMPANY** from its obligation to provide maintenance, monitoring and training services after the effective date of termination, as well as its obligation to provide the **Guaranteed Energy Savings** after the termination date. Termination by the **CUSTOMER** shall release it from the obligation to make any payments to the **COMPANY** for maintenance, monitoring, and training services after the termination date, provided, however, that the **CUSTOMER** is responsible for payment for maintenance, monitoring, and training services performed in accordance with the terms of this Agreement prior to the termination date.

In the event of a Termination of this Agreement for Convenience by the **STATE**, the **CUSTOMER** agrees, to the extent permitted by Hawaii law, not to purchase, lease, rent, borrow, seek appropriations for, acquire, or otherwise receive the benefits of any of the same and unique Services performed by **COMPANY** under the terms of this Agreement for a period of three-hundred sixty five (365) days following such Termination for Convenience by the **STATE**.

10.11 Phasing of Project Implementation

The **STATE** and the **COMPANY** agree that the award and scope of work contemplated under this Agreement may include additional work such as other energy conservation measures; unforeseen site conditions; hazardous material abatement or removal; emergency service repairs, etc., at the Premises subject to the availability of GESA contract funds.

Article 11: Events of Default: Remedies; Termination; Right to Offset

11.1 Events of Default by the STATE

Each of the following events or conditions shall constitute an "**Event of Default**" by the **STATE** with respect to its obligations under this Agreement:

- (A) Any failure to make payments to the **COMPANY** of all undisputed amounts in accordance with the provisions of **Schedule C (Compensation to COMPANY)** hereof more than thirty (30) days after written notification by **COMPANY** that **STATE** is delinquent in making such payment, provided that the **COMPANY** is not in default in its performance under the terms of this Agreement;
- (B) Any representation or warranty furnished by the **STATE** in this Agreement proves to be false or misleading in any material respect when made;
- (C) Any other material failure by the **STATE** to perform or comply with the terms and conditions of this Agreement, including breach of any covenant contained herein except, provided that such failure if corrected or cured within thirty (30) days after written notice to the **STATE** demanding that such failure to perform be cured shall be deemed cured for purposes of this Agreement.

11.2 Remedies Upon Default by the STATE

If an **Event of Default** by the **STATE**, as described in **Article 11.1** occurs, the **COMPANY** shall exercise the remedies as provided for in **Schedule P (Alternative Dispute Resolution)**.

11.3 Events of Default by the COMPANY

Each of the following events or conditions shall constitute an "**Event of Default**" by the **COMPANY** for purposes of this Agreement with respect to obligations of the **COMPANY**:

- (A) The **COMPANY's** failure to furnish and install the ECMs in accordance with the provisions of this Agreement and within the time specified by this Agreement;
- (B) Failure by the **COMPANY** to pay any amount owing to the **STATE** due to the **COMPANY'S** failure to achieve its **Schedule B (Energy Savings Guaranty)** during any Guaranty Year throughout the term of this Agreement or to perform any obligation under **Schedule B (Energy Savings Guaranty)**, provided that such failure shall not delay or otherwise impact the **Commencement Date**;
- (C) The standards of comfort and service set forth in **Schedule I (ECMs Operating Parameters)** are not provided due to failure of the **COMPANY** to properly design, install, maintain, repair, or adjust the **ECMs** except that such failure if corrected or cured within thirty (30) days after written notice to the **COMPANY** demanding that such failure be cured shall be deemed cured for purposes of this Agreement;
- (D) Failure to perform its obligations in accordance with the terms of this Agreement, including failure to provide sufficient personnel, equipment or material to ensure the performance required and failure to meet the **Project Installation Schedule** provided for in **Schedule K (Construction and Installation Schedule)**, due to a reason or circumstance within the **COMPANY'S** reasonable control; the **AGENT** shall grant schedule relief to **COMPANY** for those tasks that are impacted by circumstance outside of the

COMPANY'S control.

- (E) The **COMPANY'S** failure to promptly re-perform, within a reasonable time, Work or Services that were rejected as defective or non-conforming.
- (F) The **COMPANY's** discontinuance of the required performance for reasons not beyond the **COMPANY's** reasonable control;
- (G) Any lien or encumbrance upon the **ECMs** by any subcontractor, laborer, material supplier or other creditor of the **COMPANY** if not removed within sixty (60) days after receipt of notice from the **AGENT** of such lien or encumbrance;
- (H) Any material change in ownership or control of the **COMPANY** without written notice provided to the **AGENT** within thirty (30) days of such change;
- (I) Default under any other agreement the **COMPANY** may presently have or may enter into with the **CUSTOMER** during the term of this Agreement. The **COMPANY** acknowledges and agrees that in the event of a default under this Agreement, the **CUSTOMER** may also declare a default under any such other agreements;
- (J) Any material misrepresentation, whether negligent or willful and whether in the inducement or in the performance, made by the **COMPANY** to the **CUSTOMER**;
- (K) The filing of a bankruptcy petition whether by the **COMPANY** or its creditors against the **COMPANY** which proceeding shall not have been dismissed within sixty (60) days of its filing, or an involuntary assignment for the benefit of creditors or the liquidation or insolvency of the **COMPANY**;
- (L) Any failure by the **COMPANY** to perform or comply with the terms and conditions of this Agreement, including breach of any covenant contained herein except that such failure, if corrected or cured within thirty (30) days after notice to the **COMPANY** demanding that such failure to perform be cured, shall be deemed cured for purpose of this Agreement.

11.4 Remedies upon Default by the Company

The occurrence of any **Event of Default**, as described in **Article 11.3(H) or (K)** shall constitute an immediate default. The occurrence of any **Event of Default** other than an **Event of Default**, as described in **Article 11.3(H) or (K)** which the **COMPANY** has failed to cure within thirty (30) calendar days after receipt of notice given in accordance with the terms of this Agreement and specifying the **Event of Default** shall, at the sole option of the **AGENT**, permit the **AGENT** to declare the **COMPANY** in default; provided however, that if such **Event of Default** cannot reasonably be cured within such thirty (30) day period, such **Event of Default** shall not constitute a default if the **COMPANY** begins to cure such **Event of Default** within such thirty (30)-day period and diligently pursues the actions necessary to cure such **Event of Default** so that the **Event of Default** is cured as soon as reasonably possible. The occurrence an Event of Default described in **Article 11.3(H)** shall be deemed cured upon **COMPANY** providing written notice to **AGENT** of such material change of ownership. Written notification of the **Event of**

Default, and the intention of the **AGENT** to terminate this Agreement, shall be provided to the **COMPANY** and such decision shall be final and effective upon the **COMPANY'S** receipt, as defined herein, of such notice. Upon the giving of such notice as provided herein, the **COMPANY** must discontinue any **SERVICES**, unless otherwise directed in the notice, and deliver all materials accumulated in the performance of this Agreement, whether completed or in process, to the **AGENT**. At such time the **AGENT** make invoke any or all of the following remedies:

- (A) The right to take over and complete the **WORK**, or any part thereof.
- (B) The right to immediately terminate this Agreement as to any or all of the **WORK** or other services yet to be performed by the **COMPANY**;
- (C) The right of specific performance, injunctive relief or any other appropriate equitable remedy;
- (D) The right to money damages;
- (E) The right to withhold all or any part of the **COMPANY's** compensation hereunder; and if the **AGENT** considers it to be in its best interests, it may elect not to declare default or to terminate this Agreement. The parties acknowledge that this provision is solely for the benefit of the **AGENT** and that if the **AGENT** permits the **COMPANY** to continue to perform the **WORK** and other **SERVICES** despite one or more **Events of Default**, the **COMPANY** shall in no way be relieved of any of its responsibilities, duties, or obligations under this Agreement nor shall the **AGENT** waive or relinquish any of its rights.

The remedies under the terms of this Agreement are not intended to be exclusive of any other remedies provided, but each and every such remedy shall be cumulative and shall be in addition to any other remedies, existing now or hereafter, at law, in equity or by statute. No delay or omission to exercise any right or power accruing upon any Event of Default shall impair any such right or power nor shall it be construed as a waiver of any Event of Default or acquiescence therein, and every such right and power may be exercised from time to time and as often as may be deemed expedient.

11.5 Right to Offset

Any additional costs incurred by the **STATE** in the event of termination of this Agreement for default or otherwise resulting from the **COMPANY'S** performance or non-performance under this Agreement, including the exercise by the **STATE** of any of the remedies available to it under **Article 11.4** hereof, and any credits due to the **STATE** (such as available balance in authorized project contingency allowance under the GESA contract) or overpayments made by the **AGENT** may be offset by use of any payment due for the **WORK** or other services completed before the termination for default or before the exercise of any remedies. If such amount offset is insufficient to cover such excess costs, the **COMPANY** shall be liable for and promptly remit to the **STATE** the difference upon written demand therefore. This right to offset is in addition to and not a limitation of any other remedies available to the **STATE**.

Article 12: Representations and Warranties

12.1 Each party warrants and represents to the other that:

- (A) It has all requisite power, authority, licenses, permits, and franchises, corporate or otherwise, to execute and deliver this Agreement and perform its obligations hereunder;
- (B) Its execution, delivery, and performance of this Agreement have been duly authorized by, or are in accordance with, its organic instruments, and this Agreement has been duly executed and delivered for it by the signatories so authorized, and it constitutes its legal, valid, and binding obligation;
- (C) Its execution, delivery, and performance of this Agreement will not result in a breach or violation of, or constitute a default under, any agreement, lease or instrument to which it is a party or by which it or its properties may be bound or affected; and
- (D) It has not received any notice, nor to the best of its knowledge is there pending or threatened any notice, of any violation of any applicable laws, ordinances, regulations, rules, decrees, awards, permits or orders which would materially and adversely affect its ability to perform hereunder.

12.2 Representations and Warranties by the STATE

The **AGENT** and the **CUSTOMER** hereby warrants and represents to the **COMPANY** that:

- (A) It will provide throughout the term of this Agreement (or cause its energy suppliers to furnish) to the **COMPANY**, upon its request, copies of all available records and data concerning energy usage for the Premises including but not limited to the following data: utility records and rate schedules; occupancy information; descriptions of any major changes in the structure or use of the buildings or heating, cooling, lighting or other systems or energy requirements; descriptions of all energy consuming or saving equipment used in the Premises; descriptions of energy management procedures presently utilized; and any prior energy analyses of the Premises. The **AGENT** and the **CUSTOMER** shall make knowledgeable employees and agents available for consultations and discussions with the **COMPANY** concerning energy usage of the Premises.
- (B) It has not entered into any leases, contracts, or agreements with other persons or entities regarding the leasing of energy efficiency equipment or the provision of energy management services for the Premises or with regard to servicing any of the energy related equipment located in the Premises.

12.3 Representations and Warranties by the COMPANY

The **COMPANY** represents and warrants the following to the **STATE** (in addition to the other representations and warranties contained in the Project Documents), as an inducement to the

STATE to execute this Agreement, which representations and warranties shall survive the execution and delivery of this Agreement and the Final Completion of the **WORK**.

- (A) That it is financially solvent, able to pay its debts as they mature and possessed of sufficient working capital to complete the **WORK** and perform its obligations under this Agreement;
- (B) That it and each of its employees, agents and subcontractors of any tier are competent to perform its obligations under this Agreement;
- (C) That it is able to furnish the plant, tools, materials, supplies, equipment and labor required to complete the **WORK** and perform its obligations hereunder and has sufficient experience and competence to do so;
- (D) That it is authorized to do business in the State of Hawaii and is properly licensed by all necessary governmental and public and quasi-public authorities having jurisdiction over it and over the **WORK** and the Premises;
- (E) That its execution of this Agreement and its performance thereof is within its duly authorized powers; and
- (F) That its duly authorized representative has visited the Premises, familiarized itself with the local conditions under which the **WORK** is to be performed and correlated its observations with the requirements of the **PROJECT DOCUMENTS**.

Article 13: Applicable Laws

13.1 Statutory and Regulatory Requirements

All applicable Federal and State laws and the County codes, rules and regulations of all authorities having jurisdiction over the performance of the **PROJECT** shall apply to this Agreement throughout its term and they will be deemed to be included in this Agreement the same as though written herein in full. To assist in **COMPANY**'s tax compliance, upon job completion the **STATE** agrees, if applicable, to execute the required Written Allocation including the Declaration related to **Section 179D of the Internal Revenue Code**. **COMPANY** will be responsible for preparing the Declaration, all accompanying documentation and the contents therein. **COMPANY** will be designated the sole **Section 179D beneficiary**.

13.2 COMPANY'S Failure to Comply with Statutory and Regulatory Requirements

The **COMPANY**, and its subcontractors shall comply with all laws, rules, regulations, and codes applicable to performance of the **WORK** and the maintenance, monitoring, and training services to be performed pursuant to **Article 6**. Except where expressly required by applicable laws and regulation, the **STATE** shall not be responsible for monitoring the **COMPANY'S** compliance with any laws or regulations. When the **COMPANY** observes conflicting regulatory requirements, it shall notify the **AGENT** in writing immediately. If the **COMPANY** performs any of the **WORK** or

other **SERVICES** required by this Agreement knowing or having reason to know that the **WORK** or such **SERVICES** are contrary to such laws, rules and regulations, the **COMPANY** shall pay all costs arising there from.

Article 14: Right to Audit

The **STATE** shall have the right to have access to and audit all of the **COMPANY'S** records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to this Agreement. In addition, the **AGENT** or its authorized representative shall have access to the **COMPANY'S** facilities and shall be provided adequate and appropriate workspace, in order to conduct audits in compliance with this article.

Article 15: Approval

This Agreement shall not be executory until all necessary State approvals are obtained.

IN WITNESS WHEREOF, the duly authorized officers or representatives of the Parties have set their hand on the date first written above with the intent to be legally bound.

AGENT

COMPANY

Russ Saito
Comptroller
State of Hawaii

Neil Petchers
President and Chief Executive Officer
NORESKO, LLC

SWORN TO AND SUBSCRIBED BEFORE ME THIS
_____ DAY OF _____, 20_____.

SWORN TO AND SUBSCRIBED BEFORE ME THIS
_____ DAY OF _____, 20_____.

Notary Public

Notary Public

APPROVED AS TO FORM:

DEPUTY ATTORNEY GENERAL
STATE OF HAWAII

CUSTOMER

Clayton A. Frank
Director
State of Hawaii

SWORN TO AND SUBSCRIBED BEFORE
ME THIS _____ DAY OF _____, 20____.

Notary Public

APPROVED AS TO FORM:

DEPUTY ATTORNEY GENERAL
STATE OF HAWAII

APPENDIX I

FEMP RISK AND RESPONSIBILITY MATRIX

FINANCIAL
<p>Interest Rates: Neither the ESCO nor the agency has significant control over the prevailing interest rate. During all phases of the project interest rates will change with market conditions. Higher interest rates will increase project cost, finance term, or both. The timing of the Delivery Order signing may affect the available interest rate and project cost. Clarify when the interest rate is locked in, and if it is a fixed or variable rate.</p>
<p>Energy Prices: Neither the ESCO nor the agency has significant control over actual energy prices. For calculating savings, the value of the saved energy may either be constant, change at a fixed inflation rate, or float with market conditions. If the value changes with the market, falling energy prices place the ESCO at risk of failing to meet cost savings guarantees. If energy prices rise, there is a small risk to the agency that energy saving goals might not be met while the financial goals are. If the value of saved energy is fixed (either constant or escalated), the agency risks making payments in excess of actual energy cost savings.</p>
<p>Construction Costs: The ESCO is responsible for determining construction costs and defining a budget. In a fixed-price design/build contract, the agency assumes little responsibility for cost overruns. However, if construction estimates are significantly greater than originally assumed, the ESCO may find that the project or measure is no longer viable and drop it. In any design build contract the agency loses some design control. Clarify design standards and the design approval process (including changes), and how costs will be reviewed.</p>
<p>M&V Costs: The agency assumes the financial responsibility for M&V costs directly or through the ESCO. If the agency wishes to reduce M&V cost, it may do so by accepting less rigorous M&V activities with more uncertainty in the savings estimates. Clarify what performance is being guaranteed (equipment performance, operational factors, energy cost savings), and that the M&V plan is detailed enough to satisfactorily verify it.</p>

Delays: Both the ESCO and the agency can cause delays. Failure to implement a viable project in a timely manner costs the agency in the form of lost savings, and can add cost to the project. Clarify schedule, and how delays will be handled.

Major Changes in Facility: The agency (or Congress) controls major changes in facility use, including closure. Clarify responsibilities in the event of a premature facility closure, loss of funding, or other major change.

OPERATIONAL

Operating Hours: The Agency generally has control over the operating hours. Increases and decreases in operating hours can show up as increases or decreases in “savings” depending on the M&V method (e.g., operating hours times improved efficiency of equipment vs. whole building utility analysis). Clarify if operating hours are to be measured or stipulated, and what is the impact if they change. If the operating hours are stipulated, the baseline should be carefully documented and agreed to by both parties.

Load: Equipment loads can change over time. The agency generally has control over hours of operation, conditioned floor area, intensity of use (e.g., changes in occupancy or level of automation). Changes in load can show up as increases or decreases in “savings” depending on the M&V method. Clarify if equipment loads are to be measured or stipulated and what is the impact if they change. If the equipment loads are stipulated, the baseline should be carefully documented and agreed to by both parties.

Weather: A number of energy efficiency measures are affected by weather. Neither the ESCO nor the agency has control over the weather. Changes in weather can increase or decrease “savings” depending on the M&V method (e.g., equipment run hours times efficiency improvement vs. whole building utility analysis). If weather is “normalized,” actual savings could be less than payments for a given year, but will “average out” over the long run. Weather corrections to the baseline or ongoing performance should be clearly specified and understood.

Life of Equipment: Equipment life is dependent on the original selection (contractor controlled), and operations and maintenance. Warrantees usually cover failures in the first year. Extended warrantees (often tied to service contracts) are available and assure that the agency won't continue paying for equipment that is no longer functional. Clarify who is responsible for repair and replacement of failed components throughout the term of the contract.

User Participation: Many energy conservation measures require user participation to generate savings (e.g., control settings). The savings can be variable and the ESCO may be unwilling to invest in these measures. Clarify what degree of user participation is needed, and utilize monitoring and training to mitigate risk. If performance is stipulated, document and review assumptions carefully, and consider M&V to confirm the capacity to save (e.g., confirm that the controls are functional).

PERFORMANCE

Equipment Performance: Generally, the ESCO has control over the selection of equipment and is responsible for its proper installation and performance. Generally the ESCO has responsibility to demonstrate that the new improvements meet expected performance levels including standards of service and efficiency. Clarify who is responsible for initial and long-term performance, how will it be verified, and what will be done if performance does not meet expectations.

Maintenance: Responsibility for maintenance is negotiable, however it is often tied to performance. Clarify how long-term maintenance will be assured, especially if the party responsible for long-term performance is not responsible for maintenance.

Operation: Responsibility for operation is negotiable, and it can impact performance. Clarify how proper operation will be assured. Clarify responsibility for operations and implications of equipment control.

APPENDIX J

SAMPLE MEASUREMENT AND VERIFICATION AND COMMISSIONING PLAN

Year 1 – Measurement & Verification Plan

The M&V Plan developed using IPMVP Option “A” is to be used for savings determination. For this ECM, partial measurement is deemed to provide adequate accuracy since there are multiples of similar lighting fixtures (lamps, ballasts) throughout the project.

An outline of the plan is shown below –

- The boundary of this ECM was drawn to include the lighting circuits fed by the 277 volt supply;
- The baseyear conditions are those of the time period immediately preceding the decision to proceed with the project. They include description, location and number of lamps ballasts, and fixtures as shown through the line-by-line audit;
- The lighting operating periods of the post-retrofit period are selected as the common set of conditions for the energy use terms in Equation 1 mentioned in the introductory paragraph of this section;
- The operating hours utilized for this ECM will be stipulated on the basis of the:
 - a) Information provided by the customer

The following operating hours are stipulated for hour groups specific to the facility operations and energy usage:

Annual Hours of Operation		Diversity
Hour Groups	Annual Hours	Factor
East Wing Building	2860	0.85
Finance Office Building	2860	0.85
Forum Office Building	2860	0.85
Irvis Office Building	2860	0.85
North Office Building	2860	0.85
Central Plant	2860	0.85
Tunnel Mechanical	8760	0.85
Mechanical Room & Janitor Closets	1092	1
Generator Lighting	364	1
Emergency Lighting	8760	1
Exit Lighting	8760	1

- Measurements will be accomplished with a recently calibrated RMS clamp meter of the three phase power draw on the 277 volt fixtures. The manufacturer’s rating on this power meter is $\pm 1.3\%$ of full scale.
- Savings will be verified post-implementation using a re-measurement of the lighting electrical load immediately after installation.
- The conditions for the baseyear were chosen as the common set of conditions for calculating current energy use. The post-retrofit energy use, and the reported savings, will be determined on the basis of the baseyear conditions as well; and

- All required operation and maintenance procedures will be conducted by the Capitol Complex staff with oversight from CLT to ensure proper functioning of the lighting fixtures post-retrofit.

Baseyear Energy Use

Baseyear metering of randomly selected representative lighting circuits will be conducted to derive baseyear energy use. A statistically derived representative sample size was selected for measuring the power draw. Points are selected based upon type of operating area and type of fixture retrofit (see attached Lighting measurements).

The power draw for each point will be measured as follows –

$$kW_{\text{baseyear}} = [\text{Voltage (V)} \times \text{Amps (A)}] / 1000$$

The metered data will be averaged by fixture type to arrive at the baseyear power draw for the fixture. These actual metered lighting circuit power draws will be used along with the stipulated and verified hours of operation to determine the baseyear energy use for lighting.

Post-Retrofit Energy Use

Post-retrofit energy use will be determined by measuring the post-retrofit power draw of the same representative points identified in the baseyear readings.

$$kW_{\text{post-retrofit}} = [\text{Voltage (V)} \times \text{Amps (A)}] / 1000$$

Savings

Energy savings for this ECM is determined through the following equation –

$$\text{Savings kWh} = (\text{Hours} \times \text{Lighting kW}_{\text{baseyear}}) - (\text{Hours} \times \text{Lighting kW}_{\text{post-retrofit}})$$

The difference between the kWh consumption for the existing lighting system and the new system is the lighting energy reduction. Cost savings due to this measure are simply the kWh reduction multiplied by the established cost per kWh.

The savings amount will be determined by the following equations –

$$\text{Energy Reduction (in kWh)} = \text{Lighting kWh}_{\text{baseyear}} - \text{Lighting kWh}_{\text{post-retrofit}}$$

$$\text{Savings} = \text{Energy Reduction (in kWh)} \times \$/\text{kWh (Electricity Rate)}$$

Year 2-15 – Continuous Commissioning

Under continuous commissioning of the lighting systems, CLT proposes to structure the procurement process of replacement lamps and ballasts to ensure savings are realized throughout the project term. This requires that any replacement materials (lamps and ballasts both) be replaced with energy efficient equipment specified by CLT in the Investment Grade Audit design (lighting audit) and O&M manuals.

CLT will also conduct an annual walkthrough of all the buildings in an effort to ensure that correct equipment is installed and is functional.

Personnel Involved

- CLT M&V Manager
- DGS Appointed Contact Person
- DGS Purchasing Department

- Lighting Material Vendor
- Building Manager(s)
- In-house Electricians

Commissioning Process

Following the lighting retrofit project, CLT will submit an “As-built” report to the purchasing department. The “As-built” report will detail the type of lamp and ballast installed at each location in all of the buildings. This “As-built” will serve as a purchasing guide and direct as to what type of lamp and ballast are required in case a replacement is desired at a particular location.

The building managers and in-house electricians will be an important part of this process. Building managers can stipulate the type of lamps and ballasts to be purchased based on CLT’s design. They have to be aware that they do an “in-kind” replacement of the lamps and ballasts and any discrepancies are reported to the purchasing department.

CLT will also work with the preferred lighting vendor to develop a list of materials to be supplied to the Capitol Complex Buildings.

On an annual basis, CLT’s lighting designer and the building managers will conduct a walkthrough of all the buildings to ensure that the lighting savings are not compromised by replacement lamps and ballasts which do not comply with the original design. In the event that non-compliant lamps and ballasts are found, CLT will investigate the problem and address how it can be avoided in the future. Based on the walkthrough, the commissioning report will detail the findings and suggest corrective action in case of any deficiencies/inconsistencies.

Also, CLT will conduct interactive training sessions with all personnel to discuss the continuous commissioning process in case of staff turnover. The training sessions will help CLT address any issues faced by the involved personnel and to better the process moving forward.

The continuous commissioning process will enable CLT and DGS personnel to continuously address any additional lighting improvements. Opportunities to maximize daylighting and related lighting control devices (shades, light shelves, etc) can be investigated. Issues related to lighting levels can be addressed by specifying the required lighting panels.

ECM 2: Window Replacement

Year 1 – Measurement & Verification Plan

An M&V Plan using IPMVP Option “A” is to be used for savings determination.

An outline for the plan is as follows –

- The boundary of this ECM is drawn to include only the specified windows, since the proposed implementation will only affect the energy consumption by the windows;
- The baseyear energy use will, in part, be based on actual field measurements of a sample;

- The electric and thermal savings associated with this ECM will be determined using the assumptions and formulas as set forth in the energy savings calculations for the windows;
- The following will be verified post-installation, to ensure that the installed windows conform to the assumptions, calculations and formulae used for calculating savings –
 - Area of openings:
 - o Finance 23,283 sf
 - o Forum 17,263 sf
 - o North 20,410 sf
 - o Irvis 18,996 sf
 - o Total proposed 79,952 sf
 - U – Value of new windows as stated by manufacturer
 - Utility rates for electricity and steam
 - Bin weather hours for Harrisburg
 - Themography of building faces to indicate proper installation (well sealed) and reduced conductive losses

Baseyear Energy Use

To demonstrate the presence of heat loss through the windows and surrounding areas, CLT will use thermal imaging technology. The thermal images will be acquired through the use of a Mikron Midas infrared camera. This camera is able to detect transfer of infrared energy that is invisible to the human eye. These photos will be taken during daylight so one must consider the presence of infrared energy contributed directly from the sun. Therefore, a cold and cloudy day presents the optimum conditions. The exterior air temperature will be recorded throughout the collection of these images.

Building façade temperatures vary due to their insulation values and the amount of sunlight striking the surfaces. These photos focus more on smaller areas where building insulation may be compromised rather than overall properties of exterior finish materials.

Total building infiltration rates for the existing fenestration have been determined in a simulation of baseline energy use, in which the infiltration rates of all openings having a given orientation are adjusted for typical wind direction and speed, with appropriate factors accounting for pressurization, net air exchange, etc. The simulation will also recognize typical weather conditions; average delivered indoor temperatures, and anticipated heating / cooling efficiencies.

The following relevant information is used in calculating the baseline consumption for existing windows.

Leakage = Perimeter x Crack/12 x Wind Speed x Wind Efficiency,
 Infiltration = 1.08 x Leakage x (IAT – OAT) x Hours / Heating Efficiency,
 Conduction = U Value x (IAT – OAT) x Hours / Heating Efficiency,
 Solar Gain in Tons (SG) = SC x CLF x SHGF x Area / 12000,
 Solar Gain Demand in kW = SHG x Months x Cooling kW/Ton, and

Solar Gain Consumption in kWh = SHG x Cooling kW/Ton x EFL

Where,

Window Perimeter (Perimeter) = varies per building

Window Surface Area (AREA) = varies per building

U Value = 1.3 (ASHRAE Fundamentals)

Crack = 0.109 inch

Hours = 5251

Average Delivered Indoor Air Temperature (IAT) = 67°F

Average Outdoor Air Temperature (OAT) = 46.8°F

Wind Speed = 660 fpm

Wind Efficiency = 20% windward face, 3% sheltered face

Heating Efficiency = 86%

Equivalent Full Load Hours (EFL) = 900

Shading Coefficient (SC) = 0.67

Cooling KW/Ton = Varies per building

Solar Heat Gain Factor (SHGF) = Varies on Window Direction (216, 109, 38)

Cooling Load Factor (CLF) = Varies on Window Direction (0.17, 0.35, 0.75, 0.82)

Months of Cooling = 5

Post-Retrofit Energy Use

To detect any presence of heat loss through the windows and surrounding areas, CLT will use thermal imaging technology. The thermal images will be acquired through the use of a Mikron Midas (or approved equal) infrared camera.

Post-retrofit Energy will be derived by calculation using input data determined in the calibrated baseline simulation, along with appropriate stipulated values for the characteristics of the window upgrades.

Routine Adjustments

If there is any discrepancy between the assumptions made and the actual observations adjustments may be required to bring post-retrofit energy use to the conditions of the baseyear.

Savings

As a basis of estimating the savings for the project, the following relevant information will be used to determine the consumption of the proposed windows.

Leakage = Window Perimeter x Crack/12 x Wind Speed x Wind Efficiency,

Infiltration = 1.08 x Leakage x (IAT – OAT) x Hours / Heating Efficiency,

Conduction = U Value x Area x (IAT – OAT) x Hours / Heating Efficiency,

Solar Gain in Tons (SG) = SC x CLF x SHGF x Area / 12000,

Solar Gain Demand in kW = SHG x Months x Cooling kW/Ton, and

Solar Gain Consumption in kWh = SHG x Cooling kW/Ton x EFL

Where,

Window Perimeter (Perimeter) = varies per building

Window Surface Area (AREA) = varies per building

U Value = 0.53 (based on manufactured specifications)

Crack = 0.023 inch (based on manufactured specifications)

Heating Hours per year 5251
Average Delivered Indoor Air Temperature (IAT) = 67°F
Average Outdoor Air Temperature (OAT) = 46.8°F
Wind Speed = 660 fpm
Wind Efficiency = 20% windward face, 3% sheltered face
Heating Efficiency = 86%
Equivalent Full Load Hours (EFL) = 900
Shading Coefficient (SC) = 0.58
Cooling kW/Ton = Varies per building
Solar Heat Gain Factor (SHGF) = Varies on Window Direction (216, 109, 38)
Cooling Load Factor (CLF) = Varies on Window Direction (0.17, 0.35, 0.75, 0.82)
Months of Cooling = 5
Savings will be the difference between the pre-retrofit consumption, based on the calculations, and the post-retrofit consumption, based on the calculations.

Year 2 – 15 – Continuous Commissioning

Under continuous commissioning of the window systems, CLT proposes to conduct thermal imaging of replacement windows every three (3) years to ensure savings are realized throughout the project term. Over the 15-year term, the U-value of the new windows will be a constant and the only components to be monitored are the window insulation and caulking to detect presence of any leakage.

CLT will also conduct an annual walkthrough of all the buildings in an effort to ensure that the integrity of the window insulation is not compromised over the years.

Personnel Involved

- CLT M&V Manager
- DGS Appointed Contact Person
- Third-party Commissioning Agent
- Building Manager(s)

Commissioning Process

Every three years, after the all the windows have been installed, CLT or a third-party commissioning agent will take the same 38 thermal images of the building windows to compare pre, post and on-going performance.

The following images will be taken:

- North and Irvis Building. –16 total (8 images each building) – 3 on each wide exposure and 1 on each narrow exposure.
- Finance Building - 12 total - 3 on the wide face of the Park side, 1 on each narrow side exposure, and 7 on the wide face with setbacks.
- Forum - 10 total - 3 images on wide face of Park side, 1 on each narrow side exposure, 1 on either side of arched exposure, and 3 on the arched section.

Communication to all building occupants for all windows to be closed the day the images are taken will be required. These images will be taken when the outdoor conditions are optimum: Overcast Sky and Outdoor Temperature below 40°F degrees. The commissioning report will

indicate the reference point from where the images were taken from so that the process can be repeated every three years. The report will include the color images and technical write-up defining what the images indicate and will reference the outdoor conditions at the time of the imaging. Any deficiencies will be noted and examined for possible remedies.

ECM 3: Controls and Energy Management System Upgrade and Expansion

First Year – Measurement & Verification Plan

An M&V Plan using IPMVP Option “B” is to be used for savings determination for this ECM. An outline for the plan is shown below –

- The boundary of this ECM was drawn to include only the maintenance of indoor temperatures over a range ambient temperatures during occupied and unoccupied periods;
- The baseyear energy use is based upon the following –
Occupied set points are maintained during unoccupied hours throughout the building;
Outside air remains constant as a percentage of total air flow; and
Cooling, heating and humidification energy consumption will take place as a function of outside airflow.
- Energy savings from this measure are derived from these factors –
Night setback will lower space heating and cooling energy consumption during unoccupied hours;
Valve off of the steam supply at times when no additional heat is required in the building will reduce the counter-productive transfer of heat to the space and the cooling systems by way of conductive transfer, deteriorating valves, inappropriate heating systems setpoints, inappropriate cooling system setpoints, and so forth.
Electric consumption for chilled water use to offset nuisance heating will be reduced;
Electric consumption for DX cooling to offset nuisance heating will be reduced;
Steam use for heating will be reduced.
- The conditions for the baseyear were chosen as the common set of conditions for calculating current energy use. The post-retrofit energy use, and the reported savings, will be determined on the basis of the baseyear conditions as well; and
- All required operation and maintenance procedures will be conducted by DGS staff to ensure proper functioning of the systems and controls post-retrofit.

Baseyear Energy Use

The baseyear energy use takes into account the following major factors –

- Space temperature achieved;
- Outside air impact;
- Cooling offsets to nuisance heating.

The baseyear energy use during unoccupied hours is basically due to the total shell and roof load, on the basis of given setpoint during those hours and the outside air load. This would include cooling, heating and humidification loads. The baseyear temperatures are as denoted in the calculation sheets that are supporting the estimates of baseline and savings.

Initial readings have been taken using hand-held meters, and trends established, to provide an accurate indication of potential savings.

During final design, air velocities will be measured with a hot-wire anemometer, averaged and multiplied by the coil area. Variable volume coil flows will be measured at sequential static readings.

Post-Retrofit Energy Use

After installation and commissioning, the post-retrofit energy use will be determined from performance trends on the main steam, hot water and chilled water interfaces to the buildings, as well as the main AHUs. Hot-wire anemometer readings will be taken to confirm post-retrofit airflows.

The following information will be trended, monitored and used in energy calculations (defined in the IGA) to determine the energy savings annually –

- I. Night setback (or set forward) during unoccupied hours;
- II. Air flow (where possible) to unoccupied areas associated with outside air; and
- III. Fan motor energy use.

Applicable Systems

- North Office Building – AHU-1 & AHU-2 supply and return fans
 - East Wing Building – AHUs under Metasys control excepting Kitchen MUA fans
 - Irvis Building - AHU-1& AHU-2; AHU-3, AHU-5 and , AHU-6
 - Finance Office Building – AHU-A, AHU-B, AHU-C, AHU-D, AHU-E & AHU-F
 - Forum Building – Auditorium AHU & Green Room AHU
- IV. Economizer cycle operation; and
 - V. Chilled water usage.

Applicable Systems

- Finance Office Building - AHU-A, AHU-B, AHU-C, AHU-D, AHU-E & AHU-F
- VI. Steam use; and
 - VII. Use of chilled water.

Applicable Systems

- Finance Office Building - AHU-A, AHU-B, AHU-C, AHU-D, AHU-E & AHU-F
- VIII. Steam use; and
 - IX. Use of chilled water and/or DX cooling.

Applicable Systems

- Finance Office Building
 - Forum Building
- X. Reduced steam use.

Applicable Systems

- Finance Office Building
- Forum Building

All of the trend information will be compiled into standard Excel workbooks (used for IGA calculations) and used to calculate the achieved savings. Methodology for each calculation will also be listed there for review.

After installation and commissioning, the post-retrofit energy use will be determined as –
Baseyear Energy Use + Correction to Post-Retrofit Condition

Year 2 – 15 – Continuous Commissioning

Under continuous commissioning of the controls upgrades, CLT will perform quarterly analysis of the performance trends and override logs; a semi-annual review with ECC staff of all the setpoints and overrides; and annual review of the control sequences.

Personnel Involved

- CLT Lead Engineer
- Commissioning agent/Controls contractor
- DGS Appointed contact
- Building Manager(s)
- In-house Controls Technicians and operators

Commissioning Process

The controls upgrade and expansion is the most significant measure in terms of savings and scope. In order that the savings are realized as design, CLT will work with the building managers and in-house controls operators to better the EMS. Prior to each heating season, CLT lead engineer, controls vendor and DGS staff will assemble to remedy any shortcomings and brainstorm potential opportunities to better the system. This will help determine decisions made by the controls operators in managing the buildings, if those decisions are a hindrance to the proposed energy savings and sort out any other problems encountered over the season.

The CLT Lead engineer will work with the facility operating staff to solve any existing mechanical and control problems. The performance evaluation of the system will include quarterly evaluations of on-line performance trends on the main steam, hot water and chilled water interfaces to the buildings, as well as the main AHU's. Evaluations shall include testing of functions critical to utility usage, including demand ventilation, economizer, and performance of steam, hot water and chilled water valves. Evaluations will occur at each seasonal change.

The results of the performance evaluations, schedule and over-ride reports, as well as any recommended modifications to the operation of the system will be reported to DGS.

After mechanical system and control system troubleshooting, CLT will determine the optimal control set point and/or schedules. These set points and schedules will be then programmed into the version modified by CLT/control contractor.

The version programmed by the controls contractor will be uploaded to the control system. The program will be loaded unit by unit. A comprehensive test will be performed to ensure proper functioning and the optimal set point and/or schedule.

The EMS will be used to trend key operation parameters. The EMS operators and CLT will examine the data periodically to identify any system faults and fine tune the system set points.

The following possible scenarios will be corrected/monitored by the commissioning process:

- VFD's that run at a 100%;
- Night set-backs/time schedules (equipment operating schedules) not used;
- Equipment that is operating inefficiently due to improper operating strategies;
- Energy management systems that were never installed or programmed to take full advantage of their capabilities or which have degraded;
- Improper Sequence of Operation;
- Optimal schedules;
- Incorrect setpoints;
- Controls out of calibration;
- Simultaneous heating and cooling
- Static pressure higher than required in air and water systems
- Reset schedules for hot and chilled water as well as air flow
- Faulty control valves and dampers
- O.A. damper settings
- Failed pressure sensors;
- Failed CO2 sensors;
- Damper Actuators leaking; and
- Filters, coils status.

The commissioning report will detail the findings of the process for each affected system.

CLT/controls vendor will evaluate quarterly schedule report, including hours of operation, occupied and unoccupied setpoints and evaluate quarterly over-ride report and performance trends for all major equipment, where applicable.

ECM 4: VFD Installations on Fans

First Year – Measurement & Verification Plan

An M&V Plan using IPMVP Option “B” is to be used for savings determination for this ECM. An outline for the plan is as follows –

- The boundary of this ECM is drawn to include only the ventilation systems, since the proposed implementation will only affect the power input to the fans, heating consumption, and cooling consumption.
- The base year fan loads will be determined through the testing and measurement procedure described. Base year consumption will be determined as the product of the baseline power input and the trended actual run hours at load.
- Instantaneous power measurements will be accomplished with a Fluke 41B Power/Harmonics Analyzer with voltage probes and clamp-on CT with instantaneous display of watts and kW.
- A savings report will be presented, if required, for each subsequent year by correlating the first year savings to appropriate unit costs.
- All required operation and maintenance procedures will be conducted by the facilities staff to ensure proper functioning of the system post-retrofit.

Baseline Energy Use

Initial readings have been taken using hand-held meters, and trends established, to provide an accurate indication of potential savings.

The baseline power input at various levels of load (i.e., flow, as indicated by the control signal) shall be determined through instantaneous measurements taken during final design. Also, air velocities will be measured with a hot-wire anemometer, averaged and multiplied by the coil area. Variable volume coil flows will be measured at sequential static readings.

Baseyear consumption will be determined as the product of the baseline power input at the average load and the trended actual run hours at load.

Baseyear Energy Use

Baseline power input for the fans will be established by actual field measurements. Measurements will be done by taking spot measurements with a kW power meter.

The kW demand for the fans is given by the following formula –

$$\text{kW} = (\text{Voltage}_{\text{phase-to-phase}} \times \text{Amperage} \times \text{Power Factor}) / 1000$$

The annual energy use in kWh for the fans is given by the following formula –

$$\text{kWh} = [(\text{Voltage}_{\text{phase-to-phase}} \times \text{Amperage} \times \text{Power Factor}) \times \text{Hours of Operation}] / 1000$$

Hours of operation will be totalized based on post-retrofit trending.

Post-Retrofit Energy Use

After installation and commissioning, the post-retrofit energy use will be determined from the following–

kW consumption of the fans will be totalized from trends via the EMS.

Outdoor air temperatures will be monitored via EMS trends.

Routine Adjustments

If there is any discrepancy between the assumptions made by the VFD calculation worksheet and the actual observations recorded by the DDC system, routine adjustments may be required to bring post-retrofit energy use to the conditions of the baseyear.

Savings

The difference between the kWh consumption for the existing system and the new system is the motor energy reduction. Cost savings due to this measure are determined as the product of the savings in demand and energy multiplied by the established unit costs for each month. The savings amount will be determined by the following equations –

$$\text{Fan Energy Reduction (in kWh)} = \text{fan kWh}_{\text{baseyear}} - \text{fan kWh}_{\text{post-retrofit}}$$

$$\text{Fan Energy Reduction (in kW/month)} = \text{Fan kW}_{\text{baseyear}} - \text{Fan kW}_{\text{post-retrofit}}$$

$$\text{Fan Cost Savings} = \text{Fan Energy Reduction (in kWh)} \times \text{Electric Rate (\$/kWh)}$$

$$+ \Sigma (\text{Fan kW savings}_{\text{month1}} + \text{Fan kW savings}_{\text{month2}} \dots \text{Fan kW savings}_{\text{month n}})$$

Where n=months 1 through 12

Year 2 – 15 – Continuous Commissioning

Under continuous commissioning of the VFD installations, CLT will perform a semi-annual review of all the setpoints, performance trends, override logs, and annual review of the control sequences.

Personnel Involved

- CLT Lead Engineer
- Commissioning agent/Controls contractor
- DGS Appointed contact
- Building Manager(s)
- In-house Controls Technicians and operators

Commissioning Process

The CLT Lead engineer will work with the facility operating staff to solve any existing mechanical and control problems. The performance evaluation of the system will include quarterly evaluations of on-line performance trends of VFD kW.

After mechanical system and control system troubleshooting, CLT will determine the optimal control set point and/or schedules. These set points and schedules will be then programmed into the version modified by CLT/control contractor.

The version programmed by the controls contractor will be uploaded to the control system. The program will be loaded unit by unit. A comprehensive test will be performed to ensure proper functioning and the optimal set point and/or schedule.

The EMS will be used to trend key operation parameters. The EMS operators and CLT will examine the data periodically to identify any system faults and finetune the system set points.

The following possible scenarios will be corrected/monitored by the commissioning process:

- VFD's that run at a 100%;
- Night set-backs/time schedules (equipment operating schedules) not used;
- Equipment that is operating inefficiently due to improper operating strategies;
- Energy management systems that were never installed or programmed to take full advantage of their capabilities or which have degraded;
- Improper Sequence of Operation;
- Incorrect setpoints; and
- Controls out of calibration.

The commissioning report will detail the findings of the process for each affected system. CLT/controls vendor will evaluate quarterly schedule report, including hours of operation, occupied and unoccupied setpoints. Any changes to the setpoints/control sequences will be recorded for future reference.

ECM 7: Steam Trap Replacement

First Year – Measurement & Verification Plan

An M&V Plan using IPMVP Option “A” is to be used for savings determination. For this ECM, measurements will be taken on a statistically-representative sample (or better) of the steam trap population as a basis for extrapolating savings. Under this procedure, each trap identified during the survey will be documented as to the type, size, location and function. Temperature and/or sonic measurements will be taken by experienced technicians competent in the assessment of steam trap operation, testing procedure(s), failure mode(s), and proper application methodology. Failure rates recorded from the survey will be carried forward with a conservative diversity rate to the entire steam trap group. The proposed rates of loss using the chosen technology will be calculated and averaged as an offset to savings. The hour groups will be agreed upon between DGS and CLT.

An outline of the plan is shown below –

- The boundary of this ECM is drawn to include only the traps documented during the investment grade audit;
- Trap performance will be verified pre-implementation by surveying a sample representative of the total trap population;
- As part of commissioning and M&V, post-implementation measurements will be done on a sample group to provide a level of comfort that the savings are realized.
- The baseyear conditions are those of the time period preceding efforts to remedy the failures identified as a result of the proposal or IGA. In most cases, the baseline will be the period immediately preceding the decision to proceed with the project. The results from the steam trap survey are extrapolated to the entire population and summarized in the calculations attached to this ECM;
- Trap performance will be verified post-implementation by spot checking a sample group of traps after installation and commissioning on site;
- The conditions for the baseyear were chosen as the common set of conditions for calculating current energy use. The post-retrofit energy use, and the reported savings, will be determined on the basis of the baseyear conditions as well; and
- All required operation and maintenance procedures will be conducted by DGS staff to ensure proper functioning of the steam traps post-retrofit.

Baseyear Energy Use

Baseyear steam use will be derived from past year’s data provided by the customer. The testing of 100% of the non-radiator traps and approximately 50% of the radiator traps, which determined the existing failure rates, will be used to arrive at the total figure for steam being wasted (see IGA). The following equation calculates the total steam lost for each type of trap –

- For “failed open” traps – $\text{Steam Wasted} = \text{Steam Capacity (lb/hr)} * \# \text{ of Traps} * \text{Hr/Year} * \% \text{ Blowing Loss} * \text{average load rate} * \text{condensate heat utilization rate}$
- For “leaking” traps – $\text{Steam Wasted} = \text{Steam Capacity (lb/hr)} * \# \text{ of Traps} * \text{Hr/Year} * \% \text{ Leaking Loss} * \text{average load rate} * \text{condensate heat utilization rate}$
- Heat utilization rates for condensate depend upon the level of insulation, venting, return / waste / recovery characteristics of the condensate system, as well as the heating loads and thermostatic control characteristics of the spaces through or below which condensate piping passes.

Post-retrofit Energy Use

The post-retrofit steam consumption will guarantee no steam wasted, i.e. a sample of the traps will be tested to demonstrate no leaking or blowing losses. The post sample will include 50% of the non-radiator traps and 10% of the radiator traps.

Routine Adjustments

Routine adjustments may be required to bring post-retrofit steam use to the conditions of the baseyear.

Savings

The savings for this ECM will be represented by the avoided Steam waste, as calculated in the Baseyear.

Year 2 – 15 – Continuous Commissioning

Under continuous commissioning of the steam traps, the DGS facility personnel will perform a temperature and ultrasonic test of a sample of the trap population annually, as directed by CLT, and repair/replace all faulty traps.

Personnel Involved

- CLT Project Manager
- DGS Appointed contact
- Building Manager(s)
- In-house Plumbers

Commissioning Process

On an annual basis, DGS will conduct a thorough temperature and ultrasonic test of the sample steam trap population to verify leaking and blowing losses and repair/replace failed or leaking traps. The testing will be conducted by DGS staff with the help of the Fluke T-5 meter. Any training needed to operate the meter will be provided by CLT. The Fluke T-5 meter measures temperature and detects leaks by noise.

CLT will develop an audit of the sample traps that need to be tested based on the size and the duty of the traps. This audit will be different for every following year so as to make sure that every trap is tested at least once in a four-year test cycle, starting two years after installation. The sample trap population will be derived on basis of the following –

- Large seasonal traps will be tested every two years
- The annual sample population will consist of at least 25% of the small radiator traps

A commissioning report detailing the traps inspected, temperatures observed (if recorded), pictures taken (if any) and traps to be replaced (if any) will presented on an annual basis.

ECM 9: Insulate bare piping, steam fittings and valves

First Year – Measurement & Verification Plan

An M&V Plan developed using IPMVP Option “A” is to be used for savings determination. For this ECM, partial measurement is deemed to provide adequate accuracy since there are multiple similar piping, valves and strainers throughout the project.

An outline of the plan is shown below –

- The boundary of this ECM will be drawn to include only the bare piping, valves and strainers identified during the investment grade audit;
- The baseyear conditions are those of the time period immediately preceding the decision to proceed with the project. The result below will be extrapolated to arrive at baseyear conditions –
Piping Heat Loss is based on the following factors:
 - Material of pipe
 - Surface area of Bare Piping
 - Steam Pressure
 - Ambient Temperature
- Insulation performance will be verified post-implementation by re-surveying the previously bare piping, valves and fittings after installation and commissioning on site. External temperature of the insulated areas and steam pressure will be recorded. The conditions for the baseyear are chosen as the common set of conditions for calculating current energy use. The post-retrofit energy use, and the reported savings, will be determined on the basis of the baseyear conditions as well; and
- All required operation and maintenance procedures will be conducted by DGS staff to ensure insulation and removable blankets remain in place post-retrofit.

Baseyear Energy Use

Baseyear steam use will be derived from data provided by the customer. The following equation calculates the total steam lost for each insulation application–

For bare piping the calculation methodology and a listing of the variables used to determine the energy savings were obtained using values from the 3EPlus® insulation thickness software. The software was used to obtain the values for heat loss in the piping system based on the temperature and diameter of the bare pipe.

For the bare valves and fittings the following equation calculates the total steam lost for each insulation application –

$$\text{Bare fitting} = 25 \times (\text{Temp of bare fitting} - \text{Ambient air Temp}) / (0 + (25/3.2))$$

$$\text{Insulated Fitting} = 0.26 \times (\text{Temp of bare fitting} - \text{Ambient air Temp}) / (1 + (0.26/3.2))$$

$$\text{Heat loss Savings} = (\text{Bare} - \text{Insulated}) \times \text{Annual hours of use for the application}$$

Post-retrofit Energy Use

External temperature of the insulated areas and steam pressure will be recorded. The post-retrofit steam consumption will guarantee reduced heat loss from the areas where insulation is applied.

Routine Adjustments

Routine adjustments may be required to bring post-retrofit steam use to the conditions of the baseyear.

Savings

The savings for this ECM will be represented by the avoided steam waste, as calculated in the Baseyear.

Year 2 – 15 – Continuous Commissioning

Under continuous commissioning of the insulated piping, CLT and DGS facility personnel will perform an annual visual inspection of steam piping and fittings and report any areas that need re-insulation.

Personnel Involved

- CLT Lead Engineer
- DGS Appointed contact
- Building Manager(s)

Commissioning Process

On an annual basis, CLT will conduct a thorough audit of the insulated steam piping to verify insulation surface areas, integrity of the design criteria and temperature of the insulated areas.

The following will be verified -

- Verify the rigid fiberglass insulation with an exterior covering abutting the existing insulation; and
- External temperatures of any suspect insulation areas will be measured to verify that the temperatures are within the acceptable range.

A commissioning report detailing the areas inspected, temperatures observed (if any), pictures taken (if any) and areas to be re-insulated (if any) will presented on an annual basis.

ECM 10: Water Conservation Program

First Year - Measurement & Verification Plan

An M&V Plan using IPMVP Option “A” is to be used for savings determination for this ECM. An outline for the plan is as follows –

- The boundary of this ECM is drawn to include only the restroom fixture (toilets, urinals, and faucets) retrofits;
- The water use, pre and post, will be based on actual flow measurements;
- The use/day and facility occupancy figures will be stipulated on the basis of industry standards and DGS agreed upon quantities;
- The operating conditions for the baseyear are chosen as the common set of conditions for calculating current water use. The post-retrofit water use, and the reported savings, will be determined on the basis of the baseyear conditions as well;
- All required operation and maintenance procedures will be conducted by the facilities staff to ensure proper functioning of the post-retrofit.

Baseyear Water Use

Water use is calculated for each fixture type: toilets, urinals, faucets, etc. The consumption rate will be determined by measuring the flow rates and gallons per flush of a representative sample of each fixture type. Faucet flow rates will be measured

using a calibrated flow container. Faucets flow rates are taken by turning the valve a quarter turn. Tank type toilets are measured by using a flush meter or by using a water meter connected to the supply line. Flush valve type toilets are measured by flushing the contents into a calibrated bucket, using the flush meter, or by plugging the trap-way and collecting the flushed water into a wet vac.

The average flow rate and flush volume for each fixture type is then used to represent the population baseline flow rate. Post- retrofit measurements will also be measured in this manner.

Usage profile for these sanitary fixtures is based on three parameters: population, female to male ratio and the frequency of use of these fixtures. The population includes all personnel and visitors.

Following are the equations used to calculate the baseline consumption –

$$\text{TUPD} = \text{Female} * (\text{NUPD}) + \text{Male} * \text{NUPD}$$

Where –

TUPD = Total use per day for toilets, urinals, aerators or showerheads

Female = Number of Female Staff, Visitors and Residents

Male = Number of Male Staff, Visitors and Residents

NUPD= Number of uses per day

Toilets and Urinals –

$$\text{UFV}_{\text{base}} = \text{Q}_{\text{base}} * \text{TUPD} * \text{Occ}$$

Where –

UFV_{base} = Annual toilet and urinal baseline water use (gal/yr)

Q_{base} = Flow rate (gallons per flush)

TUPD = Total use per day (flushes per day)

Occ = Occupancy schedules (days per year)

Faucets and Showers –

$$\text{UAS}_{\text{base}} = \text{Q}_{\text{base}} * \text{TUPD} * \text{MPU} * \text{DPY}$$

Where –

UAS_{base} = Annual baseline fixture water use (gal/yr)

Q_{base} = Flow rate (gal/min)

TUPD = Total use per day (use/day)

MPU = Use rate (min/use)

Occ = Occupancy schedules (day/yr)

Kitchen Trough & Disposal –

$$\text{UK}_{\text{base}} = \text{Q}_{\text{base}} * \text{TUPD} * \text{MPU} * \text{DPY}$$

Where –

UK_{base} = Annual baseline water use (gal/yr)

Q_{base} = Flow rate (gal/min)

TUPD = Total use per day (use/day)

MPU = Use rate (min/use)

Occ = Occupancy schedules (day/yr)

Total Baseline Water Consumption

$$\text{WC}_{\text{base}} = \text{UFV}_{\text{base}} + \text{UAS}_{\text{base}} + \text{UK}_{\text{base}} + \text{UL}_{\text{base}}$$

Where –

WC_{base} = Total Annual Baseline Water Consumption (gal/yr)

UFV_{base} = Annual toilet and urinal baseline water use (gal/yr)

UAS_{base} = Annual baseline faucet and shower water use (gal/yr)

UK_{base} = Annual baseline Kitchen trough & disposal water use (gal/yr)

UL_{base} = Annual baseline water leaks (gal/yr)

Post-Retrofit Water Use

The post-implementation consumption is calculated using the same equation, but with the reduced flow rates. The manufacturers' certified flows will be confirmed after implementation with measurements.

There are additional savings resulting from the existing toilets and urinals that currently leak (assumed as 2% on the basis of industry standard). After implementation, the existing fixtures will be replaced with new fixtures that reduce leaks (~1%).

The following equation is used to calculate post-installation water consumption –

$$WC_{post} = UFV_{post} + UAS_{post} + UK_{post} + UL_{post}$$

Where –

WC_{post} = Total Post Water Consumption (gal/yr)

UFV_{post} = Annual toilet and urinal post water use (gal/yr)

UAS_{post} = Annual fixture post water use (gal/yr)

UL_{post} = Annual post water leaks (gal/yr)

Routine Adjustments

Routine adjustments may be required to bring post-retrofit water use to the conditions of the baseyear, especially if there are any changes to occupancy or schedule.

Savings

The savings are the difference between the baseline consumption (toilets, urinals, and faucets) and the post-retrofit consumption. The following equations are used to calculate water and water cost savings.

Water Savings –

$$WS = (WC_{base} - WC_{post}) * \text{Water Cost}$$

Year 2 – 15 – Continuous Commissioning

Under continuous commissioning of the water conservation program, CLT and DGS facility personnel will perform an annual visual inspection of the installed fixtures to detect leaks and improper replacement parts.

Personnel Involved

- CLT Lead Engineer
- DGS Appointed contact
- DGS Purchasing Department
- Building Manager(s)
- In-House Plumbers

Commissioning Process

The O&M manual provided by CLT for this ECM will include a list of the installed fixtures and the recommended replacement parts for each fixture type. This O&M manual will serve as a purchasing guide and direct as to what type of fixtures and accessory parts are required in case a replacement is desired at a particular location.

The building managers and in-house plumbers will be an important part of this process. Building managers can stipulate the type of fixtures and accessories to be purchased based on CLT's design. They have to be aware that they do an "in-kind" replacement of the water fixtures and any discrepancies are reported to the purchasing department.

On an annual basis, CLT and the building managers will conduct a walkthrough of all the buildings to ensure that the water savings are not compromised by water fixtures and accessories which do not comply with the original design. In the event that non-compliant parts are found, CLT will investigate the problem and address how it can be avoided in the future.

Based on the walkthrough, the commissioning report will detail the findings and suggest corrective action in case of any deficiencies/inconsistencies.

ECM 12: Chiller Plant – 2 Chiller Replacements with VFD Option (NEW)

First Year – Measurement & Verification Plan

An M&V Plan using IPMVP Option "B" is to be used for savings determination for this ECM. An outline for the plan is as follows –

- The boundary of this ECM was drawn to isolate the chiller plant, since the proposed implementation will only affect the electricity (kWh) consumption of the chillers and pumps. The load to the plant will not be affected by this measure.
- The baseyear energy consumption rates in kW/ton for refrigeration (chilled water cooling), heat rejection, condenser pumping, chilled water circulation, etc., will be calculated from actual chiller operational logs and DDC system trends for the chilled water plant provided by DGS. Instantaneous measurements were taken on a daily basis and trended by the chiller plant DDC system and utilized in the spreadsheet model for calculating savings. The resulting kW/ton rates (including operational deficiencies, auxiliary loads, etc.), will be applied to the on-going trend of plant loading in ton-hours to determine the baseline.
- The following parameters shall be monitored through the DDC system on an ongoing basis –
 - Date & Time of day
 - Outside Air temperature
 - (new) chiller Amperage, kW & Voltage
 - Entering & Leaving Chilled Water Temperature
 - Entering & Leaving Condenser Water Temperature
 - Specific auxiliary equipment (pumps, tower fans, etc. on-line)
- On-going loads were chosen as the common set of conditions for calculating base-line and post-retrofit energy use. The post-retrofit energy use, and the reported savings, will be determined on the basis of the baseyear consumption rates, post retrofit consumption rates, and post-retrofit chilled water system loading.
- A savings report will be presented annually for the subsequent years by monitoring consumption through the DDC system. Output from the chiller will be trended through the DDC system at 15-minute intervals. The total post-implementation kWh will be given by the following formula (35,040 equals the number of 15 minute intervals per year) –

35,040

kWhpost-retrofit = $\Sigma kWn \times 15 \text{ min} / (60 \text{ min/hr})$

n=1

- All required operation and maintenance procedures will be conducted by the chiller plant staff to ensure proper functioning of the chillers and auxiliaries post-retrofit.

Baseyear Energy Use

Baseyear energy use for the chiller is established by applying trended / measured present operations to the trended profiles of cooling load.

The kW demand in each month of chiller operation begins with the following formula applied to each leg of the power supply –

$$kW = (\text{Voltage}_{\text{phase-to-phase}} \times \text{Amperage} \times \text{Power Factor}) / 1000$$

This calculation is summed for each leg of the service and multiplied by the number of chillers on-line. Similar calculations are executed for each required auxiliary. The number of chillers and attending auxiliaries on-line at any time in the baseyear will be identified through a table or formula indexed to time/temperature/occupancy from the trends supplied by DGS.

The annual electric consumption for the chillers is given by multiplying baseline incremental power (kW/ton) at steps of 10% to the ton-hours generated at those steps of load for each of the chillers & auxiliaries on-line in the baseline mode. Auxiliary use will be determined on the basis of present operations and include the additional “standby” equipment on-line as necessitated by the unreliable chillers. Auxiliary consumption will be determined as the measured power use by fixed consumers multiplied by the totalized hours of use for that equipment set.

Post-retrofit Energy Use

After installation and commissioning, the post-retrofit energy use will be determined as following:

Peak chiller kW = peak kWh / hr recorded in the trends over the interval of coincident peak billing demand

Chiller kWh = actual chiller kWh totalized by the DDC system

Auxiliary kWh = totalized hours of operation for each fixed consumer x the measured power consumption rate for that equipment set

Routine Adjustments

The calculations of baseline and retrofit demand and consumption may be adjusted to compensate for seasonal irregularities or significant changes in the operation of the chiller plant, as well as changes to the load handled by the plant.

Savings

The difference between the kWh consumption for the existing chillers and auxiliaries and the new chillers and auxiliaries is the energy reduction. The differences in equipment power input over the coincident peak interval constitute the avoided peak demand for each month.

Cost savings due to this measure shall be calculated on the basis of the PPL LP6 tariff, including hours of use and incremental costs for each bin. Dollar savings will be calculated by constructing a baseline bill each month and a post retrofit bill using the differences in peak demand and total consumption.

Year 2 – 15 – Continuous Commissioning

Under continuous commissioning of the Chiller plant, CLT will perform an semi-annual review of all the setpoints, performance trends, override logs and control sequences. Included in the commissioning process will be an interactive training sessions for the chiller plant staff.

Personnel Involved

- CLT Lead Engineer
- Commissioning agent/Controls contractor (when necessary)
- DGS Appointed contact
- Chiller Plant Controls Technicians and operators

Commissioning Process

The CLT Lead engineer will work with the chiller plant staff to solve any existing mechanical and control problems. After mechanical system and control system troubleshooting, CLT will determine the optimal chiller staging. These set points and schedules will be then programmed into the version modified by CLT/control contractor.

The version programmed by the controls contractor will be uploaded to the control system. The program will be loaded unit by unit. A comprehensive test will be performed to ensure proper functioning and the optimal staging.

It is important to follow the operating procedures recommended by the manufacturer and CLT's engineering design. Under the commissioning process, calibration of the temperature, pressure and current sensors and flow switches will be done if necessary. The temperature sensors are important for maintaining efficient operation.

The EMS will be used to trend key operation parameters. The EMS operators and CLT will examine the data periodically to identify any system faults and finetune the system set points.

The following possible scenarios will be corrected/monitored by the commissioning process:

- Identify maintenance/replacements, have addressed by Chiller plant staff;
- Optimal chiller staging;
- Reset schedules for chilled water temperatures as well as air flow;
- Supply temperatures;
- VFD's that run at a 100%;
- Equipment operating schedules not used;
- Equipment that is operating inefficiently due to improper operating strategies;
- Improper Sequence of Operation;
- Incorrect setpoints; and
- Controls out of calibration.

It is important to follow the operating procedures recommended by the manufacturer and as per CLT's design to achieve the energy savings. CLT will conduct an interactive session with the chiller plant staff on an annual basis to make the sure the chiller plant is operating as efficiently as possible and as per the guidelines set by CLT. Any concerns will be addressed by CLT's lead engineer.

The commissioning report will detail the findings of the process for each affected system. Any changes to the setpoints/control sequences will be recorded for future reference.

APPENDIX K

EQUIPMENT LEASE RIDER

This Lease Rider to the Lease identified in Schedule I (the “Lease”) is intended by the parties to the Lease, as a matter of convenience and consistency, to amend and supplement the provisions of, and to supersede and control over any conflicting provisions of, the Lease.

ARTICLE I DEFINITIONS

Section 1.01. Definitions. The following terms used in this Lease Rider will have the meanings indicated below unless the context clearly requires otherwise:

- “Act” means Chapter 37D, Hawaii Revised Statutes.
- “Additional Rental” means all amounts, other than Base Rental, payable to Lessee to Lessor or its assignee pursuant to the Lease.
- “Assignment Agreement” means that certain assignment agreement identified in Schedule I to this Lease Rider, as originally executed or as it may from time to time be amended or supplemented as provided therein.
- “Available Funds” means funds appropriated or otherwise made available, from time to time, by the State legislature to pay amounts due under the Lease for the Fiscal Year in which such payments are due.
- “Base Rental” means the rental, with separately stated principal and interest components, payable by Lessee to Lessor or its assignee pursuant to the Lease.
- “Code” means the Internal Revenue Code of 1986, as it may be amended from time to time, and any successor statute.
- “Defeasance Obligation” means obligations of, or guaranteed as to principal and interest by, the United States or any agency or instrumentality thereof when such obligations are backed by the full faith and credit of the United States.
- “Equipment” means the personal property identified in Schedule I to this Lease Rider.
- “Expiry Date” means the date identified in Schedule I to this Lease Rider.
- “Fiscal Year” means the fiscal year of the Lessee, which at the date of the Lease is the period from July 1 to and including the following June 30.

- “Lease” means that certain Lease identified in Schedule I to this Lease Rider, as originally executed or as it may from time to time be amended or supplemented as provided herein.
- “Lease Interests” means any fractional interests in the Lease, including, but not limited to, interests evidenced by trust receipts, beneficial interests or certificates of participation.
- “Lease Term” means the term of the Lease as determined pursuant to Article III of this Lease Rider.
- “Legislature” means the Legislature of the State of Hawaii.
- “Lessee” means the State of Hawaii, by its department identified in Schedule I to this Lease Rider.
- “Lessor” means that certain Lessor identified in Schedule I to this Lease Rider.
- “Net Proceeds” means the amount remaining from the gross proceeds of any insurance claim or condemnation award made in connection with the Equipment, after deducting all expenses (including attorneys’ fees) incurred in the collection of such claim or award.
- “Purchase Price” means, as of any date of calculation, the amount identified in Schedule I to this Lease Rider and made a part hereof, which Lessee may pay or cause to be paid as of such date to Lessor in order to purchase the Equipment or a specific item thereof pursuant to Section 6.01 of this Lease Rider or to purchase the Lessor’s interest in the Lease pursuant to Section 6.02 of this Lease Rider.
- “Rental Payments” means the aggregate of the Base Rental and the Additional Rental payable by Lessee pursuant to the Lease.
- “Rule 15c2-12” means Rule 15c2-12 adopted by the Securities and Exchange Commission under the Securities Exchange Act of 1934, as the same may be amended from time to time.
- “State” means the State of Hawaii.

ARTICLE II
REPRESENTATIONS AND COVENANTS OF LESSEE;
REPRESENTATIONS AND COVENANTS OF LESSOR

Section 2.01. Representations and Covenants of Lessee. Notwithstanding any other provision of the Lease, the Lessee makes the following, and only the following, representations, covenants and warranties for the benefit of Lessor and its assignee:

(a) The Lessee is authorized under the Constitution and laws of the State to enter into the Lease and the transactions contemplated by the Lease and to perform all of its obligations under the Lease.

(b) The Lessee has been duly authorized to execute and deliver the Lease, and all requirements have been met, conditions have been satisfied and procedures have occurred necessary for the Lease to be a valid obligation of the Lessee, and, when duly executed and delivered by the Lessor, approved by the Director of Finance of the State and approved as to form and legality by the Attorney General of the State, the Lease will be the valid obligation of the State, subject to bankruptcy, insolvency, reorganization, arrangement, fraudulent conveyance, moratorium and other laws relating to or affecting creditors' rights, to the application of equitable principles, to the exercise of judicial discretion in appropriate cases and to the limitations on legal remedies against the State.

(c) The execution and delivery of the Lease will not conflict with or constitute a breach of or default under any law, administrative regulation, judgment, decree, loan agreement, indenture, bond, note, resolution, agreement or other instrument to which the State is a party or is otherwise subject.

(d) All approvals, authorizations, consents and orders of any governmental authority, legislative body, board, agency or commission having jurisdiction which would constitute a condition precedent to or the absence of which would materially and adversely affect the due performance by the State of its obligation under the Lease have been duly obtained except for such approvals, consents and orders as may be required under any state or federal securities laws in connection with any disposition of the Lease or Lease Interests by the Lessor.

(e) During the term of the Lease, the Equipment will be used by Lessee only for the purpose of performing one or more governmental or proprietary functions of Lessee consistent with the permissible scope of Lessee's authority

(f) The Lessee will not make any use of any proceeds of the Lease Interests received by the Lessee or any other funds of the Lessee which will cause the Lease Interests to be "arbitrage bonds" subject to federal income taxation by reason of Section 148 of the Code, or which will cause such obligations to be "federally guaranteed" and subject to inclusion in gross income for federal income tax purposes by reason of Section 149(b) of the Code. To that end, so long as any Rental Payments are unpaid, the Lessee, with respect to such proceeds and such other funds, will comply with all requirements of Sections 148 and 149(b) of the Code and all regulations of the United States Department of the Treasury issued thereunder to the extent that such requirements are, at the time, applicable and in effect.

(g) The Lessee further covenants that it will not use or permit the use of the Equipment by any person in such manner or to such extent as would result in the inclusion of interest received hereunder in gross income for federal income tax purposes under Section 103 of the Code.

Section 2.02. Representations and Covenants of Lessor. In addition to any other representations or covenants contained in the Lease, the Lessor makes the following representations, covenants, warranties and acknowledgments for the benefit of Lessee:

(a) The Lessor covenants and agrees to undertake all responsibility for compliance with state and federal securities laws, including, but not limited to, responsibility for all actions of any placement agent or underwriter in connection with the offer or sale of Lease Interests. The Lessor acknowledges and agrees that the Lessee has made no undertaking to provide nor has it

approved any disclosure or other information for use in connection with the sale of Lease Interests by the Lessor, and Lessor agrees to be fully responsible for any and all disclosure provided to potential investors. The Lessor represents and warrants that the sale of Lease Interests is exempt from Rule 15c2-12, and acknowledges and agrees that the Lessee has made no undertaking to provide any continuing or other disclosure following the execution and delivery of the Lease.

(b) The Lessor acknowledges and agrees that the approval by the State of the sale of Lease Interests pursuant to Section 7.01 of this Lease Rider is not approval of the form of Lease Interests or the form of sale of Lease Interests or the form or content of any disclosure documents used in connection with the offer or sale of Lease Interests.

(c) The Lessor covenants and agrees to prominently disclose the following in any disclosure document used in connection with the offer or sale of Lease Interests:

The payment of rent by the State pursuant to the Lease is subject to appropriation by the State Legislature. The State may choose not to appropriate rent for any number of reasons and such failure does not constitute a default on the part of the State. The State has not participated in the creation of, or passed on or approved, the *[insert appropriate reference to the Lease Interests]* or this *[insert title of disclosure document]*, which were created and prepared, respectively, by the *[insert name of Lessor or vendor]* or its placement agent/underwriter without any review, input or information supplied by the State. The State has made no representation as to the tax-exemption of the interest component of the rent.

(d) Lessor acknowledges and agrees that any placement agent or underwriter of Lease Interests is acting as such agent of Lessor and not as agent of Lessee.

(e) Lessor acknowledges and agrees that Lessee has made no representation nor supplied any opinion as to whether the interest component of the rent is exempt from any federal or state taxation, and that the Lessee is under no obligation to pay or advance any funds (other than any arbitrage rebate required under Section 148(f) of the Code) to preserve or defend any such tax exemption.

(f) The Lessor shall, on behalf of the Lessee, pursuant to Section 149(e) of the Code, prepare and file an information return (Form 8038-G) with the United States Department of the Treasury no later than the 15th day of the second calendar month after the close of the calendar quarter in which the Lease is executed and delivered by the Lessee.

ARTICLE III LEASE TERM

Section 3.01. Commencement of Lease Term. The Lease Term shall commence on the date of execution of the Lease and shall terminate on the Expiry Date, unless such term is sooner terminated as set forth in Section 6.06 of this Lease Rider. If prior to the Expiry Date the Rental Payments shall have been fully paid and retired, then the term of the Lease shall end simultaneously therewith.

Section 3.02. Termination of Lease Term. The Lease Term and the Lease will terminate as to the entire Equipment [or as to a specific item thereof as provided in Section 4.02(a)] upon the earliest of any of the following events:

(a) The exercise by Lessee of the option to purchase all or a specific item of the Equipment granted under the provisions of Article VI of this Lease Rider;

(b) A default by Lessee and Lessor's election to terminate the Lease pursuant to the terms and provisions of the Lease;

(c) The termination of this Lease pursuant to Section 4.03 of this Lease Rider in the event on non-appropriation of funds by the Legislature; or

(d) The payment by Lessee of all Rental Payments and any other amounts authorized or required to be paid by Lessee under the Lease.

(e) When there shall have been deposited with a third-party escrow agent at or prior to the Expiry Date or a date when Lessee may exercise its option to purchase the Equipment or a specific item thereof, in trust for the benefit of the Lessor or its assignee and irrevocably appropriated and set aside to the payment of the Base Rental payments or Purchase Price, sufficient moneys and Defeasance Obligations, the principal of and interest on which when due will provide money sufficient to pay all principal, premium, if any, and interest components of the Base Rental payments when due, to and including the Expiry Date or the date when Lessee has elected to exercise its option to purchase the Equipment, as the case may be; then and in that event all right, title and interest of Lessor and its assignee in and under the Lease and all obligations of Lessee under the Lease shall thereupon cease, terminate, become void and be completely discharged and satisfied (except for the right of Lessor and the obligation of Lessee to have such moneys and such Defeasance Obligations applied to the payment of the Base Rental payments or Purchase Price) and Lessor's interest in and title to the Equipment or applicable item thereof shall be transferred and conveyed to Lessee. In such event, Lessor shall cause an accounting for such period or periods as may be requested by Lessee to be prepared and filed with Lessee and all such instruments as may be necessary or desirable to evidence such discharge and satisfaction and transfer of the Equipment or applicable item thereof, and Lessor shall pay over to Lessee as an overpayment of Base Rental payments all such moneys or such Defeasance Obligations held by it or its assignee pursuant hereto other than such moneys and such Defeasance Obligations as are required for the payment of the Base Rental payments or the Purchase Price, which moneys and Defeasance Obligations shall continue to be held in trust for the payment of Base Rental payments or the Purchase Price, and shall be applied by Lessor to the payment of the Base Rental payments or the Purchase Price.

ARTICLE IV RENTAL PAYMENTS

Section 4.01. Rental Payments Limited to Available Funds; Rental Payments to Constitute a Current Expense of the Lessee; No Pledge.

(a) The obligation of Lessee to make Rental Payments shall be limited to Available Funds. In no circumstance shall Lessee be obligated to pay amounts due under the Lease from any

source other than Available Funds, nor shall the Legislature be obligated in any manner to appropriate or otherwise make available Available Funds.

(b) The Lessor and the Lessee understand and intend that the obligation of the Lessee to pay Rental Payments under the Lease shall constitute a current expense of the Lessee and shall not in any way be construed to be a debt of the Lessee, nor shall the Lease be construed to be an instrument of indebtedness, in contravention of any applicable constitutional or statutory limitation or requirement concerning the creation of indebtedness by the Lessee. The Lease shall not create an immediate indebtedness for any aggregate payment which may become due during the Lease Term. The Lease, including the obligation of the Lessee to pay the principal and interest components of Base Rental payments, shall not be an obligation for which the full faith and credit of the Lessee is pledged. The Lessor and its assignee shall have no claim or lien on any revenues or other moneys of the Lessee, except Available Funds. Notwithstanding any other provisions of the Lease, the Lessee, in its discretion, may terminate the Lease as set forth in Section 4.03 of this Lease Rider.

Section 4.02. Continuation of Lease Term by the Lessee. The Lessee currently intends, subject to the provisions of Section 4.03 of this Lease Rider, to pay the Rental Payments for the entire Lease Term. The Lessee reasonably believes that Available Funds in an amount sufficient to make all Rental Payments during the Lease Term can be obtained. The Lessee intends that amounts sufficient to make such payments be included in the Governor's budget request to the Legislature for each fiscal period for adoption in accordance with applicable provisions of the laws of the State; provided that, it is understood that the Legislature shall not be obligated to adopt such budget or to appropriate or otherwise make available Available Funds; and provided further that, Lessee expressly reserves the right for any reason or no reason to terminate the Lease as set forth in Section 4.03 of this Lease Rider.

Section 4.03. Nonappropriation. In the event sufficient Available Funds shall not be appropriated by the Legislature for the payment of the Rental Payments required to be paid in the next succeeding Fiscal Year to continue the leasing of the Equipment, the Lessee may terminate the Lease, without penalty, as to all of the Equipment at the end of the then-current Fiscal Year, and the Lessee shall not be obligated to make payment of the Rental Payments provided for in the Lease beyond the then current Fiscal Year. Such termination shall not be considered or treated as a default under the Lease or any other document. If the Lease is terminated under this Section, the Lessee agrees to surrender to the Lessor, or its assignee, the Equipment, in good order and condition and in a state of repair that is consistent with prudent use and maintenance, except for reasonable wear and tear, and to cease use of the Equipment.

ARTICLE V
MAINTENANCE; MODIFICATION; TAXES;
INSURANCE AND OTHER CHARGES

Section 5.01. Insurance. Notwithstanding any other provision of the Lease, the Lessee shall be required to procure or cause to be procured and maintain or cause to be maintained for the Equipment throughout the Lease Term only the following insurance:

(a) Insurance against loss or damage to the Equipment caused by fire or lightning, with extended coverage insurance on the Equipment; and

(b) Liability insurance

It is expressly agreed that the State may be self-insured for all of the above coverage upon providing a certificate of self-insurance to the Lessor.

Section 5.02. Damage, Destruction and Condemnation; Use of Net Proceeds. Unless Lessee shall have exercised its option to purchase the Equipment by making payment of the Purchase Price as provided herein, if prior to the termination of the Lease Term (a) the Equipment or any portion or item thereof is destroyed (in whole or in part) by fire or other casualty, or (b) title to, or the temporary use of, the Equipment or any portion or item thereof or the estate of Lessee or Lessor in the Equipment or any portion or item thereof shall be taken under the exercise of the power of eminent domain by any governmental body or by any person, firm, or corporation acting under governmental authority, Lessee and Lessor will cause the Net Proceeds of any insurance claim or condemnation award to be applied to the prompt repair, restoration, modification, improvement or replacement of the Equipment or the applicable portion or item thereof. Any balance of the Net Proceeds remaining after such work has been completed shall be paid to Lessee.

Alternatively, if the proceeds of such insurance together with any other moneys then available for the purpose are at least sufficient to prepay an aggregate principal amount of Base Rental attributable to the portion or item of the Equipment so destroyed or damaged (determined by reference to the proportion which the acquisition, construction and installation cost of such portion or item of the Equipment bears to the acquisition, construction and installation cost of the entire Equipment), Lessee may, at its option, elect not to repair, restore, modify, improve or replace the damaged or destroyed or condemned portion or item of the Equipment and thereupon shall cause said proceeds to be used for the prepayment of Base Rental.

ARTICLE VI OPTION TO PURCHASE

Section 6.01. Option to Purchase Equipment. Lessor's interest in and title to the Equipment or specific items thereof will be transferred, conveyed and assigned to Lessee and the Lease shall terminate with respect thereto upon the occurrence of the event set forth in subparagraph (a) of this Section 6.01, and at the option of Lessee, Lessor's interest in and title to the Equipment or specific items thereof will be transferred, conveyed and assigned to Lessee and the Lease shall terminate upon the occurrence of the events set forth in subparagraphs (b) or (c) of this Section 6.01:

(a) At the end of the Lease Term, upon payment in full of all Rental Payments due under the Lease pertaining thereto; or

(b) On the dates set forth in Schedule I to this Lease Rider, upon payment of the then applicable Purchase Price as set forth in Schedule I to this Lease Rider, provided that Lessee shall deliver or cause to be delivered notice to Lessor of the intention to exercise the right to make such payment pursuant to this Section 6.01(b) not less than 45 days prior to such date of payment; or

(c) When there shall have been deposited with a third-party escrow agent at or prior to the Expiry Date or a date when Lessee may exercise its option to purchase the Equipment or a specific item thereof, in trust for the benefit of the Lessor or its assignee and irrevocably appropriated and set aside to the payment of the Base Rental payments or Purchase Price, sufficient moneys and Defeasance Obligations, the principal of and interest on which when due will provide money sufficient to pay all principal, premium, if any, and interest components of the Base Rental payment when due to and including the Expiry Date or the date when Lessee has elected to exercise its option to purchase the Equipment, as the case may be.

Section 6.02. Option to Purchase Lease. In lieu of purchasing Lessor's interest in and title to the Equipment or specific items thereof pursuant to Section 6.01 of this Lease Rider, at the option of Lessee, Lessor's or its assignee's interest in and title to the Lease shall be transferred, conveyed and irrevocably assigned to a purchaser (or agent or assignee) designated by Lessee upon the occurrence of the events set forth in subparagraphs (b) or (c) of Section 6.01 of this Lease Rider and notice to the Lessor of Lessee's intention to exercise its option under this Section 6.02.

ARTICLE VII ASSIGNMENT AND INDEMNIFICATION

Section 7.01. Assignment by Lessor. This Lease (including Lease Interests) may be sold, assigned or otherwise disposed of by Lessor. Lessee agrees to execute all documents, including notices of assignment and chattel mortgages or financing statements which may be reasonably requested by Lessor or its assignee to protect their interests in the Equipment and in the Lease during the Lease Term. By approval of the Lease, the Director of Finance approves the sale, assignment or disposition of the lease and Lease Interests by the Lessor as required by the Act.

Section 7.02. Indemnification.

(a) The Lessor agrees to indemnify and hold harmless the Lessee against any and all losses, claims, actions, suits, judgements, demands, damages, liabilities, liens and expenses (including reasonable attorneys fees and reasonable costs of investigation) of any nature arising out of or relating to the sale, assignment or other disposition of the Lease or Lease Interests, including without limitation those caused by any actions or omissions or alleged actions or omissions of any underwriter or placement agent for the Lease or Lease Interests or those caused by any untrue statement or alleged untrue statement of a material fact contained in any disclosure used in connection with the offer or sale of Lease Interests, or caused by any omission or alleged omission to state therein a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading in any material respect. The provisions of this paragraph shall survive termination of the Lease with respect to events occurring prior to such termination.

(b) Lessee shall be responsible for damages or injury caused by Lessee's agents, officers, and employees in the course of the employment, and for any and all claims, actions, losses, damages, obligations, liabilities and liens arising out of the possession, operation, use or return of the Equipment (excluding, however, any of the foregoing resulting from the negligence or willful misconduct of Lessor or its assignee), all to the extent that the Lessee's liability for such

damage or injury has been determined by a court or otherwise agreed to by the Lessee, and the Lessee shall pay for such damages or injuries to the extent permitted by law and approved by the Hawaii legislature. The provisions of this paragraph shall survive termination of the Lease with respect to events occurring prior to such termination.

ARTICLE VIII MISCELLANEOUS

Section 8.01. Substitution of Equipment. Any provision in the Lease restricting or otherwise limiting the ability of the Lessee to obtain other equipment in substitution of the Equipment is hereby repealed and deleted in its entirety from the Lease.

Section 8.02. Notices. All notices, certificates or other communications hereunder shall be sufficiently given and shall be deemed given when delivered by registered mail, postage prepaid, or by telecopy (in which case, telephone or mechanical confirmation is required), to the addresses set forth in Schedule I to this Lease Rider.

Section 8.03. Severability. If any one or more of the agreements, conditions, covenants or terms required herein to be observed or performed by or on the part of Lessor or the Lessee shall be contrary to law, then such agreement or agreements, such condition or conditions, such covenant or covenants or such term or terms shall be null and void and shall be deemed separable from the remaining agreements, conditions, covenants and terms hereof and shall in no way affect the validity hereof.

Section 8.04. Amendments. The Lease may be amended in writing as may be mutually agreed by Lessor or its assignee and Lessee, subject to the written approval of the Director of Finance of the State and to the approval of form and legality of the Attorney General of the State.

Section 8.05. Execution in Counterparts. The Lease may be simultaneously executed in counterparts, each of which shall be an original and all of which shall constitute but one and the same instrument.

Section 8.06. Applicable Law. The Lease shall be governed by and construed in accordance with the laws of the State of Hawaii. With respect to any suit, action or proceedings (collectively, the "Proceedings") relating to the Lease, the Lessor hereby irrevocably submits to the jurisdiction of the state courts of the State in Honolulu, Hawaii, and waives any objection which it may have at any time to the laying of venue of any Proceedings brought in such courts, waives any claim that the Proceedings have been brought in an inconvenient forum and further waives the right to object, with respect to the Proceedings, that such court does not have any jurisdiction of the Lessor.

Section 8.07. Successors and Assigns. This Lease Rider shall inure to the benefit of and shall be binding upon the Lessor and the Lessee and their respective successors and assigns (including, without limitation, any purchaser or assignee of the Lease or Lease Interests).

IN WITNESS WHEREOF, Lessor has executed this Lease Rider in its name and Lessee has executed this Lease Rider in its name, all as of the date first above written.

“LESSOR”

By _____

“LESSEE”

By _____

APPROVED PURSUANT TO CHAPTER 37D, HRS:

By _____
Director of Finance

APPROVED PURSUANT TO CHAPTER 37D, HRS:

By _____
Attorney General

SCHEDULE I

I. Definitions

“Assignment Agreement” means _____

“Expiry Date” means _____

“Lease” means _____

“Lessor” means _____

“Department” means _____

II. Equipment

<u>Description of Item</u>	<u>Cost of Item</u>	<u>Total Cost of Equipment</u>
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III. Purchase Price

<u>Date</u>	<u>Purchase Price</u> ¹
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<u>Principal</u>	<u>Premium (% of Principal)</u>	<u>Total Price</u>
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IV. Addresses (including telephone and fax numbers)

Lessor:

Lessee:

¹In the event less than the entire Equipment is to be purchased, the principal portion of the purchase price for the item or items, respectively, shall be the proportion which the cost of such item or items as set forth in “Part II - Equipment” of this Schedule I bears to the cost of the entire Equipment as set forth in “Part II - Equipment” of this Schedule I.

APPENDIX L

EQUIPMENT LEASE PURCHASE AGREEMENT

THIS EQUIPMENT LEASE PURCHASE AGREEMENT (the “Agreement”), is dated as of _____, between _____, a company organized and existing under the laws of the State _____, as Lessor (“Lessor”), and **the STATE OF HAWAII**, by the Department of Budget and Finance, as Lessee (“Lessee”), wherein the parties hereby agree as follows:

Section 1. Definitions. The following terms will have the meanings indicated below unless the context clearly requires otherwise:

“Agency” means _____, which will use the Equipment, as hereinafter defined, and which will be responsible to provide funds to the Department, as hereinafter defined, or at the Department’s direction to pay amounts due under this Agreement.

“Agreement” means this Equipment Lease Purchase Agreement and any other schedule, exhibit or escrow agreement made a part hereof by the parties hereto, together with any amendments to this Agreement.

“Available Funds” means funds appropriated or otherwise made available, from time to time, by the Legislature to pay amounts due under this Agreement for the fiscal year of Lessee in which such payments are due.

“Code” means the Internal Revenue Code of 1986, as amended.

“Commencement Date” is the date when the term of this Agreement and Lessee’s obligation to pay rent commences, which date will be the earlier of (i) the date on which the Equipment is accepted by Lessee in the manner described in **Section 13**, or (ii) the date on which sufficient moneys to purchase the Equipment are deposited for that purpose with an escrow agent.

“Contract” means any contract or contract with the Vendor for the acquisition and installation of the Equipment.

“Department” means the Department of Budget and Finance of the State of Hawaii, as defined in section 37D-1, Hawaii Revised Statutes.

“Equipment” means the property described on the Equipment Schedule attached hereto as **Exhibit A**, and all replacements, substitutions, repairs, restorations, modifications, attachments, accessions, additions and improvements thereof or thereto.

“Event of Default” means an Event of Default described in **Section 35**.

“Issuance Year” is the calendar year in which the Commencement Date occurs.

“Lease Term” means the Original Term and all Renewal Terms, but ending on the occurrence of the earliest event specified in **Section 6**.

“Legislature” means the Legislature of the State of Hawaii.

“Lessee” means the entity described as such in the first paragraph of this Agreement, its successors and its assigns.

“Lessor” means the entity described as such in the first paragraph of this Agreement, its successors and its assigns.

“Maximum Lease Term” means the Original Term and all Renewal Terms through the Renewal Term including the last Rental Payment Date set forth on the Payment Schedule.

“Net Proceeds” means the amount remaining from the gross proceeds of any insurance claim or condemnation award after deducting all expenses (including attorneys’ fees) incurred in the collection of such claim or award.

“Original Term” means the period from the Commencement Date until the end of the fiscal year of Lessee in effect at the Commencement Date.

“Payment Schedule” means the schedule of Rental Payments and Purchase Price set forth on **Exhibit B**.

“Purchase Price” means the amount set forth on the Payment Schedule that Lessee may, at its option, pay to Lessor to purchase the Equipment.

“Renewal Terms” means the optional renewal terms of this Agreement, each having a duration of one year and a term co-extensive with Lessee’s fiscal year.

“Rental Payment Dates” means the dates set forth on the Payment Schedule on which Rental Payments are due.

“Rental Payments” means the basic rental payments payable by Lessee pursuant to **Section 9**.

“State” means the State of Hawaii.

“Vendor” means the manufacturer of the Equipment as well as the agents or dealers of the manufacturer from whom Lessor purchased or is purchasing the Equipment, as listed on **Exhibit A**.

Section 2. Representations and Covenants of Lessee. Lessee represents, warrants and covenants for the benefit of Lessor as follows:

(a) Lessee has a substantial amount of one or more of the following sovereign powers: (a) the power to tax, (b) the power of eminent domain and (c) police power.

(b) Lessee is authorized under the Constitution and laws of the State to enter into this Agreement and the transactions contemplated by this Agreement and to perform all of its obligations under this Agreement.

(c) Lessee has been duly authorized to execute and deliver this Agreement, and all requirements have been met, conditions have been satisfied and procedures have occurred necessary for this Agreement to be a valid obligation of Lessee, and, when duly executed and delivered by Lessor, and approved as to form and legality by the Attorney General of the State, this Agreement will be the valid obligation of the State, subject to bankruptcy, insolvency, reorganization, arrangement, fraudulent conveyance, moratorium and other laws relating to or affecting creditors’ rights, to the application of equitable principles, to the exercise of judicial discretion in appropriate cases and to the limitations on legal remedies against the State.

(d) The execution and delivery of this Agreement will not conflict with or constitute a breach of or default under any law, administrative regulation, judgment, decree, loan agreement, indenture, bond, note, resolution, agreement or other instrument to which the State is a party or is otherwise subject.

(e) All approvals, authorizations, consents and orders of any governmental authority, legislative body, board, agency or commission having jurisdiction which would constitute a condition precedent to or the absence of which would materially and adversely affect the due performance by Lessee of its obligations under this Agreement have been duly obtained except for such approvals, consents and orders as may be required under any state or federal securities laws in connection with any disposition of this Agreement by Lessor.

(f) During the term of this Agreement, the Equipment will be used by Agency only for the purpose of performing one or more governmental or proprietary functions of Agency consistent with the permissible scope of Agency's authority.

(g) No event or condition that constitutes, or with the giving of notice or the lapse of time or both would constitute, an Event of Default exists at the Commencement Date.

(h) Lessee has, in accordance with the requirements of law, fully budgeted and appropriated sufficient funds for the current fiscal year to make the Rental Payments scheduled to come due during the Original Term and to meet its other obligations for the Original Term, and such funds have not been expended for other purposes.

(i) Lessee has complied with such public bidding requirements as may be applicable to this Agreement and the acquisition by Lessee of the Equipment hereunder.

(j) There is no action, suit, proceeding, inquiry or investigation, at law or in equity, before or by any court, public board or body, pending or threatened against or affecting Lessee, nor to the best knowledge of Lessee is there any basis therefor, wherein an unfavorable decision, ruling or finding would materially adversely affect the transactions contemplated by this Agreement or any other document, agreement or certificate which is used or contemplated for use in the consummation of the transactions contemplated by this Agreement or materially adversely affect the financial condition or properties of Lessee.

(k) The Equipment described in this Agreement is essential to the function of Lessee or to the service Lessee provides to its citizens. Lessee has an immediate need for, and expects to make immediate use of, substantially all the Equipment, which need is not temporary or expected to diminish in the foreseeable future.

(l) Neither the payment of the Rental Payments hereunder nor any portion thereof is (i) secured by any interest in property used or to be used in a trade or business of a non-exempt person (within the meaning of Section 103 of the Code) or in payments in respect of such property or (ii) derived from payments in respect of property, or borrowed money, used or to be used in a trade or business of a non-exempt person (within the meaning of Section 103 of the Code). No portion of the Equipment will be used directly or indirectly in any trade or business carried on by any non-exempt person (within the meaning of Section 103 of the Code).

(m) Lessee will comply with all applicable provisions of the Code, including without limitation Sections 103 and 148 thereof, and the applicable regulations of the Treasury Department to maintain the exclusion of the interest components of Rental Payments from gross income for purposes of federal income taxation.

(n) Lessee will use the proceeds of this Agreement as soon as practicable and with all reasonable dispatch for the purpose for which this Agreement has been entered into. No part of the proceeds of this Agreement will be invested in any securities, obligations or other investments or used, at any time, directly or indirectly, in a manner which, if such use had been reasonably anticipated on the date of issuance of this Agreement, would have caused any portion of this Agreement to be or become "arbitrage bonds" within the meaning of Section 103(b)(2) or Section 148 of the Code and the applicable regulations of the Treasury Department.

(o) Lessee has never failed to appropriate or otherwise make available funds sufficient to pay rental or other payments coming due under any lease purchase, installment sale or other similar agreement.

(p) The useful life of the Equipment will not be less than the Maximum Lease Term.

(q) The application, statements and credit or financial information submitted by Lessee to Lessor are true and correct and made to induce Lessor to enter into this Agreement and the escrow agreement, if any, and Lessee has experienced no material change in its financial condition since the date(s) of such information.

(r) Lessee has provided Lessor with audited financial statements through June 30, 2008. Lessee has experienced no material change in its financial condition or in the revenues expected to be utilized to meet Rental Payments due under the Agreement since June 30, 2008, except.

(s) Lessee shall pay the excess (if any) of the actual costs of acquiring the Equipment under the Agreement over the amount deposited by Lessor in the escrow fund, if any, established under any related escrow agreement and interest earnings thereon.

(t) The total approximate cost of the energy savings project as to which the Equipment is a part is \$_____. Lessee will contribute approximately \$_____ in other funds of Lessee toward that project.

Section 3. Certification as to Arbitrage. Lessee hereby represents as follows:

(a) The estimated total costs of the Equipment will not be less than the total principal portion of the Rental Payments.

(b) The Equipment has been ordered or is expected to be ordered within six months of the Commencement Date, and the Equipment is expected to be delivered and installed, and the Vendor fully paid, within eighteen months of the Commencement Date.

(c) Lessee has not created or established, and does not expect to create or establish, any sinking fund or other similar fund (i) that is reasonably expected to be used to pay the Rental Payments, or (ii) that may be used solely to prevent a default in the payment of the Rental Payments.

(d) The Equipment has not been and is not expected to be sold or otherwise disposed of by Lessee, either in whole or in major part, prior to the last maturity of the Rental Payments.

(e) To the best of our knowledge, information and belief, the above expectations are reasonable.

Section 4. Lease of Equipment. Lessor hereby demises, leases and lets the Equipment to Lessee, and Lessee rents, leases and hires the Equipment from Lessor, in accordance with the provisions of this Agreement, for the Lease Term.

Section 5. Lease Term. The Original Term of this Agreement will commence on the Commencement Date and will terminate on the last day of Lessee's current fiscal year. The Lease Term may be continued, solely at the option of Lessee, at the end of the Original Term or any Renewal Term for an additional Renewal Term up to the Maximum Lease Term. At the end of the Original Term and at the end of each Renewal Term until the Maximum Lease Term has been completed, Lessee will be deemed to have exercised its option to continue this Agreement for the next Renewal Term unless Lessee has terminated this Agreement pursuant to **Section 6** or **Section 31**. The terms and conditions during any Renewal Term will be the same as the terms and conditions during the Original Term, except that the Rental Payments will be as provided in the Payment Schedule.

Section 6. Termination of Lease Term. The Lease Term will terminate upon the earliest of any of the following events:

- (a) the expiration of the Original Term or any Renewal Term of this Agreement and the nonrenewal of this Agreement in the event of nonappropriation of funds pursuant to **Section 8**;
- (b) the exercise by Lessee of the option to purchase the Equipment under the provisions of **Section 31** and payment of the Purchase Price and all amounts payable in connection therewith;
- (c) a default by Lessee and Lessor's election to terminate this Agreement under **Section 36**; or
- (d) the payment by Lessee of all Rental Payments authorized or required to be paid by Lessee hereunder during the Maximum Lease Term.

Section 7. Continuation of Lease Term. Lessee currently intends, subject to the provisions of **Section 8** and **Section 12**, to continue the Lease Term through the Original Term and all of the Renewal Terms and to pay the Rental Payments hereunder. Lessee reasonably believes that Available Funds in an amount sufficient to make all Rental Payments during the Original Term and each of the Renewal Terms can be obtained. Lessee intends that amounts sufficient to make such payments be included in the Governor's budget request to the Legislature for each fiscal period for adoption in accordance with applicable provisions of the laws of the State; provided that, it is understood that the Legislature shall not be obligated to adopt such budget or to appropriate or otherwise make available, Available Funds; and provided further that, Lessee expressly reserves the right to terminate this Agreement as set forth in **Section 8**.

Section 8. Nonappropriation. In the event sufficient Available Funds shall not be appropriated by the Legislature for the payment of the Rental Payments required to be paid in the next succeeding fiscal year of Lessee to continue the leasing of the Equipment, Lessee may terminate this Agreement, without penalty, as to all of the Equipment at the end of the then-current fiscal year, and Lessee shall not be obligated to make payment of the Rental Payments provided for in this Agreement beyond the then current fiscal year. Lessee agrees to deliver written notice to Lessor of such termination as soon as practicable after such failure to appropriate. Such termination shall not be considered or treated as a default under this Agreement or any other document. If this Agreement is terminated under this Section, Lessee agrees to surrender to Lessor, at the location or locations in the State specified by Lessor, the Equipment, in good order and condition and in a state of repair that is consistent with the requirements of this Agreement, prudent use and maintenance, except for reasonable wear and tear, and to cease use of the Equipment

Section 9. Rental Payments. Lessee will pay Rental Payments in lawful money of the United States of America to Lessor in the amounts and on the dates set forth on the Payment Schedule. Rental Payments will be in consideration for Lessee's use of the Equipment during the fiscal year in which such payments are due. Any Rental Payment not received on or before its due date will bear interest at the rate of 10% per annum or the maximum amount permitted by law, whichever is less, from its due date.

In the event that it is determined that any of the interest components of Rental Payments may not be excluded from gross income for purposes of federal income taxation, Lessee agrees to pay to Lessor promptly after any such determination and on each Rental Payment Date thereafter an additional amount determined by Lessor to compensate Lessor for the loss of such excludability (including without limitation, compensation relating to interest expense, penalties or additions to tax), which determination shall be conclusive absent manifest error.

Section 10. Interest Component. As set forth on the Payment Schedule, a portion of each Rental Payment is paid as, and represents payment of, interest.

Section 11. Rental Payments To Be Unconditional. Except as provided in Section 8, the obligations of Lessee to make Rental Payments and to perform and observe the other covenants and agreements contained herein shall be absolute and unconditional in all events without abatement, diminution, deduction, set-off or defense, for any reason, including without limitation any failure of the Equipment to be delivered or installed, any defects, malfunctions, breakdowns or infirmities in the equipment or any accident, condemnation or unforeseen circumstances.

Section 12. Rental Payments Limited to Available Funds; Rental Payments to Constitute a Current Expense of Lessee; No Pledge.

(a) The obligation of Lessee to make Rental Payments shall be limited to Available Funds. In no circumstance shall Lessee be obligated to pay amounts due under this Agreement from any source other than Available Funds, nor shall the Legislature be obligated in any manner to appropriate or otherwise make available, Available Funds.

(b) Lessor and Lessee understand and intend that the obligation of Lessee to pay Rental Payments under this Agreement shall constitute a current expense of Lessee and shall not in any way be construed to be a debt of Lessee, nor shall this Agreement be construed to be an instrument of indebtedness, in contravention of any applicable constitutional or statutory limitation or requirement concerning the creation of indebtedness by Lessee. This Agreement shall not create an immediate indebtedness for any aggregate payment which may become due during the Lease Term. This Agreement, including the obligation of Lessee to pay the principal and interest components of Rental Payments, shall not be an obligation for which the full faith and credit of Lessee is pledged. Lessor shall have no claim or lien on any revenues or other moneys of Lessee, except Available Funds. Notwithstanding any other provisions of this Agreement, Lessee, in its discretion, may terminate this Agreement as set forth in **Section 8**.

Section 13. Delivery, Installation and Acceptance of the Equipment. Lessee will order the Equipment, cause the Equipment to be delivered and installed at the location specified on **Exhibit A** and pay any and all delivery and installation costs in connection therewith. When the Equipment has been delivered and installed, Lessee will immediately accept the Equipment and evidence said acceptance by executing and delivering to Lessor an acceptance certificate in form and substance acceptable to Lessor. After it has been installed, the Equipment will not be moved from the location specified on **Exhibit A** without Lessor's consent, which consent will not be unreasonably withheld.

Section 14. Enjoyment of Equipment. Lessor hereby covenants to provide Lessee with quiet use and enjoyment of the Equipment during the Lease Term, and Lessee will peaceably and quietly have and hold and enjoy the Equipment during the Lease Term, without suit, trouble or hindrance from Lessor, except as otherwise expressly set forth in this Agreement.

Section 15. Right of Inspection. Lessor will have the right at all reasonable times during regular business hours to enter into and upon the property of Lessee for the purpose of inspecting the Equipment.

Section 16. Use of the Equipment. Lessee will not install, use, operate or maintain the Equipment improperly, carelessly, in violation of any applicable law or in a manner contrary to that contemplated by this Agreement. Lessee will obtain all permits and licenses, if any, necessary for the installation and operation of the Equipment. In addition, Lessee agrees to comply in all respects (including, without limitation, with respect to the use, maintenance and operation of each item of the Equipment) with all applicable laws,

regulations and rulings of any legislative, executive, administrative or judicial body; provided, however, that Lessee may contest in good faith the validity or application of any such law, regulation or ruling in any reasonable manner that does not, in the opinion of Lessor, adversely affect the interest of Lessor in and to the Equipment or its interest or rights under this Agreement.

Section 17. Maintenance of Equipment. Lessee agrees that it will, at Lessee's own cost and expense, maintain, preserve and keep the Equipment in good repair, working order and condition. Lessor will have no responsibility to maintain, or repair or to make improvements or additions to the Equipment.

Section 18. Title to the Equipment. During the Lease Term, title to the Equipment and any and all additions, repairs, replacements or modifications will vest in Lessee, subject to the rights of Lessor under this Agreement; provided that title will thereafter immediately and without any action by Lessee vest in Lessor, and Lessee will immediately surrender possession of the Equipment to Lessor upon (a) any termination of this Agreement other than termination pursuant to **Section 31** or (b) the occurrence of an Event of Default. It is the intent of the parties hereto that any transfer of title to Lessor pursuant to this Section will occur automatically without the necessity of any bill of sale, certificate of title or other instrument of conveyance. Lessee will, nevertheless, execute and deliver any such instruments as Lessor may request to evidence such transfer. Lessee, irrevocably designates, makes, constitutes and appoints Lessor and its assignee as Lessee's true and lawful attorney (and agent in-fact) with power, at such time of termination or times thereafter as Lessor in its sole and absolute discretion may determine, in Lessee's or Lessor's or such assignee's name, to endorse the name of Lessee upon any bill of sale, document, instrument, invoice, freight bill, bill of lading or similar document relating to the Equipment in order to vest title in Lessor and transfer possession to Lessor. As further security therefore, Lessee grants to Lessor a first priority security interest in the cash and negotiable instruments from time to time comprising each escrow fund established under any related escrow agreement and all proceeds (cash and non-cash) thereof, and agrees with respect thereto that Lessor shall have all the rights and remedies of a secured party.

Section 19. Security Interest. To secure the payment of all of Lessee's obligations under this Agreement and to the extent permitted by law, Lessor retains a security interest constituting a first lien on the Equipment and on all additions, attachments and accessions thereto and substitutions therefor and proceeds therefrom. Lessee agrees to execute such additional documents in form satisfactory to Lessor, that Lessor deems necessary or appropriate to establish and maintain its security interest. Lessee agrees that financing statements may be filed with respect to the security interest in the Equipment.

Section 20. Personal Property. Lessor and Lessee agree that the Equipment is and will remain personal property. The Equipment will not be deemed to be affixed to or a part of the real estate on which it may be situated, notwithstanding that the Equipment or any part thereof may be or hereafter become in any manner physically affixed or attached to

such real estate or any building thereon. Upon the request of Lessor, Lessee will, at Lessee's expense, furnish a waiver of any interest in the Equipment from any party having an interest in any such real estate or building.

Section 21. Liens, Taxes, Other Governmental Charges and Utility Charges. Lessee will keep the Equipment free and clear of all liens, charges and encumbrances, except those created under this Agreement. The parties to this Agreement contemplate that the Equipment will be used for a governmental or proprietary purpose of Lessee and, therefore, that the Equipment will be exempt from all property taxes and other similar charges. If the use, possession or acquisition of the Equipment is found to be subject to taxation in any form, Lessee will pay all taxes and governmental charges lawfully assessed or levied against or with respect to the Equipment. Lessee will pay all utility and other charges incurred in the use and maintenance of the Equipment. Lessee will pay such taxes and charges as the same become due; provided that, with respect to any such taxes and charges that may lawfully be paid in installments over a period of years, Lessee will be obligated to pay only such installments that accrue during the Lease Term.

Section 22. Insurance. At its own expense, Lessee will maintain (a) casualty insurance insuring the Equipment against loss or damage by fire and all other risks covered by the standard extended coverage endorsement then in use in the State and any other risks reasonably required by Lessor in an amount at least equal to the then applicable Purchase Price of the Equipment, and (b) liability insurance that protects Lessor from liability in all events in form and amount satisfactory to Lessor. It is expressly agreed that Lessee may be self-insured for all of the above coverage upon providing a certificate of self-insurance to Lessor. All insurance proceeds from casualty losses will be payable as hereinafter provided. Lessee will furnish to Lessor certificates evidencing such coverage throughout the Lease Term.

Section 23. Advances. In the event Lessee fails to maintain either the insurance required by this Agreement, pay taxes or charges required to be paid by it under this Agreement or fails to keep the Equipment in good repair and operating condition, Lessor may (but will be under no obligation to) purchase the required policies of insurance and pay the cost of the premiums on the thereof, pay such taxes and charges and make such Equipment repairs or replacements as are necessary and pay the cost thereof. All amounts so advanced by Lessor will become additional rent for the then current Original Term or Renewal Term. Lessee agrees to pay such amounts with interest thereon from the date paid at the rate of 10% per annum or the maximum permitted by law, whichever is less.

Section 24. Financial Information. As soon as practicable after receipt thereof by Lessee, Lessee will provide Lessor with current financial statements, budgets, proofs of appropriation for the ensuing fiscal year and such other financial information relating to the ability of Lessee to continue this Agreement as may be requested by Lessor.

Section 25. Liability of Lessee. Lessee shall be responsible for damages or injury caused by Lessee's agents, officers, and employees in the course of their employment, and for any and all claims, actions, losses, damages, obligations, liabilities and liens arising out of the possession, operation, use or return of the Equipment (excluding, however, any of the foregoing resulting from the negligence or willful misconduct of Lessor), all to the extent permitted by law and approved by the Legislature. The provisions of this paragraph shall survive termination of this Agreement with respect to events occurring prior to such termination.

Section 26. Risk of Loss. Lessee assumes, from and including the Commencement Date, all risk of loss of or damage to the Equipment from any cause whatsoever. No such loss of or damage to the Equipment nor defect therein nor unfitness or obsolescence thereof will relieve Lessee of the obligation to make Rental Payments or to perform any other obligation under this Agreement.

Section 27. Damage, Destruction, Condemnation; Use of Proceeds. If (a) the Equipment or any portion thereof is destroyed, in whole or in part, or is damaged by fire or other casualty, or (b) title to, or the temporary use of, the Equipment or any part thereof or the interest of Lessee or Lessor in the Equipment or any part thereof will be taken under the exercise of the power of eminent domain by any governmental body or by any person, firm or corporation acting under governmental authority, Lessee and Lessor will cause the Net Proceeds of any insurance claim or condemnation award to be applied to the prompt replacement, repair, restoration, modification or improvement of the Equipment, unless Lessee has exercised its option to purchase the Equipment pursuant to **Section 31**. Any balance of the Net Proceeds remaining after such work has been completed will be paid to Lessee.

Section 28. Insufficiency of Net Proceeds. If the Net Proceeds are insufficient to pay in full the cost of any repair, restoration, modification or improvement referred to in **Section 26**, Lessee will either (a) complete such replacement, repair, restoration, modification or improvement and pay any costs thereof in excess of the amount of the Net Proceeds, or (b) purchase Lessor's interest in the Equipment pursuant to **Section 31**. The amount of the Net Proceeds, if any, remaining after completing such repair, restoration, modification or improvement or after purchasing the Equipment will be retained by Lessee. If Lessee will make any payments pursuant to this Section, Lessee will not be entitled to any reimbursement therefor from Lessor nor will Lessee be entitled to any diminution of the amounts payable under **Section 9**.

Section 29. Disclaimer of Warranties. LESSOR MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, AS TO THE VALUE, DESIGN, CONDITION, MERCHANTABILITY OR FITNESS FOR PARTICULAR USE OR PURPOSE OF THE EQUIPMENT OR AGAINST INFRINGEMENT, OR ANY OTHER WARRANTY OR REPRESENTATION WITH RESPECT THERETO. IN NO EVENT SHALL LESSOR BE LIABLE FOR ANY ACTUAL, INCIDENTAL, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGE IN CONNECTION WITH

OR ARISING OUT OF THIS AGREEMENT OR THE EXISTENCE, FURNISHING, FUNCTIONING OR LESSEE'S USE OR MAINTENANCE OF ANY EQUIPMENT OR SERVICES PROVIDED FOR IN THIS AGREEMENT.

Section 30. Vendor's Warranties. Lessee may have rights under the contract evidencing the purchase of the Equipment; Lessee is advised to contact the Vendor for a description of any such rights. Lessor hereby assigns to Lessee during the Lease Term all warranties running from Vendor to Lessor. Lessor hereby irrevocably appoints Lessee its agent and attorney-in-fact during the Lease Term, so long as Lessee will not be in default hereunder, to assert from time to time whatever claims and rights (including without limitation warranties) related to the Equipment that Lessor may have against the Vendor. Lessee's sole remedy for the breach of any such warranty, indemnification or representation will be against the Vendor, and not against Lessor. Any such matter will not have any affect whatsoever on the rights and obligations of Lessor with respect to this Agreement, including the right to receive full and timely payments hereunder. Lessee expressly acknowledges that Lessor makes, and has made, no representations or warranties whatsoever as to the existence or availability of such warranties by the Vendor.

Section 31. Purchase Option; One-Time Partial Payment. Lessee will have the option to purchase the Equipment, upon giving written notice to Lessor at least 30 days before the date of purchase, at the following times and upon the following terms:

(a) On any Rental Payment Date, upon payment in full of the Rental Payment then due hereunder plus all other amounts due hereunder plus the then-applicable Purchase Price to Lessor; or

(b) In the event of substantial damage to or destruction or condemnation (other than by Lessee or any entity controlled by or otherwise affiliated with Lessee) of substantially all of the Equipment, on the day Lessee specifies as the purchase date in Lessee's notice to Lessor of its exercise of the purchase option, upon payment in full of the Rental Payment and all other amounts then due hereunder plus (i) the Purchase Price designated on the Payment Schedule for such purchase date if such purchase date is a Rental Payment Date or the Purchase Price for the immediately preceding Rental Payment Date if such purchase date is not a Rental Payment Date, and (ii) if such day is not a Rental Payment Date, an amount equal to the portion of the interest component of the Rental Payment scheduled to come due on the following Rental Payment Date accrued from the immediately preceding Rental Payment Date to such purchase date, computed on the basis of a 360-day year of twelve 30-day months.

Upon the exercise of the option to purchase set forth above, title to the Equipment will be vested in Lessee, free and clear of any claim by or through Lessor.

Lessee will have the option to prepay outstanding principal components of Rental Payments in an aggregate amount of not less than \$1,000,000 and not more than

\$5,000,000, upon giving written notice to Lessor at least 30 days before the date of prepayment, on any Rental Payment Date prior to September 1, 2012. Such option may be exercised only one time by Lessee. In the event of any such prepayment, the Payment Schedule will be revised as specified by Lessor.

Section 32. Determination of Fair Purchase Price. Lessee and Lessor hereby agree and determine that the Rental Payments hereunder during the Original Term and each Renewal Term represent the fair value of the use of the Equipment and that the amount required to exercise Lessee's option to purchase the Equipment pursuant to **Section 31** represents, as of the end of the Original Term or any Renewal Term, the fair purchase price of the Equipment. Lessee hereby determines that the Rental Payments do not exceed a reasonable amount so as to place Lessee under a practical economic compulsion to renew this Agreement or to exercise its option to purchase the Equipment hereunder. In making such determinations, Lessee and Lessor have given consideration to (a) the costs of the Equipment, (b) the uses and purposes for which the Equipment will be employed by Lessee, (c) the benefit to Lessee by reason of the acquisition and installation of the Equipment and the use of the Equipment pursuant to the terms and provisions of this Agreement, and (d) Lessee's option to purchase the Equipment. Lessee hereby determines and declares that the acquisition and installation of the Equipment and the leasing of the Equipment pursuant to this Agreement will result in equipment of comparable quality and meeting the same requirements and standards as would be necessary if the acquisition and installation of the Equipment were performed by Lessee other than pursuant to this Agreement. Lessee hereby determines and declares that the Maximum Lease Term does not exceed the useful life of the Equipment.

Section 33. Assignment by Lessor. Lessor's interest in, to and under this Agreement and the Equipment may be assigned and reassigned in whole or in part to one or more assignees by Lessor without the necessity of obtaining the consent of Lessee; provided that any assignment will not be effective until Lessee has received written notice of the name and address of the assignee. Lessee will retain all such notices as a register of all assignees and will make all payments to the assignee or assignees designated in such register. Lessee agrees to execute all documents, including notices of assignment and chattel mortgages or financing statements that may be reasonably requested by Lessor or any assignee to protect its interest in the Equipment and in this Agreement and agrees to the filing of financing statements with respect to the Equipment and this Agreement. Lessee will not have the right to and will not assert against any assignee any claim, counterclaim, defense, set-off or other right Lessee may have against Lessor.

Section 34. Assignment and Subleasing by Lessee. None of Lessee's right, title and interest in, to and under this Agreement and the Equipment may be assigned or encumbered by Lessee for any reason, except that Lessee may sublease all or part of the Equipment if Lessee obtains the prior written consent of Lessor and an opinion of nationally recognized counsel in the area of tax exempt municipal obligations satisfactory to Lessor that such subleasing will not adversely affect the exclusion of the interest

components of the Rental Payments from gross income for federal income tax purposes. Any such sublease of all or part of the Equipment will be subject to this Agreement and the rights of Lessor in, to and under this Agreement and the Equipment.

Section 35. Events of Default Defined. Subject to the provisions of **Section 8**, any of the following will be “Events of Default” under this Agreement:

- (a) Failure by Lessee to pay any Rental Payment or other payment required to be paid hereunder at the time specified herein;
- (b) Failure by Lessee to observe and perform any covenant, condition or agreement on its part to be observed or performed, other than as referred to in **Section 35(a)**, for a period of 30 days after written notice, specifying such failure and requesting that it be remedied, is given to Lessee by Lessor, unless Lessor will agree in writing to an extension of such time prior to its expiration; provided, however, if the failure stated in the notice cannot be corrected within the applicable period, Lessor will not unreasonably withhold its consent to an extension of such time if corrective action is instituted by Lessee within the applicable period and diligently pursued until the default is corrected;
- (c) Any statement, representation or warranty made by Lessee in or pursuant to this Agreement or its execution, delivery or performance will prove to have been false, incorrect, misleading or breached in any material respect on the date when made;
- (d) Any provision of this Agreement will at any time for any reason cease to be valid and binding on Lessee, or will be declared to be null and void, or the validity or enforceability thereof will be contested by Lessee or any governmental agency or authority if the loss of such provision would materially adversely affect the rights or security of Lessor, or Lessee will deny that it has any further liability or obligation under this Agreement;
- (e) Lessee will (i) apply for or consent to the appointment of a receiver, trustee, custodian or liquidator of Lessee, or of all or a substantial part of the assets of Lessee, (ii) be unable, fail or admit in writing its inability generally to pay its debts as they become due, (iii) make a general assignment for the benefit of creditors, (iv) have an order for relief entered against it under applicable federal bankruptcy law, or (v) file a voluntary petition in bankruptcy or a petition or an answer seeking reorganization or an arrangement with creditors or taking advantage of any insolvency law or any answer admitting the material allegations of a petition filed against Lessee in any bankruptcy, reorganization or insolvency proceeding; or
- (f) An order, judgment or decree will be entered by any court of competent jurisdiction, approving a petition or appointing a receiver, trustee, custodian or liquidator of Lessee or of all or a substantial part of the assets of Lessee, in each case without its application, approval or consent, and such order, judgment or decree will continue unstayed and in effect for any period of 30 consecutive days.

Section 36. Remedies on Default. Whenever any Event of Default exists, Lessor will have the right, at its sole option without any further demand or notice, to take one or any combination of the following remedial steps:

(a) By written notice to Lessee, Lessor may declare all Rental Payments and other amounts payable by Lessee hereunder to the end of the then current Original Term or Renewal Term to be due;

(b) With or without terminating this Agreement, Lessor may enter the premises where the Equipment is located and retake possession of the Equipment or require Lessee at Lessee's expense to promptly return any or all of the Equipment to the possession of Lessor at the location or locations in the State specified by Lessor, and sell or lease the Equipment or, for the account of Lessee, sublease the Equipment, holding Lessee liable for the difference between (i) the Rental Payments and other amounts payable by Lessee hereunder plus the applicable Purchase Price, and (ii) the net proceeds of any such sale, lease or sublease (after deducting all expenses of Lessor in exercising its remedies under this Agreement, including without limitation, all expenses of taking possession, storing, reconditioning and selling or leasing the Equipment and all brokerage, auctioneers' and attorneys' fees) provided that the amount of Lessee's liability under this subparagraph (b) shall not exceed the Rental Payments and other amounts otherwise due hereunder plus the remaining Rental Payments and other amounts payable by Lessee to the end of the then current Original Term or Renewal Term; and

(c) Lessor may take whatever other action at law or in equity may appear necessary or desirable to enforce its rights as the owner of the Equipment.

In addition, Lessee will remain liable for all covenants and indemnities under this Agreement and for all legal fees and other costs and expenses, including court costs, incurred by Lessor with respect to the enforcement of any of the remedies listed above or any other remedy available to Lessor.

Section 37. No Remedy Exclusive. No remedy herein conferred upon or reserved to Lessor is intended to be exclusive and every such remedy will be cumulative and will be in addition to every other remedy given under this Agreement or now or hereafter existing at law or in equity. No delay or omission to exercise any right or power accruing upon any default will impair any such right or power or will be construed to be a waiver thereof, but any such right and power may be exercised from time to time and as often as may be deemed expedient. In order to entitle Lessor to exercise any remedy reserved to it in this Agreement it will not be necessary to give any notice, other than such notice as may be required in this Agreement.

Section 38. Notices. All notices, certificates or other communications hereunder will be sufficiently given and will be deemed given when delivered or mailed by registered mail,

postage prepaid, to the parties at the addresses immediately after the signatures to this Agreement (or at such other address as either party hereto will designate in writing to the other for notices to such party), to any assignee at its address as it appears on the register maintained by Lessee.

Section 39. Binding Effect. This Agreement will inure to the benefit of and will be binding upon Lessor and Lessee and their respective successors and assigns.

Section 40. Severability. In the event any provision of this Agreement will be held invalid or unenforceable by any court of competent jurisdiction, such holding will not invalidate or render unenforceable any other provision hereof.

Section 41. Entire Agreement. This Agreement constitutes the entire agreement between Lessor and Lessee.

Section 42. Amendments. This Agreement may be amended, changed or modified in any manner by written agreement of Lessor and Lessee. Any waiver of any provision of this Agreement or any right or remedy hereunder must be affirmatively and expressly made in writing and will not be implied from inaction, course of dealing or otherwise.

Section 43. Execution in Counterparts. This Agreement may be simultaneously executed in several counterparts, each of which will be an original and all of which will constitute but one and the same instrument.

Section 44. Captions. The captions or headings in this Agreement are for convenience only and in no way define, limit or describe the scope or intent of any provisions or sections of this Agreement.

Section 45. Applicable Law. This Agreement will be governed by and construed in accordance with the laws of the State.

Section 46. Electronic Transactions. The parties agree that the transaction described herein may be conducted and related documents may be stored by electronic means. Copies, telecopies, facsimiles, electronic files and other reproductions of original executed documents shall be deemed to be authentic and valid counterparts of such original documents for all purposes, including the filing of any claim, action or suit in the appropriate court of law.

[Remainder of Page Intentionally Left Blank]

IN WITNESS WHEREOF, Lessor and Lessee have caused this Agreement to be executed in their corporate names by their duly authorized officers as of the date first above written.

INSERT NAME OF LESSOR

By: _____

Name: _____

Title: _____

Address: _____

STATE OF HAWAII, by the Department of Budget and Finance

By: _____

Name: _____

Title: _____

Address: _____

CERTIFICATE OF [AUTHORIZED OFFICIAL] OF LESSEE

I, the undersigned, do hereby certify (i) that the officer of Lessee who executed the foregoing Agreement on behalf of Lessee and whose genuine signature appears thereon, is the duly qualified and acting officer of Lessee as stated beneath his or her signature and has been authorized to execute the foregoing Agreement on behalf of Lessee, and (ii) that the fiscal year of Lessee is from _____ to _____.

DATED: _____.

By: _____

Name: _____

Title: _____

EXHIBIT A TO EQUIPMENT LEASE PURCHASE AGREEMENT

EQUIPMENT SCHEDULE

Energy savings improvements, as described in the Scope of Work Schedule attached hereto, which covers work to be done at the following locations:

EXHIBIT B TO EQUIPMENT LEASE PURCHASE AGREEMENT

PAYMENT SCHEDULE

Principal Amount: \$[Principal Amount]

Interest Rate: _____%

Rental payments will be made in accordance with **Section 9** and this Payment Schedule.

<u>Rental</u>	<u>Total</u>	<u>Principal</u>	<u>Interest</u>	<u>Purchase</u>
<u>Payment Date</u>	<u>Rental Payment</u>	<u>Portion</u>	<u>Portion</u>	<u>Price</u>

LESSEE'S CLOSING CERTIFICATE

Re: Equipment Lease Purchase Agreement dated as of _____, between the State of Hawaii, by the Department of Budget and Finance, as lessee ("Lessee"), and _____, as lessor ("Lessor") (the "Agreement")

I, the undersigned, the duly appointed, qualified and acting _____ **(authorized officer)** of the above-captioned Lessee do hereby certify as of _____, as follows:

(1) The Comptroller of the State of Hawaii has, in accordance with all requirements of law, approved and authorized the execution and delivery of the above-referenced Agreement and the related escrow agreement, if any, on behalf of Lessee by the following named representative of Lessee:

Printed Name	Title	Signature
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[The above signature line to be signed by person who executed the Equipment Lease Purchase Agreement and the escrow agreement, if any, on behalf of Lessee.]

(2) The above-named representative of Lessee held at the time of such authorization and holds at the present time the office designated above and the signature set forth opposite his or her name is the true and correct specimen of his or her genuine signature.

(3) The representative of Lessee named in (1) above and the officers or employees of Lessee from time to time holding the offices or titles set forth below were designated as authorized representatives of Lessee for the Agreement and the escrow agreement, if any (any of them acting alone), and each of the persons listed below is the current holder of the office or title indicated and the signature set forth opposite name of each of them is the true and correct specimen of his or her genuine signature:

<u>Title</u>	<u>Printed Name</u>	<u>Signature</u>

(4) Attached hereto is evidence of the approval of the Comptroller referred to in (1) above.

(5) No event or condition that constitutes, or with the giving of notice or the lapse of time or both would constitute, an Event of Default (as such term is defined in the Agreement) exists at the date hereof.

(6) All insurance required in accordance with the Agreement is currently maintained by Lessee.

(7) Lessee has, in accordance with the requirements of law, fully budgeted and appropriated sufficient funds for the current fiscal year to make the Rental Payments scheduled to come due during the Original Term and to meet its other obligations for the Original Term (as such terms are defined in the Agreement), and such funds have not been expended for other purposes.

(8) There is no proceeding pending or threatened in any court or before any governmental authority or arbitration board or tribunal that, if adversely determined, would adversely affect the transactions contemplated by the Agreement or the interest of Lessor or its assigns, as the case may be, in the Equipment.

(9) The Equipment has not been the subject of a referendum that failed to receive the approval of the voters of Lessee within the preceding four years.

(10) [Lessee initial here if this provision is applicable: _____]

[Lessee initial here if this provision is NOT applicable: _____]

Lessee hereby designates this Agreement as a “qualified tax-exempt obligation” as defined in Section 265(b)(3)(B) of the Code. The aggregate face amount of all tax-exempt obligations (excluding private activity bonds) issued or to be issued by Lessee and all subordinate entities thereof during the Issuance Year is not reasonably expected to exceed \$30,000,000. Lessee and all subordinate entities thereof will not issue in excess of \$30,000,000 of qualified tax-exempt obligations (including this Agreement but excluding private activity bonds) during the Issuance Year without first obtaining an opinion of nationally recognized counsel in the area of tax-exempt municipal obligations acceptable to Lessor that the designation of this Agreement as a “qualified tax-exempt obligation” will not be adversely affected.

(11) The correct billing address for Rental Payments is as follows:

IN WITNESS WHEREOF, I hereunto set my hand and the seal of the governing body of Lessee the day and year first above written.

Signature of [authorized official]

Printed or typewritten title and name

Subscribed and affirmed before me this ____ day of _____, _____.

Signed: _____

My commission expires: _____

(NOTARY SEAL)

Notary Certificate: _____

**ATTACHMENT TO
LESSEE'S CLOSING CERTIFICATE
COPY OF AUTHORIZATION DOCUMENT
(per Section 4)**

[OPINION OF COUNSEL—PLEASE FURNISH ON ATTORNEY’S LETTERHEAD]

Date

NAME OF LESSOR: _____

ADDRESS: _____

Re: Equipment Lease Purchase Agreement dated as of _____
between the State of Hawaii, by the Department of Budget and
Finance, as lessee (“Lessee”), and _____ as lessor
 (“Lessor”) (the “Agreement”)

Ladies and Gentlemen:

As legal counsel to Lessee, I have examined (a) an executed counterpart of the Agreement, which, among other things, provides for the lease by Lessee from Lessor of the Equipment, (b) an executed counterpart of the Escrow Agreement, dated as of _____ (the “Escrow Agreement”), among Lessor, Lessee and _____, as Escrow Agent, (c) an executed counterpart of the [Name of Energy Savings Contract], dated _____, __, (the “Energy Savings Contract”), between Lessee and [Name of Energy Savings Contractor], and (d) such other opinions, documents and matters of law as I have deemed necessary in connection with the following opinions.

Based on the foregoing, I am of the following opinions:

1. Lessee has a substantial amount of one or more of the following sovereign powers: (a) the power to tax, (b) the power of eminent domain, and (c) police power.
2. Lessee has the requisite power and authority to purchase the Equipment and to execute and deliver the Agreement, the Escrow Agreement and the Energy Savings Contract and to perform its obligations under the Agreement, the Escrow Agreement and the Energy Savings Contract.
3. The Agreement, the Escrow Agreement and the Energy Savings Contract and the other documents either attached thereto or required therein have been duly authorized, approved and executed by and on behalf of Lessee, and the Agreement, the Escrow Agreement and the Energy Savings Contract are valid and binding obligations of Lessee enforceable in accordance with their respective terms.
4. The authorization, approval and execution of the Agreement, the Escrow Agreement and the Energy Savings Contract and all other proceedings of Lessee relating to the transactions contemplated thereby have been performed in accordance with all

open meeting laws, public bidding laws and all other applicable state and federal laws, including without limitation [Describe applicable Energy Savings Statute].

5. There is no proceeding pending or threatened in any court or before any governmental authority or arbitration board or tribunal that, if adversely determined, would adversely affect the transactions contemplated by the Agreement, the Escrow Agreement and the Energy Savings Contract or the security interest of Lessor or its assigns, as the case may be, in the Equipment.

6. The Equipment to be leased pursuant to the Agreement constitutes personal property and when subjected to use by Lessee will not be or become a fixture under applicable law.

All capitalized terms herein will have the same meanings as in the Agreement. Lessor, its successors and assigns and any counsel rendering an opinion on the exclusion of the interest components of Rental Payments from gross income for purposes of federal income taxation are entitled to rely on this opinion.

Very truly yours,

ESCROW AGREEMENT

LESSOR:

ESCROW AGENT:

LESSEE: STATE OF HAWAII by the Department of Budget and Finance
[Address of Lessee]

THIS ESCROW AGREEMENT (this “Escrow Agreement”) dated _____, is entered into by and among _____, the State of Hawaii, by the Department of Budget and Finance (“Lessee”), and _____ (the “Escrow Agent”).

Lessor and Lessee have heretofore entered into that certain Equipment Lease Purchase Agreement dated _____, _____, (the “Agreement”). The Agreement contemplates that certain Equipment described therein (the “Equipment”) is to be acquired from the vendor(s) or manufacturer(s) thereof.

After acceptance of the Equipment by Lessee, the Equipment is to be leased by Lessor to Lessee pursuant to the terms of the Agreement.

The Agreement contemplates that Lessor will deposit with the Escrow Agent cash in the amount of \$[Principal Amount], to be held in escrow by the Escrow Agent and applied on the express terms and conditions set forth herein. Such deposit, together with all interest and additions received with respect thereto (hereinafter, the “Escrow Fund”), is to be applied from time to time to pay the vendor(s) or manufacturer(s) of the Equipment its invoice cost (a portion of which may, if required, be paid prior to final acceptance of the Equipment by Lessee).

The parties desire to set forth the terms on which the escrow is to be created and to establish the rights and responsibilities of the parties hereto.

NOW, THEREFORE, the parties agree as follows:

1. The Escrow Agent hereby agrees to serve as escrow agent upon the terms and conditions set forth herein. The Escrow Agent agrees that the Escrow Fund shall be held irrevocably in trust for the account and benefit of Lessee and Lessor and all interest earned with respect to the Escrow Fund shall accrue to the benefit of Lessee and shall be applied as expressly set forth herein.

To the limited extent required to perfect the security interest granted by Lessee to Lessor in the cash and negotiable instruments from time to time comprising the Escrow Fund, Lessor hereby appoints the Escrow Agent as its security agent, and the Escrow Agent hereby accepts the appointment as security agent, and agrees to hold physical possession of such cash and negotiable instruments on behalf of Lessor.

2. On such day as determined to the mutual satisfaction of the parties (the “Commencement Date”), Lessor shall deposit with the Escrow Agent cash in the amount of \$[Principal Amount] to be held by the Escrow Agent on the express terms and conditions set forth herein. The Escrow Agent agrees to accept the deposit of the Escrow Fund by Lessor, and further agrees to hold the amount so deposited together with all interest and other additions received with respect thereto in escrow on the express terms and conditions set forth herein.

3. The Escrow Agent shall at all times segregate the Escrow Fund into an account maintained for that express purpose, which shall be clearly identified on the books and records of the Escrow Agent as being held in its capacity as Escrow Agent. Securities and other negotiable instruments comprising the Escrow Fund from time to time shall be held or registered in the name of the Escrow Agent (or its nominee). The Escrow Fund shall not, to the extent permitted by applicable law, be subject to levy or attachment or lien by or for the benefit of any creditor of any of the parties hereto (except with respect to the security interest therein held by Lessor).

4. The cash comprising the Escrow Fund from time to time shall be invested by the Escrow Agent in such Qualified Investments (as hereinafter defined) in accordance with the written investment directions of Lessee. Interest or other amounts earned and received by the Escrow Agent with respect to the Escrow Fund shall be deposited in and comprise a part of the Escrow Fund. No investment shall be made that would cause the Agreement to be deemed to be an arbitrage bond within the meaning of Section 148(a) of the Internal Revenue Code of 1986, as amended.

For the purpose of this paragraph 4, the term “Qualified Investments” means, to the extent the same are at the time legal for investment of the funds being invested: (i) money market funds, whose investment parameters target investments in (a) direct general obligations of the United States of America; (b) obligations, the timely payment of the principal of and interest on which is fully and unconditionally guaranteed by the United States of America; or (c) general obligations of the agencies and instrumentalities of the United States of America acceptable to Lessor; (ii) money market funds or other interest bearing demand/depository accounts provided by an affiliate of Lessor, appropriately collateralized if required by the laws of the State of Hawaii; or such other investments permitted by a policy duly adopted by Lessee’s governing body and approved by Lessor.

5. Lessor and Lessee hereby authorize the Escrow Agent to take the following actions with respect to the Escrow Fund:

a. From time to time, the Escrow Agent shall pay the vendor or manufacturer of the Equipment or Lessee upon receipt of the following: (a) a duly executed Certificate of Acceptance and Payment Request in the form attached as **Exhibit E** to this Escrow Agreement, (b) the vendor(s) or manufacturer(s) invoice(s) specifying the acquisition price of the Equipment described in the requisition request, and (c) any additional documentation required by Lessor. Lessor shall not approve any such payment unless and until Lessee shall have provided to Lessor (i) payment and performance bonds naming Lessor as a dual obligee and issued by a surety company rated "A" or better by AM Best, and (ii) written evidence satisfactory to Lessor that Lessee has expended from other available sources at least \$_____ on the energy savings project as to which the Equipment constitutes a part.

b. In the event that Lessor provides to the Escrow Agent written notice of the occurrence of an Event of Default or a nonappropriation by Lessee under the Agreement, the Escrow Agent shall thereupon promptly remit to Lessor the entire balance of the Escrow Fund.

c. Upon receipt by the Escrow Agent of a duly executed Certificate of Acceptance and Payment Request identified as the final such request, the remaining monies in the Escrow Fund shall, *first* be applied to all reasonable fees and expenses incurred by the Escrow Agent in connection herewith as evidenced by its statement forwarded to Lessor and Lessee; and, *second* be paid to Lessor, for application against the outstanding principal components of Rental Payments (as defined in the Agreement) under the Agreement, as provided therein, unless Lessor directs that payment of such amount be made in such other manner directed by Lessor that, in the opinion of nationally recognized counsel in the area of tax-exempt municipal obligations satisfactory to Lessor, will not adversely affect the exclusion of the interest components of Rental Payments from gross income for federal income tax purposes. If any such amount is used to prepay principal, the Payment Schedule attached to the Agreement will be revised accordingly as specified by Lessor.

6. The reasonable fees and expenses of the Escrow Agent incurred in connection herewith shall be the responsibility of Lessor and are herein defined as the sum of \$_____, for escrow services as described herein; plus any extraordinary expenses incurred by the Escrow Agent at the request of Lessor or Lessee.

7. The Escrow Agent shall have no liability for acting upon any written instruction presented by Lessee and Lessor in connection with this Escrow Agreement which the Escrow Agent in good faith believes to be genuine. Furthermore, the Escrow Agent shall not be liable for any act or omission in connection with this Escrow Agreement except for its own gross negligence, willful misconduct or bad faith. The Escrow Agent shall not

be liable for any loss or diminution in value of the Escrow Fund as a result of the investment decisions made pursuant to Section 4, Qualified Investments at the direction of Lessee.

8. To the extent authorized by law, Lessee hereby agrees to indemnify and save the Escrow Agent harmless against any liabilities which it may incur in the exercise and performance of its powers and duties hereunder and which are not due to the Escrow Agent's gross negligence or willful misconduct. No indemnification will be made under this Section or elsewhere in this Escrow Agreement for damages arising solely out of gross negligence, willful misconduct or bad faith by the Escrow Agent, its officers, agents, employees, successors or assigns.

9. The Escrow Agent may at any time resign by giving at least 30 days' prior written notice to Lessee and Lessor, but such resignation shall not take effect until the appointment of the successor Escrow Agent. The substitution of another bank or trust company to act as Escrow Agent under this Escrow Agreement may occur by written agreement of Lessor and Lessee. In addition, the Escrow Agent may be removed at any time, with or without cause, by instrument in writing executed by Lessor and Lessee. Such notice shall set forth the effective date of the removal. In the event of any resignation or removal of the Escrow Agent, a successor Escrow Agent shall be appointed by an instrument in writing executed by Lessor and Lessee. Such successor Escrow Agent shall indicate its acceptance of such appointment by an instrument in writing delivered to Lessor, Lessee and the predecessor Escrow Agent.

Upon the effective date of resignation or removal, the Escrow Agent will transfer the Escrow Fund then held by it to the successor Escrow Agent selected by Lessor and Lessee.

10. This Escrow Agreement and the Escrow Fund established hereunder shall terminate upon receipt by the Escrow Agent of the written notice from Lessor specified in Section 5(b) or Section 5(c) hereof.

11. All notices hereunder shall be in writing, sent by certified mail, return receipt requested, or by mutually recognized overnight carrier addressed to the other party at its respective address shown on page 1 of this Escrow Agreement or at such other address as such party shall from time to time designate in writing to the other parties; and shall be effective on the date of receipt.

12. This Escrow Agreement shall inure to the benefit of and shall be binding upon the parties hereto and their respective successors and assigns. No rights or obligations of the Escrow Agent under this Escrow Agreement may be assigned without the prior written consent of Lessor and Lessee.

13. This Escrow Agreement constitutes the entire agreement between the parties hereto with respect to the subject matter hereof, and no waiver, consent, modification or change of terms hereof shall bind any party unless in writing signed by all parties.

14. The Escrow Agent may employ agents, attorneys and accountants in connection with its duties hereunder and shall not be liable for any action taken or omitted in good faith in accordance with the advice of counsel, accountants or other skilled persons.

15. This Escrow Agreement shall be governed by and be construed and interpreted in accordance with the internal laws of the State _____.

[Remainder of Page Intentionally Left Blank]

IN WITNESS WHEREOF, the parties hereto have caused this Escrow Agreement to be duly executed under seal as of the day and year first above set forth.

LESSOR: _____

By: _____

Name: _____

Title: _____

LESSEE: STATE OF HAWAII, by the Department of Budget and Finance

By: _____

Name: _____

Title: _____

ESCROW AGENT: [NAME OF ESCROW AGENT]

By: _____

Name: _____

Title: _____

By: _____

Name: _____

Title: _____

EXHIBIT E

CERTIFICATE OF ACCEPTANCE AND PAYMENT REQUEST

_____ (the "Escrow Agent"), as escrow agent under that certain Escrow Agreement dated _____, (the "Escrow Agreement"), by and among the State of Hawaii, by the Department of Budget and Finance ("Lessee"), _____ ("Lessor") and the Escrow Agent, is hereby requested to pay from the Escrow Fund established and maintained thereunder, the amount set forth below to the named payee(s). The amount shown is due and payable under a purchase order or contract (or has been paid by and not previously reimbursed to Lessee). The equipment described below is part or all of the Equipment listed in the Equipment Schedule to that certain Equipment Lease Purchase Agreement dated _____ (the "Agreement"), between Lessor and Lessee:

QUANTITY	DESCRIPTION OF UNITS OF EQUIPMENT	AMOUNT	PAYEE
----------	--------------------------------------	--------	-------

Lessee hereby certifies and represents to and agrees with Lessor as follows with respect to the Equipment described above: (i) the Equipment has been delivered and installed at the location(s) set forth in the Equipment Schedule; (ii) a present need exists for the Equipment which need is not temporary or expected to diminish in the near future; (iii) the Equipment is essential to and will be used by Lessee only for the purpose of performing one or more governmental functions of Lessee consistent with the permissible scope of Lessee's authority; (iv) the estimated useful life of the Equipment based upon the manufacturer's representations and Lessee's projected needs is not less than the term of lease with respect to the Equipment; (v) Lessee has conducted such inspection and/or testing of the Equipment as it deems necessary and appropriate and hereby acknowledges that it accepts the Equipment for all purposes as of the date of this Certificate; (vi) the Equipment is covered by insurance in the types and amounts required by the Agreement; (vii) no Event of Default or nonappropriation, as such terms are defined in the Agreement, and no event which with the giving of notice or lapse of time or both, would become an Event of Default or nonappropriation, has occurred and is continuing on the date hereof; (viii) sufficient funds have been appropriated by Lessee for the payment of all rental payments due under the Agreement during Lessee's current fiscal year.

Based on the foregoing, Lessor is hereby authorized and directed to fund the acquisition of the Equipment set forth in the Lease by paying, or causing to be paid, the manufacturer(s)/vendor(s) the amounts set forth on the attached invoices from the Escrow Fund held under the Escrow Agreement in accordance with its terms.

The following documents are attached hereto and made a part hereof: (a) Original Invoice(s); and/or (b) Copies of Certificate(s) of Origin, when applicable, designating Lessor as lienholder if any part of the Equipment consists of motor vehicles, and evidence of filing.

IF REQUEST IS FOR REIMBURSEMENT, CHECK HERE . Lessee paid an invoice prior to the commencement date identified in the Equipment Schedule and is requesting reimbursement for such payment, a copy of evidence of such payment together with a copy of Lessee's Declaration of Official Intent and other evidence that Lessee has satisfied the requirements for reimbursement set forth in Treas. Reg. 1.150-2 is hereby attached.

IF REQUEST IS FINAL REQUEST, CHECK HERE . Lessee hereby certifies that the items of Equipment described above, together with the items of Equipment described in and accepted by Certificates of Acceptance and Payment Requests previously filed by Lessee with Lessor constitutes all of the Equipment subject to the Equipment Schedule.

Date: _____

Approved:

_____, as Lessor

STATE OF HAWAII, by the Department of
Budget and Finance, as Lessee

By: _____

By: _____

Name: _____

Name: _____

Title: _____

Title: _____

APPENDIX M

EVALUATION CHECKLIST FOR AGENCY REVIEW of the IGA

Check all boxes as appropriate and applicable

- Life cycle costing and internal rate of return were used to evaluate the proposed measures.
- An adequate sample of readings from data loggers or metered equipment was collected for modeling building energy consumption and to determine actual equipment operating conditions.
- Adequate data on maintenance costs, including labor, equipment repairs and equipment replacements was collected.
- Multiple years' worth of utility records, including meter read dates, kWh consumption, KW electricity demand data and any other utilities consumed (e.g. water) was collected and analyzed.
- All available architectural, mechanical and technical drawings were provided and reviewed.
- All available data from any existing building management systems was provided and reviewed.
- A comprehensive equipment and systems- type survey, which includes primary HVAC systems and secondary HVAC systems, as well as HVAC controls, was performed.
- A comprehensive survey of lighting systems with detailed data for lamps, ballasts, and operating hours was performed.
- All occupancy schedules in different zones were identified.
- Building operators were interviewed to evaluate current operating practices and existing problems with the building operating equipment.
- Weather data for time periods matched to utility bill data was collected.
- Existing systems were evaluated to confirm whether they meet minimum code performance standards and whether proposed measures will require changes in design to conform to minimum performance standards.

- Existing equipment and systems current operating efficiencies have been accurately analyzed.
- Existing equipment has been evaluated to confirm it is properly sized for the loads being served.
- Existing control strategies, e.g., staged start-up of major equipment have been evaluated?
- Any significant problems there may have been with air flow and/or humidity control have been evaluated.
- The most serious building operating problems have been identified based on interviews with site personnel.
- All available non-energy benefits savings are clearly defined.
- Baseline operating conditions have been accurately specified e.g., light levels, temperatures, air flow rates, etc.
- Accurately specified marginal utility rates are used for the valuation of utility savings.
- Baseline conditions (e.g., light levels, temperatures, etc.) have been accurately described.
- The sampling strategy is statistically adequate and has been completely described for large inventories of similar equipment.
- The interactive effect of the proposed energy-conserving measures has been adequately accounted for.
- Reductions in coincident peak demand have been properly analyzed.
- All assumptions related to savings calculations have been completely described.
- The short-term measurement equipment that was used to collect field data for the IGA has been identified.
- Current facility maintenance practices have been evaluated.

- The percentage of estimated energy savings actually being measured vs. stipulated based on calculations is _____%
- A breakdown of the project savings by individual ECM has been provided.
- An estimate of the value of utility rebates applicable to the measures proposed for this project has been calculated.
- The projected annual utility escalation rate used for the purpose of developing the projected cash flow is reasonable.
- Measures that will require trend log data for purposes of monitoring savings performance have been identified.
- Runtime meters or data loggers have been used to accurately determine hours of operation for motors and HVAC components.-
- The proposed approach to evaluating and resolving power factor and power quality problems in the internal electrical distribution system has been described.
- A comprehensive, whole-system approach for evaluating available energy conservation measures has been used.
- Sample calculations indicate where the data came from, how it was collected and what assumptions were used; the equations are presented in a clear, well-defined form.
- The total square footage of any areas which are part of the project has been calculated.
- All of the utility meters where it is estimated the consumption will be affected by the energy conservation measures are clearly identified.
- Methods for the development of cost estimates for the implementation of the specific energy conservation measures have been described.
- The reliability of the proposed materials and equipment has been specified.
- Warranties for the proposed materials and equipment have been defined.

APPENDIX N

COMPARISON OF ECONOMICS OF CONVENTIONAL AND EPC PROJECT DELIVERY METHODS

Conventional Design-Bid-Build	Energy Performance Contracting (EPC)	Economic Advantage of Using EPC Over Conventional
Lowest first cost; focus on short-term project analysis (e.g., simple payback)	Lowest life-cycle cost; considers investment costs, O&M costs, energy costs, equipment replacement costs, financing costs, excess energy consumption before project is installed, and salvage value	Using a short-term, conventional analysis perspective rejects energy conservation measures with attractive internal rates of return.
Six (6) years to deliver a comprehensive energy efficiency project	Three (3) years to deliver a comprehensive energy efficiency project	Avoiding the cost of delay of a project for three years can reduce total project costs by 10-15%.
Appropriations-funded projects use debt financing that adds to the state debt. Delay of access to financing runs the risk of higher interest rates. No state has enough appropriated funds to pay cash for all of their cost-effective energy efficiency projects. The discrepancy between available appropriations and available cost-effective energy resources continues to grow, with no signs of abating in the foreseeable future.	Quick access to tax-exempt financing allows agencies to pay for energy projects without having to wait for capital appropriations	A 1% increase in interest rates could increase total project costs by 10% over an 18-year contract term.
Multiple contracts with multiple vendors can result in conflicting project requirements and higher administrative costs.	One contract with single-point accountability for project performance can reduce project conflicts and lower administrative costs.	Estimated reductions in total project costs can be between 5-10%.
Utility savings are not guaranteed and can erode over time.	Long-term utility savings are guaranteed and monitored by the ESCO.	Increased utility savings over the contract term can be between 5-10%
Incremental project implementation misses synergistic savings design	Comprehensive and integrated project design analysis maximizes savings	Estimated increase in annual savings as much as 5%

Conventional Design-Bid-Build	Energy Performance Contracting (EPC)	Economic Advantage of Using EPC Over Conventional
optimization opportunities.	opportunities.	
Due to lack of performance guarantee, there is a significant risk of underfunding project maintenance. Lower quality maintenance increases the risk of equipment failure.	Utility savings and maintenance performance monitoring reduces the risk of underfunding key maintenance requirements. Higher quality maintenance can extend equipment life.	Estimated increase in annual savings of 5-10%
Defensive designs lead to oversizing of equipment and wasted energy consumption	Focuses on optimizing performance leads to the right sizing of equipment design in order to maximize efficiency.	Better matching of equipment sizing to equipment loads, resulting in more efficient equipment operations
Limited agency staff or lack of expertise increases the risk of poor project performance.	ESCOs provide ongoing technical experience, training and support for agency staff to ensure project performance.	Estimated increase in annual savings of 15%
Some short-term O&M savings result from the installation of new equipment	Reduction of long-term maintenance costs due to a more comprehensive, proactive maintenance approach	Reduction of long-term annual maintenance costs of 10-15%

APPENDIX O

ECONOMIC EVALUATION OF OPERATION AND MAINTENANCE SAVINGS

The purpose of this appendix is to provide guidance on identifying, quantifying and documenting operations and maintenance (O&M) cost avoidance in an energy performance contract. O&M cost avoidance are the costs that are avoided as a result of the implementation of new energy efficient equipment or the use of maintenance services provided by the ESCO. O&M cost avoidance may constitute a significant portion of a project's total annual savings. Despite its economic value, O&M cost avoidance is often included only on a limited basis in ESCO projects. One reason is the lack of resources (e.g. staff time, budget, data etc.) available for the development of an accurate O&M cost baseline. Another reason is the lack of available data to fully document existing O&M costs.

Energy-related O&M cost avoidance is produced by improving the operational efficiency of the equipment and by eliminating or reducing equipment maintenance costs. Economic estimates of the potential energy-related O&M cost avoidance in a typical building range between 5% and 30%. In addition to quantifiable O&M cost avoidance associated with an improved O&M strategy, additional benefits may be realized, including more reliable equipment operation, safer equipment operation and extended equipment life.

Some of the energy efficiency measures with O&M cost avoidance potential include, but are not limited to, the following:

- Lighting system upgrades
- Water treatment on central plants
- Chiller replacements
- Terminal HVAC equipment
- High-efficiency motors
- Updated building control systems

Some examples of O&M cost avoidance that can be quantified and are typically included in EPC project savings are the following:

- Equipment replacement reduces future capital project costs
- Decreased costs of equipment repair
- Decreased cost to maintain equipment due to reduced equipment runtime

- Elimination or replacement of old O&M contracts
- Reduction in the cost of replacement parts
- Reduced in-house overtime hours
- Reduced inventory costs due to the standardization of equipment
- Increased facility staff productivity due to a reduction in occupant complaints

Some O&M savings which are often not included in project savings analyses of cost avoidance are:

- Reduction of in-house labor costs
- Extended equipment life

In order to calculate O&M cost avoidance, it is necessary to evaluate typical O&M costs over at least a three-year period because a single year cost baseline can significantly over- or under- estimate normal O&M cost expenditures. The O&M baseline needs to be developed from the documented O&M expenditures of the agency. The agency should review the estimated cost of their current maintenance backlog and any current funds allocated to address the backlog. The agency should review current maintenance tasks and equipment control strategies actually being performed. The O&M cost baseline should include only those expenditures that the ESCO project will directly impact, not all facility O&M costs.

Sources of documentation for O&M costs include the following:

- Historical data on the cost of parts and commodity (e.g. lubricating oil) for the equipment included in the project, based on agency records
- Historical facility staff labor hours for maintaining equipment included in the project, based on work orders or time sheet systems
- Historical external service contracts and outsourced time and materials for maintenance and repairs for equipment that is affected by or included in the project
- Estimated capital budgets for the replacement of equipment that is included in the project, based on agency capital budget requests and/or estimates or bids from contractors

The best way to establish avoided labor costs is to identify documentation in which labor and materials are broken out for each maintenance work item. Using this type of detailed data, potential labor reductions for O&M on any specific piece of equipment included in the project may not qualify as actual cost avoidance. Fixed facility labor expenses do not decrease, even though

the ability to assign maintenance staff to other tasks in the same facility increases maintenance productivity. As the data for the O&M baseline is collected by the owner, the source of each item of data should be documented as specifically as possible so that the baseline can be reviewed at any time during the term of the contract. The effort involved in this documentation may seem unnecessary during project development, but it can be invaluable in resolving questions that may arise several years into the contract performance period. Ideally, the agency should make copies of all relevant documents in the project file in case original records are moved or lost. For some projects, adequate documentation of historical O&M costs may not be readily available. In these cases, the agency and the ESCO should document, in writing, the fact that available historical data are limited. If the agency and ESCO agree, estimates of historical maintenance costs, based on data from authoritative sources such as R.S. Means, may be substituted for historical data. The sources of these estimates of O&M costs should be documented and accepted, in writing, by the agency and the ESCO.

There may also be specific cases for which the process of developing O&M cost avoidance is not cost effective. In these instances, the agency and ESCO may choose to stipulate to use reasonable and conservative estimates of cost avoidance. The use of stipulated O&M cost avoidance should be used selectively. The documentation of historical baseline O&M expenditures is used to calculate the project O&M baseline. For most projects, this calculation is the simple addition of the different types of O&M cost expenditures associated with each energy conservation measure in the project. The baseline calculations must be described and documented adequately so that it is transparent enough to allow a third party unfamiliar with the project, at some future date, to review the data and calculations and arrive at the same baseline O&M costs. Baseline calculations should also contain an appendix that describes any adjustment factors for the O&M cost baseline that the agency and the ESCO agree to use, either for a defined period or for the full term of the project, in calculating the O&M cost avoidance.

Examples of adjustment factors include:

- Identification of key variables affecting O&M costs (e.g. equipment run times)
- Specific descriptions of how the agency's O&M expenditures will directly be reduced by implementation of each project ECM
- Definition of the project's O&M performance standard as defined by the GES contract
- Changes in facility maintenance staff hourly labor costs

- Inflation factor to be applied for future purchases of maintenance parts and commodities

Since baseline cost data will be adjusted, the reasoning and methodology for the adjustment should be carefully documented. Annual reviews of O&M cost data should be a part of project performance monitoring to account for anomalies that can result in significant increases or decreases in expected cost avoidance. It is important to clearly define the obligations of the agency and the ESCO in terms of recordkeeping, access to accounting records, notification responsibilities and the annual O&M cost accounting. Any adjustment to O&M savings calculations should be documented so that they can be reviewed by independent third parties in the future.

Some examples of documentation adjustments could include the following:

- Identification and explanation of any key variables which affect the value of cost avoidance (e.g. trend log data)
- Date and time of on-site verification activities
- Review of the contractual standards of O&M to be performed by the agency and the ESCO

Some examples of cost reductions from O&M improvements include:

- Improved equipment scheduling
- Improved control setpoints
- Improved trend logging of historical equipment performance
- Improved condition-based maintenance
- Improved monitoring of equipment systems
- Reduced inventory costs due to standardized equipment and materials
- Reduced service calls to contractors
- Fewer problems and complaints, resulting in more time available for agency staff to complete other maintenance tasks

Some challenges to quantifying O&M cost avoidance:

- Some O&M savings may require a long period of monitoring to evaluate their benefits.
- There may be trade-offs between reduced O&M costs and occupant preferences for comfort (e.g. temperature setpoints).
- Impacts on O&M costs are not confined to specific equipment, but may be impacted by the larger equipment and control systems of which they are a part (e.g. variable frequency drives control of fans).

- It is important to define existing facility standards for satisfactory operation (e.g., airflow rates, lighting levels, temperature, etc.).

Some of the impacts of ESCO projects may include:

- The need for a more expensive O&M service agreement as a result of the measurement and verification method selected by the agency
- Operational improvements in existing agency procedures to fully realize project energy savings; ongoing operational support for energy management systems
- The need for a computerized maintenance management system to be integrated with the energy management system.
- Implementation of a continuous commissioning program which requires agency support
- The establishment of a repair and replacement fund and parts inventory to reduce delays in equipment maintenance and repair

Some of the benefits of an effective O&M strategy include:

- Improved service levels for building occupants
- Improved agency staff skill levels and morale
- Optimized equipment performance
- Improved decision making about equipment replacement needs
- Reduced overtime costs
- Better understanding of facility operation
- Better compliance with building codes
- Increased productivity of maintenance efforts
- Improved safety records
- Fewer equipment failures and less equipment downtime
- Increased property value from a more effective O&M strategy

Some of the challenges to achieving O&M cost avoidance include:

- Inadequate documentation regarding the equipment systems and procedures
- Agency staff indifference and lack of motivation
- Inadequate or poorly-designed training programs for agency staff
- Views by management of maintenance as a cost center rather than as a reliability function that maximizes facility performance
- Inadequate tracking system for monitoring O&M data
- Having a “first cost” rather than a life cycle cost approach to evaluating O&M costs

- A lack of clear performance metrics (e.g. specification of required maintenance tasks)
- Focusing on fixing symptomatic problems rather than curing the root cause of the building performance problem.
- Facility changes to building occupancy and schedules

Lessons learned from efforts to quantify O&M savings:

- Agency's decision to commit funds from O&M budgets towards project payments has a long term budget impact and must be documented adequately to educate future agency staff on the project.
- Maintenance should be condition-based to the degree possible, relying on measured performance parameters (e.g. runtime, vibration, ultrasonic testing).
- Agency staff should be provided frequent and timely feedback on equipment performance so they can effectively refine and target their maintenance efforts.
- A risk-benefit approach should be used to evaluate the benefits of avoided O&M costs.
- Using green sustainable O&M strategies, consistently lowers future maintenance costs (e.g. integrated pest management, recycling).
- O&M budget baselines must be based on actual agency expenditures for affected project areas over a multi-year time period.

APPENDIX P

EVALUATION CRITERIA FOR PROJECT FINANCE PROPOSALS

- **Expertise and experience in energy project financing**
- **Legal documentation expertise**
- **Strong balance sheet**
- **Competitive finance rates**
- **Fast processing**
- **Offer of extended rate locks**
- **Capable of funding large projects (\$50 million or more)**
- **Willing to finance for 20 years**
- **Flexibility of financing method to fund project soft costs**
- **Nature of the security interest in the equipment**
- **Direct provider of financing capital for the project**
- **Size of transaction cost fees for placing the financing (e.g., underwriter counsel fees)**
- **Length of lock-out period for pre-payment of the project**
- **Size of the pre-payment penalty**
- **Flexibility with regard to the payment intervals and the amortization schedule**
- **Potential impact on agency future borrowing capacity**
- **Any costs associated with deal rating fees**
- **Liability and property damage insurance coverage**